Towards best practices in project management: Profiling Professional Excellence in Identifying and Acting on Early Warning Signs in Complex Projects within a Russian Context

Gulnara Sharaborova

School of Property Construction and Project Management
College of Design and Social Context
RMIT University

March 2014
Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis/project is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Gulnara Sharaborova

March 2014
ACKNOWLEDGEMENTS

I would like to thank my supervisor Professor Derek Walker. He supported me within the seven years of this research journey. I thank him for the guidance, motivation, encouragement towards this thesis submission. I would especially appreciate his time invested when I needed the Skype conversation, his prompt response for the draft chapters, provided feedback for the conference presentations. Thank you.

Dr. Guinevere Gilbert, my second supervisor, helped me a lot providing the recommendations, sharing the experience, intuiting the moments I needed to be advised.

In addition, I would like to thank the experts of the P2M (Project and Program Management for Enterprise Innovation) community of practice (CoP) Dr. Hiroshi Tanaka and Dr. Sergey Bushuev for their wisdom, sharing useful books and papers. This thesis report is also benefited from the extensive contribution of the Russian community of practice who took part as the respondents in this study.

I am grateful to Marina for her interest and technical support. I also appreciate the support of my husband Valery, my sister Saule and the whole family (Aliya, Merey, Timur, Julia) for their emotional and technical support.
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>Alliance Manager</td>
</tr>
<tr>
<td>Ba</td>
<td>A shared space for emerging relationships</td>
</tr>
<tr>
<td>CCM</td>
<td>Constant Comparative Method</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CMM</td>
<td>Capability Maturity Model</td>
</tr>
<tr>
<td>CoP</td>
<td>Community of Practice</td>
</tr>
<tr>
<td>DPM</td>
<td>Doctor of Project Management</td>
</tr>
<tr>
<td>EQ</td>
<td>Emotionality Quotient</td>
</tr>
<tr>
<td>ESSs</td>
<td>Early Success Signs</td>
</tr>
<tr>
<td>EWSs</td>
<td>Early Warning Signs</td>
</tr>
<tr>
<td>G12</td>
<td>Gallup 12 questions feedback system</td>
</tr>
<tr>
<td>GLOBE</td>
<td>Global Leadership and Organizational Behavior Effectiveness</td>
</tr>
<tr>
<td>ICB</td>
<td>IPMA Competence Baseline</td>
</tr>
<tr>
<td>ICCPM</td>
<td>International Centre for Complex Project Management</td>
</tr>
<tr>
<td>IPMA</td>
<td>International Project Management Association</td>
</tr>
<tr>
<td>IQ</td>
<td>Intelligence Quotient</td>
</tr>
<tr>
<td>ITIL</td>
<td>Information Technology Infrastructure Library</td>
</tr>
<tr>
<td>KM</td>
<td>Knowledge Management</td>
</tr>
<tr>
<td>MLQ</td>
<td>Multifactor Leadership Questionnaire</td>
</tr>
<tr>
<td>NCB</td>
<td>National Competence Baseline</td>
</tr>
<tr>
<td>NCTP</td>
<td>Novelty, Complexity, Technology, and Pace</td>
</tr>
<tr>
<td>OGC</td>
<td>Office of the Government Commerce</td>
</tr>
<tr>
<td>OPM3</td>
<td>Organizational Project Management Maturity Model</td>
</tr>
<tr>
<td>P2M</td>
<td>Project and Program Management for Enterprise Innovation</td>
</tr>
<tr>
<td>PFP</td>
<td>Request for Proposal</td>
</tr>
<tr>
<td>PM</td>
<td>Project Management</td>
</tr>
<tr>
<td>PMAJ</td>
<td>Project Management Association of Japan</td>
</tr>
<tr>
<td>PMCDF</td>
<td>Project Management Competency Development Framework</td>
</tr>
<tr>
<td>PMI</td>
<td>Project Management Institute</td>
</tr>
<tr>
<td>PMM</td>
<td>Project Management Maturity Model</td>
</tr>
<tr>
<td>PMO</td>
<td>Project Management Office</td>
</tr>
<tr>
<td>PMP</td>
<td>Project Management Professional</td>
</tr>
<tr>
<td>PR</td>
<td>Public Relations</td>
</tr>
<tr>
<td>PVM</td>
<td>Project Value Mindset</td>
</tr>
<tr>
<td>RFI</td>
<td>Request for Information</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>RMIT</td>
<td>Royal Management Institute of Technology</td>
</tr>
<tr>
<td>RPD</td>
<td>Recognition-Primed Decision</td>
</tr>
<tr>
<td>SSM</td>
<td>Soft System Methodologies</td>
</tr>
<tr>
<td>USSR</td>
<td>Union of Soviet Socialist Republics</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

1. **Chapter 1 Introduction** ........................................................................................................ 2
   1.1 Introductory paragraph ............................................................................................................ 2
   1.2 Background of the Problem .................................................................................................. 2
   1.3 Statement of the Problem ...................................................................................................... 5
   1.4 Purpose of the Study .............................................................................................................. 6
   1.5 Significance of the Study .................................................................................................... 6
   1.6 Research Questions and Hypotheses / propositions .............................................................. 7
   1.7 Conceptual or Substantive Assumptions ................................................................................. 7
   1.8 Research Stance and Design ............................................................................................... 8
   1.9 Limitations and Delimitations ............................................................................................. 11
   1.10 Expected contribution ........................................................................................................ 11
   1.11 Conclusion .......................................................................................................................... 12

2. **Chapter 2: Literature Review** ............................................................................................... 13
   2.1 Introduction ............................................................................................................................ 13
   2.2 Uncertainty ............................................................................................................................ 16
      2.2.1 Distinction of the risk from uncertainty ......................................................................... 16
      2.2.2 The Definition of Complexity ....................................................................................... 17
      2.2.3 Complexity Dimensions ............................................................................................... 18
      2.2.4 Concept of Early Warning Signs (EWSs) ...................................................................... 22
      2.2.5 The current practices related to detecting EWSs ........................................................... 23
   2.3 Relationship .......................................................................................................................... 26
      2.3.1 Project Relationships ..................................................................................................... 26
      2.3.2 Relationship management ............................................................................................ 26
      2.3.3 Shared Interests ............................................................................................................ 27
      2.3.4 Leadership from the Relationship perspective ............................................................... 27
      2.3.5 “Ba” as a shared space for emerging relationships ........................................................... 28
   2.4 Knowledge ............................................................................................................................. 28
      2.4.1 Knowledge ..................................................................................................................... 28
      2.4.2 Explicit and Tacit knowledge ........................................................................................ 28
      2.4.3 Best Practices and Pattern Form ................................................................................... 28
      2.4.4 Knowledge management ............................................................................................... 32
      2.4.5 Networking ................................................................................................................... 32
   2.5 Value ...................................................................................................................................... 32
      2.5.1 Value ............................................................................................................................... 32
      2.5.2 Value Management ........................................................................................................ 33
      2.5.3 Values appreciation ........................................................................................................ 33
      2.5.4 Historically Derived Values ............................................................................................ 34
      2.5.5 East and West Values ..................................................................................................... 34
Chapter 5: Conclusions and implications.................................................................... 186

4.1 Introduction ............................................................................................................ 78
4.2 Stage 1: Interviews ............................................................................................... 78

4.2.1 Purpose .............................................................................................................. 78
4.2.2 Participants ........................................................................................................ 79
4.2.3 System Approach Competence ........................................................................ 81
4.2.4 Considering Context Competence ..................................................................... 83
4.2.5 Modeling Competence ....................................................................................... 86
4.2.6 Conducting Assessments Competence .............................................................. 90
4.2.7 Considering Values Competence ....................................................................... 94
4.2.8 Learning Competence ...................................................................................... 97
4.2.9 Relationships Competence .............................................................................. 101
4.2.10 Leadership Competence ................................................................................ 103
4.2.11 Modifying the Research models of this Thesis ................................................ 107

4.3 Stage 2: Case studies ............................................................................................. 113

4.3.1 Purpose .............................................................................................................. 113
4.3.2 Participants ........................................................................................................ 113
4.3.3 Case Study 1 Artist Psychologist ...................................................................... 114
4.3.4 Case Study 2 Inappropriate Partners’ Behavior ................................................ 121
4.3.5 Case Study 3 Experience Overload .................................................................... 135
4.3.6 Case Study 4 Sticky Knowledge ....................................................................... 140
4.3.7 Case Study 5 Youth Camp Event ....................................................................... 145
4.3.8 Summary of Case Studies Findings ................................................................... 156

4.4 Stage 3: Focus Group ............................................................................................. 156

4.4.1 Purpose .............................................................................................................. 156
4.4.2 Participants ........................................................................................................ 156
4.4.3 Feedback of the Research Participants ............................................................... 157
4.4.4 Revisiting Case Studies to reflect on Crisis Management Competence ............ 161
4.4.5 Finalizing the Research models of this Thesis ................................................... 163

4.5 Addressing the Research Questions and Proposition ......................................... 165

4.5.1 Addressing the Research Question 1: The current practices on EWSs in Russia ... 165
4.5.2 Addressing the Research Question 2: The Essential Skills needed to mature project managers ... 172
4.5.3 Addressing the Research Question 3: Barriers to Reproducing Best Practices .... 179
4.5.4 Addressing the Research Proposition and Grounding the Findings .................... 181

4.6 Conclusion ............................................................................................................ 184

5. Chapter 5: Conclusions and implications ............................................................... 186

5.1 Concluding Comments ......................................................................................... 186
5.2 How specific to the Russian context are these findings really? .............................. 186
5.3 Future Directions of East and West Knowledge Fusion ....................................... 187
5.4 Areas for improvements for future researches ..................................................... 188
5.5 Contribution of this Research to the theory and practice ................................... 189
5.6 Chapter Conclusion ............................................................................................. 189
FIGURES

Figure 1-1 Doctoral Contribution (DPM program course materials by Derek Walker) ..........................................................3

Figure 2-1 Societal Culture Scale for Russia (GLOBE’s Findings) ..........................................................................................42

Figure 2-2 Cynefin framework by Snowden and Boone (2007). .............................................................................................51

Figure 2-3 Initial Version of the Competency model applied in this Thesis ...........................................................................55

Figure 2-4 Initial version of the System model for this Thesis .....................................................................................................56

Figure 4-1 interim version of Competency Model for this Thesis ......................................................................................................108

Figure 4-2 interim version of System Model for this Thesis ...........................................................................................................109

Figure 4-3 Seliger 2009 Classes for the Audience .........................................................................................................................146

Figure 4-4 Final Version of Competency for this Thesis .................................................................................................................163

Figure 4-5 Final Version of System model for this Thesis .............................................................................................................164
TABLES

Table 2-1: Papers Considered in the Literature Review ................................................................. 14
Table 2-2 Definition of the Level of the Project Complexity .......................................................... 18
Table 2-3 Dimensions of the Project Complexity based on the Literature Review ....................... 19
Table 2-4 Corresponding the Levels of Project’s Complexity and PM’s Competency .................... 52
Table 3-1: Papers Relevant to Research approach and Design ....................................................... 59
Table 3-2 Taking the Ontological and Epistemological perspectives this Research ....................... 60
Table 3-3 Theoretical Perspective and Methodologies relevant to this Research ............................ 61
Table 3-4 Decisions made for Designing this research ................................................................. 68
Table 3-5 Development of the Tools for Data Treatment and Interpretation ................................. 74
Table 3-6 Research Proposal and its Attachments ....................................................................... 77
Table 4-1 Interview Participants’ Data .......................................................................................... 79
Table 4-2 Key concepts on System Approach .............................................................................. 81
Table 4-3 System Approach Competence .................................................................................... 83
Table 4-4 Key concepts on Considering Context ........................................................................ 83
Table 4-5 Considering Context Competence ............................................................................... 86
Table 4-6 Key concepts on Modeling ......................................................................................... 87
Table 4-7 Modeling Competence ............................................................................................... 90
Table 4-8 Key concepts on Conducting Assessments .................................................................. 90
Table 4-9 Conducting Assessments Competence ....................................................................... 94
Table 4-10 Key concepts on Considering Values ......................................................................... 95
Table 4-11 Considering Values Competence .................................................................................................................................................. 96
Table 4-12 Key concepts on Learning .................................................................................................................................................. 97
Table 4-13 Learning Competence .................................................................................................................................................. 100
Table 4-14 Key concepts on Relationships ........................................................................................................................................ 101
Table 4-15 Relationships Competence ............................................................................................................................................... 103
Table 4-16 Key concepts on Leadership ........................................................................................................................................... 103
Table 4-17 Leadership Competence .................................................................................................................................................. 107
Table 4-18 Difference between the Loops by Argyris and Schön (1996) and this Thesis ............................................................... 111
Table 4-19 Case-studies: Participants’ Data ........................................................................................................................................ 113
Table 4-20 List of the Feedback providers at Focus group stage .................................................................................................. 157
Table 4-21 Feedback Outcomes on Research Findings ................................................................................................................ 157
Table 4-22 Key concepts on Crisis Management .............................................................................................................................. 161
Table 4-23 Project Manager’s Competency model to deal with EWSs ............................................................................................... 176
Table 4-24 Barriers reproducing Best Practices to deal with EWSs .................................................................................................. 179
Table 4-25 Grounding the Main Findings ........................................................................................................................................ 182
ABSTRACT

When I started the research leading to this thesis, I considered whether or not the project management (PM) community in Russia could benefit from a study of Russian best practices since I could see that there was a gap in knowledge about the local specifics of the Russian PM practice reality and that this was an area of PM practice that had not been focused upon extensively. Talking with my community of practice in Moscow I felt that this thesis might help explain the difficulties observed by some of my colleagues engaged in complex projects and that help to explain the current practices they apply to deal with these challenges.

This thesis studies complex projects where assessments conducted formally and informally detect early warning signs (EWSs). Documenting informal approaches in detecting and acting upon EWSs is far from easy in general, and more specifically in Russia. Russian organizations often fail in their attempts to develop guidelines for detecting “gut feel” indicators to deal with emerging problems. This thesis provides a useful guide to deal with EWSs in complex projects within the Russian context.

It was a qualitative research study. The data collection was performed via interviews, case-study analysis, observations, focus group and by a literature review. In total 19 people took part in the research study and provided in-depth insight into the research problem. Five case-studies were narrated by the participants of this research and provided a broad picture of the context. Eight participants of recently completed case-studies were interviewed. These supported interpretation and understanding of issues that project participants faced in their complex projects. The thesis takes a story telling format that helps us to learn from the incidents, to “feel” Russian realities and to understand the mindset of people working in other countries. I also held a focus group feedback workshop to summarize the responses and report the findings of the research. The thesis is also a good tool that may be used by trainers to teach case-studies.

This thesis investigates best practices shared by the participants of this research. A System model was developed to assist in the process of best practices documentation and to analyze the case-studies initially through four themes lenses: Uncertainty, Relationships, Knowledge, and Value. A fifth System lens was later added after analyzing the participants’ interviewees. The Competency model that built was based on the case-study analysis and the interview analysis. Nine key competences were defined and classified into five competency groups: System approach and Crisis management (the System group); Considering context and Learning (the Contextual group); Modeling and Conducting assessments (the Technical group); Considering Values (the Cultural group); Leadership and Relationships (the Social group). These best practices and key competences were mapped on the System model to illustrate the key competences as well as the best practices to deal with EWS. This thesis is very important because there is so little literature in the English language on the lived reality of PM in Russia. A substantial amount of the relevant literature was analyzed to identify gaps in the literature and a comparison made by addressing relevant questions to mature Russian project managers. The major contribution of this research was to advance PM complexity theory by combining several theories to study the research issue. Findings of this research may be applied in the international projects being managed in Russia.
1. Chapter 1 Introduction
1.1 Introductory paragraph

The general field of interest of this research is the Early Warning Signs (EWSs) in complex projects.

Early Warning Signs (EWSs) are unusual events such as sudden, urgent or unfamiliar changes in the organization’s future that could be threaten as either substantial profit reversal or loss of a major opportunity.

The EWS concept is not a new. The PMI published the research report on EWS conducted by Klakegg et al. (2010). Williams et al. (2012) draw attention to the importance of identifying and acting on EWSs in complex projects. It is widely accepted that complexity of projects over recent decades has increased in terms of technology, social interactions, uncertainty, globalization and cultural issues (Perminova et al., 2008).

Assessments (reviews, audits, health checks, benchmarking, and post-project) may provide the basis for identifying early warnings of future problems (Nikander 2002). As the complexity increases, formal assessments have a more limited use and the project is more dependent on informal “gut feelings.” Such informal approaches used in detection and action upon EWSs are not easy to acquire. Klakegg et al. (2010) considered various formal and informal approaches to uncover the EWSs of potential problems in complex projects. They stated that formal assessments (e.g. gateways, project review, audit, health check) are usually well documented (guidelines, checklists, etc.). Documenting informal approaches is far from easy and business often fails in attempt to develop a guide for detecting “gut feeling” indicators (Klakegg et al., 2010).

This study will identify formal and informal approaches used by mature project managers within the Russian context and contribute to existing body of knowledge by developing the guide on dealing with the EWSs in complex projects.

Maturity implies “fully developed” (http://www.merriam-webster.com/dictionary, retrieved on 03.11.2014).

1.2 Background of the Problem

There are two important contextual issues to be outlined here. The first one is the specific context of PM in Russia. The second issue relates to the context of the Ph.D. study.

The Issues specific to context of PM: There were several issues on project management (PM) practices that “bugged me” (irritation and sense of incomplete knowledge). They were based on my observation of difficulties that some of my project manager colleagues have when dealing with an EWS. The primary issue was to better understand how intuition operates behind the skillful actions performed by professional experts in unfamiliar situations. I also observed that some project managers identify an EWS but fail to be able to leverage experience from lessons learned in similar circumstances. This prompts the following question
“Why are project managers often not able to successfully reproduce past applied best practices when dealing with EWSs in complex projects?”

*The Issues specific to context of Ph.D. study:* The aim of a PM doctoral level degree has its focus upon research of a practical PM opportunity to fill an identified and justified research gap and thereby contribute to PM practice. My cross industry experience includes more than 10 years in IT and consulting industries, three years in construction and five years in manufacturing. I also have five years’ experience as a Professor of an MBA program in Russian Universities and a Tutor of a distance MBA program for The University of Wales (UK). Being a member of the Project Management Institute and a certified PMP (Project Management Professional) I have a solid understanding of the technical aspects of my profession from both global and Russian perspectives.

I started my research at Royal Management Institute of Technology (RMIT) on the Doctor of Project Management (DPM) Program and later transferred to the PhD when the DPM was merged into a new RMIT PhD program. The DPM Program at RMIT University is a research degree. My study topic arose from the course assignments and personal PM’s experience reflection undertaken during my DPM phase of study.

The RMIT’s DPM had four research preparation courses in knowledge management, project leadership, project procurement and ethics, and PM practice 2 were depicted in Figure 1-1. In this study no attempt was made to add more theoretical aspects to the existing literature sources. Rather the research questions have been developed and researched from the practice angle. This approach involves understanding and refining new contextual influences through reflection upon practices based on the real life experiences of mature PM’s. Figure 1-1 explains the doctoral contribution by moving from quadrant one (Q1) to quadrant four (Q4).

![Figure 1-1 Doctoral Contribution (DPM program course materials by Derek Walker).](image-url)
There are two options to make the shift from Q1 to Q4. The first option is to go via Quadrant 2 (Q2) through the development of the new concepts, tools or measurement systems. Cicmil (2006) argues that nowadays PM research advances neither focuses on building new theory nor inventing new models. She claims that it should build new ways of seeing and thinking and developing new contexts for action in which groups can express themselves and act. My choice in this dissertation is the second option of the movement from Q1 to Q4 via Quadrant 3 (Q3) (new geographical area).

The existing key research projects, from which this research idea is originated: The intention to conduct this research started from two research projects. The first research project is the “Early Warning Signs in Complex Projects” carried out for the Project Management Institute (PMI) by the team of researchers that included my scientific advisor Derek Walker (Klakegg, Williams, Walker, Andersen, and Magnussen, 2010). That report was about projects in Norway, UK and Australia. My interest lies in Russia. Another research project also carried out by Walker and Lloyd-Walker (2011) was “Profiling Professional Excellence in Alliance Management”. That research team devised a tool that contains a useful measure of project manager’s professional excellence harmonized with the level of the project’s complexity. The study by Walker and Lloyd-Walker (2011) was focused on alliancing in Australasia, while my study looked at the EWSs in complex projects within a Russian context.

The area of enquiry to focus on in this qualitative research was discovered from a literature review. Some academics promote the idea that qualitative research does not need to start from a literature review; they should even avoid this step at the beginning (Flick, 2009). In the introduction to the book “Discovery of Grounded Theory Approach”, Glaser and Strauss (1967) proposed the notion of “tabula rasa,” suggesting going for collecting and analyzing data without prior looking to the existing literature in the field. Flick (2009) believes that this view stems from the fact that qualitative research is closely linked to the idea of discovering new fields and exploring new areas that are not available in the existing literature. However, Flick immediately convinced himself that it would be naive to believe in the existence of new fields to explore where nothing has ever been published before. At the beginning of the 21st century, after more than a century of social research, it is increasingly more difficult to find many undiscovered fields.

The Russian context and the entire reason for this study: It is important to consider Russian context and culture from a project management perspective. The existing literature helps to understand current theory and provides the researcher with the framework for testing theory (Walker, 2005). The Russian National Competence Baseline (NCB) (SovNet, 2010) considers PM development from a historical perspective and points specific competences important within the Russian context.

Although studies on Russian culture, PM maturity are available in scientific journals, research on addressing the particular problem (the EWSs) through the lens of professional excellence in a particular context (Russian) has been missing. Stories taken from the real life of Russian managers could bridge theory with practice. They could illustrate thoughts, beliefs, cultural values, which guide our behavior in different complex situations, and serve as a rich source of new ideas.
1.3 Statement of the Problem

I looked at the EWSs in complex projects through the lenses of uncertainty, relationships, knowledge, and value. Looking to the research problem through the various viewpoints helped identify the gaps in the existing literature.

Uncertainty: A variety of approaches formal and informal approaches in dealing with EWSs available in the literature. Operating within a turbulent context, project managers may be not always predictably successful. Papers devoted to reflections of Russian managers on how maturity comes with experience are lacking. The literature indicates that perception of project's complexity is subjective and that categorizing project complexity in harmony it with PM's competency could be investigated. Mature project managers often have specific feelings in respect of the things, which could be the cause of the problems in the future. These professionals intuitively know the required response to use quickly and skillfully without the need for considering rational processes. Scientific reports analyzing the applied best practices and competences based on real life examples are underrepresented.

Relationships: The ability to establish long term relationships help to deal with the EWSs. The literature confirms that relationship management skills are paramount for success. There are not enough papers illustrating how mature project managers’ actions in various complex situations helped to identify the warning signals and reduce the complexity through establishing long-lasting relations and trust between key stakeholders. Academic papers on relationships, intuition, trust, emotions, culture, and attitudes illustrating the real complex situations within the Russian context are lacking.

Knowledge: Some best practices such as improvisation, premortems and creative insights are available in the existing literature. However, more country specific practices might be useful to discover. The practices applied by mature project managers might be common or unusual, predictably successful or not depending on particular situation. There are not enough real life stories where the actors failed to detect the EWSs; papers speculating on whether “gut feelings” helpful are in deficit. The literature investigating barriers to applying intuition and analysing informal approaches in dealing with the EWSs might help companies to get insights, see the need for adoption and thereby offer a chance to gain competitive advantage.

Value: The practices that common for Russian managers’ might be better understood from cultural and historical perspectives. The researches on culture (Hofstede, 1980; House et al. 2004; Chhokar et al., 2007) helped to understand differences between countries in the prevalent leadership styles of managers and implication on PM. However, more "current' studies are needed in order to understand value driven actions of project managers in complex situations.
Dealing with an EWS is far from easy and businesses often fail in their attempts to develop a guide for detecting “gut feeling” EWS indicators. A primary issue was to better understand which skillful actions are performed by experts in unfamiliar situations within the Russian context to respond to EWSs.

1.4 Purpose of the Study

The object of study: EWSs in complex projects are the object of this study. Looking from four perspectives (uncertainty, relationships, knowledge, and value) helped to identify knowledge gaps.

The subject of study: Mature PMs are the subjects and unit of analysis of this study. At the center of the analysis could be positioned mature Russian project managers, embedded in their socio-cultural reality. Their experience, way of thinking, situational discrimination, sense-making, their interpretation of reality - their life-world could then be in focus for such a study.

Purpose of the Study: Research goals are related to gathering, interpreting and presenting data, showing the reality of the investigated situations (McNiff and Whitehead, 2000). Maxwell (2005) cited in Flick (2009) distinguishes between three types of goals: personal goals (in my case it is a Doctoral level graduation); practical goals (in this research it is discovering best practices by challenging experts to recall their tacit knowledge and collaborate with me to make it explicit); broadly defined research goal (to better comprehend and develop an enhanced complexity theory by applying it to a new geographical area – Russia).

The specific purpose of this study with regards to the unit of analysis stated as follow.

The purpose of this study is to propose best practices based on the understanding and reflection of mature project managers on their past experience in identifying and responding to EWSs of potential failure in complex projects.

There are three key objectives in this research.

The first research objective is to identify best practices relating to dealing with the EWSs that are currently applied by seasoned Russian project managers.

The second objective is to study the skills needed for proficiency in dealing with EWSs in complex projects.

The third research objective is to encourage mature project managers to reflect thoughtfully and share their personal experiences in overcoming obstacles to reproducing best practices successfully applied in the past.

1.5 Significance of the Study

The EWSs in relation to complexity is under-researched in project management (PM). Studying the problem
from the four theoretical perspectives, joining various theories and data, adding to that the Russian context and the cultural dimension helped bridge the gaps identified in the existing literature, and signify the results of this applied research in creating new knowledge.

Developing a guide for project managers to focus attention on dealing with EWSs in complex projects could bringing new perspective and contributes to improvement of existing guidelines on formal assessments within project organizations.

1.6 Research Questions and Hypotheses / propositions

Flick (2009) differentiates the research questions depending on how far they are suitable for confirming existing assumptions (like hypotheses). Care should be taken to not formulate the research questions in a way that is “too narrow and thereby miss the target of investigation or block rather than promote new discoveries” (Flick, 2009, p. 129).

The Research Questions posed in this research are:

<table>
<thead>
<tr>
<th>Research Question 1 specific to complexity and EWSs: What are the current practices relating to detection and response to EWSs within Russia for complex projects?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Question 2 specific to Professional Excellence: What are the essential skills in addition to basic PM skills needed mature project managers within a Russian context to deal with EWSs in complex projects?</td>
</tr>
<tr>
<td>Research Question 3 specific to Best Practices: Why are project managers often not able to reproduce best practices which they have successfully applied in the past to deal with EWSs in Russian complex projects?</td>
</tr>
</tbody>
</table>

A research proposition is a statement that something is so, and you have to check it out (McNiff and Whitehead, 2000). Walker and Lloyd-Walker (2014) argue that mature experienced doctoral candidates acting on a hunch may arrive at a research question that is valid and has great potential to make a contribution to practice.

The key research proposition is that:

PM theory and practice in dealing with EWSs will be advanced through combining several concepts (EWSs and Complex projects, Competency models, Improvisation Practices, Sticky Knowledge and so one) and applying them within the new geographical area context (Russia).

1.7 Conceptual or Substantive Assumptions

This study is an example of “bricolage” (Boxenbaum and Rouleau, 2011) where various theoretical concepts and empirical materials are assembled and used as building blocks to create new knowledge. Russian PM
Context changed rapidly over the past two decades. The reflexively communicating managers aware themselves as the participants of the evolution of the knowable world and as whom by their projective communicating actions are constructing this world. Our behavior is driven by our attitudes and beliefs which in turn determined by values and ethics. What is right for the international colleagues might be wrong for the Russians. Russian context and culture is different from the Western one and therefore requires a specific perspective. Russian managers’ mentality, jargon, their interpretations of own actions performed in the complex situations could help to acknowledge specific for the Russian context practices, realize cultural differences and comprehend differences in perception of reality.

### 1.8 Research Stance and Design

This is a summary of the research perspectives (ontological, epistemological) with regards to the unit of analysis.

- **The mature project managers as the units of analysis:** In our cognition of whole - complex projects, we are studying its part only, namely EWSs. Early Warning Signs (EWSs) in complex projects are the object of this study. Russian mature project managers are the subjects or the unit of analysis in this study.

- **Ontological perspective of “Being”:** Russian mature project managers (units of analysis) construct their own meaning in different ways in relation to the same phenomenon – the EWSs in complex projects.

- **Constructivist Epistemological Perspective:** I position myself as a constructivist. I admit that the respondents create (construct) their own realities caused by their culture, history, and circumstances.

Depending on the research purpose, this research categorized as exploratory, descriptive, and explanatory.

- **Exploratory:** This study is explorative. Exploratory research projects put emphasis on deep study of a few cases (five cases) and experts’ opinions of limited number of respondents (nineteen participants) over a broad survey with a large number of respondents and case-studies.

- **Descriptive:** This study is descriptive. A descriptive type of research is useful in making sense of the nature of a phenomenon. The case study is a common form for descriptive research.

- **Explanatory:** This study is explanatory. This type of research is helpful for the discovery and reporting of relationships among different aspects of the phenomena being investigated.

The Interpretivism theoretical perspectives, a purely qualitative approach, and using the mixed methods for collecting and analysing data were applied in this study.
• **Interpretivism Theoretical perspective:** Theoretical perspective is the lenses to watch on the issue, informing the readers about a set of assumptions about reality, underlying the research questions and the kinds of answers have gotten in the end. In this research, I have taken interpretivism position. It was important to understand the culturally different mature Russian project managers (various generations) by standing their shoes, looking through their eyes and feeling their emotions.

• **Qualitative research approach:** When considering a research design, one needs to decide between qualitative or quantitative approaches or a mixture of both because each has its advantages and disadvantages. This research is purely qualitative. No quantitative approaches such as statistical analysis for example used in this study.

• **Phenomenology, hermeneutics, case study, and grounded theory methods:** To capture complexity, depth and richness of the investigated realm, as a qualitative researcher I used multiple and/or mixed methods such as phenomenology, hermeneutics, case study, and grounded theory.

The research design summarizes the stages, the participants, the effort to collect and analyse data, the procedure to be followed.

• **Cross-sectional Design:** One important initial question for the researcher to answer is, will the research be a “snapshot” study taken at a particular time or will it be a longitudinal study representing of events over a given period? This research is cross-sectional. The longitudinal research option was not selected due to limitation of scope, resources, and time.

• **Loose research designed depending on Degree of control:** This research is defined as loosely or broadly rather than tightly. The selection procedures were not narrowly restricted. For example, I have not developed in advance a sequence of interviewees. This tactic allowed me to fill the gaps in man’s knowledge by carefully choosing respondents among those who have experience in managing complex projects. The questions for interviews were prepared in advance, but I do not always asked questions in a strict sequence according to the questionnaire.

• **3 staged Design of the Empirical part of Research:** This study consists of the literature review part and empirical part. The empirical part of work is done in 3 stages (interview, case studies, and focus group).

• **The participants or subjects of the research:** Every effort made to ensure a gender and experience balance across the sample groups (interview, case studies, and focus group) and participants within each group. At the interview stage 19 respondents took part, at the case study stage 8 participants involved, and at the focus group stage 8 respondents provided feedbacks on research findings and critical evaluation of the final results of the study. The interviews became a rich source of data about the best practices. The case studies
strengthened the empirical basis of the research by illustrating practices, which mature project managers applied in the uncertain and complex situations within the Russian context. The focus group provided feedback and validation of the research findings.

- **The tools to data treatment and interpretation:** The Interview questionnaire and the research models were used as the instruments to collect and analyse data. Interview questionnaire was used as a guideline in conducting “semi-structured” interviews. There were 24 open questions. The use of a questionnaire enabled me to avoid any deviations from the research issue under study. There were two models developed in this research, namely the Competency model and the System model. The System model served as a conceptual framework for this thesis. The Competence model has played a supporting role. The both models developed gradually. At the end of the literature review, the initial version of these models were derived. Application of the models at the interview stage resulted in developing the modified interim versions of the both models. At the case studies stage these research models were applied to analyze the data and modified further. At the focus group stage, the development of the both models was finalized.

- **The procedure to be followed:** The research conducted with respect to the ethical principles established at RMIT University. The research based on principals of informed consent and voluntary participation (right to withdraw from the research). A systematic procedure on submitting the research proposal and its attachments (Consent form, Plain Language Statements, and Interview Questionnaire) and getting it approved by RMIT University were followed.

**Thesis plan:** The thesis plan briefly describes the content of each chapter and explains how evidence was to be collected and analyzed in order to answer the posed research questions.

- **Chapter 1 Introduction:** An introduction aimed to set the scene. It provides a road map of the whole thesis by giving a sequence and a brief description of each chapter.

- **Chapter 2 Literature Review:** The primary aim of the literature review was to overview the existing literature, devise the research models for the thesis, and preliminary answer the research questions. The chapter discusses a number of underpinning research themes (Uncertainty, Relationships, Knowledge, and Values). The literature provides the overview of the development of PM in Russia. An understanding of Russian historical and social contexts is helpful for forming more informed opinion on national cultural influences on Russian project managers.

- **Chapter 3 Research approach and Design:** The chapter justifies the selection of methods and techniques used in the implementation of this study. It also outlines my personal position with respect to the stated research questions.
Chapter 4 Findings and discussion: The interview’ and the case studies’ research data is presented and analysed applying the research models and findings reported. The focus-group participants’ feedback is provided and the necessary modifications to the research findings that this process triggered explained. In the end, the research questions are answered; research proposition addressed and the findings of all stages grounded and joined into the guide on dealing with the EWSs in complex projects.

Chapter 5 Conclusions and Implications: The chapter justifies the contribution of this research to theory and practice and summarizes the whole research project.

1.9 Limitations and Delimitations

This research looks at profiling professional excellence in identifying and acting on the EWSs in complex projects within a Russian context. Limitations are things over which the researcher has no control, such as bias. Delimitations are the things over which the investigator has control. The aspects, which are limiting and delimiting this research, are outlined here.

- **Scope**: The scope of this qualitative research is limited due to resource and time constraints. I conducted interview only with narrow number of experts (19) and studied a limited number of case studies (5). The scope is limited to only complex projects; small, medium size projects fall outside of this research. Only a few types of projects are covered with this study (IT (Information Technology), education and politics (election campaign)).

- **Country and Language**: This research involves only Russian speaking respondents and cases from Russia. The literature was limited to English and Russian papers in this research. All interview data was being collected and coded in Russian, and only the most relevant data was translated in English.

- **Bias**: Most of the case studies reflect a subjective view of one person - the narrator (biased selectivity).

- **Perspectives**: I have limited the scope of this study by looking through four lenses / four perspectives, namely: Uncertainty, Relationships, Knowledge, and Value.

1.10 Expected contribution

I framed this thesis as an academic paper (reporting on research) and the work, which will be found useful and pragmatic by reflective practitioners. It is expected that the findings described in this thesis will advance PM theory and practice by making tacit things in dealing with the EWSs explicit; by offering best practices applied in a simple, practical and useful way. The research is a substantial contribution to understanding the theme in a Russian context through combining several theories to develop new models and gain new insights.
1.11 Conclusion

This chapter introduces the research study in terms of background of the research problem, states purpose of the study, provides details on the research questions and the key research proposition. The research stance is presented and the research design is introduced to facilitate the reader to understand the sequence of the empirical stages of this research. The limits and expected contributions to advance PM theory and practice provided here. Finally, the chapter informs the reader about the content and structure of the following chapters.
2. Chapter 2: Literature Review

2.1 Introduction

This literature review is aimed at addressing the research questions. The title of this research is “Towards best practices in project management: Profiling Professional Excellence in Identifying and Acting on Early Warning Signs in Complex Projects within a Russian Context.” The topics, which are useful for considering in this literature review, are derived from the title of this research study. Various familiar knowledge elements are available in the literature such as professional excellence, complexity, uncertainty, EWSs, best practices, context dynamics, culture, relationships, leadership, historical influences, Russian context, etc.

Justification of choosing the four perspectives for this literature review

- **Uncertainty**: More than 20 years ago Schön stated that managers have become increasingly sensitive to the phenomenon of uncertainty, change, and uniqueness (Schön, 1983, p. 239). Uncertainty topics are covered by the research project on the EWSs in complex projects by Klakkegg et al. (2010). Looking to the research problem through the lens of uncertainty helps to acknowledge the EWSs concept and distinguish uncertainty from risk, and explore, compare and group the dimensions of complex projects defined in existing literature. It will also help overview the available formal and informal approaches in dealing with EWSs; identify inconsistencies, limitations or problems in the existing literature.

- **Relationships**: Relationships topic does not fall under words mentioned in the title of this research. However, relationships in complex projects can be one of the areas where best practices in dealing with the EWSs within Russian context exist. The selection of Relationships perspective was influenced by research of Walker and Lloyd-Walker (2011). Their findings suggest that the way to cope with messy issues is to look at them as a jigsaw puzzle occurring within the context of interacting and interrelated systems (the interaction of technical systems and people) that requires both basic and more advanced PM skills such as stakeholder management, the psychology of communication and relationship management (Walker and Lloyd-Walker, 2011). In addition, the very first thesis in the DPM (Doctor of Project Management) program at RMIT was written on the relationship management topic by Lynda Bourne (2005).

- **Knowledge Management**: I selected the Knowledge Management theme because during the last three years I have been working in PMO (Project Management Office) and as a result I believe that learning from project failures (Love et al., 2005) and managing working knowledge (Davenport and Prusak, 2000) are paramount for a project success. Identifying and transferring the best practices that exist in people’s minds is not so easy a task. Looking through the knowledge perspective I overviewed the various best practices available in literature. The knowledge perspective helped to find a form that is suitable for capturing and recording best practices as well structuring, analyzing, and documenting the case studies narrated by the respondents of this study.
• **Value**: The Value perspective was selected under influence of the P2M standard by Project Management Association of Japan (PMAJ, 2003). Nowadays, creation of value for stakeholders seems to be a trend. Hiroshi Tanaka makes ambitious efforts to introduce the P2M standard all over the world. P2M looks beyond merely supplying a product or service that meets immediate client’s needs. P2M reinforces the need to focus on the value topic. This thesis is written in English and will enable international colleagues to appreciate values which are common for Russian society.

**Russian context and Culture**: The core of culture consists of historically received ideas. The Russian National Competence Baseline (SovNet, 2010) provides some background context of PM development in Russia from a historical perspective. Two key research sources on culture (Hofstede and GLOBE) are discussed in depth including the debate that flared up between these two schools of thought. Specific attention is paid to the leadership styles that are prevalent in Russia. An immersion into Russian context and culture could help to understand the behavior of Russians in different complex situations at the empirical part of this research.

**Defining the Research models of this Thesis**: The two research models are defined at the end of the literature review stage. The various competency models were examined in order to develop the initial version of the Competency model. Also the initial version of the System model is derived from this literature review as well. Both models helped to integrate the key concepts and illustrate the dependencies. The Table 2-1 provides a justification of the literature chosen for this Research.

<table>
<thead>
<tr>
<th>Literature Theme</th>
<th>Indicative Authorities cited</th>
<th>Relevance and Justification of my choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty</td>
<td>Klakegg et al., 2010; Dorner, 1996; Atkinson et al. 2006; Snowden and Boone 2007; Cicmil et al., 2009; PMI, 2014; Sadler-Smith, 2007</td>
<td>The concept of complexity and its link with uncertainty needs to be explained.</td>
</tr>
<tr>
<td>EWS concepts</td>
<td>Ansoff, 1975; Klakegg et al., 2010; Nikander, 2002</td>
<td>EWS is a core theme of this research.</td>
</tr>
<tr>
<td>Project Types</td>
<td>Turner and Cochrane, 1993; Shenhar and Dvir 2007; Snowden and Boone, 2007; GAPPs, 2007; Cooke-Davies et al., 2011; Turner and Muller, 2006</td>
<td>In order that project complexity be understood, it is necessary to discuss project types.</td>
</tr>
<tr>
<td>Relationship</td>
<td>PMI, 2007; PMAJ, 2003; Futrell et al., 2003</td>
<td>There are many authors who have written about managing relationship.</td>
</tr>
</tbody>
</table>

Table 2-1: Papers Considered in the Literature Review
relationships. The boundary of this research was narrowed to covering only those sources which have isolated the relationships topic as a special section of interest.

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Explicit and Tacit Knowledge, ‘sticky’ knowledge, knowledge management (KM)</th>
<th>Davenport and Prusak, 1998; Nonaka and Konno, 1998; Zack, 1999; Soliman and Spooner, 2000; Burton-Jones, 1999</th>
<th>Explicit and tacit knowledge, barriers to knowledge transfer and knowledge management are the critical concepts related to EWSs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Practice</td>
<td>Sadler-Smith, 2007; Malhotra, 2000; Koskinen et al., 2003; Love et al., 2005; Szulanski and Jensen, 2004</td>
<td>The “best practice” definition and best practices documentation should be studied.</td>
<td></td>
</tr>
<tr>
<td>Creativity, Improvisation</td>
<td>Kahneman, 2011; Klein, 1977; Dorner, 1996; Faith, 2009</td>
<td>Creative Insights, last minute improvisation, premortem and other practices available in the existing literature should be included in this literature review.</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>Lechler and Byrne, 2010, Steinfort and Walker, 2011; PMAJ, 2003; Hofstede, 1980; Shimizu, 2012</td>
<td>A value driven mindset is an essential topic to be considered here.</td>
<td></td>
</tr>
<tr>
<td>Russian Context and Culture</td>
<td>Hofstede (1980)</td>
<td>Pioneering study of cultures across nations to be considered in order to understand the dimensions of national culture.</td>
<td></td>
</tr>
<tr>
<td>Culture, Individualism, Power, Uncertainty, Leadership</td>
<td>House et al. (2004) GLOBE book publication</td>
<td>The GLOBE study has been examined as the key source for this chapter because societal culture and leadership attitude are directly related to the research topic of this dissertation.</td>
<td></td>
</tr>
<tr>
<td>Culture, Leadership, Collectivism, Power, Assertiveness, Performance Orientation, Future Orientation, Humane Orientation</td>
<td>Chhokar et al. (2007) - GLOBE book publication</td>
<td>Culture and leadership in 25 countries including Russia were</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Affecting the project management deployment</td>
<td>Bredillet et al. (2010)</td>
<td>Considering the role of cultural factors on PM deployment is essential.</td>
</tr>
</tbody>
</table>

**Defining the Research model of this Thesis**


### 2.2 Uncertainty

#### 2.2.1 Distinction of the risk from uncertainty

The distinction of risk from uncertainty is important. The PMI (2014, p: 21) defines uncertainty as “the state of being unsure, of not knowing an issue or situation”. Projects are subject to risk and uncertainty (Klakegg et al., 2010). Some, but not all, aspects of uncertainty can be categorized and treated as risks (Atkinson et al., 2006). To manage risks, the PMBOK (PMI, 2013) offers traditional risk management processes. The common term "risk management" is generally understood as "threats management" rather than "opportunity management". Remington and Zolin, (2011, p.121) argue that “uncertainty can be both a source of project complexity and a consequence of nonlinearity and emergence”. Sadler-Smith (2007) associates the uncertainty with the un-analyzable business environment that is characterized with the difficulties in identifying measures and predicting key variables, recognizing explicitly cause-and-effect relationships. Perminova et al. (2008, p: 77) define uncertainty as “an event or a situation, which was not expected to happen, regardless of whether it could have been possible to consider it in advance”. Considering the statements mentioned above, it may be concluded that uncertainty is a characteristic of project complexity.
Uncertainty is the situation (state, environment) where a project’s future state is unpredictable because of scant information, established facts are questioned and the resulting cause-and-effect relationships are unrecognizable and un-analyzable.

2.2.2 The Definition of Complexity

The term complexity is open to wide and diverse interpretation (Baccarini, 1996). Common synonyms for the term “complex” are complicated, intricate, involved, tangled, multifaceted, convoluted, “wicked”, multifarious, and knotty (the legendary complex Gordian Knot) (Ireland, 2007; Whitty and Maylor, 2007; Cooke-Davies et al., 2011). Some authors put emphasis on the complexity of the structure and interdependencies. For example, Baccarini (1996) lists such factors as the number of parts, variability and interrelations. For Dorner (1996), the existence of many interdependent variables in the given system is a dimension of its complexity. The more variables and the greater their interdependence are, the greater the system's complexity (Dorner, 1996). Ireland (2007) states that complex projects deal with two or more interacting parts. Klakegg et al. (2010) point to the challenges of making sense of the action resulting from the input behaviors and interactions. Cicmil et al. (2009) broadly define complexity as the study of the occurrence of the order, structure, pattern and novelty of extremely complicated and/or seemingly chaotic systems. Integrating these statements, complexity can be defined as follows.

Complexity means the existence of many interdependent and varied elements (components, parts, agents, organizations) dynamically interacting with each other in a non-simple way. The spontaneous occurrence of the order, structure, pattern and novelty of the system is a result of these interactions.

Subjectivity in Perception of Project’s Complexity Level

There is a particular problem in assessing complex projects (Klakegg et al., 2010). The degree of complexity encountered “varies depending on the individual’s perspective, experience, and knowledge” (PMI, 2014, preface). Thus complexity is not an objective factor but a subjective one (Dorner, 1996) because it stems from a person’s highly individualistic perception. Dorner (1996) believes that the main difference between novices and experts is that an experienced specialist calmly responds to many warning signals. Novices and beginners interpret a living situation as being composed of many separate and independent elements. Thus, for beginners, responding to any warning signals is a hair-raising experience (Dorner, 1996) because they do not see inter-relationship between these elements as any form of recognizable system. Some authors try to apply quantitative approaches to analyze complexity; for example, they calculate the number of interdependencies among the activities and the number of the elements and some computation measures may indeed be helpful in understanding a complex system to try to predict its outcomes with any kind of accuracy (Cooke-Davies et al., 2011). In order to identify how project managers perceive the terms “complex” and “complicated”, Carver and Maylor (2011) conducted a survey. They asked project managers to answer the question: “What makes the project complex to manage?” The researchers found that many
practitioners could not distinguish between complex and complicated projects. The aspects considered by some practitioners as "complex" were defined by the others as "merely complicated". Sargut and McGrath (2011) differentiate "complicated" and "complex" systems as follows. In complicated systems, usually the outcomes can be predicted by awareness of the initial conditions. In a complex system, the same starting conditions can produce different outputs, depending on the interactions of the elements in the system.

| Subjectivity: | Different people have different experience; their perspective, knowledge, capabilities, and personal characteristics, influence their perception of complexity. |

Table 2-2 broadly defines the various levels of the project complexity and matches the measures to deal with the uncertainty.

<table>
<thead>
<tr>
<th>Simple – variation:</th>
<th>Complicated - expected uncertainty:</th>
<th>Complex - unexpected uncertainty:</th>
<th>Chaos - unexpected uncertainty:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The situation is simple when based on the initial conditions the outcomes can be obtained for sure or with some degree of variation.</td>
<td>The situation is complicated when based on awareness of the initial conditions the outcomes can be predicted.</td>
<td>The situation is complex when depending on the interactions of the elements in the system the same initial conditions might produce unpredictable outputs.</td>
<td>The situation is chaotic when mess aroused from the complete absence of order/anarchy.</td>
</tr>
</tbody>
</table>

The first option is to reduce uncertainty by establishing necessary data, collecting the relevant facts and figures, analyzing the overall goal and by making a rational choice (Sadler-Smith, 2007).

The second option is to tolerate uncertainty by relying on "softer", qualitative data, as well as judgment and intuition. There are situations in which the reduction or elimination of uncertainty is too costly, too difficult or even impossible (Sadler-Smith, 2007).

2.2.3 Complexity Dimensions

Various authors identify different facets of project complexity: organizational, structural, technical, temporal, cultural, complexity of ‘pattern’, etc.

The holistic view: It is useful to study complex projects as a whole system through the lens of complexity theory. Project complexity conceptualization from a complexity science lens is remarkably different from a common usage of the term “complexity” by managers (Carver and Maylor, 2011). Cooke-Davies and Cicmil discussed four characteristics (nonlinearity, emergence, evolution, predictability) of a complex system at the PMI Research and Educational Conference 2012 in Ireland that I attended (http://congresses.pmi.org/ResearchConf2012/TheConference/ConferenceEvents/Event.cfm?EventID=210).
Cooke-Davies and Cicmil consider complexity holistically. The first characteristic is nonlinearity as constituting an implied sensitive dependence on the initial conditions. That means that not every action leads to the predicted outcome; the cause-effect relationships are not visible, no matter how much experience of similar situations we have. The second aspect of the complex environment is the appearance of patterns demonstrating the ordered behavior. Emergent properties make the whole to be more than the sum of its parts (Checkland and Williams, 2011). Then, the third characteristic is the evolution of any living organism such a social arrangement as the project. The evolution creates the problems to implement the original plans. All these three characteristics lead to the fourth one – predictability. Sometimes, predictability of the situations can be paradoxical.

**Tools for evaluating Complexity:** There are various tools available in literature, which are useful for defining the dimensions of complexity and evaluating the level of project complexity. The “goals and methods” matrix proposed by Turner and Cochrane (1993) is a classical tool to assess the complexity of the project. Shenhar and Dvir (2007) propose the novelty, complexity, technology, and pace (NCTP) model for the classification of projects. A MODeST model was established for evaluating complexity (Maylor et al., 2008; Carver and Maylor, 2011). The MODeST model has the five dimensions: Mission, Organization, Delivery, Stakeholders, and Team. The MODeST model considers both structural and dynamic complexity. The various dimensions of project complexity are combined into the Table 2-3.

<table>
<thead>
<tr>
<th>External factors</th>
<th>An external complexity associated with various market segments, which are in touch with the project. According to Loch and Payne (2011), the project may be influenced by regulations in different regions or domains, affected by standard defining bodies such as ISO, or face multiple competitors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>According to Carver and Maylor (2011), scale determines how extensive the task is being undertaken. Complexity relates to the magnitude of legal, social, or environmental implications from performing the project (GAPPS, 2007). One other aspect of this complexity factor is the scale of project strategic importance to the organization or organizations involved (GAPPS, 2007).</td>
</tr>
<tr>
<td>Organization</td>
<td>Shenhar and Dvir (2004) differentiate levels of complexity of the projects depending on the project organization being: Low (performed within one organization or a single functional group, a few administrative staff in project organization); Mid (usually in a matrix or project form with many subcontractors and technical and administrative staff); High (usually a PMO to coordinate subprojects, with many staff experts from various fields such as technical, admin, finance, legal). Baccarini (1996), Williams (1999) also consider the project’s organizational structure as a complexity dimension.</td>
</tr>
<tr>
<td>Structural</td>
<td>Complexity from the technical point of view relates to the number of system’s parts and the number of interdependencies between them (Baccarini, 1996; Williams, 1999; Schwaber, 2004; Loch and Payne, 2011; Ireland, 2007). Complexity relates to</td>
</tr>
</tbody>
</table>
the number of distinct disciplines, methods, or approaches involved in project performance (GAPPS, 2007). Structural complexity depends on a number of interrelated activities (Remington and Pollack, 2011). Complexity also relates to the number and variety of the subsystems and systems of the product (Shenhar and Dvir, 2007). Detailed complexity means that the system is a composition of a great number of elements with the complex interrelationships between these elements (Shimizu, 2012).

**Novelty**

The novelty dimension evaluates the product newness to the market and to the customers (Shenhar and Dvir, 2007). Novelty of the product considered as the factor that differentiates projects: Low (an extension or improvement of an existing product); Mid (a new generation in an existing product family); High (a new-to-the-world product) (Shenhar and Dvir, 2004). Complexity of Faith is present when something unique is created, new problems solved, or dealt with high uncertainty (Geraldi, 2008). Technical or design challenges provide one dimension of complexity (Remington and Pollack, 2011). The category of complexity also relates to uncertainty to estimate the level of task unknowns (Carver and Maylor, 2011).

**Requirements**

The nature and quality of requirements characteristics is recognized as a dimension of complexity (Schwaber, 2004). Shenhar and Dvir (2004) consider three levels of this dimension of project complexity: Low (clear understanding of requirements); Mid (invest extensively in product definition, involve customers in process, freeze requirements later); High (product definition based on intuition, trial and error, prototyping, feedback). The “goals and methods” matrix by Turner and Cochrane (1993) classify projects depending on uncertainty of the objectives and the uncertainty of methods to achieve them.

**Purchasing**

According to Shenhar and Dvir (2004) project procurement complexity is differentiated as Low (purchase or a simple contract; end of contract after delivery of the product); Mid (complex contract; milestone-payments; complex logistics); High (multiple contracts; evolutionary delivery).

**Interactions**

Complexity of interaction is determined by number of the interfaces between systems, people, and places. The concept of interactional uncertainty is introduced by Jensen et al. (2006). Their framework allows contrasting the different ways in which the relationships either limit or enable implementation of project tasks. The model by Jensen’s et al. (2006) combines two dimensions organizational hierarchy and network dimensions, which lead to four idealized types of environment: the trustful environment, the monitoring environment, the negotiating environment, and the circumscribed environment. In order to cope with uncertainty effective project managers must simultaneously pay attention to both the directions and demands of hierarchy and network. Complexity is usually present in interfaces between locations/actors and characterized by transparency, variety of reference and empathy.
(Geraldi, 2008). The socio-political category associated with the interactions of the different parties with the task and between themselves is the complexity characteristic (Carver and Maylor, 2011). The complexity factor is the number and variety of interfaces between the project and other organizational entities (GAPPS, 2007).

<table>
<thead>
<tr>
<th>Information</th>
<th>Complexity of Fact is referred to in the context of very large amounts of interdependent and concurrent information. The challenge is to keep a holistic view of the problem and to not get lost in factual details (Geraldi, 2008).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control and reporting</td>
<td>Depending on the difficulties associated with control, Shenhar and Dvir (2004) consider various levels of complexity as: Low (simple, in-house control; reporting to executives or main contractor); Mid (tight and formal control, reviews with customers and executives); High (central control by program office, separate control for subprojects, plenty of reports and meetings with contractors).</td>
</tr>
<tr>
<td>Stakeholders</td>
<td>Uncertainty arises from several factors associated with the involved parties (Atkinson et al., 2006). The characteristics of people involved in the project present a dimension of project complexity. People are very complex; they often don’t do what we want them to do (Schwaber, 2004). Actor complexity is associated with multiple stakeholders’ interests, often contradicting, perhaps emphasizing different dimensions, and, possibly, influencing another (Loch and Payne, 2011). Directional complexity referred to the people’s goals and motivation alignment (Remington and Pollack, 2011). Complexity also relates to the stakeholder’ cohesion in regard to the project product characteristics (GAPPS, 2007).</td>
</tr>
<tr>
<td>Climate (formality levels)</td>
<td>According to Shenhar and Dvir (2004) the complexity level depends on the organizational formality atmosphere: Low (mostly informal style; like family); Mid (formal, informal, political and inter-organizational); High (formal, tight bureaucracy; highly political).</td>
</tr>
<tr>
<td>Nationality (cultural)</td>
<td>Complexity can be a result of nationally-based sets of underlying assumptions and ways of stakeholders’ working, the clan and tribal cultural influences of subcultures within projects (Steinfort and Walker, 2011).</td>
</tr>
<tr>
<td>Management of resources</td>
<td>Ireland (2007) views complexity from a planning stand point and actions to be taken to influence the identified challenges results: (1) technical aspects of the degree of difficulty to build the product and (2) the management aspects with a degree of difficulty to manage the schedule, cost, risk, and communications.</td>
</tr>
<tr>
<td>Pace</td>
<td>The pace to realize the delivery time in comparison with the natural time taken by the task adds to project complexity (Carver and Maylor, 2011). Temporal complexity associated with the proper time, change management and cultural awareness of activity sequencing (Remington and Pollack, 2011). The Pace dimension includes the importance and urgency of delivering project results in at a specified time and, in fact, determines the time assigned for the project (Shenhar and Dvir, 2007).</td>
</tr>
</tbody>
</table>
Dynamic complexity means that an event or actions has unexpected influences on other events or actions (Shimizu, 2012, p: 29). The cause-effect relations of such unforeseen influences are non-linear or “so distant from each other in terms of time and / or space that the relationship is clouded beyond recognition” (Shimizu, 2012, p: 29). Dynamic complexity is the case when unfixed structural complexity elements change over time (Carver and Maylor, 2011).

According to Ireland (2007), there are three time related facets of estimating or measuring complexity: to consider foresight, look at the present during the execution and hindsight after the project completion. Usually, when one looks into the future, the project is perceived to have fewer complexes than eventuates in a real situation. During execution, the project manager is struggling with problems; the complexity level of the project’s complexity may be overstated. After project completion, there obviously have been solutions to most of the problems so project complexity may be assessed more realistically.

Complexity has an overall expected financial impact (positive or negative) on the project's stakeholders (GAPPS, 2007).

There are various and many ways to define and understand complexity dimensions. The above cited authors defined complexity depending on the purpose and context. Some authors consider complexity from the systemic point of view and do not go into the details. Other authors consider complexity dimensions in detail and do not discuss the system as a whole. In this study, a joint consideration of whole and parts should receive enough attention based on the reflections of the respondents of this study.

2.2.4 Concept of Early Warning Signs (EWSs)

The concept of “weak signals” was introduced by Ansoff (1975; 1984). The author explored the nature of uncommon events such as sudden, urgent or unfamiliar changes in the firm’s perspective that could be threatened either the substantial profit reversal or a loss of the major opportunity. These events were identified by Ansoff (1975) as “weak signals”, which may become strong later. Unrecognized EWSs are harbingers of the project’s failure. It is necessary to listen to the environment "with an ear to the ground" (Nikander (2002, p: 33) refers to Ansoff) and not only by a few key persons in the firm.

Nikander (2002) in his research attempts to explain the phenomenon of the early warning sign (both sign and signal terms appear to be used interchangeably). “An early warning is an observation, a signal, a message or some other item that is or can be seen as an expression, an indication, a proof, or a sign of the existence of some future or incipient positive or negative issue. It is a signal, omen, or indication of future developments”(Nikander, 2002, p: 49). Nikander (2002) distinguishes two types of signals: strong and weak. Strong signals are issues that are sufficiently visible and concrete to permit the firm to compute their impact and devise response plans. Weak signals contain early indicators that warn about the threats and opportunities arisen. In complex projects, the parties have to make decisions without full comprehension of
the entire system based on weak signals or signs. As a solution, Nikander recommends enlarging a company’s original database by including information of categorized warning signs. This may make it possible to determine which early warnings can be connected to a particular work package or risk. Another noteworthy point is that this database should not become an unduly large and complex list of questions for detecting EWSs. Nikander (2002) states that there is no technical tool available and it probably cannot be easily developed for detection of the warning signals (only people can do it).

2.2.5 The current practices related to detecting EWSs

Klakegg et al. (2010) define project assessment as types of appraisals and examinations of project documents and practices in order to support decisions, learn from the experience, or assure that expectations or formal criteria have been met. Attempting to answer the question: “What sorts of assessment are there?” the authors distinguish two main approaches to detect EWSs: formal and informal. The formal assessments are reviews, health-checks, benchmarks, post-project evaluations and audits. The informal assessments are the unusual approaches such as ‘reading between the lines’, ‘feeling’ the strained atmosphere, understanding ‘body language’ and other intuitive tacit approaches.

2.2.5.1 Formal Assessments for Detecting EWSs in Complex Projects

2.2.5.1.1 Gateway Reviews

Cooper (1993) introduced the concept of the “Decision Gate”. The Office of Government Commerce (OGC) (2010) later developed the Gateway Project Review Process based on Cooper’s idea. The OGC’s gateway system has been introduced widely. It is applicable to a wide range of projects. The Gateway Project Review Process includes a series of short, focused, independent peer reviews undertaken in collaboration with the project team and all relevant identified available stakeholders. The goal is to examine projects at key decision points in their lifecycle and provide assurance to be moved successfully to the next stage. The assessors usually have a predetermined task list. They address critical questions to key people, perform formal document control and use checklists to ensure that all deliverables were provided and to identify the opportunities for improvement before making go/no go decisions to accept the project, or to close the phase and enter into the next one. The Information Technology Infrastructure Library (ITIL) (2007) defines reviews as evaluations typically carried out at predefined points in the lifecycle, especially at the end of the project phases. Klakegg et al. (2010) devised a comprehensive governance framework that contains the decision making points associated with the milestones or check points where there are certain achievements to be reached. The researchers demonstrated the use of the governance framework to identify EWSs and make decisions.

2.2.5.1.2 Project health-checks

Klakegg et al. (2010) characterize project health-checks as formal assessment performed while the project is being undertaken. These reviews might be performed as ad-hoc, regular reviews or special purpose events. Ad-hoc reviews may highlight purposefully or incidentally emerging issues, problems, concerns. The reviews
performed in regular periods provide a solid context over time, history and trends. They may highlight fears, concerns, flag risks and uncertainty. The special purpose reviews are performed if it is suspicious that certain issues require consideration. Such reviews may give “appearance” of “white washing”, for example Klakegg et al. (2010).

2.2.5.1.3 Lessons-learned

Organizations often lack the capacity to value lessons learned and to apply them. There are many lessons identified, but not learned (Klakegg et al., 2010). Szulanski (1996) highlights that there is often a problem of applying the lessons learned and he uses the term “sticky” knowledge to describe that difficulty. Williams (2007) conducted a survey on lessons-learned activities and concluded that one of the explanations of past mistakes being ignored is that the organizational culture is a key factor impacting the ability for lessons to be recognized and adopted or adapted.

Post-project reviews serve as valuable sources for gaining effective lessons learned and enriching the collection of best practices. In order to apply the lessons learned, knowledge management processes should be in place for collecting, storing and sharing knowledge in the organization. Krebs (2008) suggests conducting retrospectives, which are more valuable in comparison with the traditional lessons-learned. Agile teams perform retrospectives between iterations. That is the time when teams reflect on their past iteration cycle (Highsmith, 2004).

2.2.5.2 Informal “gut feel” approaches for Detecting EWSs in Complex Projects

2.2.5.2.1 Definition of Intuition

The English word, Intuition, comes from the Latin intueri often translated roughly as "look inside" or "to contemplate" (Sadler-Smith, 2007). Intuitions are immediate, affectively charged, holistic judgments achieved without the apparent intrusion of the rational thought (Leybourne and Sadler-Smith, 2006). Intuition is the act or faculty of immediately knowing or perceptively sensing without the use of rational processes (Forsberg and Cotterman, 2000). Weick (1995) believes that intuition is the preconscious recognition of a pattern. Myers (2004) states that some things we implicitly know without explicitly remembering. We say to someone having intuition as he has a feel for these things (Dorner, 1996).

Kahneman (2011) refers to Klein who elaborated the intuitive decision-making theory called the recognition-primed decision (RPD) model based on pattern recognition. Kahneman (2011) calls the analytical thinking approach as “slow thinking” and being intuitive as “fast thinking”. Fast thinking was labeled by him as System 1 thinking and slow thinking as System 2 thinking. System 1 and System 2 are central points of Kahneman’s book “Thinking fast and Slow”. System 1 is an “automatic system”. System 2 is the “effortful system”. Sometimes reading the impressive looking nice reports creates a visual illusion. Key decision makers might be attracted by the style, volume, and design. Nonsensical reports do not draw their attention and contradicts facts that your audience know to be true. When information is scarce, commonly System 1
operates like a machine to jump to a conclusion based on limited evidence (Kahneman, 2011). The right brain is concerned with the whole picture and the spatial relationships between system elements (Faith, 2009). It excels in reading patterns and moves more quickly than the left brain. Instead of reasoning, the right brain intuits and although it can quickly bring forth a conclusion or recognize the danger, it cannot generally explain the reason for coming to this decision (Faith, 2009).

Kahneman (2011) quotes Herbert Simon to define intuition as nothing more and nothing less than recognition, and Gary Klein to consider intuition as an experience transformed into action. With these strong statements, Kahneman purposefully demystifies intuition as the magic of everyday memory experience. He refers to Simon stating that a particular situation provides a cue, this cue gives the expert access to information stored in memory, and the information supports intuition to provide the answer. The moral of Simon's remark according to Kahneman (2011, p: 237) "is that the mystery of knowing without knowing is not a distinctive feature of intuition; it is the norm of mental life".

If intuition is demystified to memory, then how does the information get stored in memory? Kahneman (2011) differentiates emotional learning that may be quick to learn from "expertise". Acquiring intuitive expertise is a hard and slow process; intuition is not a single skill, but a collection of skills (Kahneman, 2011). System 1 is often able to produce a quick answer, but the answer may be wrong. Why? Skills do not become perfect all at once. The way to perfection is trying and mistaking. It takes years to develop expertise to understand the complex situation at a glance (Kahneman, 2011). Individuals are learning by trying and making mistakes as the phenomenon in a real-life situations requires more sophisticated rules. Competent performers may use a variety of approaches. However, they could sometimes not be flexible when operating within a turbulent context without a total comprehension of the given situation. It takes time before performance becomes predictably successful; and even years to act seemingly effortlessly, almost automatically (Dreyfus, 2004).

**Intuition can be defined as the capacity to subconsciously attain knowledge from previous experience or comprehend without the use of rational thought. Intuition is based on the feeling, the holistic hunch, and gut instinct.**

### 2.2.5.2.2 Barriers of identifying “gut feel” indicators

A lack of experience is a key barrier to identifying “gut feel” indicators. Kahneman (2011) suggests where intuition can and cannot be trusted. He believes that accurate intuition psychology does not involve magic: “Valid intuitions develop when experts have learned to recognize familiar elements in a new situation and to act in a manner that is appropriate to it” (Kahneman, 2011, p.12). The experts' knowledge is more organized and more accessible than the novices' (Myers, 2004). Experts act almost automatically without recourse to rules (theories); they do not need to make calculations and long analyses; they take the decision quickly and unconsciously (Dreyfus, 2004). Experts immediately see what should be done and how to get it done, even in an unfamiliar situation; they do what normally works and it always works (Dreyfus, 2004).
In some cases managers look at reports or charts and immediately sense alarm or a “gut feel” for future troubles. According to Sadler-Smith (2007), we feel that we ‘know’, but we don’t know ‘how’ we know. Kahneman refers to “the invisible gorilla” popular short film to remind us about managers’ temporally blindness. “The invisible gorilla” is a short film about two teams passing the basketball. One team is wearing white shirts, and other is in black shirts (http://www.theinvisiblegorilla.com/videos.html). The film audience was instructed to count the number of passes made by the white team, ignoring the black team members. The task was difficult; the counting completely absorbed the viewers’ attention. After a while in the video, a woman wearing the suit of a black gorilla appeared. She crossed the court, thumped her chest and moved on. The gorilla was viewed within nine seconds. The video has been seen by many thousands of people and only half of them have noticed the gorilla. None of those who watched the video without taking part in the counting task would miss the gorilla. Some attention was needed to detect the surprising gorilla. The complete and ‘blind’ focus on the counting task caused their temporary blindness. The authors of Invisible Gorilla had made the gorilla “invisible” to keep the audience intensely busy by counting passes. Viewers who failed to see the gorilla initially were sure that it was a joke. They did not believe that they missed such a striking event. Having an intense focus on any task, including the project assessment task, can make people blind and temporary deaf. “The gorilla study illustrates two important facts about our minds: we can be blind to the obvious, and we are also blind to our blindness” (Kahneman, 2011, p.24).

2.3 Relationship
2.3.1 Project Relationships

Project relationships are those mutual interactions, which occur among the project stakeholders themselves as well as those which arise between the project manager and project stakeholders. The cooperative and adversary relationships and interests among the stakeholders need to be clarified (PMAJ, 2003). The goal of stakeholder relationships competency is to establish strategically meaningful one-on-one relationships to increase the likelihood of success of the project and to provide a cushioning sense of good will for the inevitable problems that occur in every project to provide an environment that is personally satisfying (Mersino, 2007).

2.3.2 Relationship management

Relationship management processes aim to define the relationships between stakeholders, and maintain good conditions to guide the project successfully (PMAJ, 2003). P2M’s philosophy is in satisfying customers / stakeholders and having long term relationships with them. P2M (PMAJ, 2003) offers three relationship management processes, namely, design of relationships, maintenance of relationships and restructuring of relationships. The Project Management Competency Development Framework (PMCDF) contains the competence element regarding building and maintaining effective relationships (PMI, 2007). The performance criteria that are expected from project managers in that framework are as follows: the project manager confirms the relationships on work-related matters with the stakeholders, builds trust and
confidence with the stakeholders, and creates an open environment characterized by respect for the stakeholders’ consideration.

### 2.3.3 Shared Interests

CoP is a community of people joined by a common interest and who help each other through sharing knowledge, expertise and feedback (Wenger, 1999). CoPs help in building strong relationships and obtaining mutual values. What are the differences between a crowd of people and a group of people as well as the difference between a group of people and the organization? Futrell et al. (2003) distinguishes a crowd of people from a group of people by giving the following example. Passengers riding in an elevator do not intercommunicate because they are randomly grouped. Often the common space is shared by people who do not identify themselves as a team. They are not united by a shared goal. They do not possess group behavior rules; they do not need any role dissemination; they do not solve a common task; they do not need any cooperation. However, a crowd of people stuck in an elevator will soon turn into a group. They will become a team united by the one common goal of being aimed at leaving the elevator. At this moment, people start to build important relationships between themselves. They set goals informally, assign roles and define group norms. Leaders and followers are identified within the group. The randomly chosen people are turned into a group thus illustrating a case of the beginnings of cooperation between a crowd of people. Consequently, a number of groups can become an organization if the groups become united by a common objective and a set of rules for group behavior (explicit or implicit).

### 2.3.4 Leadership from the Relationship perspective

The leadership concept overlaps with the relationships perspective. Experienced managers can keep relationships in good condition by adopting the appropriate leadership style to a given situation. Therefore, this literature review embraces the leadership topic. The Multifactor Leadership Questionnaire (MLQ) was developed by Bass (1985). Bass has combined situational and charismatic approaches by developing the MLQ. The MLQ can be used as an assessment tool to capture a project manager’s leadership behavior. Since the 1980s, the MLQ has been developed to assess the components of the full range of the leadership potential of a project manager. The MLQ evaluates leadership styles from the weakest style to the strongest one: laissez-faire style avoids action and responsibility; a transactional leadership style means that there is an exchange of the required behavior by the subordinate based on received compensation and rewards; transformational leadership style focuses on the values of the people that lead to their satisfaction and effectiveness. According to Bass, charisma is one of the necessary components of transformational leadership. Transactional leaders are considered as more task-oriented while transformational leaders are viewed as more people-oriented. Transactional leaders refer to the isolated group members and appeal to their followers’ self-interest. Transformational leaders get results by modeling collective commitment, emphasizing the similarity and common aims of group members and reinforcing their collective goals, shared values and common interests. The transformational model is extended by Avolio and associates into the concept of authentic leadership (Avolio and Gardner, 2005; Avolio and Luthans, 2006).
goals, consistently practicing their values, leading with hearts as well as heads: these are specific characteristics of authentic leaders (George et al., 2007).

2.3.5 “Ba” as a shared space for emerging relationships

The concept of Ba is relevant to the relationships theme. “The Ba concept was originally proposed by the Japanese philosopher Kitaro Nishida and was further developed by Shimizu” (Nonaka and Konno, 1998, p 40). A project mental space Ba refers to a virtual, motivational space where stakeholders recognize the value of a project mission, commit themselves to the project from a variety of geographical, cultural, industrial, academic and organizational perspectives; and help build interaction and collaboration through a project specific communication base (PMAJ, 2003, p. 20). Ba can be considered as a common space for emerging relationships. This space can be physical (e.g., office, dispersed business space), virtual (e.g., e-mail, teleconference), mental (e.g., shared experiences, ideas, ideals), or any combination of them” (Nonaka and Konno, 1998, p: 40).

2.4 Knowledge

2.4.1 Knowledge

Like many other terms, the word "knowledge" has a deep meaning that goes beyond the basic dictionary definitions. Davenport and Prusak (1998, p:5) define knowledge as “a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information”.

2.4.2 Explicit and Tacit knowledge

Nonaka and Konno (1998) differentiate explicit and tacit knowledge as follows. Explicit knowledge makes it possible to express concepts, ideas and knowledge in words and numbers and to share data, specifications, and manuals. Tacit knowledge is highly personal; tacit knowledge is hard to formalize, communicate or share with others (Nonaka and Konno, 1998). Zack (1999) states that tacit knowledge is something existing within people’s heads, shared via social relationships and interpersonal interaction. According to the Macquarie Dictionary (Delbridge et al, 1987), ‘tacit’ means silent, not openly expressed but implied, understood or inferred. Explicit knowledge (knowledge in use) lies above the water line, and tacit knowledge is hidden below the water line (Scharmer, 2001). The way that knowledge can be shared has a significant impact upon how EWSs can be identified, understood and interpreted through group interaction.

2.4.3 Best Practices and Pattern Form

OPM3 (PMI, 2003) consider the best practice as “an optimal way currently recognized”.

28
Best practice (in the context of this research study) includes an approach (process, methodology) that has its usefulness proven through its application and that has produced good results, and, therefore, is recommended to follow when dealing with EWSs predictably, consistently and successfully.

Malhotra's (2000) work “Knowledge Management and Virtual Organizations” contains the pattern form to be used as a frame to collect and document best practices. The form has been designed by Coplien (1996). It contains the following sections: pattern name, problem, context, forces, solution, rationale and resulting context.

| Pattern name: | Short description of the problems, solutions, and encoding the meaning of the pattern. |
| Problem:     | Problems can be stated as a question and briefly described or illustrated by the scenario. |
| Context:     | Context has a broad meaning. It is the description of the situations where the problems may arise, and where the solution may be viable. The context should also include everything that can make the pattern unusable or limit its potential reusability; any pitfalls, hints, techniques utilized by someone when applying the pattern as well as other niceties associated with the pattern reuse at the different environment. Another context may suggest different solutions to the same problem. |
| Forces:      | The more detailed description of the problem should be provided. Forces pulling the problem in different directions and, consequently, to different solutions are also to be given. This will help users to understand better the problem, the solution and to apply the pattern effectively. |
| Solution:    | It must be a sufficiently detailed description of the solution, possibly with a sketch, so the designer can understand the structure. However, it should be general enough to address the broad context. |
| Rationale:   | Information about the “working” of the pattern. Justification may include the history of the thought processes behind the pattern creation. This information may be a key source of the others’ learning. |
| Resulting Context: | This section describes the forces resolved and unresolved, any decision to be considered in the future. |

The case-studies in this thesis are narrated by the respondents, like stories. Coplien's (1996) form is convenient for collecting the best practices due to its story-like format. The stories reflect the complexity of the actual practice and they become the wisdom repository – part of the collective memory of the integrated approaches to solve problems (Weick and Roberts, 1993). Reusing good practices is a way to make more with less, prevent reinvention of the wheel, and it is a source of competitive advantage (Bredillet, 2011).

2.4.3.1 Creative Insights

Intuition may lead to insights, which can make possible serious creative breakthroughs and business innovations. The ability of originating novel and useful ideas and solutions refers to creativity (Marakas,
Sadler-Smith (2007) refers to Oxford-educated political theorist and psychologist Graham Wallas (1858-1932) who described in his influential book, “The Art of Thought” (1926) the creative problem-solving process as consisting of several clear-cut stages. The description of these steps reflected by Sadler-Smith (2007) is given below: Immediate problem, Impasse (Dead End), Incubation, Intimation, Insight (Illumination), Verification.

**Immediate problem:** The immersion of the complex problem is in the domain of the expertise of the problem solver. If there is no experience to solve similar problems and lack of expertise to sort the "wheat from the chaff", innovators are challenged to work in uncharted territories outside the so-called “routine” boundaries.

**Impasse (Dead End):** The problem is not solved by rational analysis. In spite of the application of cognitive effort, certain problems will fail to be solved through logical analyses.

**Incubation:** A non-conscious mental process starts when we are in a state of deadlock. In the situation where the problem solver has reached an impasse, the recommended course of the action at this time is isolation and temporary disengagement.

**Intimation:** This is a feeling-of-knowing, perception of the coherence and the intuition. The complete solution is directly followed by hints that can be expressed in words, articulated and clearly understood.

**Insight (Illumination):** Eureka moment – sudden realization of the problem solution or problem-solving strategy. The solutions for insight problems arise gradually. This process takes place outside of the consciousness or awareness of the problem solver.

**Verification:** The recommended actions are development, feasibility screening, prototyping, manufacture, meditation on the result, deducing the consequences, testing the market, etc.

### 2.4.3.2 Last minute improvisation

The value of creative thinking today needs no emphasis; creative thinking can lead professionals to creative actions (Adair, 2009). Malhotra (2000) refers to Cooper’s ideas on using intuition through 'playfulness' instead of emphasizing unquestioning adherence to pre-specified goals or procedures. Sadler-Smith (2007) refers to numerous examples of scientists and others who, having reached an impasse, take a sudden cognitive ‘shift’ in which the elements of the problem come together and clarify the solution. The ability to make intuitively more subtle and refined situational discriminations can be acquired after experiencing a vast repertoire of positively and negatively ended situations (Dreyfus, 2004). Creativity is obviously beneficial for the detection of EWSs. A playful atmosphere allows people to not be afraid of asking stupid questions, collectively improvise in a team and find the solutions. Teams with open no-blame cultures with low power
and knowledge asymmetries encourage people to be unafraid to raise concerns about perceived EWS and for improvisation and collaborative problem solving (Baiden et al., 2006; Walker et al., 2014).

### 2.4.3.3 Difficulties to reproduce the best practices

O'Dell and Grayson (1998) believe that the identification of best practices and transfer of knowledge that exists in people's heads are complex and time consuming processes. Best practices may stay unrecognized for a long time in the company (Szulanski, 1996). Project managers need not only the ability for learning, but for unlearning best practices as well (Malhotra, 2000). Best practices should be continuously examined for their currency due to the business environment changing in light of current assumptions (Malhotra, 2000). Clearly, the actors (managers, skilled people in general) know the actions to be performed in various circumstances (Love et al., 2005). The authors believe that the success of their actions is self-explanatory despite the fact that the actor cannot precisely figure out the logic for his or her decision; it does not reduce the value of their act. It is commonly accepted that the utilisation of tacit knowledge depends on the context and situation in which it is used. More tacit knowledge needs to be used in one project than in another one (Koskinen et al., 2003). Much of the knowledge is unarticulated and not directly exercised. Subjective acumen, intuition, hunches, hints, ideas, emotions, feelings are categorized as tacit knowledge (Nonaka, 1994). Best practice cannot be expanded easily within the organization. This happens due to the following reasons: unawareness, poor absorptive capacity, lack of connection between the source and knowledge recipient, organizational structures that promotes "silo" behaviour, and excessive focus on the transfer of explicit knowledge rather than implicit knowledge (Szulanski and Jensen, 2004).

### 2.4.3.4 Sticky knowledge

Often the sources of the innovation / good practices can transmit their knowledge. However, they do not do it. The knowledge remaining “glued” to their careers is lost forever when these people leave the organization (Szulanski and Jensen, 2004). To reduplicate best practice is surprisingly difficult due to this potential ‘stickiness’ of knowledge (Szulanski and Winter, 2002). One of the reasons of this difficulty is that in-house “experts” do not truly know the context and mechanism why it worked at the first attempt, and do not fully understand what made them successful. Szulanski and Winter (2002) propose recommendations in order to surmount these difficulties. First, instead of looking for experts in order to fully understand the complex activity, it will be better to have a look at the work patterns. Second, when looking directly at that activity, there is no need to assume that one should fully understand what makes it work better than the experts, who have provided this success. Experts can rarely make explicit what works but intelligent and reflective observation of work patterns that work may be more informative.

### 2.4.3.5 Premortem

Kahneman (2011) recommends the premortem proposed by Gary Klein. The procedure is simple: when the organization has almost come to an important decision but has not formally committed itself, Klein proposes
to conduct a brief session for a group of decision makers. The session starts with a short speech: “Imagine that we are a year into the future. We implemented the plan as it now exists. The outcome was a disaster. Please take 5 to 10 minutes to write a brief history of that disaster” (Kahneman is quoting Klein, 2011, p. 264).

After Kahneman had described it casually at a session in Davos, someone behind him muttered, “It was worth coming to Davos just for this!” Kahneman later noted that the speaker was the CEO of a major international corporation. The premortem has two key advantages: (1) it overcomes the groupthink that affects many teams once a decision appears to have been made; (2) it unleashes the imagination of knowledgeable individuals in a much need direction (Kahneman, 2011).

2.4.4 Knowledge management

Davenport and Prusak (1998) define Knowledge Management (KM) as the generation, codification and coordination, transfer and application of knowledge. The phases of KM vary substantially depending on the industry and can be classified in various ways. There are five phases of KM according to Soliman and Spooner (2000): create, capture, organize, access and use the knowledge. Bhatt (2001) illustrates KM as a five-step process: creation, validation, presentation, distribution and application. The knowledge is expanded with interaction and reflection; unlike many other forms of capital, knowledge is expanded rather than diminished with its use (Burton-Jones, 1999). Robust KM capabilities within organizations should enable EWSs to be more readily identified and addressed.

2.4.5 Networking

Networking is the formal and informal interaction with others in an organization, industry, or professional environment. (PMI, 2013, p: 262). According to Schön (1983), it is extremely important to develop critically reflective practitioners to be capable of making knowledge actionable and in developing new knowledge suitable for their own contexts.

2.5 Value

2.5.1 Value

According to Japanese P2M standards, the project is a commitment to create value (PMAJ, 2003). The successful termination of the project means that the value, which is aimed at by the project, has been achieved. Anokhin’s (1974) idea is that value is the essential element of the system. Resonating Anokhin it can be said that

Value is a mechanism of interaction between the system’s elements. Only such a whole of selectively, engaged elements can be referred to as a system, where interactions and interrelations take the shape of “mutual cooperation” of the elements, aimed at reaching certain desired values. The key actors (team members, contractors) are considered as the value co-creators.
“One reason why we do projects is that they are vehicles for delivering specifically defined values or benefit” (Steinfort and Walker, 2011, p: 1). “The outcome is the “real” benefit, whereas the “real” value is the manner in which these outputs are combined into an outcome, which direct project stakeholders recognize as having been delivered” (Steinfort and Walker, 2011, p: 2).

Lechler and Byrne (2010) believe that project value could be represented by one or any other combinations of the project’s efficiency, technical effectiveness, and/or the satisfaction of its stakeholders. The researchers introduce the concept of the Project Value Mindset (PVM). PVM expresses the attitude of a project manager to enhance the value of a project by making decisions which focus on the project and by looking for and exploiting opportunities beyond the baseline that will lead to increased project value (Lechler and Byrne, 2010). Empirical results clearly show that it pays off for project managers being value driven (Steinfort and Walker, 2011).

There are two different meanings of the word value. Project deliverables are normally meant for prolonged operation and their actual usage is what creates the value of the investment (Klakegg et al., 2010, p: 39). It is one meaning with the focus on efficiency and effectiveness. Another meaning is an intangible value. Shimizu (2012) points out the importance of “invisible assets” such as accumulated expertise and skills, and a good network. These invisible assets “do not appear explicitly as figures in financial reports like the balance sheet or profit-and-loss statements” (Shimizu, 2012, p: 137). If such assets are not utilized they lose their value. For this reason, it is important to accumulate and renew invisible values, and continuously grow them (Shimizu, 2012). Intangible shared values requires rigorous examination of a social system and a PM’s deeper value judgment ability (PMAJ, 2007). In this study, the term value is understood not from a business perspective, but from a cultural and wider point of view than ‘iron triangle’ measures.

2.5.2 Value Management

Value management processes by P2M (PMAJ, 2003) are Value Recognition and Evaluation, Value Source, and Value Provision. Continuous searching for opportunities and acting on them helps project managers in creating high levels of project value.

2.5.3 Values appreciation

According to ICB (IPMA, 2006, p: 120) “Values appreciation is the ability to perceive the intrinsic qualities in other people and understand their point of view. It also covers the ability to communicate with them and to be receptive to their opinions, value judgments, and ethical standards. The central basis for values appreciation is mutual respect.” Stepping into the "shoes" of different stakeholders is an important ability. NCB (SovNet, 2010) points out the competence of looking at the situation from various positions (investor, client, project manager and team, general constructor, supplier, and regulating bodies).
2.5.4 Historically Derived Values

Lezneva (2003) refers to data of the research conducted by the Russian Independent Institute of Social and National Problems (2000). The Institute conducts scale studies and sociological studies in monitoring mode for a long period from 1993 to 2000. For example in 1998, about 3000 respondents from 12 regions of Russia took part in the research. The data that accumulated for several years demonstrates that materialistic values are relatively insignificant for Russian people. For example, monitoring of data in 2000 confirmed that the importance of interesting work does not depend on age, location and level of earnings. The researchers posed a question of what is appreciated by employees in their job. According to the Russian Independent Institute of Social and National Problems (2000, p: 358-359), “The main thing at work is how much you are paid” was important for only 35.4% of the respondents. Even 55% of the Russians with below the poverty line living standards choose “interest of the work” as more important.

2.5.5 East and West Values

Russia through the centuries served as the bridge between West and East, absorbing the basic values from both (Chhokar et al., 2007). The approach based on values is fundamental for shaping organization culture. Organizational culture is more superficial than national culture. Organizational culture is more easily learned and unlearned rather than the values formed by the core of national cultures.

“Aba” is the platform of the shared context in motion for collaborative value creation (Nonaka et al., 2004). Members of the international CoP contribute to collaborative knowledge and hence value creation through action and practice (Tanaka, 2013). The very same concepts and practices on management would not work equally effective in different cultural groups (Hofstede, 1980).

A lot of foreign and joint companies launched in Russia in the last 20 years have introduced some ways to postulate a set of rules and values. The Western practice of PM is widely spread in Russia and adapted to local conditions (Zarenkov, 2006). However, new organizational systems and structures drawing on Western best practices (or Asian), still remain uniquely Russian (Kets de Vries et al. 2004). National culture exerts a considerable influence on organizational culture, mostly through values. Really, it takes years to form new culture.

2.6 Russian Context and Culture

2.6.1 Culture

Kets de Vries (2000) refers to Winston Churchill who during a discussion of the puzzle with respect to understanding Russia acknowledged that he cannot forecast the actions of Russia. He said that it was a riddle wrapped in a mystery inside an enigma.

To understand the context, the term “culture” needs to be defined. House et al. (2004) define culture as shared motives, values, beliefs, identities and interpretations. A simplified definition of culture is also
available on Hofstede’s (2012) web-site (http://geerthofstede.nl/culture.aspx, retrieved on 25.11.2012), who defines culture as “the unwritten rules of the social game.” Hofstede (1980) cites other authors to say that culture consists of patterned ways of thinking, feeling and reacting.

Culture is the meanings of significant events for the members of society who collectively experienced these events. These meanings are transmitted across the generations. Culture is acquired and shared mainly by symbols, declaring the notable values and achievements of human groups.

2.6.2 Understanding History and Trends of PM development in Russia based on NCB by SovNet (2010)

Main Stages of Project Management Development in Russia: The Russian National Competence Baseline (NCB) version 3.0 by SovNet (2010) refers to an important competence; “History and trends in project management”. PM development in Russia progressed in line with the world’s project development pace but with the some lag from the West. The lag was mainly caused by computerization and information technology gaps, as well as the scale of practical application of PM. The lack of demand for professional PM was the main reason for such a situation due to the existing planning-distributive economy and administrative-command management methods in the Soviet Union. The following presents the main PM development methods stages in Russia according to the NCB by SovNet (2010).

2.6.2.1 The years of 1930’s – 1950’s: The origins of PM

The industrialization of the thirties provided the roots of PM in the Soviet Union. The growth of mass production products, primarily in the housing construction sector, provided an impulse for theory and practice development of the mainstream construction work projects. The theory of construction flow was developed based on the experience of mass housing and growing industrial production, which further appeared as the foundation of modern scientific organization and management. During the period from the thirties to the beginning of the sixties, the initial foundations of PM were laid in Russia. Planning and control of projects during this time were based on Gant’s deterministic linear models and patterns using graph-analytical methods in calculation and optimization.

2.6.2.2 The years of 1960’s: Network planning and management methods

Development of modern PM techniques started in the Union of Soviet Socialist Republics (USSR) when the first publications on network methods (critical path method, PERT method) appeared.

The key milestones of network methods development in our country:

- 1961-1963 - the first work on network methods in the USSR;
- 1964-1968 – development of network modeling and scheduling methods;
- 1966-1969 – appearance of the first software to calculate the network schedules;
• 1967-1970 – development of the stochastic and alternative network models taking into account the probabilistic nature of various project elements

By the early seventies, PM methods based on network planning methods received wide recognition in the country and were often used in different sectors of the economy.

2.6.2.3 The years of 1970's: Systematic approach and software tools

The 1970’s were characterized by the development of a systematic approach to PM and application of software tools in managing projects. To be more exact, the following processes took place:

• Development and implementation of automated network planning and management systems;
• The first PM software systems were introduced which comprised the following elements:
  - Time and cost analysis, and optimization of duration and costs of project works;
  - Heuristic algorithms of resources allocation, which performed a logical analysis of complex situations and which were capable of self-learning and possessed a user-friendly interface.
• The first sets of programs for the multi-project management of organizational program activities were created which took into account the objectives and resource capabilities of the company. Also, automated management systems in organizations and enterprises were introduced in various sectors of economy.

2.6.2.4 The years of 1980's: Creation of integrated management systems

Creation of integrated automated systems of management became the basis of technical policy in the field of production and management automation. The basis for integrated management systems included:

• A vertical integration of all the levels of management in the systems starting from technological processes automated control system up to the state management’s automated control system.
• A horizontal integration of managerial functions in the life cycle phases of product creation and all the related activities.
• Integration of the supporting part of an integrated automated system of management comprising informational, technical and organizational system integration.

Integrated automated systems of management were created in many large industrial and construction organizations, associations, administrative units and ministries since the beginning of the 1980’s. The experience obtained and achievements in the creation of integrated automated system of management were widely utilized in development of PM systems.
2.6.5 The years of 1990's: Development and implementation of professional PM

A professional approach to PM was starting to be used widely in various areas and major sectors of the Russian economy and of the economy of other former Soviet republics. Particularly, this tendency is clearly demonstrated by the International Symposium on PM organized by SovNet in 1991-1999. Some illustrations of highlights from these years follow.

- October, 1990 – creation of the Soviet (now – Russian) Project Management Association;
- Starting a new stage in the development of professional PM which is based on the transfer of international experience and domestic achievements;
- Research on how PM tools can be applied in the area of reforms (political or policy transformation) management;
- Development of modern PM methods and instruments to reflect the conditions of Russia;
- Creation of the market for professional services and PM software products;
- 1994-1999 - development and implementation of the national training and certification program for PMs on the basis of international and national requirements for the competency and standards IPMA/ SovNet.
- Introducing courses on PM at universities;
- The adoption of PM techniques in non-traditional areas: such as in social and economy projects
- Beginning to develop and to use new information technologies in PM based on the World Wide Web.

2.6.6 The years of 2000’s: New directions and areas of PM application

During this period, Russia experienced a massive transformation in the way it managed its economy and the role that PM should play. The following highlights illustrate that change in role and emphasis of PM.

Whilst the 1990's were about implementation of PM, the 2000's can be looked as an evolution of PM. There are trends of widespread implementation of PM methodology and tools in the project-oriented business, society and government management (international, national projects, federal and regional programs).

During this period, a gradual shift from financing of the manufacture of products as separate objects to funding of projects and programs may be observed; i.e. moving towards a PM approach. The 21st century has brought about emergence of project oriented organizations with certified personnel working for such organizations. These organizations have matrix management structure, project management offices and corporate standards.

An important factor in the development of project management is an intensification of undergraduate and postgraduate PM education.
Russia has become part of an international professional community. In June 2003, the first World Congress on PM was successfully held in Moscow, which was the first time this had happened in the history of Russia. The fundamental PM principles and methodology were developed which included:

- A system model and PM methodology;
- Models of the “third wave” in PM;
- Methods of strategic management and of a balanced system of scorecard collection in project-oriented organizations;
- Harmonizing the processes of education and certification of specialists
- Knowledge management, constructing the knowledge base in project-oriented organizations.

Annual international conferences of Russian PMI branches have been a help since 2004 in the city of Moscow and since 2006 in the city of St. Petersburg. International symposiums by SovNet on PM were organized in St. Petersburg and Nizhny Novgorod in 2005 and 2007. These events supported the formation of a genuine and large professional community of specialists in the area of PM in the regions of Russia.

Publication of specialized magazines contributes to the accumulation of PM knowledge, the exchange of experience with Russian and world community. Since 2004, the magazine “Project Management” has been issued by the Moscow branch of PMI (in the format of a magazine). Since 2005, the journal “Project and Programs Management” has been published by SovNet and Grebennikov (in the format of a journal).

In 2007-2008 corporate standards at the enterprise level were developed. Over the past 10 years, project management has been recognized many leaders of Russian organizations. In Russia's modern market economy, PM has become an essential factor in ensuring competitive advantage of many organizations. Successful practical application of the PM theory implies a continuous process of its development. Organizations start to be certified according the level of the maturity.

Standards in project management initiated the creation of the professional community - qualified project managers. In 2008, more than 1000 specialists passed the four-level IPMA certification system by SovNet. In 2009, the national program of training and certifying of PM specialists was developed and launched. The requirements to the competence are based on new versions of ICB 3.0 by IPMA (2006) and NCB 3.0 by SovNet (2010).

In modern conditions for successful project management are necessary qualities that were not required 10 years ago. As the complexity and scale of projects grows, it became apparent that being an effective project manager is not enough. Features of a business person moved into first place. The modern project manager should have industry knowledge and navigate freely within a business environment (internal and external). In 2008 - 2010, anti-crisis PM methods and tools were implemented under the conditions of the global economic recession in order to cushion and to overcome its possible negative consequences. Project
managers must have skills in integrating various processes taking place in projects, programs and operations. Modern project managers must possess a system of project management methodology, including terminology, methods, models, standards, tools, and processes used to manage projects in various fields.

2.6.3 Hofstede’s Study

Probably, the most well-known study on culture conducted by Hofstede (1980) was in IBM. Hofstede made a databank survey on international employee attitude while working in the IBM Corporation. IBM surveyed 116,000 respondents and compared data from over 70 different countries (Russia was not included) during the period from 1967 till 1973. Cultural values, according to Hofstede, can be grouped into behavioral responses to four problem areas, which vary between nationalities. These include (1) ways of coping with inequality; (2) ways of coping with uncertainty; (3) the relationship of an individual with her or his primary group; (4) and the emotional implications of having been born as a girl or as a boy. These four clusters of value have become Hofstede’s four dimensions of national culture: Individualism versus Collectivism, Masculinity versus Femininity, Power Distance, and Uncertainty Avoidance. Hofstede believes that an understanding of culture exists only when an effective way is developed to compare data about each country’s culture, without it a country’s score is meaningless. Four dimensions help in understanding the differences between cultures of different countries. Hofstede’s findings may be considered as generalized guidelines to follow, they help to avoid a lot of behavioral mistakes caused cultural misunderstanding, for example, breaking the cultural taboos of a country. Bredillet et al. (2010) conducted a study for understanding the role of cultural factors in PM deployment and he explored the differences in national cultures that lead to differences in management practices.

2.6.3.1 Individualism

Individualism on the one side versus its opposite collectivism on the other describes the degree to which individuals are integrated into groups (Hofstede, 1980). Individualism stands for a society in which the ties between individuals are weak or lost (Hofstede, 2000). In individualist cultures individuals are supposed to take care of themselves and their immediate family (Hofstede, 2000; Sheikh and Müller, 2012). “Collectivism stands for a society in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people’s lifetimes continue to protect them in exchange for unquestioning loyalty” (Hofstede, 2000, p: 225).

Russia displays strong collectivist tendencies, which places it into a similar category to Sub-Saharan Africa, North African countries, Mexico, the former Yugoslavia and Brazil (Bollinger, 1994). This contrasts with the most western European countries and the US. In illustrating this, Bollinger (1994: 52) cites a Russian proverb “It is more important to have 100 friends that 100 rubles”. This refers to the intensity of the relationships people have within the community.
How is this related to the deployment of PM? The PM discipline is expected be deployed in individualist countries better than in collectivist countries (Bredillet et al., 2010). A community as a collective organism lives and exists due to the individual organisms. An individual in Russia is always to a certain extent suppressed by crowd, unity, and corporations; the more tightly-knit team the less space is left for manifestation of the individual (Bekhterev, 1994). The managers while working in a culture with low individualism score (high collectivism), should be aware of the need to suppress feelings and emotions for the sake of maintaining group harmony, respect traditions and to implement change smoothly.

2.6.3.2 Masculinity versus its opposite, Femininity

Masculinity versus its opposite, Femininity is the description of roles between the sexes (Hofstede’s, 1980). Russia scores poorly on the masculine score and, therefore, surprisingly from a western perspective, can be characterized as a relatively feminine society (Bollinger, 1994). Bollinger quotes the saying “women know how to do everything, men do the rest”. In a low masculinity society, the roles of men and women are blurred. Women and men are working equally across many professions. In a low masculinity culture, a woman is expected to do things that men usually do. Project managers should be aware of treating men and women equally. What is the impact on the deployment of PM? The PM discipline is expected be deployed independently of the masculine and feminine dimensions of the countries. This means that PM deployment is not related to the masculinity/femininity of a country (Bredillet et al., 2010).

2.6.3.3 Power Distance

Power Distance is the extent to which the less powerful members of organizations and institutions (such as a family) accept and expect that power be distributed unequally (Hofstede, 1980). Russia gained a high power distance score, placing it alongside countries such as the former Yugoslavia, India and Sub-Saharan Africa (Bollinger, 1994). In a culture with low power distance, the following patterns are common: authorities treat subordinates with respect and do not demonstrate their rank; superiors may often socialize with subordinates. Democracies are the norm. In a culture with high power distance, the following patterns may be observed: people in high power distance score countries tend to have a hierarchical decision-making process (Javidan et al., 2006); authority openly demonstrates their rank, subordinates are not given challenging tasks; they often expect clear instructions; the relationship between boss and subordinate is rarely personal; politics is prone to totalitarianism and class divisions within society are accepted. Bollinger (1994) associates this score with traditions of despotic monarchy in Russia. A high power distance score indicates that people understand “their place” in the system. How does this affect the PM deployment? The PM discipline is expected to be more effective in a low power distance countries than in high power distance countries (Bredillet et al., 2010).
2.6.3.4 Uncertainty Avoidance

Uncertainty avoidance indicates to what extent a culture forms its members to feel either uncomfortable or comfortable in unstructured (novel, unknown, surprising, or different from usual) situations (Hofstede, 1980). Russia demonstrated a strong tendency towards uncertainty avoidance (Bollinger, 1994). This indicates that Russians try to avoid uncertain situations whenever possible. They are governed by company regulations and order, avoid taking responsibility and tend to seek a collective "truth". Project managers should be aware that they face very formalistic approach with lots of rules and policies, be clear about expectations, and be ready to overcome resistance to change. What is the impact on the deployment of PM? The PM discipline is expected be deployed better in weak uncertainty avoidance countries than in strong uncertainty avoidance countries (Bredillet et al., 2010).

2.6.4 GLOBE Study

The Global Leadership and Organizational Behavior Effectiveness (GLOBE) study is a significant culture work in international management, which serves as a link between national culture, leadership attitudes and competencies of managers. GLOBE has produced a database, which identifies similarities and differences among countries and organizations (Chhokar et al., 2007). There are two main reports of GLOBE. The first, “Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies” reports on the findings of a team of 160 scholars. They have worked together since 1994 studying a societal culture, an organizational culture, and attributes of effective leadership in 62 cultures. The book is primarily based on the results of a survey of over 17,000 middle managers in three industries: banking, food processing, and telecommunications. The GLOBE data concerning Russia was collected from 450 Russian managers. The period when the main GLOBE study was conducted was through the mid-late 1990's with publications being produced from it in the early 2000's. The second major publication of GLOBE is the book “Culture and Leadership across the World: The GLOBE Book of In-Depth Studies of 25 Societies.”

The GLOBE study adopts Hofstede’s dimensions paradigm of national cultures but expands the number of dimensions to nine (see the Figure 2-1). The GLOBE measures a situation ‘as is’ and compares it with the perceived ideal situation expressed by the survey participants as ‘should-be’. GLOBE findings indicated that Russia is one of the most lowly-ranked countries in terms of future orientation, uncertainty avoidance, performance orientation, and among the most highly ranked one in terms of power distance. Societal culture scale for Russia is depicted in the Figure 2-1.
“As is” state depicted in the solid pink color in the Figure 2-1 and “should be” state formatted in the dashed blue color. Some dimensions display agreement between “as is” and “should be” (Collectivism I and II, Egalitarianism and Assertiveness) while the others present differences between “as is” and “should be” (Power Distance, Performance Orientation, Future Orientation, Uncertainty Avoidance, and Humane Orientation). The 9 GLOBE definitions and its interpretations are provided below.

2.6.4.1 Institutional Collectivism

Collectivism I – Institutional collectivism is a degree to which organizational and societal institutional practices encourage and reward a collective distribution of resources and a collective action (House et al., 2004). The Institutional Collectivism culture dimension refers to the degree to which societal institutions encourage individuals to integrate into broader entities (Javidan, 2005). The authors believe that in more collectivist societies, harmony and cooperation are paramount whereas in more individualistic countries, autonomy and individual freedom are more significant. During the Soviet time from 1914-1991, loyalty to the family and to the natural group was substituted by loyalty to the political system (Chhokar et al., 2007). The Communist Party had created the required standards by manufacturing politically loyal “heroes” (Chhokar et al., 2007). Higher and higher norms were set by political commissars for workers. One well-known movement was named after Alexey Stakhanov. Stakhanov was a coal miner who achieved miraculous hourly, daily, and weekly tonnage rates. He was an exemplary hero for all Soviet workers to follow.

2.6.4.2 In-Group Collectivism

Collectivism II – In-group collectivism is the degree to which individuals are encouraged to express pride, loyalty and cohesiveness (group, organization, families) in a society (House et al., 2004). Russians have a
tendency to distrust individuals, groups, and organizations in transactions that fall outside of their sphere of personal relationships (McCarthy and Puffer, 2002). Russians tend to develop personal networks aiming to support each other by getting necessary information, goods and services, jobs, access to educational establishments and professional organizations, financing, and achieving other goals (McCarthy and Puffer, 2002).

Project managers should be aware that a group with a high degree of in-group collectivism is portrayed by a slower pace of life, a strong distinction is made between in-groups and out-groups. In most Russian business organizations, power relations are structured following the principle of a bunch of grapes (Prokhorov, 2002). That means that (1) these relations are from the top downward; (2) the relations are organized around clusters (autonomous units at the basic level, closed groups), so to say, units in the “grape vine”. Although there exist informational as well as other types of connections between these clusters, the integrity of each unit, solidarity, mutual support are predominant. The more serious the danger, the more unit members support each other and rely on each other, so that the team is interlocked in a strong union (Prokhorov, 2002).

Example of “In group-collectivism”

In the past, the researcher of this study worked in the Russian branch of a foreign bank. There was an IT Project Management Office (PMO) in this bank. A foreign employer tried to introduce new rules. The project status reports had to be submitted weekly by 3 pm on Friday. In case the deadline was not met, the employees of the PMO had to reveal the names of the colleagues delaying the report and thereby absolve themselves of responsibility for the failure to submit reports on the Bank's project portfolio by Monday of next week. It is well known that informers and whistle-blowers are hated and despised in Russia. The Russian office started to look for ways of circumventing the new rule. The employers of the PMO obtained permission to work as late as was needed on Fridays. Why did they do it? The point is that the PMO staff tried to cover their colleagues (Project Managers) who would have been otherwise accused of delays. They stayed at work for as long as it was needed, in order to help their colleagues to finish the work on time so that they would not have to disclose the victims who had not met the deadline. Everybody understood one simple idea. If I support my colleague today, tomorrow my faults will be covered with my colleagues so that I will not be punished. This is the law of Russian.

The higher level controller is needed in order to control the controlling body. This pyramid of the controllers will develop until it reaches the top level of the “Highest Controllisimus” (Prokhorov, 2002).
2.6.3 Gender Egalitarianism

Gender egalitarianism is the extent to which an organization or a society minimizes gender role differences and gender discrimination (House et al., 2004). The Gender Egalitarianism culture dimension refers to the degree to which a collective minimizes gender inequality (Javidan, 2005). The GLOBE study results suggest that Russian managers, unlike their peers in other countries, do not express willingness to increase or change the role of women in organizations or the society (Chhokar et al., 2007). Balanced gender egalitarianism implies that in Russian society, men and woman have equal opportunities for the position of authority; level of educational attainment for males and females is equal. Women, similar to men, are afforded the decision making role in the community.

2.6.4 Assertiveness

Assertiveness is the degree to which individuals are encouraged to conduct confrontations within a society and even to display aggressiveness in social relationships (House et al., 2004). Currently, more assertive behavior is in demand in Russia; however the heritage of caring for other people and a habitual social assistance limit assertive behavior of many Russian managers (Chhokar et al., 2007). Assertive behavior presents a paradox with the Russian context.

2.6.5 Power Distance

Power distance is the degree to which members of society expect and agree that power should be shared equally (House et al., 2004). Power is more equally shared in low power distance cultures and unequally shared in high power distance cultures. Russia is a country with a very high power distance (Chhokar et al., 2007). In a culture with high score of power distance, followers are expected to obey their leaders without question (Javidan, 2005). A high power distance is associated with greater centralization; thus, the ideal leader in such culture is associated an autocrat or a “good father” (Hofstede, 1980).

Why do people keep their distance from powerful people? The answer is that the fact of belonging to the powerful or elite circles may be a competitive advantage at a particular time while later on; this belonging can be a considerable disadvantage and even the reason why you can be destroyed. For example, the nobles were exterminated during the revolution because they belonged to the powerful aristocratic class. Afterwards, during the Gorbachev regime members of powerful elites of the Communist Party of the Soviet Union became a target for persecution. Indeed, a new leader tends to persecute anyone for his or her loyalty to the former regime that is why it is often preferred to keep their distance from the sources of power.

Russians feel certain nostalgia for a strong leadership; many people in Russia see the cure for every crisis in an autocratic leadership (Kets de Vries, 2000). Indeed, countries with high power distance culture prefer autocratic leadership (Hofstede and Bond, 1988). Russians are accustomed to powerful leaders who are delegating little power. Russians have a long history of powerful dictatorial leadership – starting from Ivan the Terrible and ending with Lenin and Stalin (Fey et al., 1999). The profile of an effective business leader in
Russia absorbs historic features of the nation, the heritage of a totalitarian system (Chhokar et al., 2007). Strong leaders were valued in large-scale national projects (physicists I. Kurchatov and A. Sakharov in the nuclear industry, and engineer S. Korolev in space exploration) (Grachev et al., 2008). The tradition of respect to authority is still strong in the Russian society (Chhokar et al., 2007). Nowadays, there is an obvious rapid increase in power distance; Russian President V. Putin is moving the nation towards its traditional centralized-oriented model (Chhokar et al., 2007).

2.6.4.6 Performance Orientation

Performance orientation is the extent to which a society encourages group members towards performance and excellence (House et al., 2004). This culture dimension refers to the degree to which a collective encourages and rewards group members for performance improvement and excellence (Javidan, 2005). The extent to which the Russian community encourages and rewards innovation, high level standards, and improvement of performance is low. Project managers should be aware that cultures with low scope of performance orientation rely on societal relationships. Harmony with the surroundings is important for them. Formal feedback is often perceived as judgmental and discomforting. Communications in such a culture are indirect and subtle.

2.6.4.7 Future Orientation

Future orientation is the degree to which people or societies engage in future-oriented behavior such as planning, investing in the future, and delaying gratification (House et al., 2004). Thus, the future orientation culture dimension refers to the degree to which individuals engage in future-oriented behaviors such as delaying gratification, planning, and investing in the future (Javidan, 2005). After a long period under Communism and the national long term planning system, Russian managers demonstrated limited future orientation behavior in the 1990s when the GLOBE study was conducted. The totalitarian regime in the USSR shifted the function of aims settings to a small circle of people. Indeed, 15-20 members of the Central Committee of the Communist Party of the Soviet Union had the power of decision making, whereas millions of other managers and leaders were devoid of this power in all areas (Chernevsky, 2000). Decisions were made and then communicated to enterprises in the form of five-year long plans through the State Plan of the USSR. In other words, the managers of enterprises performed the executive role only, while the workforce played the role of passive observers. Project managers should be aware that Russians focus on properly spending money rather than saving. People tend to view material accomplishment and spiritual satisfaction as separate things.

2.6.4.8 Uncertainty Avoidance

Uncertainty avoidance is the extent of reliance on social norms, rules, and procedures by a society, organization, or group to alleviate the unpredictability of future events (House et al, 2004). Project managers should be aware that in a culture with a high score of uncertainty avoidance people rely on formalized
policies and procedures. People prefer to take moderate and carefully calculated risks. A project manager should be ready to overcome a strong resistance to change.

**Vignette:** An example of “Uncertainty Avoidance” behavior during a Period of Stagnation by Prokhorov (2002)

An example of inefficiency during Soviet Period of Stagnation, can a case of a “chronicle reconciliation,” which reached its culmination during Brezhnev’s regime. Suppose, a building is being constructed, and the customer asks to exchange one material to another. The engineer, representing the vendor and working on this project, is to make a decision. Yet, this engineer is unwilling to take any responsibility personally. That is why he wants to agree this decision with his line manager and thus, passes the project to the manager for approval. Next, the line manager redirects the project for approval to a higher manager, this pattern being perpetuated until the project is re-directed for approval of the General Director of this organization. The General Director, in his term, does not approve the project and re-directs it for the experts’ review of a different organization. The main skill needed in this situation is an ability to avoid a concrete answer – neither to respond in the negative nor in the affirmative, in order not to make a mistake. Thus, the manager wants to avoid such a situation when his signature of approval is the last and the main, bearing the whole responsibility. It is required that your approval signature is so to say “supported” by another signature, another approval of a higher manager, who will take the main heat in the worst case scenario. Hence, in the period of stagnation, managerial skills were replaced by skills of avoiding responsibility and mutual cover-up. By the end of Brezhnev’s regime, the situation had reached its pinnacle. The government ministries and departments requested such a huge quantity of documentation that they were unable to process them. That is why these government bodies had to invite people from the regions to come to them on business trips so that these people would sort out their own papers.

2.6.4.9 Humane Orientation

Humane orientation is the degree to which individuals in organizations or societies encourage and reward individuals for being fair, friendly, generous, caring, and kind to each other (House et al., 2004). People should be generally very tolerant to mistakes (Javidan, 2005). Russia can be characterized as a country with a strong endorsement of humane-oriented values (Chhokar et al., 2007).

One way of describing leader behavior is considering task-orientation versus human-orientation behavior. A simultaneous focus on the relationship and the task is desirable for leaders (Fey et al., 1999). A tremendous challenge that managers have had to face is combining the need to focus on two dimensions of acceptable behavior at the same time: a focus on tasks and a focus on people. Management in the former Soviet Union was mastered effectively with each of two challenges. At one extreme, the task-oriented leader was
organized, defined relationships, set goals and ensured task completions; at another extreme the relationship-oriented leader’s first priority was establishing rapport, trust, good communication with subordinates (Fey et al., 1999). Separate Russian systems were developed to deal with each of these challenges with two mutually balancing figures: the director – the person responsible for the task accomplishment at any cost and the “partorg” – the person who took care of the people.

In addition to these separate systems, strong cultural support was provided to promote these ideas in numerous propaganda movies about achievements such as large construction sites, grandiose breakthrough in technology, a strong military machine and breakthrough in space exploitation. In a country with a collective mentality like Russia, employees expected their organization to take care of them as their family did. In the decades of the Soviet times, the Communist Party protected people (free of charge education, full employment, etc.) (Chhokar et al., 2007). It is extremely crucial to stress that, on the one hand, the partorg was subordinate to the director in the production hierarchy. However, at the same time the director was subordinate to the partorg in the Communist party hierarchy.

2.6.5 Debates between Scholars on Culture

The debate about the GLOBE study was sparked in the Journal of International Business Studies when Hofstede (2006) stated the question: What did the GLOBE study really measure? Hofstede claimed that GLOBE used three essential constructs taken from his publications in a sense that entirely differs from his: values, practices and organizational culture. A major confusion source is that GLOBE used terms from Hofstede’s earlier publications but giving them a different meaning, without being aware of this – or at least without making it explicit. For example, the terms “values” and “practices” are used differently in the GLOBE study to the Hofstede’s study. Javidan et al. (2006) challenged Hostede’s criticism that there was no basis for criticism. He argued that the GLOBE measures of values were defined too abstract.

Hofstede was also concerned that the questionnaire items used in the GLOBE survey might not have captured the researchers’ measure. The GLOBE study questionnaire included two types of questions: “as is” and “should be”. GLOBE borrowed the term “values as the desirable” for answers to their “should be” questions and term “practices” for answers to their “as is” questions. Sheikh and Müller (2012) refer to Maseland and Van Hoorn (2009) who point out the limitations of the self-report questionnaires proposing that the GLOBE Study questionnaire measured cultural variables as opposed to cultural values. Maseland and Van Hoorn (2009) called cultural variables marginal preferences. Sheikh and Müller (2012,p:27) refer to the opinion of other researchers (Taras et al, 2010) on this matter: “If the GLOBE study and other cultural value surveys are using marginal preferences rather than values, then marginal preferences have already been shown to be important.”

Another point of Hofstede’s concern was the practical use of the GLOBE’s findings. He stressed in his study of organizational cultures that the main aim was the creation of practical advice for managers about the changeability of their organizational culture. Hofstede was wondering: what the GLOBE’s “as is” and “should
be” dimensions are good for; what use can practitioners – politicians, managers, consultants, trainers, migrants, mixed-culture friends – make of them? Four years later, at the request of the editors of the Journal of International Business Studies, Hofstede (2010) re-reviewed and made a critical summary of the entire discussion as a “last word”. He summarized that several contributors to the debate left unanswered the question (What did GLOBE really measure?) stated in 2006. Moreover, Hofstede claimed that the debate left readers with an even more fundamental question: What was the use of the GLOBE dimensions? Debate regarding the GLOBE Study is still in the discussion stage of progress. Hofstede’s reaction regarding this question is skeptical: If you do not know what you are talking about, you can continue arguing for ever.

The GLOBE ranking score of Russia clearly reflects the traditional and historically encouraged group-oriented behavior rooted in historic traditions and Socialist indoctrination of collectivist behavior. It is also clear that Russia should take steps towards transforming itself into a more individualistic society. Quite poor performance orientation is rooted in Soviet past practices as well as in the difficulties of setting clear performance targets in the turbulent economic environment. The results of the GLOBE research demonstrate that the cultural group of Russia is characterized by a higher distance from the authority and a higher degree of uncertainty rejection. High uncertainty avoidance preferences are the indication of a more ordered and planned system valued by Russian managers. Hence, the risk-taking approach is more antagonistic to the Russian model than to the European one. High power distance should be considered as a heritage from the Soviet totalitarian system. In a culture completely distanced from authority, managers in most ways are more reluctant to delegate the responsibilities and continue to escape the intermediate level of the hierarchy when necessity appears. At the same time, subordinates continue to expect that further actions and measures would be explained to them directly. Overall, the profile of Russian managers’ behavior presents the marginal profile that does not fit easily into internationally recognized practices (Chhokar et al., 2007). Considering the Power Distance and Assertiveness scores, it can be assumed that Russians would prefer the tough (administrative) measures in crisis management. Currently Russia demands assertive behavior.

2.7 Defining the Research models of this Thesis

2.7.1 Considering existing Competency models

The various competency models were examined to make sense of project manager’s proficiency and to develop the Competency model for this thesis.

2.7.1.1 What is meant by a Competency?

The popularity of the term “competency” was triggered by Boyatzis (1982) in his book “The competent manager: a model for effective performance” where the competency was broadly defined as “underlying characteristic of a person” that could be “a motive, trait, skill, aspect of one’s self-image or social role, or body of knowledge which he or she uses”. Woodruffe (1993) defines competency using the term
“competence” as the set of behavioral patterns needed to perform tasks and functions with the competence. The author states that competency deals with the people’s behaviors which are necessary to display for job effectiveness (e.g. sensitivity) and not for the job itself (e.g. staff management), while competence includes both competency and job role. Competence’s simple meaning is an ability to do something well or successfully (Gale, 2004). Competence can be defined as the knowledge, skills, and personal characteristics to achieve desired performance standards (Turner and Muller, 2006), whereas knowledge might be understood as knowledge of the PM tools and techniques, and skill as the ability to apply them in any project context.

ICB (IPMA, 2006, p:3) refers to the ISO/IEC 17024 standard to define competence: “competence is the demonstrated ability to apply knowledge and / or skills, and, where relevant, demonstrated personal attributes”. Another way of defining competence is: “a collection of knowledge, personal attitudes, skills and relevant experience needed to be successful in a certain function” (IPMA, 2006, p:9).

IPMA’s formula of competence is: Competence = Knowledge + Experience + Personal Attitude.

PMCDF (PMI, 2007, p:2) defines competency as “the demonstrated ability to perform activities within a project environment that lead to expected outcomes based on defined and accepted standards” (reference to Crawford, L.H. (1997). A Global approach to project management. Proceedings of the 1997. AIPM National Conference, Gold Coast, 220-228). Cicmil et al. (2009, p. 51) believe that “Any complex project has problems built in”. It requires different types of knowledge, attitudes, competencies, behavior: being stable and unstable at the same time, predictable and unpredictable at the same time, known and unknown, certain and uncertain (Cicmil et al., 2009).

| Competence (for this thesis) can be defined as demonstrated ability to apply different types of knowledge, skills, personal attitudes, and relevant experience (KSAE) to deal well with the EWSs within a turbulent project context. |

2.7.1.2 The 5-stage model’s levels by Dreyfus

One of the most influential contributions to the debate about the intuition is made in the book “Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer” by brothers Hubert Dreyfus and Stuart Dreyfus. Their adult skill acquisition five-step model suggested that the main characteristic of expertise is intuitive situational response (Dreyfus, 2004). According to the model by Dreyfus (2004) people pass through five levels before they reach virtuosity in task performance: novice, advanced beginner, competent performer, professional, expert (virtuoso). The last two levels (professional and expert) cannot be reached without concrete experience gained. Dreyfus believes that the competency development at virtuoso level is application of intuition and holistic behaviors. The gap of this model is that it is too general. The model is applicable in any field. It needs some modifications to be practical particularly in the PM field.
2.7.1.3 PMCDF - Project Manager Competency Development Framework

The PMCD Framework (PMI, 2007) is based upon the PMBOK principles and processes describing generic competence applicable in any industry. According to the PMCDF, project manager competence consists of three separate dimensions: Knowledge Competence, Personal Competence, and Performance Competence. Knowledge Competence means project manager’s sufficient awareness about the processes, application tools and techniques for project activities. Personal Competence means project managers’ behavior in activities performed within the project environment; their attitudes, and core personality characteristics. Performance Competence means practiced knowledge and skills that the project manager possesses to meet the project requirements. This competence can be demonstrated by project assessment, related actions and outcomes in order to be considered competent.

2.7.1.4 Profiling Professional Excellence by Walker and Lloyd-Walker

Cicmil (2003) applied the five stage model by Dreyfus (2004) to understand project manager competence and expertise. This PM application was further enhanced by Walker and Lloyd-Walker (2011) and, as stated earlier, is of relevance to project managers’ abilities to identify and address EWSs. The project was established with the aim of identifying professionalism in alliance management and of building a model of competencies and skills required of excellent alliance managers (AM). The study identified core competencies, grouped into three conceptual categories such as (1) Espoused culture demonstrated through rules, expectations of alliance, (2) Culture in use, (3) project alliance and changes to base organisations. Walker and Lloyd-Walker (2011) developed a CMM (Capability Maturity Model) with four levels of an AM profile: foundational, nascent, developing intermediate and mature experienced levels. The model can be used to assess where an AM may fit and what could be done to develop AM’s capability maturity. The competency model developed for this research also has the four levels similarly to this CMM model.

2.7.1.5 The Cynefin Framework by Snowden and Boone

The key characteristics of complexity can be defined using the Cynefin framework (Snowden and Boone, 2007). The framework (see Figure 2-2) helps executives to sort issues into five domains /contexts / environments: Simple, Complicated, Complex, Chaotic, and Disorder.

Disorder context is used when it is unclear which of the other four (Simple, Complicated, Complex, Chaotic) contexts are predominant. Snowden mentioned in his YouTube movie (http://www.youtube.com/watch?v=N7oz366X0-8, retrieved on 19.08.2012) that it is the space in which project managers occur most of the time and warns about the problem of interpreting the situation appropriately. Often, leaders do not realize that they are operating in a complex environment where no right answers exist. They have to realize that the way to succeed is to use different approaches in the different situations.
Snowden in his movie placed in YouTube (http://www.youtube.com/watch?v=N7oz366X0-8, retrieved on 19.08.2012) points out that the boundary between simple and chaotic systems is different from the other boundaries (see highlighted in red color at the Picture by the author of this thesis). The principle here is simple: managers should not think that past successes will protect.

2.7.1.6 ICB - Competence Baseline by IPMA

ICB (IPMA, 2006) recognizes three dimensions or three competence elements range: technical competence elements dealt with the PM matter, the professionals are working on; behavioral competence elements dealt with the personal relationships between the individuals and groups involved or affected by the project; contextual competence elements: dealt with the project team’s interaction within the project context and with the permanent organization. The gap noted in this competency model is its insufficient attention to a systematic approach i.e. systems thinking.

2.7.1.7 P2M by PMAJ

P2M, a Guidebook for Project and Program Management for Enterprise Innovation, promoted by the Project Management Association of Japan (PMAJ, 2003) has a capability building baseline for mission-achievement professionals. The Japanese Project Management Certification System defines three professional qualification levels. A Project Management Specialist is an entry level PM specialist. A certificate is granted to a person who has demonstrated mastery of knowledge as outlined in P2M. A Registered Project Manager holds the intermediate level required for an evidenced-based higher capability demonstration of practical experience. A Program Management Architect is the highest level of the professionalism for program management. P2M, however, is a body of knowledge rather than a competency model. An advantage of P2M is that system competencies are widely presented and discussed in the various chapters of this standard.

2.7.1.8 Russian National Competence Baseline (NCB) by SovNet (2010)

Many of the works on competency are rooted in western culture and little analytic attention has been paid to Russian context. For this dissertation the Russian NCB model by SovNet (2010) was used as the basis for
Competency model development. The NCB’s (SovNet, 2010) like ICB (IPMA, 2006) illustrate a competency model in the shape of an eye. Unlike the ICB’s (IPMA, 2006) model, Russian NCB has an additional competency group titled as basic. Adding this dimension provided insights into local context and practices.

2.7.1.9 Project Complexity levels and corresponding levels of PM’s competency

The project complexity levels and the corresponding levels of PM’s competency can be used as a preliminary scale for assessing proficiency levels. Table 2-4 combines the ideas of the various researchers (Snowden and Boone, 2007; Dreyfus, 2004; IPMA, 2006). The Table also summarizes indicators of complexity and corresponding expertise: simple - advanced beginner, complicated – competent, complex – proficient, highly complex - expert.

Table 2-4 Corresponding the Levels of Project’s Complexity and PM’s Competency

<table>
<thead>
<tr>
<th>Complexity Level</th>
<th>PM’s maturity Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Domain</td>
<td>Advanced Beginner</td>
</tr>
<tr>
<td>Snowden and Boone (2007) describe a simple domain as an ordered system that is characterized by stability where cause-and-effect relationships exist. However, they are clear to everyone in advance. Often, the right answer is self-evident and reasonable for any person. It is the realm of &quot;known knowns.&quot; The decision model, according to Snowden and Boone (2007), in such a simple context is to “sense – categorize – respond.” Leaders must assess the facts of the situation first: that is, sense it. Then they must categorize and respond to it (decide what to do). In this domain, one may apply standardized working procedures and best practices.</td>
<td></td>
</tr>
<tr>
<td>Competent</td>
<td></td>
</tr>
<tr>
<td>The performance is not always successful because</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Complicated Domain</td>
<td></td>
</tr>
<tr>
<td>Snowden and Boone (2007) consider a complicated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
domain as an ordered system where cause and effect relationships exist. However, it is not self-evident, not obvious for everyone that there occur clear relationships between cause and effect. Complicated contexts may contain a range of right answers, all of them may lead to the desired result. This is the realm of "known unknowns"; the decision model in such a complicated context is to "sense – analyze – respond" (Snowden and Boone, 2007). Therefore, it requires some analysis and investigation to see what the possibilities are and what the best alternative is. To force people to choose one of the alternatives is quite dangerous. Therefore, it is necessary to call for experts in decision making. If one realizes that he or she is in a complicated domain then it is a question of what kind of expertise is needed to deal with this situation. Thus the invited experts aim at working out the cause-effect relationships.

<table>
<thead>
<tr>
<th>Complex Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>A complex domain is an unordered system – unlike the previous one (Snowden and Boone, 2007). Here, the environment is such that cause and effect are obvious only in hindsight that may bring unpredictable, emergent outcomes. In a complex context, there are no right answers. This is the realm of &quot;unknown unknowns,&quot; and a real PM realm, the most widely-spread environment for most of organizations. Small changes in one element may have a large impact on the whole system and vice versa, great changes may have a negligible effect. The decision model in such a complex context is to “probe– sense – respond” (Snowden and Boone, 2007). If the experiment succeeds the leaders set the patterns and expand them. If the experiment fails decisions are made on the basis of setting priorities rather than on the total comprehension of the given situation. Dreyfus (2004) points out, that at this level, a person determines those elements of the situation or domains that must be treated as principal and those that can be ignored. There various complicated situations might occur. One situation is when the social complexity is high, but the technical complexity is low. The other situation is when the social complexity is low, but the technical complexity is high. The PM must be able to differentiate between these two contexts and choose appropriate tools for each of these two perspectives. “There are, in fact, more situations than can be named or precisely defined, so no one can prepare for the learner a list of types of possible situations and what to do or look for in each” (Dreyfus, 2004, p. 178). Indeed, not all the possible unique situations are feasible to create procedures in advance. According to IPMA (2006) requirements, individuals at this level (IPMA Level C) are able to independently lead a project with a limited complexity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance is predictably successful and can be seen as effortless. A manager can quickly and effectively comprehend the situation, is able to see the situation holistically, to analyze the causes and to choose the best strategies to manipulate the situations from complex to complicated and ultimately to simple ones and finally to the project completion. Dreyfus (2004) states that at this level of competence, the performer's theory of the skill, as represented by rules and principles will gradually be replaced by situational discriminations. According to IPMA requirements, individuals at this level (IPMA Level B) are able to manage a complex project utilizing various PM methods, techniques, tools and a different mind.</td>
</tr>
</tbody>
</table>
they find another way.

**Highly Complex (Chaos)**

A highly complex domain is an extremely unordered system (Snowden and Boone, 2007). Everyone who operates in such an environment needs to immediately act without pondering over the matter, so that they rapidly respond to those conditions. This is the realm of “unknowables.” The decision model is to “act – sense – respond.” In a chaotic context, searching for the right answers is pointless, because it is unclear what the data are. In this domain, a leader must move quickly, do something. A leader needs to first act to establish some order, senses the response to see where stability is present, and then works to transform the situation from chaos to complexity or to push the situation to any other domains. In this domain, any practice will be completely novel.

**Expert**

The managers make decisions rapidly with limited calculations and without obvious recourse to the rules. They mostly make decisions relying on their intuition, skipping the intermediate stages of data collection and thus they are able to save time and to maintain pace. The individuals who have reached the virtuosity level do not have to decide consciously what to do; they act almost automatically without recourse to rules (Dreyfus, 2004). According to IPMA requirements, individuals at this level (Level A) are able to direct an important portfolio or program. He or she contributes to the development of the PM profession by publishing articles or presenting conference papers.

---

**2.7.2 The Initial Version of the Competency model for this Thesis**

Organizations need to use project managers with different competency profiles on different types of projects (Turner and Muller, 2006). Various competency models were considered, and their gaps for the purpose of this study noticed. Selecting, analyzing, meticulously trying on the existing models of various schools, graphically enriching and combining them helped to categorize competency groups and define the initial version of the Competency model for this thesis. The initial version of the Competency model of this thesis is based on NCB (SovNet, 2010). “Basic” competency group by NCB was retitled into “Cultural” to support the purpose of this research. The cultural competency group depicted is as the eye pupil on the graphic image borrowing similar fashion of NCB by SovNet (2010). The symbol of an eye reflects the purpose of this dissertation as it clearly shows that the person detecting EWSs in complex projects is in the centre of any evaluation (formal or informal). Moreover, the eye symbolizes the clarity of vision and its ability to foresee or predict future problems and opportunities. At the end of the Literature review, the Competency model comprises four competency groups such as technical, social, contextual and cultural competences (see Figure 2-3).
The particular competences were not defined at this stage to avoid “preconceptions” by blocking data into the predefined places.

2.7.3 The Initial Version of System Model for this Thesis

Two established theories such as Coplien’s (1996) Pattern Form and the P2M Template Structure (PMAJ, 2003, p: 13) prompted an idea of devising the System model. The assumption was that using Coplien’s pattern form for presenting case studies at the empirical stage will help to keep the respondents’ stories brief and succinct. P2M seeks ways to decode implied best practices into visible format and express them in an explicit form. Often, mature project managers intuitively create the most efficient plans and work procedures and instinctively predict problems (PMAJ, 2003). P2M suggests the Template Structure that includes such elements as Practical Guidelines, Objectives, Work Processes, Results, and Knowledge and Information Base. A shortcoming of the P2M model for the purpose of this study is the lack of explicit reference to the process of reflection. Steinfort and Walker (2011) consider the reflective cyclical process in their model: Plan, Do, Observe, and Reflect. The P2M's Template Structure adapted by adding the element titled as Reflections. The modified model P2M template is depicted in Figure 2-4.
The deficiency of the System model is that it is too general and simple. Simplifying the entire system to an understandable level could be achieved by retaining only essential features pertinent to the purpose so that the assumptions can be examined (Bredillet, 2008). Plainness of the System model at this stage could help to avoid the danger of locking data in predefined categories and concepts prior to the empirical part of the research.

2.8 Concluding the Literature review Findings
2.8.1 Gaps identified as a result of Literature Review

Looking at the literature through various perspectives helped to identify some gaps in the existing literature. This literature review helped to finalize the interview questionnaire (see Attachment D to this report). It is worth noting that the four perspectives were preselected with existing research projects in mind; theory precedes empirics. Addressing the relevant questions to the mature Russian project managers could help to bridge the following gaps identified in existing literature.

**Uncertainty:** In an effort to study the phenomenon, we started from the perspective of uncertainty. Some gaps were defined in the existing literature. There is a need to consider a complexity holistically, on the one
hand, on the other hand to pay enough attention to the complexity's detailed dimensions. There are not enough Russian country specific studies where a whole situation and its parts are examined jointly. The literature confirmed subjectivity in perception of the project's complexity and provided the basis for categorizing complexity of projects. These aspects need to be investigated at the empirical part of the study.

Validity of “gut feeling” is accepted by academics. However, papers illustrating application of intuition on practice and speculating whether “gut feeling” is helpful in dealing with the EWSs are lacking. Empirical examples of how project managers adapt assessments to the context of particular situations are underrepresented in the literature. Of course, it is impossible to find in the literature all the answers to eliminate the gaps in man's knowledge. Real life practices applied to deal with the EWSs, suitability of formal and informal assessments in different contexts - all these gaps are to be bridged based on the findings from the empirical part of this research.

Relationships: Part is our idealization - fragmentation of reality, communication about it a particular perspective. The relationships perspective helped to gain some understanding that the ability to cope with the complexity of modern projects depends critically on established relationships. The literature shows that relationship management skills are paramount for complex projects and that relationships among stakeholders are not context-free. There is not enough literature with the Russian personages in complex projects. Also, there are no much papers where relationships are considered in a broad sense, including the mutual benefits, intuition, trust, emotions, culture, attitudes, and common beliefs.

Knowledge: Knowledge perspective was needed to look for some best practices available in the literature such as improvisation, premortem, etc. Still, it is interesting to discover more innovative approaches. Barriers to identifying ‘gut feel’ indicators of potential problems are considered in the existing literature, however, this could be investigated further. Speculations on how can “gut feeling” approaches be systematized and structured in an organized manner are lacking. Looking from the knowledge perspective on project assessments is needed to better capture Russian context dependent praxis.

Value: The value perspective helped to go beyond the general understanding of the EWSs in complex projects. The literature on Russian context and culture clearly indicated the need to understand better, best practices from a cultural perspective. There is not much literature that helps to understand culturally influenced best practices in dealing with the EWSs in complex projects.

Russian context and culture: The literature helped to better understand the local context, distinguish cultural uniqueness of Russian managers, and consider the role of cultural factors on project management deployment. GLOBE findings reflect the realities of painful economic reforms and display business “mental models” in Russia that was "current" for 2004, 2007. More "current' studies are needed to realize how experts act in unfamiliar situations within the Russian context. There is a need to paint a clearer picture of project management in the Russian context.
2.8.2 Preliminarily answer the research questions

Numerous academic literature sources were accessed in order to address the research questions. This has been a long chapter in terms of its content and variety of observed concepts. The literature review helped to preliminarily answer the research questions. Indeed, research is not needed if the answer already exists (Burton and Steane, 2004).

1. What are the current practices relating to detection and response to EWSs in complex projects?

The existing practices available in the literature were considered. Attention was paid to both formal (gateway review, project health-checks, lessons-learned, retrospectives) and informal assessments (body Language, pattern recognition, feelings). The literature review showed that the combination of formal and informal practices is essential, because formal or informal approaches by themselves are not sufficient. In order to better detect EWSs in complex projects, it is important to combine formal assessments with informal assessments.

2. What are the essential skills needed for mature project managers to deal with EWSs in complex projects?

At the literature review stage I did not aim to go into any detail. At this stage of investigation, it was sufficient to identify the competency groups. The following four competency groups were singled out: technical, social, contextual and cultural competences. The literature review provided the basis for categorizing complexity of the projects into four settings such as simple, complicated, complex, and highly complex. The concrete competences within each competency group will be defined later at the end of the interview analysis stage.

3. Why are project managers often not able to reproduce best practices, which were successfully applied by them in the past to deal with EWSs in complex projects?

The literature review allowed discovering of the barriers for duplicating best practices in organizations. Some of these barriers are stickiness of the knowledge, lack of time to collect tacit knowledge, lack of mechanism to transfer best practices, lack of ability to acknowledge best practice, lack of connection between the source and knowledge recipient, "silo" behaviours of project participants, and focus on the transfer of explicit knowledge instead of implicit.

4. The Outcome of the Research: Practical Guide on Dealing with EWSs in Complex Projects

The literature findings contributed to the development of the guide on dealing with the EWSs in complex projects. This literature review allowed devising a System model and the Competency model. Both models will be refined further in the following chapters to analyze data and incorporate subsequent findings.
3. Chapter 3: Research Approach and Design

3.1 Introduction

Traditionally it is held that research processes have three main components: ontology, epistemology, and methodology (McNiff and Whitehead, 2000). Discussion in this chapter goes beyond these three perspectives and covers a wide range of the various decisions made in the course of defining the research stance, taking the methodological position and designing the research. In most of the sections of this chapter, the information has been summarized in a table format to make a clear presentation of the available options in making decisions.

This chapter covers the research stance, presents the research paradigms and theories supporting the research, explains the decisions made for designing this research and introduces the development and application of the measurement tools, and covers ethical consideration on developing a research proposal and getting its approval. Table 3-1 outlines the literature sources relevant to the research approach and design applied in this chapter.

Table 3-1: Papers Relevant to Research approach and Design

<table>
<thead>
<tr>
<th>Literature Theme</th>
<th>Indicative Authorities cited</th>
<th>Relevance and Justification of my choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Stance</td>
<td>Poli and Seibt, 2010; Bredillet, 2010; McNiff and Whitehead, 2000; Easterby-Smith et al., 2002; Gray, 2014</td>
<td>Ontological and epistemological perspectives with regards to the unit of analysis should be explained.</td>
</tr>
<tr>
<td>Research paradigm and theories supporting the research</td>
<td>Flick, 2009; Burton and Steane, 2004; Gray, 2014; Coghlan and Brannic, 2001; Strauss and Corbin, 1990; Yin, 2009; McNiff and Whitehead, 2000; Burton and Steane, 2004; Boeije, 2002; Charmaz, 2006; Wacker, 1998</td>
<td>Justification of Theoretical Perspective, arguments for selecting methodologies and methods should be provided.</td>
</tr>
<tr>
<td>Research design</td>
<td>Miles and Huberman, 1994; Glaser and Strauss, 1967; Flick, 2009; Strauss and Corbin, 1990; Burton and Steane, 2004; Denzin, 1989; Coghlan and Brannick, 2001; Flick, 2009; McNiff and Whitehead, 2000; Walker, 2005</td>
<td>The decision for designing the research should be explained and the empirical stages of the research should be described.</td>
</tr>
</tbody>
</table>

3.2 Research stance

This section explains the research stance with regards to the units of analysis. Table 3-2 contains the results of decisions on taking the Ontological and Epistemological perspectives in this research.
Table 3-2 Taking the Ontological and Epistemological perspectives this Research

<table>
<thead>
<tr>
<th>Categorizing depending on Ontological perspectives</th>
<th>Ontology of “being”</th>
<th>Ontology of “becoming”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Categorizing depending on Epistemological Perspective</th>
<th>Objectivism</th>
<th>Constructivism</th>
<th>Subjectivism</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

3.2.1 Unit of analysis

EWSs in complex projects are the object of this study, and mature PMs are the subjects and unit of analysis of this study. Nineteen respondents were involved into this study. Five situations presented and analyzed in this multiple-case-study. In each case study (1, 2, 3, and 5) an individual person (a single protagonist) was the unit of analysis, except the case study (4) where the group of protagonists was the primary unit of analysis.

3.2.2 Ontological and Epistemological Perspectives

Ontology is the perspective from which researchers perceive and understand the nature of the situation. Ontology deals with what can be rationally understood (at least partially) (Poli and Seibt, 2010). There are two opposing ontological perspectives such as “Being” and “Becoming”. Ontology of being (worldwide by Parmenides) put emphasis on a permanent and unchanging reality, while ontology of becoming (worldwide by Heraclitus) place emphasis on a changing and emerging world (Bredillet, 2010). The ontology of being suggest that reality is a frozen moment of structured time; people are fixed entities with fixed interpretations of “here and now” life experiences (McNiff and Whitehead, 2000). The ontology of becoming suggests that reality is in a state of flux; constantly transforming into newer versions of itself (McNiff and Whitehead, 2000).

Epistemology is the theory of knowledge and a critical examination of assumptions of what is valid and what is the scope of that validity (Easterby-Smith et al., 2002). Epistemology is a theory of knowledge, including a theory of how knowledge is acquired (McNiff and Whitehead, 2000, p: 29). There are three main epistemological perspectives or opinions Objectivism, Constructivism, and Subjectivism. Objectivism states that reality exists independently of consciousness—there is an objective reality “out there” (Bredillet, 2010); reality exists external to the researcher and must be investigated through the rigorous process of scientific inquiry (Gray, 2014). Constructivism claims that “truth” and meaning are created by the subject’s interaction with the world (Bredillet, 2010); truth and meaning do not exist in some external world but are constructed (Gray, 2014). Subjectivism affirms that meaning does not emerge from the interplay between the subject and the outside world (Gray, 2014); meaning is imposed on the object by the subject, a subject constructs meaning from within collective unconsciousness, from faith, beliefs … (Bredillet, 2010).
Justification of taking Ontological viewpoint of “being” and Constructivist Epistemology in this Thesis: Reality is seen as being composed of clearly formed entities with identifiable properties in contrast to seeing as becoming that emphasis on formlessness, chaos, interpenetration and absence (Gray, 2014). The reality remains; however, individuals’ experience and how it is gained are matters of their personal interpretations. In the framework of the synergetic vision cannot be any single absolute truth. Hence, multiple, contradictory but equally valid accounts of the world can exist (Gray, 2014, p: 20). Concurrently, the respondents and I were all developing our individual epistemologies of practice. Positioning myself as a constructivist, I admit that the respondents create (construct) their own realities caused by their culture, history, and circumstances.

3.3 Research paradigm and theories supporting the research

The term ‘paradigm’ covers broad aspects of scientific practice, including theory, application, and instrumentation (Cicmil et al., 2009). This section clarifies the theoretical perspectives, methodologies and methods selected for this research. Table 3-3 presents the decisions made on justifying theoretical perspective and choosing between different alternatives.

<table>
<thead>
<tr>
<th>Justifying Theoretical Perspective</th>
<th>Positivism</th>
<th>Interpretivism</th>
<th>Critical inquiry and Postmodernism</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Looking from various points of view</td>
<td>Individual</td>
<td>Organization</td>
<td>Industry</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Categorizing depending on Research purpose</td>
<td>Exploratory</td>
<td>Descriptive</td>
<td>Explanatory</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Choosing between Qualitative or Quantitative approaches</td>
<td>Qualitative</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defining Research methodologies for Qualitative Research</td>
<td>Historical methodology</td>
<td>Ethnography</td>
<td>Phenomenology</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 3-3 Theoretical Perspective and Methodologies relevant to this Research
3.3.1 Justifying Theoretical Perspective

There are four main theoretical perspectives, which form different ways of understanding social reality and dictate the research process. These are positivism, interpretivism, critical inquiry and postmodernism.

**Positivism:** Positivists believe that the world is concrete and external. Positivism originally comes from the natural sciences (Flick, 2009). The basic assumption is that the researcher is independent; he or she neither affects nor is affected by the subject of the research. Research should be objective and apart from the objects of study.

**Interpretivism:** Interpretivists claim that the positivist approach is incomplete because it does not take into account the social reality of the individual being observed. They consider that the individual and collective actions of people are based on their constructions of the world in which they operate (Burton and Steane, 2004). They believe that research is not detached from the objects of study and so interpretivism is perceived as being more subjective than that of positivism.

**Critical inquiry and Postmodernism:** Critical inquiry and postmodernism may be named in the research method literature as realism. Realists believe that a reality exists that is independent of human thoughts and beliefs (Flick, 2009). Critical inquiry tends relying on a combination of interviews with long reflective dialogs, which allow the researcher and the respondents to share an understanding of reality. Postmodernists came up with the idea that the time of long narratives is over; they argued that situationally limited narratives are required to focus on a key issue. In terms of research, the primary task becomes how the social world becomes represented in texts, how values and interests are embedded within texts (Gray, 2014).

**Justification of taking the Interpretivism position for this Thesis:**

I am not applying a positivist approach in this thesis because it would be difficult to answer all of the research questions. Positivism could be helpful to answer the two "what" questions: What are the current practices relating to detection and response to EWSs in complex objects? What are the essential skills in addition to basic PM skills needed by mature project managers within a Russian context to deal with EWSs in complex projects? The researchers following the traditions of positivism explore the world based on facts; they often rely on statistics. From a positivist standpoint, the "why" question of my research may be left unanswered: Why project managers are often not able to reproduce best practices that they have successfully applied in the past to deal with EWSs in complex projects? I am not taking a critical inquiry position because I am not acting as an agent who wants to interpret and change the world. The examples of critical inquiry research topics could be feminism, Marxism, anti-racism (Gray, 2014). Postmodernism is also not compatible approach with the topic of this research. Postmodern analysis often focuses on such research problems as advertising, lifestyles, fashion, sub-cultures, and gender (Gray, 2014).

In this research, I am taking an interpretivist position. I specifically chose to write the thesis and express myself in a personal way using "I" to reinforce the interpretive approach. Above all, I already positioned
myself as a constructivist. According to Gray (2014), a theoretical perspective that is linked to constructivism is interpretivism.

**Looking from various points of view**

I have gradually shifted in this thesis from taking an individual perspective of perceiving the research issue to an organization level and finally to an industry level. The research was undertaken in the very beginning from a personal angle (own perception of reality) caused by my culture and experience. Cognition is not a private activity of the researcher. When the interviewees joined in the research, the reflection shifted to an organization level through communicating best practices with the project managers and executives of a particular Russian University. The University on this view is a community of reflective practitioners interested in improving their work practices. Then by inviting the research participants from various fields (IT, consulting, etc.) and various schools (P2M, PMI, IPMA) the reflection shifted to the industry level. Objectivism is achieved through respecting and pooling various subjective complementary perspectives.

**3.3.2 Categorizing depending on Research purpose**

Depending on the research purpose this research can be categorized as Exploratory, Descriptive, and Explanatory. The categories are not mutually exclusive; they are a matter of emphasis.

**Exploratory:** Exploratory research studies are useful for uncovering a phenomenon under study and to answer “what” questions (What are the current practices related to the detection and response to EWSs within Russia for complex projects? What are the essential skills in addition to the basic PM skills needed for mature project managers within the Russian context to deal with EWSs in complex projects?). It was especially helpful during the initial steps of the research to explore ideas, familiarize myself with the subject of interest (mature Russian PMs) and study contradicting ideas.

**Descriptive:** A descriptive type of study is useful for answering the “why” question posed in this research: Why are project managers often not able to reproduce best practices that they have successfully applied in the past to deal with EWSs in Russian complex projects? Descriptive research is helpful for providing a detailed and accurate picture of the case-studies, for reporting on the background or describing the context of the situations.

**Explanatory:** Explanatory research is chosen when the researcher’s aim is to answer “why” question. This type of study is useful for the identifying and reporting on relationships between different aspects of the phenomena being investigated.

**Justification of choosing Exploratory, Descriptive, and Explanatory approaches for this Thesis:** Researchers have different reasons and intentions for conducting research. I have selected exploratory type to gain significant insights into the given situation; comprehend the problem better; study the phenomenon from the various perspectives (system, contextual, technical, cultural, and social); and specify the research
issue more precisely for the Russian context (cultural perspective). I chose the descriptive approach as it was helpful in combination with the exploratory approach at the next stage after the explorations. Explanatory research was helpful in the later stages of this research to support in formulating the findings of this research.

3.3.3 Choosing between Qualitative or Quantitative approaches

This research is purely qualitative because the identification of the EWSs and action is a social phenomenon undertaken by people and is best understood from open discussion rather than limiting their potential explanations through a survey.

**Quantitative:** In the case of a quantitative study, the researcher takes the existing literature about the issue of the study, derives hypotheses from it, and then tests these hypotheses (Flick, 2009). Quantitative research studies are related to numerical measurements, statistics and mathematical models that test the hypotheses. In quantitative studies, researchers on positivist position they believe that the objective reality exists and can be measured. Quantitative data is typically represented by numbers. A quantitative approach is often used to identify the relationship among measurable variables in an attempt to explain, predict and control phenomena. Quantitative data can be collected using various methods such as surveys, measurements, and historical records. The advantage of quantitative research is its objectivity: researchers try to remain independent of their subjects. One of the main criticisms of quantitative research, however, is that it often takes place in unnatural, artificial settings, which the researchers created in order to control all the relevant variables. In this regard, there are fears that laboratory results are not relevant to the ‘real world’; therefore, it will not be generalizable. Quantitative studies have also been criticized for giving narrow, incomplete information that is often taken out of the context of the environment in which they occur. That sometimes provokes the question of whether the research measures what it claims to. Therefore, quantitative research can often have a low validity.

**Qualitative:** Qualitative research approaches are less canonized than quantitative research (Flick, 2009). Qualitative research offers a wide variety of methods (for collecting information, producing texts, interpretation of texts, etc.). Qualitative data is typically represented by words. Hence, qualitative research is centrally concerned with production and analysis of texts, such as transcripts of interviews or field notes and other analytical materials (Flick, 2009). Qualitative research is concerned with the study of social processes and the experience of involved participants. In such studies, researchers usually apply inductive reasoning in dealing with non-numeric data (usually, represented as texts). The advantage of qualitative research is its high reliability.

**Justification of using qualitative approach in this thesis:** It is vital to argue positively for chosen approach, rather than negatively criticize the limitations of other approaches (Coghlan and Brannic, 2001). The qualitative approach is suitable for the study of the complex nature of the phenomenon, often aimed at understanding and describing the phenomena from the participants’ position. As stated earlier, this study is
entering new geographical area. Previous studies’ results from elsewhere cannot be readily used because the context of this study is so different from existing researches. The situations under study here make it difficult to research complex situations in artificial settings (laboratory) as usually takes place in quantitative studies. The qualitative research strategy selected because I interested to dive quite deeply into the research issue. The “Achilles heel” of this research is its subjectivity. To make it more objective, this Ph.D. research used a mixed-methods research strategy: the literature review, interviews, case studies, and focus group. Another reason of rejecting the quantitative approach in favor of the quantitative approach is a limited budget and time constraints. Klakegg et al. (2010) also have chosen qualitative research and intentionally excluded an open survey in order to reduce the risks of not having access to a sufficiently large number of respondents.

3.3.4 Defining Research methodologies for this Research

Qualitative research is a well-developed area; academics offer various procedures, tools, techniques (Strauss and Corbin, 1990; Yin, 2009; Flick, 2009; McNiff and Whitehead, 2000; Burton and Steane, 2004). Methodology is a theory of how research is conducted (McNiff and Whitehead, 2000, p: 29). Qualitative Research is an “Umbrella” term covering various research approaches (Flick, 2009). There are different ways of knowing and coming to know (methodologies) (McNiff and Whitehead, 2000). The qualitative research approach offers a number of potential alternatives: Historical methodology, Ethnography, Phenomenology, Hermeneutics, Case study, and Grounded theory. Justification of the selected methods is provided below. “Each method of qualitative research is based on a specific understanding of its object” (Flick, 2009, p.4). The EWSs in complex projects is the object of this study and the mature project managers are the subject or the unit of analysis in this research.

**Historical methodology:** Historical methodology is not suitable here. I am not aimed at, for example, in performing historical excavations in order to find out the actual roots of current best practices in dealing with EWSs originated in the Soviet era.

**Ethnography:** An ethnographic methodology is not considered appropriate for this research because it mainly relies on a longitudinal study that exceeds the scope of this self-sponsored doctoral research study.

**Phenomenology:** Phenomenology is an approach that can readily be applied in this study. It focuses on participants’ description of their actions in dealing with EWSs and it meets my criterion of addressing the ‘how’ and ‘why’ type questions. I asked the interviewees about their life experiences in relation to detecting and acting upon EWSs. I focused on intuitive approaches applied by participants of complex projects.

**Hermeneutics:** Hermeneutics is a valid tool for research of this type that requires the art of interpretation. I am involved in hermeneutics by reading texts on research issues, by holding conversations with the interviewees, and by constructing the reality based on the texts.
Case study: The case study approach is applicable for this thesis. Case studies are preferred strategy for answering “why” questions, when the researcher has little control over events and when the focus on a contemporary phenomenon (Yin, 2009).

Grounded theory: The Grounded Theory Approach developed in the 1960s by Glasser and Strauss. “A good research study is about discovering something new” (Burton and Steane, 2004, p.13). “The grounded theory approach is a qualitative research method that uses a systematic set of procedures to develop inductively derived grounded theory about phenomena” (Strauss and Corbin, 1990, p.24). Grounded theory was used in this study as it is appropriate for sense making. The theory development starts and overlaps the data collection stage in an iterative fashion (Strauss and Corbin, 1990).

3.3.5 Developing Grounded theory and the virtues of ‘good’ theory

The constant comparison of data and theory: The constant comparative method (CCM) was introduced by Glaser and Strauss (1967) and developed further by Strauss (1987) and Glaser (1992). Constant comparison of data is important in developing a theory based on the data (Boeije, 2002). Data and concepts are constantly compared in order to derive general categories, concepts catching their analytically relevant properties. “Constant comparison goes hand in hand with theoretical sampling” (Boeije, 2002, p: 393). During theoretical sampling, properties of phenomena are grouped under general headings guided by the consideration of theory development.

Several existing theories (EWSs, Competency models, “Ba”, and other concepts) have been fused into the scope of this research during the literature review. It does not mean that the theories were predefined or preselected prior to the empirical stages. The “grounded theory approach gives priority to the data and field under study over theoretical assumptions” (Flick, 2009, p.90-91). New theories, not previously raised in the literature were included in the study perimeter and analyzed in the chapters devoted to the analysis and discussion of the empirical stages. Charmaz (2006) explains that theoretical sampling means seeking pertinent data to develop your emerging theory. The main purpose of theoretical sampling is in elaborating and refining the categories constituting the theory. The theoretical sampling to be conducted until no new properties of the categories emerged.

The virtues of ‘good’ theory: Wacker (1998) provides an overview of the virtues of ‘good’ theory as uniqueness, conservatism, generalizability, fecundity, parsimony as well as simplicity, internal consistency, empirical riskiness, and abstraction.

- **Uniqueness:** One theory must be differentiated from another. Applied to this research, this means that, if, in the analysis phase, I would find two theories as identical they should be considered as a single theory.
- **Conservatism:** The current theory cannot be replaced unless the new theory is superior in its virtue. This criterion is needed when I propose an advanced version of EWS concept.
• **Generalizability:** The more areas that a theory may be applied than better. In this research, the concept of EWS was studied in the limited areas (Higher Education and IT). However, the findings can be applied widely because for this type of research understanding the phenomenon was a precursor to suggesting that it may be applicable in similar circumstances and contexts.

• **Fecundity:** A theory that is more fertile in generating new models and hypotheses is better than a theory that has fewer hypotheses. The intuitive approaches combined with the formal approaches of dealing with EWS have the potential of expanding into new conceptual areas. Such theories might be considered superior to theories, which investigate established research areas.

• **The parsimony virtue states (simplicity):** The fewer the assumption then a theory is better. In this research, it means that when I do find theories that are equals in all aspects, I will select the theory with a fewer assumptions and a better fit to the studied context.

• **Internal consistency:** The theory has to identify all relationships and give an adequate explanation. For this research it means, that the project complexity and its dimensions should be logically explained. The approaches of EWSs detection and actions upon them are also to be explained. The complex projects and actions of actors in the complex situations should be logically compatible with each other. Formal and informal approaches of actors for detecting EWSs and acting upon them should also have logical relationships.

• **Empirical riskiness:** An empirical test of a theory should be risky. Current “hard” practices are not good in detecting the EWSs and in acting upon them. In order to being valuable theory, the EWSs concept should be expanded. In this research the intuition, “gut feeling”, “soft” approaches are the areas, which are risky enough for an investigation and go beyond the traditional practices.

• **Abstraction:** The abstraction level of theory implies independence from time and space. In this research, it may be achieved by including more relationships. It is good to integrate into a larger theory the several existing concepts (EWSs, Competency, Agile, etc.). It is more virtuous than the theory that integrates fewer internally consistent relationships.

### 3.4 Research Design

There were various choices in designing the research. The researcher often encounters decisions on the issue of sampling several times at different stages of the research process (Flick, 2009). Design depends on research type: quantitative, qualitative or mixed. This study is qualitative research. Proper design is important to be sure that evidence collected allows answering the research questions. It is important to determine the evidences needed to answer the research questions convincingly. The rigor of evidence gathering is enhanced by a carefully designed and implemented approach to research (Walker, 2005). Literature reviews, semi-structured interviews, case-studies, and focus group were applied to collect the
evidences in this study. Explanations of various decisions made for designing this research are summarized in Table 3-4.

Table 3-4 Decisions made for Designing this research

<table>
<thead>
<tr>
<th>Considering Timeframes</th>
<th>Cross-sectional</th>
<th>Longitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td><strong>No</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Determining Degree of control</th>
<th>Tight research design</th>
<th>Loose research design</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No</strong></td>
<td><strong>Yes</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Defining Generalization approach</th>
<th>Inductive</th>
<th>Deductive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Defining the Research Stages</th>
<th>The Literature Review part</th>
<th>The Empirical part</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stage 1: Interviews</td>
<td>Stage 2: Case Studies</td>
</tr>
<tr>
<td>Choosing the source of data</td>
<td>Choosing independent / non-case specific participants</td>
<td>Choosing case-study specific participants</td>
</tr>
<tr>
<td>Literature in Russian</td>
<td>Literature in English</td>
<td>Academics</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Making decisions at different stages of this research</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Selecting case-design for this research</td>
<td>Single case-design</td>
<td>Multiple case-design</td>
</tr>
<tr>
<td>No</td>
<td><strong>Yes</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Making political decision on where to conduct case-studies</th>
<th>In your own organization</th>
<th>Outside</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
<td></td>
</tr>
</tbody>
</table>

| Research Findings at different stages of this research | | |
|--------------------------------------------------------|---|---|---|
| 4 competency groups defined                           | 8 key competences identified | 9 th competence groups identified |
| Preliminarily answers to the research questions given  | 5 th competency groups added | 5 competency groups confirmed |
|                                                         |                           | Research Questions addressed |
|                                                         |                           | Research Proposition addressed and Findings grounded |
|                                                         |                           | Guide on dealing with the EWSs finalized |
|                                                         |                           |                               |
3.4.1 Considering Timeframes

Two types of research depend on the time dimension: cross-sectional or longitudinal studies. A cross-sectional research study produces a 'snapshot' of data while a longitudinal research is helpful when studying change and development of a phenomenon to be examined over an extended period. This research is cross-sectional.

Justification of selecting Cross-sectional Research for this Thesis: I invited research participants to be interviewed within a short period (Spring 2013). The longitudinal research option was not considered as a feasible alternative for this thesis due to limitation of scope, resources, and time. This thesis provides an opportunity for future research that I might undertake outside the scope of this study. As such, this study may become extended to become longitudinal. Another point to conduct longitudinal research is when one wants to identify changes in something. However, at this stage there are no other studies in Russia on this phenomenon to do a meta-study comparison of previous studies and allow the longitudinal study.

3.4.2 Determining Degree of control

Miles and Huberman (1994) distinguish between a tight and a loose research design. Narrowly restricted questions and strictly determined selection procedures determine a tight design. This research is defined rather loosely or broadly. For example, I took a decision (on who is the next interviewee) based on the result gained from previous meetings during data collection and analysis. That led be to find knowledge gaps about this research topic that required being filled and identifying an appropriate source to fill that gap. This approach is suggested by Glaser and Strauss (1967).

3.4.3 Defining Generalization approach

There are two types of reasoning approaches applied to data analysis, namely, deductive and inductive. Deductive reasoning draws a conclusion based on much information while Inductive logic tries to generalize conclusions based on one piece of information. In deductive reasoning (top-down logic) a conclusion is reached from a general statement by testing ideas, using facts and then generalizing. In inductive reasoning (bottom-up logic) the conclusion is derived from observation of data by discovering patterns, which may then point to more general theories. Deductive and inductive approaches are not incompatible. Both can be used in combination by moving between inductive and deductive thinking.

Justification of selecting both Inductive and Deductive approaches for this thesis: A combination of inductive and deductive approaches applied in this research. The preliminary stage in this research (literature review) has been deductive in choosing relevant theory, developing a framework and driving to the research proposition. In this research, inductive reasoning began with collecting a wide range of relevant field information from different sources (interviewees, case studies, and focus group) and leading to general ideas to make discoveries.
3.4.4 Defining the Research Stages

“Generally speaking, the keywords “research design” addresses the question of how to plan a study” (Flick, 2009, p.128). This study is planned to consist of two parts. At the literature review part of the research, I used secondary sources of data. At the empirical part of the research I collected primary data from various sources at the three stages (interview, case studies, and focus group).

3.4.4.1 Preliminary Stage: Literature Review

The literature review aimed at consideration of various theories, searching the best practices in the existing literature, developing the research frameworks and preliminary answering the research questions.

English and Russian literature was used as the sources of relevant data. Often, existing research publications contain quoted materials from interviews and field notes. These quotations used as secondary sources of data in this research. Each of these perspectives helped to determine contentious terms, find gaps in the PM field, define assumptions and research questions to address in this study. The process of “the qualitative research process can be briefly represented as a path from theory to text and another path from text back to theory” (Flick, 2009, p.4).

The research findings at this stage are as follows: the theoretical models; the defined competency groups; the preliminary answers to the research questions; the gaps identified in existing literature; and the finalized interview questionnaire.

3.4.4.2 Stage 1: Interviews

The interviews aimed to explore the views, experiences, attitudes, beliefs and specific practices of the individuals. The semi-structured interviews were conducted with the 19 respondents. They were independent professionals and academics from various Russian organizations representing various generations and various fields. The quality of the data collected depends on the interview design and the skill of the researcher. The mature professionals who are capable of providing a valid response involved in this study. The potential participants searched within the pool of peers, the experts suggested by PMI and IPMA chapters in Moscow, the participants of relevant PM conferences. 24 open-ended questions addressed to each of the interview participant.

All the audio files tape recorded during the interviews. Nearly 95 % of the interview sound files were transcribed and coded. According to Strauss and Corbin (1990, p. 57), coding is “the operations by which data are broken down, conceptualized and put back together in new ways”. In other words, the coding is analysing data. As the authors say, it is a central process to build theories from the data. A different way of doing coding (line-by-line coding, sentence-by-sentence, examination of paragraphs, phrases, and even single words) recommended by Strauss and Corbin (1990) was applied. Several secondary sources (papers) written by the respondents were found and cited. To preserve anonymity the respondents’ names -
the authors of articles— are not specified. A link to the source citing an article written by an anonymous respondent provided under the number of the respondent (R #1, R #2, and so one).

In total, more 450 pages of transcribed data were converted to text format. No any supporting software such as NVIVO or SPSS, for instance was used in this research. On one hand, the explicit texts allowed to make interview interpretation much easier at the later stages of the research (see the Attachment D for some answers to the 24 questions of this thesis). On the other hand, the shapeless collection of the transcribed text does not provide the whole picture. It was necessary to decide what was important and what was not; what should be included and what can be discarded. Only the most relevant parts of interviews was translated into English and cited in the thesis. The most illustrative materials were selected and interpreted following suggestion of Strauss and Corbin (1990). Concepts are discrete events, happenings, and other instances of the phenomena (Strauss and Corbin, 1990). In the course of this research, dozens of concepts were discussed by the respondents. These concepts were examined, compared one against another to find out the similarities and differences. Similar concepts were grouped together / categorized to reduce the number of units to work with (Strauss and Corbin, 1990). Choosing the right name to a category (Strauss and Corbin, 1990) was a major step.

The Competency model and the System model formed basis for analyzing data and both were modified at the end of the interview stage. The interviewees were not aware of the literature review results because of the exploratory character of this research. Neither the Competency model nor the System model was demonstrated to the respondents. Based on the interview stage findings, eight competences were distinguished and fifth competency group identified. Where the research involves a series of connections between different concepts, it is often a good idea to depict them in a diagram (Burton and Steane, 2004). An interim version of the Competency model was developed to map on it these findings. At the end of the interviews stage, the System model was also modified to incorporate new concepts and depict connections between the key system elements.

3.4.4.3 Stage 2: Case Studies

The aim of the case studies was to gain particularly deep insights into the actions of the mature professionals in dealing with the EWSs.

The case study sample group was represented by the narrators of the stories. In total, 8 participants were in the case study sample group. Each of the three cases (1, 2, and 3) narrated by the main characters of the cases. One case (5) also narrated by a single protagonist; in addition, other four participants shared their reflections of that case study. I selected the individuals for this sample group from the interview respondents. The selection criteria based on their interest and extensive experience of managing complex projects. In designing these case studies, Yin’s (2009) recommended that multiple case-designs might be a preferred way over single-case-designs because you do not “put all your eggs in one basket.” In this research, the five cases studied. The case study sampling strategy was not to purposefully concentrate on a small number of
cases. Quantity was not the key point; the question “how many cases” was not relevant to this qualitative research. The relevant question here was “which cases” because generalization depends on the quality of sampling data (Flick, 2009).

Knowing that generalizability is a common criterion for accessing the quality of a research study, I was searching for particular cases and choosing certain experts in order to explore and better understand the actions, emotions, attitudes, motives, etc. A suggestion offered by Denzin (1989) is to study the same phenomenon at different times and places and with different persons. Yin (2009) points that even with two cases; a researcher has a possibility of a direct replication. With a limited number of cases (five) the rationale for selection was to ensure diversity (field, scale, complexity, novelty, stakeholder interaction, politics, dynamics, time facets, and so one) and contrast (ordered and unordered, success and failure). In qualitative research, “the number of individuals or situations studied is less decisive than the differences between cases involved (maximal variation) and the theoretical scope of the case interpretations” (Flick, 2009, p.130).

Any form of research in organizations has its political dynamics (Coghlan and Brannick, 2001). Research activities such as gaining access, using data, and publishing records are all viewed as intensively political acts. Researchers often think that they have little power in the research process because they are dependent on decisions of others for access (Coghlan and Brannick, 2001). However, the researchers may be seen as powerful because they initiate research and are free in selecting whom to involve (Coghlan and Brannick, 2001). Three case-studies (1, 4, and 5) took place in the organizations where I worked, and two case-studies (2 and 3) were run outside.

Flick (2009) suggests: try to include people you do not know personally in order to receive fruitful insights. Three cases (1, 3, and 5) narrated by acquaintances. One case study (4) narrated by the researcher of this study. One case study (2) developed by a person who is quite new to me. I accessed the central figures in the settings and addressed Plain Language Statements to interview the respondents. The case studies conducted using a familiar method such as interviews and observation. I held one personal interview with each main character. The respondents shared their stories and critically reflected on past events. As a researcher, I have directly or indirectly participated in three cases out of five. Namely, I was the direct observer in the case study (1). The events described in that case, took place in the organization where I worked; I took part in some meetings. I was the indirect, passive external observer of the events described in the case study (4). I directly participated in the events described in the case study (5).

In the case studies, no any reports, archival records, and other sources of information were used about a person from the organization to which individual belongs. An exception is one case study (2). That case study contains quotes from various documents such as e-mail correspondence between the project participants and excerpts from presentations and meetings. That case was developed by the narrator and given to the researcher in finished form.
The units of the study are the mature project managers. Their behaviour, views, and perceptions were important to understand. The commonly required skills for the investigator are asking good questions, flexibility, understanding of the research problem, listening, and not getting trapped by own ideologies or preconceived notions (Yin, 2003). The data collection not routinized in advance by preparing procedures to follow strictly. Each case study began with the short definition of the research problem. Hermanns (2004) observes the interview interaction as a drama. That is true and the interviewer played the leading role to facilitate this drama, allowing it to evolve.

The data is presented in a unified manner. Each case study presentation has a similar outline: context, objectives, actions, reflections, and lessons learned. Data is not evidence. Evidence is drawn from the data (McNiff and Whitehead, 2000, p: 135). Data categorized applying the research models as the analytical tools to identify patterns, perform cross-case synthesis, identify gaps and report findings. The findings reported as the lists of the competences manifested in the actions of the case studies’ protagonists.

3.4.4.4 Stage 3: Focus group

A focus group meeting was arranged in order to gather experts’ opinions and finalize the results of the study. For the objectivity reason, I tried to arrange attendance of one person from each case study. There were eight people who gave their feedback on research findings. Four were available at a common time for the focus group workshop, and other four gave their feedback individually.

As a result of the focus group stage, the ninth competence identified and added to the Competency model. The magical number 7 ± 2 by Miller (1956) is often interpreted as the optimal number of simultaneous variables that the average human can hold in working memory. The number of the key competences not exceeded the magical number. At the final stage of the empirical part of the research, the research questions were addressed; the findings from all stages were joined, finalized, and grounded; the research proposition was addressed.

3.4.5 Triangulation Rigor in This Research

The soundness and accuracy of research findings must be rigorously tested. Triangulation is a method used to check and establish the validity. Triangulation means combining several qualitative methods and also combining qualitative methods with quantitative to complement each other and compensate for the weaknesses and blind spots of each single method (Flick, 2009). There are several ways of triangulation, namely: data triangulation; investigator triangulation; theory triangulation; and methodological triangulation (Denzin, 1970).

Data triangulation requires repeating data gathering activities. Triangulation was obtained through comparing the collected data from an extensive literature review and empirical part of work. A multi-method research strategy was used to get data and provide a deeper understanding of the phenomenon of interest (literature reviews, semi-structured interviews, case-studies, and focus group).
Investigator triangulation can be achieved using several investigators. I was a single investigator in this research. The feedback of the focus-group respondents (non-case-study and case-study specific) helped to validate the research findings.

Theory triangulation is performed by looking through multiple perspectives on the same data set: Uncertainty, Relationship, Knowledge, and Value.

Methodological triangulation is performed by using a number of research techniques and data collection methods to test validity of research findings and to understand better the data. I used a combination of inductive and deductive approaches. The term 'fact' is a relative term, one can ensure that several points of view can be triangulated to strengthen the validity of data presented (Walker, 2005). Trying to understand the phenomenon, I examined it from various points of view. Triangulation was done by engaging different participants such as project managers, project sponsors, and PM industry gurus. My aim was in gaining a holistic picture, getting a deep understanding by interviewing people and finally co-producing new knowledge together with the research participants. The reality that is studied by qualitative research is not a given reality, but it is constructed by different “actors” (Flick, 2009). Hence, the reality is constructed jointly. Such a triangulation of perspectives expands the focus on the phenomenon under analysis (Flick, 2009).

In the end, it was necessary to decide on behalf of which actor this thesis will be written. This research thesis was written from a project owner's perspective as seen from the organization or by organization's executives.

### 3.5 Tools for Data Treatment and Interpretation

Interview questionnaire was used as a guideline in conducting “semi-structured” interviews. The research models (the System model and the Competency model) were calibrated along the way of accumulating the evidence. The Table 3-5 shows the development and application the tools in this study.

<table>
<thead>
<tr>
<th>Defining the Research Stages</th>
<th>The Literature Review part</th>
<th>The Empirical part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of the Tools for Data Treatment and Interpretation</td>
<td>Stage 1: Interviews</td>
<td>Stage 2: Case Studies</td>
</tr>
<tr>
<td>• Interview guidelines and Questionnaire</td>
<td>• Interim Version of the Competency model</td>
<td>• Final Version of the Competency model</td>
</tr>
<tr>
<td>• Initial Version of the Competency model</td>
<td>• Interim Version of the System model</td>
<td>• Final Version of the System model</td>
</tr>
<tr>
<td>• Initial Version of the System model</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3-5 Development of the Tools for Data Treatment and Interpretation
3.5.1 Interviews guideline and Questionnaire development

Interview guideline enabled to ensure that important areas were covered. Developing effective interview questions is the key to conducting a successful interview. I presented the Interview Questionnaire at PMI Research and Education Conference in 2012 that took place in Ireland (Limerick). The Interview Questionnaire was printed and distributed it among a group of experienced professionals at Doctoral Colloquium asking for their comments. I received general tips on modifying the Interview Questionnaire from the conference participants.

There were 24 questions (see the Interview Questionnaire with some of the interview responses in the Attachment D to this report). In total 19 people responded to the 24 questions (the Example of an Interview Transcript follows in the Attachment E to the report). The questions were structured in advance into three groups of questions specific to (1) practices in identifying and acting on EWSs in complex projects; (2) profiling professional excellence to deal with EWS; and (3) towards general improvement of current PM practices.

- 1. Questions from 1 to 10 are specific to practices in identifying and acting on EWSs in complex projects. A questionnaire starts with questions related to the respondent's work history. I began by asking to tell briefly about experience in simple projects and then the discussion moved to past performance of the interviewee on complex projects. The questions also invited people to reflect the characteristic for distinguishing the levels’ of project complexity, existing practices of formal and informal assessments, and the barriers to identifying 'gut feel' indicators of potential problems.
- 2. Questions 11-15 are intended to cover practices in profiling professional excellence to deal with EWS. Several questions addressed to identify the essential skills in addition to the basic PM skills needed for mature project managers within the Russian context to deal with EWSs in challenging situations in complex projects. The respondents reflected on uncertainty management skills in addition to traditional risk management. They also discussed how value management skills are different from the traditional cost management practices. Moreover, reflected on relationships management skills compare to traditional communication management practices. Also, a hypothetical question posed on particular skills that the interviewee would be looking for in candidates, if he or she would be employing project managers for moderately complex projects and highly complex projects.
- 3. Questions from 16 to 24 in the interview questionnaire are specific to improvement of current PM practices. The respondents were in search of tips, developing guidelines to support, systematize, and structure assessments. The interview participants are also asked to speculate on reasons of failure to duplicate best practices that they successfully applied in the past to deal with EWSs in complex projects.
Flick (2009) warns against applying the interview questionnaire too bureaucratically. Sometimes in the course of conversation, the sequence of the questions in a “semi-structured” interview was changed. Occasionally, I had to interrupt the interviewee when some of the respondents started to deliver a lecture drawing on their knowledge, switched to the personal matters discussion with the colleagues instead of exploring the research topic. For example, when Respondent #4 changed the subject and switched from the narration of the case study to the exposition of his standpoints on Islamism, Christianity, and the situation in the Netherlands, it was realized that a change in direction was required and very handily I returned to the format of interviewer-respondent, but not lecturer-audience. However, other situations were taken place when I devoted the time to discuss a particular matter instead of to turn to the next point in the questionnaire.

### 3.5.2 The Research models

The conceptual framework of the research should clarify the boundaries of the research, the use of critical terms, and to clearly indicate the intellectual thinking on which the study is based (Burton and Steane, 2004). There were two models developed in this research, namely the System model and the Competency model. The System model served as a conceptual framework. The System model helped to bundle the stories narrated by the Russian mature project managers and integrate the findings of this research under umbrella of a holistic approach. The Competency model played a supportive role and helped to define the key nine competences and cluster them into the five competency groups. Comprehensively applying these models produced new insights at the empirical stages of this research, contributed towards understanding on dealing with the EWSs in complex projects.

The models were developed gradually. The first draft versions of the both models were initially defined at the end of the literature review. The both models have been gradually developed throughout this thesis. Combining the two ways of knowing (theoretical and practical) helped in understanding reality better. Unlike a quantitative researcher, whose discoveries are made almost entirely during data analysis, a qualitative researcher makes significant discoveries at the data analysis and during the thesis writing stages (Burton and Steane, 2004). Based on the interview findings the system model and the Competency model were modified. The case studies’ and focus group’s findings jointly helped to get new insights and finalize the models.

### 3.6 Ethical considerations

Research is an ethico-political process, because knowledge and its use are contested issues (McNiff and Whitehead, 2000). Ethical consideration had to be addressed here. It is a sensitive point because human subjects are involved and protection of the interests of those who are ready to take part in the study is paramount.

**Plain Language Statements:** Interviewees received a Plain Language Statement and accepted the general purpose, methods and demands of the study. I totally disclosed how the data would be used and published.
Attachment B presents the Plain Language Statement addressed to Case-study participants and Attachment C a Plain Language Statement for Independent Participants of semi-structured Interviews.

**Developing the research proposal and getting approval:** University research ethics committees requires research projects to adhere to ethical principles of informed consent, honesty, conflict of interest, privacy, and the principle of ‘doing no harm’ (Burton and Steane, 2004). The ethical principles at RMIT University were established by the Human Research Ethics Sub-Committee. Application of the research proposal to RMIT’s Ethic Committee provides a good opportunity to summarize all aspects of the study. That includes a summary of the proposed methods; number of participants required; description of data collection techniques; list of key references that will be used in the research; research participant details with precise details of an explanation of the interviewee recruitment method; informed consent and advice on project outcomes; privacy and confidentiality; funding and finance information. Table 3-6 summarizes the papers submitted to and approved by RMIT University.

<table>
<thead>
<tr>
<th>Developing the research proposal and getting approval of the University Ethics Committee</th>
<th>The research proposal (Attachment A)</th>
<th>Consent form (Attachment A)</th>
<th>Plain Language Statement addressed to Case-study participants (Attachments B)</th>
<th>Plain Language Statement addressed to independent participants (Attachments C)</th>
<th>Interview Questionnaire (Attachments D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### 3.7 Conclusion

There is a long way of moving from research identification to submitting the thesis for obtaining the research degree. This chapter explained the ontological, epistemological and methodological positions taken in this research. The research design, the development and application of the measurement tools, the procedure of developing a research proposal and getting its approval were presented as well.
4. Chapter 4: Findings and discussion

4.1 Introduction

This chapter reports and grounds the findings from all empirical stages of this research. It presents the findings from different perspectives at the different stages: (Stage 1) Interviewees, (Stage 2) Case studies, and (Stage 3) Focus-group. In the end, the answers to research questions are given, and the research proposition is addressed.

Kurtz and Snowden (2003) referenced to a television advertisement in their paper to demonstrate how the same situation may seem differently from different perspectives. The researchers illustrate the terrifying environment of twilight, garbage etc. to show how an ability to appreciate alternative perspectives is important.

- **1st perspective:** The camera points down the street. The first scene illustrates the skinhead coming around the corner and running towards the camera pointed down the street. Skinhead’s actions captured attention of the police car. The decision must have been taken to run away from the police.

- **2nd perspective:** The camera now changes its perspective; it is now behind the skinhead. In the second scene when camera’s perspective has been changed it captured the skinhead running towards the man with a briefcase. The man seemed to be horrified by the rapidly approaching skinhead because he assumes that he is about to be mugged.

- **3rd perspective:** The camera now changes its perspective; it is now above the skinhead. The third episode shows the final perspective of the camera where the skinhead grabbed the man, pushed him into the portico of a building and saves his life because if he had stayed where he was before the skinhead pushed him into the shelter of the portico he would have been killed him by a crate of construction material that was falling from the top of the building towards the man’s head.

This advertisement recommends reading the newspaper; it says the man should run to save his life and not to wait for the material falling from the building. Last, in this example, the importance of culture and taking different perspectives is demonstrated well by Kurtz and Snowden (2003).

4.2 Stage 1: Interviews

4.2.1 Purpose

The aim was to receive answers to the interview questions from respondents. The interviews were conducted during spring 2013 (from April till May) at the workplaces of the interviewees. The interviews lasted from 45 minutes to two hours maximum without a break.
The respondents expressed their assumptions spontaneously and immediately while responding to open-ended questions. During the interviews, theory-driven questions were asked as has been suggested by Flick (2009). The Interview Questionnaire (see Attachment D) presents the 24 questions and the answers (only a part of the interview data has been presented because of the size limits). To be clear and short, project managers in Russia are always referred to by the male gender (he, his, and himself and his); however, it is also understood as female gender (she, her, herself, and hers). The scientific concepts applied to the questions were limited to everyday life language usage to describe the topics by respondents using their own words.

4.2.2 Participants

I was very particular in selecting the interviewees - professional practitioners (non-case specific). A professional practitioner is a specialist who encounters certain situations again and again (Schön, 1983, p: 60). Schön (1983) believes that competent practitioners usually know more than they say. Considering that this research project was financed by me, I selected a limited number of experts, who have the potential to provide deep insights from different angles into the research problem being explored. The respondents were invited from various fields (Higher Education, IT Consulting, Business Consulting, Oil and Gas, and Medicine).

The age of the interviewees ranged from 30 to 70; they were representatives of three different generations. All 19 respondents hold a Masters degree and more than half of them have a Ph.D. All respondents answered exactly the same questions, which were also addressed to the case-study participants. All of them were Russian speaking. Only two respondents were from Ukraine and Kazakhstan - the former USSR republics. All the other seventeen respondents were from Russia. The Table 4-1 provides the interview participants’ data.

<table>
<thead>
<tr>
<th>ID for the interviewee:</th>
<th>Participant of the Case</th>
<th>Age of the interviewee:</th>
<th>Professional field:</th>
<th>Profession of the interviewee:</th>
<th>Details about Respondent</th>
<th>Typical Project Role of the Respondents</th>
<th>Country of residence</th>
</tr>
</thead>
<tbody>
<tr>
<td>R #1</td>
<td></td>
<td>50-60</td>
<td>Higher Education</td>
<td>University Executive</td>
<td>PhD</td>
<td>PMO</td>
<td>Russia</td>
</tr>
<tr>
<td>R #2</td>
<td></td>
<td>60-70</td>
<td>Higher Education</td>
<td>University Executive</td>
<td>PM</td>
<td>PMO</td>
<td>Russia</td>
</tr>
<tr>
<td>R #3</td>
<td></td>
<td>30-40</td>
<td>Higher Education</td>
<td>Program Manager</td>
<td>PhD</td>
<td>Project Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #4</td>
<td>Case #5 Youth Camp</td>
<td>60-70</td>
<td>Higher Education</td>
<td>Faculty and Freelancer</td>
<td>PhD</td>
<td>Trainer, coach</td>
<td>Russia</td>
</tr>
<tr>
<td>R #5</td>
<td>Consulting External Contractor</td>
<td>60-70</td>
<td>Consulting External Contractor</td>
<td>Faculty and Company Owner</td>
<td>PhD, P2M</td>
<td>Sponsor, Program Manager</td>
<td>Ukraine</td>
</tr>
<tr>
<td>R #6</td>
<td></td>
<td>50-60</td>
<td>Medicine</td>
<td>Head of Therapists</td>
<td></td>
<td>Project Manager</td>
<td>Kazakhstan</td>
</tr>
</tbody>
</table>

Table 4-1 Interview Participants’ Data
<table>
<thead>
<tr>
<th>R #7</th>
<th>30-40</th>
<th>Consulting External Contractor</th>
<th>Freelancer</th>
<th>P2M</th>
<th>Program Manager</th>
<th>Russia</th>
</tr>
</thead>
<tbody>
<tr>
<td>R #8</td>
<td>30-40</td>
<td>IT Consulting</td>
<td>Freelancer</td>
<td>P2M</td>
<td>Program Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #9</td>
<td>30-40</td>
<td>Consulting External Contractor</td>
<td>Freelancer</td>
<td>PMP, P2M, Prince2</td>
<td>Program Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #10</td>
<td>30-40</td>
<td>IT Consulting External Contractor</td>
<td>Company Owner</td>
<td>P2M</td>
<td>Program Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #11</td>
<td>30-40</td>
<td>Consulting</td>
<td>Company Executive</td>
<td>PhD</td>
<td>Project Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #12</td>
<td>40-50</td>
<td>Oil and Gas</td>
<td>Head of Department</td>
<td>PhD</td>
<td>PMO</td>
<td>Russia</td>
</tr>
<tr>
<td>R #13</td>
<td>30-40</td>
<td>Higher Education</td>
<td>Company Owner</td>
<td>Project Manager</td>
<td>Russia</td>
<td></td>
</tr>
<tr>
<td>R #14</td>
<td>50-60</td>
<td>Higher Education</td>
<td>Head of Department, University Executive</td>
<td>Project Manager</td>
<td>Russia</td>
<td></td>
</tr>
<tr>
<td>R #15</td>
<td>40-50</td>
<td>Higher Education</td>
<td>University Executive</td>
<td>PhD</td>
<td>Program Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #16</td>
<td>50-60</td>
<td>Higher Education</td>
<td>University Executive</td>
<td>PhD</td>
<td>Project Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #17</td>
<td>30-40</td>
<td>Higher Education</td>
<td>Faculty</td>
<td>PhD</td>
<td>Project Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #18</td>
<td>50-60</td>
<td>Business Consulting</td>
<td>Company Owner</td>
<td>PhD</td>
<td>Project Manager</td>
<td>Russia</td>
</tr>
<tr>
<td>R #19</td>
<td>50-60</td>
<td>Higher Education</td>
<td>Faculty</td>
<td>PhD</td>
<td>Project Manager</td>
<td>Russia</td>
</tr>
</tbody>
</table>

**NB:** Respondents of this thesis are representatives of three different generations.

- Respondents 2, 4, 5 belong to the generation of 80’s of the Soviet era when the traditional mentality was dominated with the ideas of the ethnic supremacy focused on the social stability.
- Respondents 1, 6, 12, 14, 15, 16, 18, and 19 belong to the generation of 90’ – the transitional period from the Soviet to post-Soviet era. The traditional mentality was still supported the collectivist values. Due to the restructuring processes in the country this generation is slightly oriented to the professional identity.
- Respondents 3, 7, 8, 9, 10, 11, 13 and 17 belong to the generation of 2000’ of the Post-Soviet era. This generation is general oriented to the professional identity as well as to innovations. Some of the respondents are freelancers highly focused on the professional identity plus on the individual achievements.

The criteria for interpreting research results are derived from theory. I focused on considering the competences according to the Competency model initially defined at the literature review stage.
interviewees have a substantial stock of knowledge on dealing with EWSs in complex projects. A large amount of data has been minimized to a limited number of the key concepts. Respondents' insights allowed determining the eight key competences for dealing with the warning signals in complex projects (System Approach, Considering Context, Modelling, Conducting Assessments, Considering Values, Learning, Relationships, and Leadership).

### 4.2.3 System Approach Competence

Cholle (2011) suggests paying attention to details like a word, colour, or anything else that catches your attention or comes to your mind for no apparent reason as elements that have the capacity to reveal the whole. For example, Respondent #13 views the transition from complex to highly complex projects as “a palette of colours”. Respondent # 18 believes that it is crucial to possess a “stereoscopic vision” and to look around to detect EWSs. According to Respondent # 8, a “strategic intuitionist” can generalize a complex situation. The italic type and the bold print are used to call attention to the special concepts and terminology, certain words, phrases, as well as for entire sentences.

#### 4.2.3.1 Key Insights about Systems Approach

The key concepts on System Approach are integrated in Table 4-2.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Approach</strong></td>
<td>Complex projects can be considered as a system. The System Approach is a core principle in dealing with the complex projects and the key competence required for complex projects.</td>
<td>To understand the reality a holistic picture is required (R #10). The broad outlook is essential (R #15).</td>
</tr>
<tr>
<td><strong>Wholeness</strong></td>
<td>The System includes visible surfaced elements as well as hidden elements, which are not seen clearly initially. All elements (visible and shadowed) are operating as an interactive whole.</td>
<td>People usually do not see the whole picture (R #2).</td>
</tr>
<tr>
<td><strong>Visible system elements</strong></td>
<td>The visible elements such as deliverables are clarified by applying Systems engineering.</td>
<td>Apply Systems engineering as recommended by the P2M Standard (R # 7, 8, 9).</td>
</tr>
<tr>
<td><strong>Hidden system elements</strong></td>
<td>Project managers should be able to recognize the visible elements as well as invisible elements to be successful in</td>
<td>“Stereoscopic vision” and looking around are needed to detect the</td>
</tr>
</tbody>
</table>
detecting EWSs and acting on them. These implicit elements include but are not limited to people’s feelings, tacit knowledge, intuition, hidden values, culture, etc.

SSM (Soft System Methodologies) is the result of the continuing action research that Checkland (1981) has conducted over 30 years. Using of rich pictures (SSM approach) might be helpful in surfacing some of the unarticulated issues.

Metaphors and the rich pictures are especially significant for an unusual situation, because one can catch hold on more hints and see more perspective ways to overcome the problem.

<table>
<thead>
<tr>
<th>Overall complexity level of the project</th>
<th>The level of a project’s complexity should be evaluated objectively. The simple project can seem highly complicated for a novice performer. Life experience is very important to avoid oversimplification and plane fallacy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>System boundaries</td>
<td>System boundaries with surrounding systems are important and need to be explicitly defined in order not to replace the system in the course of their discussions.</td>
</tr>
<tr>
<td>Project Management and Program Management</td>
<td>PM is good for managing product development. Program Management is helpful to define clear boundaries between other systems (projects, programs, concurrently running company initiatives).</td>
</tr>
<tr>
<td>Learning and self-assessments built in the system</td>
<td>Ensure that a mechanism of loop learning and reward and recognition system are built in the system. Feedback loops help to avoid carrying past mistakes into the future.</td>
</tr>
<tr>
<td>System Management</td>
<td>P2M (PMAJ, 2003) offers the three work-processes for the System approach,</td>
</tr>
</tbody>
</table>

Complexity is a relative phenomenon (R #13). The perception of the real word objectively helps to evaluate collectively the received complexity level (R #6).

All interested parties should talk about the same system in the same boundaries (R #4).

Any project comprising sub-projects (R #8) or not mono projects (R #12) are programs

Traditional Project Management is not enough (R #6).

The system of self-checks is more important as it aims to ensure that the system could “cleanse itself” without any upper control (R #10).

Apply System Management as recommended by the P2M Standard
4.2.3.2 Competence required for System Approach

Table 4-3 provides the description of the System approach competence.

<table>
<thead>
<tr>
<th>The System Approach Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply System Approach to manage the complex project as an interactive whole by managing both visible and hidden elements, using both formal and informal approaches. Look at the complexity from all points of views (system, contextual, technical, social and cultural).</td>
</tr>
<tr>
<td>Classify the project to realize objectively the level of its complexity. Avoid oversimplification. Be aware of the project potential to have varying levels of complexity on its project journey.</td>
</tr>
<tr>
<td>Apply System Management to manage all (visible and hidden) elements as a whole. Systems engineering and SSM are the subsets of the System Management. Apply SSM to structure and manage messy problem situations, where parties involved lack a common agreement. Apply Systems engineering to configuration of explicit system elements and for dealing with technical problems.</td>
</tr>
<tr>
<td>Define system boundaries and life-cycle for the whole. Apply Project Management for managing product development. Apply Program Management to define clear boundaries between other systems and align with the strategy of the organization.</td>
</tr>
<tr>
<td>Design appropriate organizational structure and processes (product delivery and PM).</td>
</tr>
<tr>
<td>A complex project is not just a collection of the elements joined together to form the whole complex. An “emergent property” of the system can be predicted by looking at the whole, not by studying the individual system elements. The examples of such emergent properties are change of the organizational culture, strategic change, and technical emergence.</td>
</tr>
<tr>
<td>Ensure that a mechanism of loop learning is built in the system. Link motivation system to assessments.</td>
</tr>
</tbody>
</table>

4.2.4 Considering Context Competence

4.2.4.1 Key Insights about Considering Context

The concepts concerning the Context are integrated in Table 4-4.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causes of Context complexity</td>
<td>Internal context (project, program, permanent organization) and external context (partners, suppliers,</td>
<td>The Respondent # 17 identified politics as a determinant of complexity. He mentioned the large-scale educational</td>
</tr>
</tbody>
</table>
competitors, state bodies, etc.) are causes and properties of project complexity.

Scale of strategic change is important to consider (organizational level, national, international).

The remote distance (physical, psychological or cultural) between teams and stakeholders may make a project complex.

projects, which were run for the youth in the areas where military conflicts had taken place before. For example, a youth summer forum was organized at North Caucasus in 2010, with the extensive use of metal wires, metal grating and cells for the purpose of protection.

There are other factors that cause context complexity: constant expansion of the project horizons, active interactions with the market, complex organizational hierarchies, and interconnections with other projects (R #9).

Disturbances appeared as the project starts to enter turbulent environments to make the project context a dynamically changing one. Disturbances are the various changes (political, social, economic and natural by nature; multiple, quick, unexpected, spontaneous or gradual; occurred within the internal or external context; within or beyond the control of PM) that impact the project (positively or negatively).

Some of the respondents claim that it is impossible to affect the external factors, which cause changes (R #16, R # 7). For example, changes in legislation, government changes, market prices changes (R #3) are external disturbances, which beyond PM's control. Some of the respondents believe the external factors are manageable (R # 14, R # 6)).

The project context may be considered as stable, unstable, and in transit. A stable state is often encountered in the beginning when the situation is clarified to a certain point by the stakeholders. Stability hardly remains unchanged during the whole project. An unstable state is evident when the system has been disrupted by disturbances. Between the unstable and stable states, there is the transitional state as a border between stability and mobility. Stakeholders might be unsure about

The transition from complex to highly complex project can be seen as palette of colors (R #13). The whole specter is predominantly gray, as it is impossible to see the project as white (clear, ordered) and black (totally unclear, disordered) (R #8).

The time lag between stable state (stagnation period) and unstable state (mobilization period) is a period of the effective work (transition state) (R #6). Mini-storms controlled by the PM are

<table>
<thead>
<tr>
<th>Disturbances</th>
<th>States of the Context</th>
</tr>
</thead>
</table>
| Disturbances appeared as the project starts to enter turbulent environments to make the project context a dynamically changing one. Disturbances are the various changes (political, social, economic and natural by nature; multiple, quick, unexpected, spontaneous or gradual; occurred within the internal or external context; within or beyond the control of PM) that impact the project (positively or negatively). | The project context may be considered as stable, unstable, and in transit. A stable state is often encountered in the beginning when the situation is clarified to a certain point by the stakeholders. Stability hardly remains unchanged during the whole project. An unstable state is evident when the system has been disrupted by disturbances. Between the unstable and stable states, there is the transitional state as a border between stability and mobility. Stakeholders might be unsure about

The transition from complex to highly complex project can be seen as palette of colors (R #13). The whole specter is predominantly gray, as it is impossible to see the project as white (clear, ordered) and black (totally unclear, disordered) (R #8).

The time lag between stable state (stagnation period) and unstable state (mobilization period) is a period of the effective work (transition state) (R #6). Mini-storms controlled by the PM are |
<table>
<thead>
<tr>
<th>Change management</th>
<th>The project manager should scan the environment to detect any disturbances and calibrate the requirements for change, and decide to either act to minimize (negative) or maximize (positive) change.</th>
<th>Changes should be treated not only as EWSs, but also as Early Success Signs (ESSs) – (R #6). The PM should not miss a moment to mobilize and act timely and not leave the warnings ignored, unnoticed, unanswered and not acted (R #6).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crisis management</td>
<td>The project manager and team should diagnose crisis and make fast response in the changed conditions (appearance of new variables, new effects, and new actions). The source of crisis may be internal or external to the project.</td>
<td>If the complex situation becomes worse, then a proven, reliable experience of crisis management becomes highly important, it is especially significant within the catastrophic time pressure and the scope of the problem (R18).</td>
</tr>
<tr>
<td>Constraints</td>
<td>Constraints are the various restrictions to which the project must comply (imposed requirements, company norms, restrictions, pitfalls, hints,</td>
<td>The resources deficit combined with tough deadlines and high demands of quality make a project highly complex indeed, in terms of the triad optimization: price, time-</td>
</tr>
</tbody>
</table>

the current state of the situation; they may be unaware that the situation already changed and disoriented how to perceive the changes. The project manager and team should consider not only the initial state, but also current and prospective future states and make appropriate plan and action adjustments.

The problem with “what” approach is that it is static, not adapting for changing situation conditions, and leaves no room for gut feelings (Faith, 2009).

Mini-storms under the project manager’s control might help to interrupt stagnation, bureaucracy and contribute to the appearance of an effective work period as the transition between stability and mobility occurs.

The more external factors, changed the situation, the more emphasis should be laid on by the PM in order to orientate oneself “here and now”, in order to achieve the desired outcome (R 16).
techniques, procedures, policies, existing practical guides, legal and regulatory requirements, templates as well as any niceties associated with the reuse of templates in a different context that a decision maker to be obeyed). Managers should not mindlessly follow constraining formal restrictions even when conditions change drastically.

frame and quality (R #16). It is important to modify the existing rules, policies, and company regulations (within the legal boundaries), which become obstructive in a changed situation (R #6). If there is no culture, no responsibility, the guides will not be followed (R #10).

4.2.4.2 Competence required for Considering Context

Table 4-5 provides the description of the Considering Context competence.

<table>
<thead>
<tr>
<th>The Considering Context Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>The complex project is to be viewed as a whole, rather than in isolation from the context.</td>
</tr>
<tr>
<td>Establish a system to scan the context to detect the disturbances and calibrate the requirements for change. Evaluate initial state and constantly scan context to know about the current state of the system and predict the development of its future state. Do not miss a moment to act in order to minimize (negative) or maximize (positive) effects of the change.</td>
</tr>
<tr>
<td>Pay attention to the indefinite, non-transparent, and hidden factors. Be aware that the level of the project complexity may change in the course of the project (stable, unstable, transit). Avoid oversimplification by filtering out irrelevant distractions to clearly highlight only the important factors.</td>
</tr>
<tr>
<td>Feel confident while working in uncertain conditions. Lack of the knowledge about the details of a complex or challenging situation is not an obstacle to give up making efforts to solve the system’s problem.</td>
</tr>
<tr>
<td>Follow constraints to which the project must comply, monitor changes of constraints, “feel” the situation, adjust the constraints if the situation changes, for example, crisis occurs. Be aware of the unspoken organizational constraints / rules. Be aware of the rules being mandatory during the stable state might be violated during the unstable and mobilize states. Be aware of the ambiance and culture of the context.</td>
</tr>
<tr>
<td>Diagnose crisis and perform fast response in the changed conditions.</td>
</tr>
<tr>
<td>Implement double and triple loop learning to learn from the past.</td>
</tr>
</tbody>
</table>

4.2.5 Modeling Competence

4.2.5.1 Key Insights about Modeling

The concepts for Modeling are integrated in Table 4-6.
<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Causes of Technical complexity</strong></td>
<td>Factors of the project’s technical complexity are the complexity of the high-level mission, conflicting requirements, as well as a state of not knowing what should be known. Project complexity depends on the level of technical emergence. The intersection of several subject areas, the consolidation of many processes into one integral business process, a large number of components and many relationships among its elements are the causes of technical complexity.</td>
<td>The complexity of outcome achievement criteria adds complexity (R #1). Prerequisites of technical complexity are absolute technological innovation, a non-traditional end product, application of completely new technologies (R 6).</td>
</tr>
<tr>
<td><strong>Uncertainty</strong></td>
<td>Project managers should manage an acceptable level of uncertainty. Ambiguity should be considered where instructions or directions are ambiguous as to what exactly is requested or required. A key aim is to try to make as much of what is unknown in a situation to be known so that appropriate action can be taken. Experience in similar projects decrease unpredictability of the expected outcomes. Sources of uncertainty need to be identified, the level of uncertainty should be evaluated, and measures for improving situation should be taken. If the effort is not made to keep things</td>
<td>Risk management is the highest skill in comparison with uncertainty management (R #12). The notion of uncertainty is a constituent part of risk management field of expertise (R #12). Uncertainty a priori is a lack of any measurements and any criteria to specify the information (R #18). In the uncertain situation, the most crucial step is to identify zones of this uncertainty (R #7). To reduce uncertainty, the task is repeatedly divided, so finally only the people’s art can help to see the result of the whole complex picture when the big task is divided and further subdivided (R #2). “Entropy is a measurement of uncertainty in systems. Higher the entropy, higher the</td>
</tr>
</tbody>
</table>
In order, dynamical systems transit into a state of chaos portrayed by nonlinear and recursive actions.

All the risks are activated under the conditions of uncertainty. The level of uncertainty should not increase above an unmanageable point. The Cynefin framework developed by Snowden (Snowden and Boone, 2007) should be used to manage uncertainty.

Most decisions in complex projects are formed under conditions of uncertainty with access to scarce information.

<table>
<thead>
<tr>
<th>Vision, Objectives, Values, Performance measures, Modeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project is a journey driven by a vision (the International Centre for Complex Project Management (ICCPM, 2012). An agreed meaning about the client's vision, the project's objectives, shared values, and performance measures aligned to the organization strategy should be unambiguously established. The objectives must be understandable, defined in measurable terms, controllable by flowing down through to the implementation level. By looking into the future, a person develops a habit of dealing with future actions and the ability to foresee future. It is necessary to have upward and downward mobility, convergence and divergence, in order to activate intuition, which is based on vision (Martin, 2007). One must have a vision of not only here and now, but also of tomorrow and the day after (R #8). Not only performance criteria are unclear, but also they are often controversial as there is still a risk of not meeting another one when one criterion is met (R #1). Moreover, to define relations between these criteria is hard, as their formation has entailed a lot of conditions and factors. Hence, these criteria do not guarantee the clear measurement and assessment to reach the outcome (R # 1). Non-understanding of the global mission by people forces managers to work with these factors under the conditions of total uncertainty (R #1).</td>
</tr>
<tr>
<td>The PM should keep in mind a certain</td>
</tr>
<tr>
<td>Uncertainty should be decreased by the</td>
</tr>
</tbody>
</table>
ideal model of the integral whole. Zooming forward (setting immediate goals, mid-term and long-term goals) and zooming backward (seeing the whole) helps to activate intuition. Personification is a technique to step back and look at the situation from the angle of other project participants. The decision should be taken to select one of the scenarios developed as a result of modeling. revision of the case gradually (R #11). Then, the whole picture will gradually come out of rough brush-strokes from one stage to another. It is not good that you have to constantly improvise, connect something and somebody and manage to find time for everything (R #3). It would be much better if one could improvise for the future, could make plans rather than to solve emergency situations, constantly using creativity to come out successfully from the new crisis (R #3). Creating the scenarios of future events, forecasting, choosing among alternatives implies managing uncertainty (R #8). The ability to abstract from the situation is important (R #7). The ability to make decisions in non-standard situations is the key competence of a complex project manager (R #19).

<table>
<thead>
<tr>
<th>Losing a battle and winning imaginary battles</th>
<th>Project participants should be taught in a similar way as pre-war training in the army. That means that they should be taught about (1) losing a battle and (2) winning a battle based on their experience gained.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life-cycle</td>
<td>Life-cycle should not constrain the delivery of the emergent strategic outcomes. Setting intermediate goals and turning them into definite is a kind of “preparing emergency routes” and “building stare; thus, the whole ladder will come out of the fog” (R #13).</td>
</tr>
</tbody>
</table>

### 4.2.5.2 Competence required for Modeling

Table 4-7 provides the description of the Modeling Competence.
Table 4-7 Modeling Competence

<table>
<thead>
<tr>
<th>The Modeling Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain mutual unambiguous agreement on vision, shape values together with the key stakeholders. Be aware of hidden agenda and make effort to make them explicit.</td>
</tr>
<tr>
<td>Adapt to work in conditions of uncertainty and lack of information. Identify zones of uncertainty. Reduce the uncertainty by breaking down uncertain area into the component elements repeatedly until the level of uncertainty reaches an acceptable level to allow planning. Stop decomposition at certain point, record the current state. Scan the context and systematically sort out the residual uncertainty.</td>
</tr>
<tr>
<td>Perform Mental Modeling: keep in mind a certain ideal model, create a range of the future scenarios (both success and failure), employ assumptions, study the scenarios and consider the procuring strategy. Avoid oversimplification by considering a single scenario. Do not forget to analyze the EWSs associated with the movement toward one or another alternative.</td>
</tr>
<tr>
<td>Demonstrate conceptualization and abstraction, synthesis and generalization. Use metaphors to explain the intuition and to share it with others.</td>
</tr>
<tr>
<td>Make a decision and select the strategy by taking into account the context and relying on both “hard” (relevant facts and figures) and “softer” qualitative data as well as the judgment and the intuition.</td>
</tr>
<tr>
<td>Establish the project / program planning and the structures that fit best to implement the strategy. Focus on the whole project life-cycle rather than on its part. Avoid a planning fallacy (overestimation of good things and underestimation of bad things)</td>
</tr>
<tr>
<td>Implement loop learning. Do not lose the strategic vision. Review the strategy; do not lose the opportunity to correct wrong strategy.</td>
</tr>
</tbody>
</table>

4.2.6 Conducting Assessments Competence

4.2.6.1 Key Insights about Conducting Assessments

The concepts about Implementing are integrated in Table 4-8.

Table 4-8 Key concepts on Conducting Assessments

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal Assessments</td>
<td>Assessments are the systematic investigation of the worth or significance of the values obtained. Assessment used to prevent degradation of values (PMAJ, 2003).</td>
<td>Some respondents used to conduct formal assessments (audits, stage gates, quality test, meeting minutes check), consider them useful. The expert data should be shared with the team (R #5). Some of the respondents were opposed to formal assessments, did not consider them as essential and thus do not carry them out.</td>
</tr>
<tr>
<td>Barriers for Formal Assessments</td>
<td>Informal Assessments</td>
<td>Barriers for Informal Assessments</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>The reason of formal assessment failures can often be stipulated by a lack of assessors’ experience. The art of the audited personnel helps them to deceive inexperienced auditors. These auditors should be able to identify clearly the problem and demonstrate best practices applying their own experience and ways of solution. Formal assessments are often not linked to motivation.</td>
<td>Informal assessments imply application of intuition. Focus groups help to identify weak signals of tacit resistance of over-loyal employees in organizational changes. When people are unlikely to understand what happens in future, they get irritable, and slide into confrontation instead of making decisions to resolve the situation. Taking the quick decisions with imperfect information at hand requires intuition (Faith, 2009). For most people decision making under uncertainty is very hard to do (Faith, 2009).</td>
<td>A nonworking intuition means that the necessary experience has not been acquired. If there is no relaxed atmosphere in the team, there will be no intuition of its members, with the exception of the one</td>
</tr>
<tr>
<td>Quality of formal assessment is rather low (R #12). No assessment can eliminate cultural differences (R #4). Assessment is just a part of situational management, when management turns into revealing and bridging the gaps (R #7). It is considered that an assessment is suspecting the team in something; hence the conflicts occur (R #8). Formal assessments are not workable in Russia (R #9): “The mindset of Russians is the assessor must respond himself / herself”.</td>
<td>Whispering, gossiping, attempts to find out something from each other, rumors around the project, intriguing – all these are signs of a lack of information regarding the most crucial aspects of the situation (R #16). It's important to manage people's emotions; Emotionality Quotient (EQ) is rather more important than Intelligence Quotient (IQ) (R #7). The ability of separating the truth from falsehood, getting the truth from the partner is important skill (R #2). People lie verbally and say the truth bodily (R #6). People try to shift responsibility to each other, being aware of the fact that something is going wrong (R #16).</td>
<td></td>
</tr>
</tbody>
</table>
accumulated yet.

The application of the informal approaches such as understanding body language requires particular skills.

Springer (2001) recognizes two types of leaders: Sensing (data) and Intuiting feelings). Sensing people, preferred to gather information through sensing, tend to focus on present, on data available to the senses (sight, smell, touch, feel, and hearing). Intuiting people preferred to gather data through intuition, focus on connections between data, patterns, meanings, or theoretical explanations. They have an "accurate" feel for what is going on.

Some people have a predisposition or the preferred method (cognitive style) of data collection, processing and interpretation of information (Sense, 2007).

<table>
<thead>
<tr>
<th>Intuition</th>
<th>Good assessors have a well-developed intuition. An expert assessor may advise a non-trivial</th>
<th>Physicians were virtuoso in diagnostics with system thinking during the Soviet Union times (R #6). At that time, there were no</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>person's intuition the leader (R #12). Conversation with the non-respondent colleague: &quot;Some of the knowledge is basic. For example, 7% of the information we perceive verbally (words), 38% we perceive from sound (the tone of voice, intonation), 55% of the information is coming from the &quot;body language&quot; (movement, gestures, posture, facial expressions, distance). People deceive by words, and we say the truth by non-verbal signals. The explanation of such claim requires more advanced skill exceeding the basic level: The first reaction of person's lie is its pales, pupil dilates, spasm of the blood vessels and then the redness. The Eastern market merchants notice extension of the pupil and realize that it makes no sense to bargain. There is also the Russian proverb: &quot;Fear has magnifying eyes.&quot; This implies the dilatation of the pupil as well. This is the folk wisdom based on the observation of the non-verbal signals. The devil is in the details. Verbal and nonverbal signals are connected with each other as a thunder and a lightning. If gesticulation appears before speech - such combinations demonstrate the sign of sincere message. If the opposite commination used the speech and then the gesticulation it reflects the sign of controlled gesticulation and probably falsification. Our speech is initially formed as an internal speech and later on as an external; consequently we gesticulate before speech&quot;.</td>
<td></td>
</tr>
</tbody>
</table>
solution. Intuition does not appear from nowhere; this should be a summarized synthetic experience.

Following intuition by 100% is dangerous; intuition should be supported by facts or other acceptable forms of justification and rationale.

“The intuitive mind is a sacred gift and rational mind is a faithful servant. We have created a society that honors the servants and has forgotten the gift” (Albert Einstein).

It is impossible to copy intuition from others to blindly track the actions that seem to be intuition of a teacher is incorrect. Intuition is completely personal and internal to each human being.

One should rather follow the same direction and share the teacher’s vision” (R #4): “To follow the route of the joint vision is important. No need to copy the teacher precisely, it is necessary to have a teacher and learn from him”.

Well-known practices, such as Gateway Project Reviews by the Office of Government Commerce OGC (2010) should not be neglected.

Gateway Project Reviews should be combined with the informal approaches, which are powerful in recognizing EWSs that left undetected by formal approaches.

The assessment mechanism should be flexible and unobtrusive such as monitoring and observation (R #17). For example, for educational services it is better to conduct observation rather than perform official control (R # 17).

A combined approach conducting formal and informal assessments proposed by the Respondent #12. “The method is based on two constituent components. The first source of the information is the documentation, provided in the project plan. The second constituent is subconscious understanding of the project realization steps by all the project participants. This understanding stems from subconscious and conscious feelings to be described at
4.2.6.2 Competence required Conducting Assessments

Table 4-9 provides the description of the Conducting Assessments Competence.

<table>
<thead>
<tr>
<th>The Conducting Assessments Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure that assessments and motivation system are linked. Ensure that the reviewers have experience in similar projects. A novice’s fresh look may be valuable as well. Ensure conducting ongoing reviews.</td>
</tr>
<tr>
<td>Conduct the assessments combining formal and informal approaches. Pay attention to body language and “feel” of the atmosphere. Detect issues by paying attention to both the ESSs (Early Success Signs) and the EWSs (Early Warning Signs). Focus only on not “hard” things such as documents but also pay attention to ‘soft’ issues such as stakeholders’ satisfaction.</td>
</tr>
<tr>
<td>Create a relaxed atmosphere. Ask participants to focus their subconscious understanding on factors that impact successful project realization. Manage politics and people’s emotions.</td>
</tr>
<tr>
<td>Communicate relevant data. Seek constant feedback from the client. Share data with the team. Reflect on data in a focus group format using the rich pictures.</td>
</tr>
<tr>
<td>Implement the ongoing change management system to support the realization of the emergent strategy. Be ready to overcome the resistance to the change. Be prepared to switch into the mobilized mode in the case of a crisis.</td>
</tr>
<tr>
<td>Apply intuition to detect EWSs. Support intuition with facts. Be careful to form intuitive predictions based on fuzzy, deferred, contradictory information that provides tacit evidence.</td>
</tr>
<tr>
<td>Implement double and triple loop-learning.</td>
</tr>
</tbody>
</table>

4.2.7 Considering Values Competence

4.2.7.1 Key Insights about Considering Values

The concepts for Considering Values are integrated in Table 4-10.
### Table 4-10 Key concepts on Considering Values

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Causes of Cultural complexity</strong></td>
<td>Cultural differences (background, language, and customs), cultural diversity, depth of cultural change are causes of cultural complexity. Language and culture include relating to technical jargon and colloquialisms as well as national, workgroup and organizational culture.</td>
<td>The project team is a factor that causes cultural complexity (R #16). The team members may possess different values with different life experience (R #4). The project manager should speak different languages with each stakeholder and cooperate based on the various principles (R #7).</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>The respondents when talking about value, mentioned Business Value. In this study, the term value is understood not only from business but also from a cultural point of view. The project manager has his or her own internal values and expresses them in relations with the project team members and stakeholders. Understanding the culture, personality, the values of the specific stakeholders help to organize and execute the project more effectively than the one who does not. Walker and Lloyd-Walker (2011) identify in profiling excellence in PM for complex projects, that alliance managers need a range of cultural competences such as reflectiveness, appreciativeness, wisdom, spirit and authenticity that involve being able to understand and account for the value of others.</td>
<td>“Transition of the end product of the project into ongoing operations and ensuring the organizational transformation in order to gain benefits from owning this new product” is a complexity factor (R #4). “After getting to know the P2M standards, I have been pretty much concerned about the value delivered from a project that determines its complexity” (R #10). Understanding and clarifying common and shared values (R #9) and discovering hidden motives are crucial in complex projects (R #15). Values of the project are interconnected with the values of each concrete person and of the society in general (R #16). Genuine values work on long distances, and this will enable the value obtaining for a long time (R #6). If some values are shared by the majority, then the project is going to evolve (R #7). In order to maximize the value’s effect, it is necessary to identify the values, understand their nature, and realize to how these values interact with each other (R #5). Manager must clearly show the value foundations</td>
</tr>
</tbody>
</table>
they deal with. of his choice and be able to explain why this project important for him and worth to take part (R #15).

Every person identifies himself or herself what these values are in different areas, including the career growth (R #13): “I am undervalued thrice. However, because I am interested in the work I am doing, why should I waste my life on something that I am not interested in doing?”

University projects have their traditions; the project should be managed by an individual who devoted his life to the University (R #1).

<table>
<thead>
<tr>
<th>Culture</th>
<th>Culture is a complicated issue because while elements of the surface layer are amenable to management, complex situations are often subject to issues of challenging a prevailing culture, staff concerns, and the emergence of resistance to change. The effectiveness of imposing a foreign organizational culture and way of operating is determined by the degree of understanding how to align conformance of the foreign culture’s characteristics with norms and values accepted in the Russian society.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Project managers have to work with diverse personalities, acknowledge culture clash, think paradoxically to find a creative solution and reach a synergy by integrating various cultures (R# 6). It is essential to reach the internal concord and value orientation, reshape the mindsets (R #1). The key role in cultural conflicts is assigned to national pride; the Russians safeguard their traditions jealously (R #6).</td>
</tr>
</tbody>
</table>

### 4.2.7.2 Competence required for Considering Values

Table 4-11 provides the description of the Considering Values Competence.

<table>
<thead>
<tr>
<th>The Considering Values Competence</th>
<th>Make sure that your (the project manager’s) values related to the project are understood by all stakeholders.</th>
</tr>
</thead>
</table>
Consider the particular values, opinions, ethics and the interests of the stakeholders (within and outside the organization). Recognize the differences of values in people with whom you work. Use an understanding of the values as a key driver and motivator towards future success. This requires high levels of performance in what Walker and Lloyd-Walker (2011) identify as appreciativeness (the ability to see things form a range of alternative perspectives), reflectiveness (being able to draw lessons from past experience through relating experience to theories and hypotheses), spirit (being able to challenge assumptions about cultural norms) and authenticity (being consistent in action with respect to espoused values).

Assess the stakeholders’ satisfaction and utilize the evaluation results for learning and making adjustments. The client satisfaction rate is definitely not the only criterion. Stakeholders’ satisfaction on mutually agreed value is a criterion of success. Nogeste (2006) points out that it is important for high performing project managers on complex projects to go beyond delivering what is specified by clients but to understand and clarify with them what they know they need but have not expressed. Clients can appear dissatisfied if what they need is not delivered even if they get what they asked for. Vague, ambiguous and poorly expressed requirements present an important EWS. Cultural values add another layer on how clients expect project managers to ascertain what is needed.

Take into account the prevailing values in society; recognize the similarities and differences in the economic, business, political, social, and technical norms of various cultures.

Understand the Russian history and culture. Be aware of the international cultural differences. Appreciate the different cultures and subcultures. Be ready to handle the clash of cultures. Bourne (2005; 2009) provides much sound advice based on her doctoral research on how to manage stakeholders including the client and much of this is focused on visualising the lines of interest, power and influence when considering how various stakeholders view the world.

Understand or accept the alternative point of view if appropriate. Respect opinions of others.

“Feel” the psychological climate, respond quickly to the changing context of the project. Be aware that a positive mood has both direct and indirect effect on creative group performance.

### 4.2.8 Learning Competence

#### 4.2.8.1 Key Insights about Learning

The concepts for considering Learning are integrated in Table 4-12.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>The aim of support within the whole project is to facilitate the obtaining of desired values.</td>
<td>Respondent # 16, answering the question “How may the guidelines for informal approaches serve as an input to improve the guidelines used for formal assessment?” claimed that it is absolutely</td>
</tr>
</tbody>
</table>
Support may have a broad meaning. For the purposes of this thesis, the term “support” is narrowed to sustain, help, give aid or morally assist the project. Inability of the stakeholders to provide support increases the degree of the project complexity.

"Writing some formal stuff for the complex projects cannot substitute such manager. What is the complexity of the project? This is its novelty. The project creates unique risks related to the uncertainty. Indeed, no instruction can cover all the occurring changes, nuances and details" (R #16).

The Respondent #5 believes that informal “gut feeling” approaches can be systematized and structured in an organized manner (R #5). P2M (PMAJ, 2003) is an example of such a guide (R #5).

---

### Guidelines to support Assessments

Respondent #4 provided the five conditions used for guidelines to support the informal assessments.

- First, the instruction should be written by experienced professionals.
- Second, the users of these guidelines should have been trained with concrete examples and case studies. To make it simple, the users sat and told me, “Look! This is a white key and that is a black key; this is a diesis and that is a bemolle; and these are clean notes!”
- The third condition is that the users of the guidelines should practice their diagnostics under the supervision of experienced professionals, at least in the beginning.
- Next, they should use reflexive procedures, applying special techniques that need to be taught.
- Finally, they should reflect on what they have detected in the organization.

### Constraints

The project manager and team should evaluate the applicability of the old patterns and make their adjustments to the particular situation. Under conditions of turbulence, the old patterned behavior should be avoided.

The project manager should be aware that people when faced with a crisis

Mature project managers believe that easing restrictions help them to survive in changed conditions, and attain the desired results faster (R #6).

People, who repressed with the strict control, do not create (R #3).

In a crisis, people might lose the sense of reality; even impugn some universal
| **Smart Knowledge** | Aimed at getting the result, some of the performers may invent a new way of doing things.

Project managers should be sufficiently critical to evaluate the suitability of existing knowledge, smart enough to learn from past mistakes, be creative to invent a new way of doing things and strong enough to institutionalize adjustments to existing knowledge.

This is supported by the skills identified by Walker and Lloyd-Walker (2011) of exhibiting pragmatism (getting on with the job at hand in a diligent and practical manner), resilience (being adaptable and versatile in approach), and spirit (being able to challenge assumptions).

"Act flexibly, that means do as you want, and reports as they need (R #1).

Conversation with the non-respondent colleague: “If I am inefficient, I will perform all assignments that fall on my head. In Russia, an effective manager sifts through assignments, be intelligent enough to prioritize a lot of tasks given and set aside ineffective assignments, without telling anyone about it. If I am not intelligent, but just a second-rater, I may not have the time and fail to execute even effective assignments leading to obtaining a desired value. From this point of view, manager’s negligence, lack of diligence can be considered as a plus. It is classics wrote that, in Russia, the protection against stupid laws is their failure to perform. There is a Russian saying "sit," which means not to perform, but wait until your boss changes mind and cancels his order.” |
| **Learning** | Reflection on gained experiences helps to create new knowledge suitable for a particular context. The purpose is to provide a basis for decision-making on the three points: (single-loop) reporting on actions performed, (double-loop learning) for modeling of strategic planning, (triple-loop learning) for system modification.

Success hurts; the treatment of it is a reflection (R #4). Reflection is the ability to bifurcate, to rise to the top and monitor the result and actions (R #4). |
| **Knowledge Fusion** | Penetrability of boundaries is determined by the organization's appetite to share knowledge and infuse it with other knowledge and experience sources so that new values and limitations (R #18).

Previous experience and old patterns are getting less and less useful in changing context (R #15).

Knowledge database significance is that it |
relevant knowledge is created through that fusion.

Openness determines how far companies trust stakeholders (internal and external).

A closed system element interacts ineffectively with other systems if that element does not use feedback and is in danger of becoming less and less effective as an element in the overall context.

is dynamic and self-renewable (R #9).

Otherwise, the knowledge base will be a dead-load without a live dialog (R #8).

The existence of the renewable knowledge base within the community (R #7); the joint work with the right people to transfer the knowledge (R #8) are important.

Best practices should have tags and key words (R #7).

It is necessary to shape the network where feedback is ensured and where it is possible to become a real expert (R #9).

The closed system always tends towards degeneration (R #6).

4.2.8.2 Competence required for Learning

Table 4-13 provides the description of the Learning Competence.

Table 4-13 Learning Competence

<table>
<thead>
<tr>
<th>The Learning Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish a system for collecting, sorting, expanding and distributing knowledge.</td>
</tr>
<tr>
<td>Utilize the existing institutionalized knowledge. Critically evaluate the applicability of old patterns in a new context. Complex problems are difficult to solve and require a new framework based on innovative perception (PMAJ, 2007). The zero-based thinking, or scratch thinking without preconception, starts with insight profiling that understands the current state from a broad perspective and transforms it to an ideal state (PMAJ, 2007, p: 59). The “zero based” thinking encourages the appliance of all available intellectual assets to innovate. Be aware that team members might implement the tasks according to their own unwritten rules. Remember that the best practices, which helped in the past might frame mind and constrain behavior in the crisis situations. Review the history (lessons learned, meeting minutes) and use it as an aid for the reduction of risks.</td>
</tr>
<tr>
<td>Identify the essentials and innovations in the new ways of doing things in specific circumstances. Be proactive. Do not hesitate to question the quality and applicability of existing knowledge for a particular situation.</td>
</tr>
</tbody>
</table>
Sort new knowledge (tags, key words, contacts of right people) to make sense of its meaning, discuss the limitations, and appraise the possible improvements.

Document new knowledge as “creative patterns” by the experienced professionals and institutionalize it in the organization.

Share knowledge with staff, other members of your organization, CoP. Discuss the role of creativity, working smarter, and the importance of making implicit knowledge explicit. Use the storytelling to transfer knowledge. Notice that the most valuable asset of the company is the personnel, who are filtered, crystallized, and who move from one project to another to transfer knowledge and values.

Implement double loop-learning to understand cause and effect links and triple-loop learning where the assumptions about the entire system and its fundamental assumptions may need to be challenged.

### 4.2.9 Relationships Competence

#### 4.2.9.1 Key Insights about Relationships

The concepts for considering Relationships are integrated in Table 4-14.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causes of Social complexity</td>
<td>An important factor, mentioned as significant for determining the project's complexity includes the number of stakeholders (organizations, supervisory bodies, contracting parties, etc.). The more people that are involved in the project the more difficult it is to manage it. Geographical dispersal of stakeholders creates complexity in communication and control (PMI, 2014). Lack of ability to determine all the stakeholders, several customers and/or they are changing over time also causes complexity. Clients and customers do not always say what they mean and this leads to complexity caused by ambiguity.</td>
<td>Projects are in the field of HR are the most challenging (R#18). A simple project becomes complex when during implementation a project manager is replaced or customer is changed, because all the agreements are immediately gone, the values are changed, and the goals are understood differently by the new key stakeholders (R 10). A project is complex when it is unclear who the real customer is (R #4).</td>
</tr>
<tr>
<td>Relationships</td>
<td>People have different skills such as intelligence, experience, opinions, attitudes, and prejudices to work together.</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Missing, broken, hidden connections, power and political games, influence links are leading to the complex stakeholders’ behavior.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Whenever it is needed either to force innovation or to produce non-standard performances, it is compulsory to implement more informal networks to quickly respond to the complexity and unpredictability.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mastering the network of informal relationships is a way to seize the invisible mechanisms, implying the basis for a good practice.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationships management is a competence over and above communication management because it tunes relations between people, manages group dynamics, whereas communication management aims at merely transferring information (R #19).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cooperation, co-creation, no Russian word can be used that covers all P2M philosophy (R #7).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establishing partnership relations reduces the uncertainty (R #3).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The most important is people and their relationships to navigate complexity; it is important to observe the system of the relations (R #15). You need to find people that can cooperate with each other (R #15).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stakeholder engagement is the way to reduce uncertainty and discover hidden agenda (R #6). Interrelationships are the ties, which connect subsystems, elements (including people) and keep them as a system (R #4).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Established network connections indicate the success in dealing with complexity (R #3).</td>
<td></td>
</tr>
</tbody>
</table>
4.2.9.2 Competence required for Relationships

Table 4-15 provides the description of the Relationships Competence.

Table 4-15 Relationships Competence

<table>
<thead>
<tr>
<th>The Relationships Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish strong interpersonal relationships (Formal and informal) across hierarchy (with clients, project teams, and executives) based on a shared meaning about the project's objectives. Do not forget about informal hierarchy in the organization, influence the key stakeholders and get their support. Understand how best to use the resources of networks both formal and informal. As Bourne (2005; 2009) says, be able to ‘tap into the power lines’ of hidden influence.</td>
</tr>
<tr>
<td>Analyze the situation. Choose a communications strategy (appropriate combination of media). Be sensitive to nonverbal communications such as gestures, eye contact, and poise. Do not be alone; create panels of experts to resolve complex issues.</td>
</tr>
<tr>
<td>Dedicate significant effort to maintain relationships. Keep relationships in a good condition. Implement more informal network in order to respond rapidly to complexity and unpredictability.</td>
</tr>
<tr>
<td>Smoothly resolve conflicts among the stakeholders. Handle claims as the expressions of stakeholders' dissatisfactions.</td>
</tr>
<tr>
<td>Establish stronger long-term relationships through alliance or partnership.</td>
</tr>
<tr>
<td>Implement loop-learning.</td>
</tr>
</tbody>
</table>

4.2.10 Leadership Competence

4.2.10.1 Key Insights about Leadership

The concepts for considering Leadership are integrated in Table 4-16.

Table 4-16 Key concepts on Leadership

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Comments</th>
<th>Supporting Arguments of Interview Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>Leadership is “a vital competence for a project manager” (IPMA, 2006, p: 86). There are four components of the leadership behavior by Bass and Avolio (2011): individualized consideration, intellectual stimulation, inspirational, and idealized influence.</td>
<td>Leadership is the first skill to deal with EWSs (R #5). During the transition between Stable or Mobilize states, leadership is especially required (R #6). Charisma (R #10), winning trust (R #19), courage (R #10) are also</td>
</tr>
</tbody>
</table>
Lloyd-Walker and Walker (2011) highlighted authentic leadership as a key characteristic of project managers’ ability to perform in complex and uncertain situations. It is important for project leaders to be authentic and do what they say and be consistent in their actions so that they align their actions with words (Lloyd-Walker and Walker, 2011). In the Russian context, this needs to be applied in what people expect to see and how they interpret words and actions.

<table>
<thead>
<tr>
<th>Flexibility</th>
<th>The leadership style should be appropriate to the situation. Flexible leaders constantly help their team to balance at the edge of chaos - moderately structuring; adequately documenting, conceptually determining the direction, contracting, but trusting on the verbal pre-agreements. For Russians switching from stable to mobilize modes might not cause an immense discomfort, while, for other cultures, it might be very uncomfortable.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transition to change involves changes in human behavior (R #6).</strong></td>
<td>We cannot abandon the existing mindset of people (R #16). The ability of Russians’ to switch easily between stagnation and mobilization states has been developed over centuries (R #16). The West will not easily adapt to such a work mode because they did not need to fight an enemy at their borders every 30-50 years during the last three centuries (R #6). In a crisis, in order to successfully adapt and survive, the flexibility in system is required and this flexibility should be proportional to possible fluctuations of uncertainty in the rest of the system (R #5).</td>
</tr>
<tr>
<td><strong>In Group Solidarity</strong></td>
<td>Group cohesiveness likely occurs in the Russian teams. The team members try to minimize conflicts and reach consensus, cover their comrades, hide problems from the authorities, not critically evaluate the warning signals, isolate themselves. The Russian management system can be compared with the old traditional ancient village fun, where the fight is between teams (called “wall to the wall”), not between individuals (“one on one”) (R #6).</td>
</tr>
</tbody>
</table>
from the outside disturbances.

Competition inside the group is unlikely to occur because it was suppressed under the conditions of the USSR planned economy.

For hundreds of years, the competitive relationship has been rejected by the Russian management system (R #16). In American companies, competition between individuals is often appreciated by the management to enable career development (R #6).

Competition at the individual level is not common for Russia (R #6).

<table>
<thead>
<tr>
<th>Power and authority</th>
<th>The governance structure in place empowers the project manager.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In complex systems, decentralization and simplicity are necessary not to destroy the project (Johns, 2008).</td>
</tr>
<tr>
<td></td>
<td>Unlike a Western team, the Russian team is poorly structured and team members have vague duties and responsibilities.</td>
</tr>
<tr>
<td></td>
<td>Empowering the PM with appropriate authority is important for performing the work (R #6).</td>
</tr>
<tr>
<td></td>
<td>The PM should have power to apply the resources (R #18).</td>
</tr>
<tr>
<td></td>
<td>Decentralization means that the task used to be given to a self-organizing team, and they deal with it by themselves (R #6).</td>
</tr>
<tr>
<td></td>
<td>Centralization helps in accumulating of the information about the system (program of projects) and providing a quick response to almost any request (R #2).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychological Climate</th>
<th>In a complex project, the psychological climate is crucial.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The project manager should monitor and control the psychological climate in the team.</td>
</tr>
<tr>
<td></td>
<td>To catch the psychological signs is important, because they show the weak points of which the project might fail in the future.</td>
</tr>
<tr>
<td></td>
<td>The favorable working atmosphere should be created by project manager (R #12).</td>
</tr>
<tr>
<td></td>
<td>No further movement should be until team members have any doubts, and the consensus will be reached (R #1).</td>
</tr>
<tr>
<td></td>
<td>The inflexible authoritarian leader is the EWSs; people would be scared of losing a bonus and being dismissed (R1).</td>
</tr>
<tr>
<td>Proactive, Reactive, Inactive</td>
<td>Meta-skills</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Proactive behavior is aimed at controlling the situation, making choice, taking decisions, influencing to make things happen rather than lie idle and respond after it happens. Reactive behavior is not choosing options by themselves; waiting for when things happen and after it making decisions. This eventually leads to losing control over the situation. Inactive behavior brings to the role of manager of a passive observer, allowing others to make decisions. Passive waiting is a form of action; avoiding responsibility for decisions in uncertain situations. When Russians start the task of execution, they initially find themselves at the relaxed stagnation state, and then at the state of a huge emergency they rush, after that they effectively work at the transition state, and finally return back to stagnation.</td>
<td>One of the most critical factors is the skill of a complementary function. Productive individuals are people with proactive approach to life, with the capability to commit outstanding actions - accept the challenge; all the other people fall into the category of reactive (R #4). Clarifications of imprecise explanations, collection of missing requirements, detecting hidden agendas these are ways to reduce uncertainty to a certain degree (R #9). Respondent #7 believes that uncertainty is unmanageable because it implies management of the project part that is unachieved yet, “we are not capable of influencing uncertain events”. There might not be uncertainty management per se, but adaption and reacting to change, readjusting themselves to the situation, derivation of something internal (e.g. creative solutions) would help to deal with this uncertainty (R #19). Most people are passive and do not make any abrupt actions in order not to become a nil (R #2). Russians always relax at the start and then rush at finish (R #16). It looks like an ant-hill. Some movement, some useless fuss appears. Then the ant-hill has been hardly attacked as mobilization occurs and life dramatically changes (R #16).</td>
</tr>
</tbody>
</table>
finding a complementary team of different skills. If a team is small, a leader may need to be able to fill more than one role. Thus, the key skill for a leader is a complementary skill.

is important (R #4). According to Meredith Belbin (1981), there are different roles in the team (Coordinator, Shaper, Finisher, etc.). Managers should understand roles needed at each project stage and then play these roles to bridge this gap (R #4).

4.2.10.2 Competence required for Leadership

Table 4-17 provides the description of the Leadership Competence.

Table 4-17 Leadership Competence

<table>
<thead>
<tr>
<th>The Leadership Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine what leadership style is appropriate for a particular situation (with the team, executives, and other stakeholders). Ensure it is compatible with your style and abilities. Apply the chosen leadership style. Use power and authority fairly.</td>
</tr>
<tr>
<td>Review the performance and seek feedback (from the team, senior management, and other relevant Interested parties) and modify the leadership style if necessary. Seek continuous improvement in your own leadership competence.</td>
</tr>
<tr>
<td>Develop team members’ talents, provide constructive feedback adapted to each individual situation and context, provide coaching and training for the team members, advise, support, take care, and treat each employee as unique individuals.</td>
</tr>
<tr>
<td>Motivate team members emotionally and professionally, create inspiring and energetic environment, demonstrate interest in fresh ideas, articulating goals, and envision mutually attractive future. Perform ongoing leadership and management to maintain achievement of values. Be aware that material things such as salary, social (psychological) are important. However, non-material things such as self-esteem, autonomy and social group allegiance with certain ideas are also important.</td>
</tr>
<tr>
<td>Mobilize institutional, political, psychological, and other resources to respond to change flexibly and strategically. Be ready to overcome resistance and get people to do things in order to change the course of the events.</td>
</tr>
<tr>
<td>Implement double and triple loop-learning.</td>
</tr>
</tbody>
</table>

4.2.11 Modifying the Research models of this Thesis

4.2.11.1 Modified Competency Model for this Thesis

Initially, the four competency groups were defined at the end of the literature review based on the NCB Competency model (SovNet, 2010). A drawback of NCB’s (SovNet, 2010) model for the purpose of this study is that system and cultural competency elements both belong to the same basic competency cluster.
To pay more attention to each of these aspects, they are separated into the different clusters such as system competences and cultural. So, the necessity of defining the fifth competency group is identified in the course of interview data analysis. The Competency model has been modified. The four competency groups were increased up to five and the eight competences were distributed among these competency groups. An interim version of the Competency Model is depicted in Figure 4-1.

**Figure 4-1 interim version of Competency Model for this Thesis**

- **System Competence** (System Approach) focuses on the way of managing projects based on the concept of systems.
- **Contextual Competence** (Considering Context) focuses on managing the interaction of projects with the program, organization’s processes and the external environment. It includes the business competence skills highlighted by Walker and Lloyd-Walker (2011) that ensure that the business context of undertaking projects is addressed.
- **Technical Competences** (Modeling, Conducting Assessments) focus on meeting project requirements. It includes project manager’s ability to model the strategy and perform control on the course of the project.
- **Cultural Competences** (Considering Values, Learning) focus on considering the traditions and habits impacting the project managers in their efforts and learning on the way towards obtaining shared values.
- **Social Competences** (Relationships, Leadership) focus on people’s behavior. It includes the project manager’s ability to unite the project actors, connect them in an effective PM organization for obtaining the shared values.
4.2.11.2 Modified System Model for this Thesis

Initially, the System model for this thesis was based on the simple P2M’s Template (PMAJ, 2003) developed at the end of the literature review. At the end of the Interviews stage, the System model for this thesis was modified to welcome the key insights and illustrate connections as depicted in Figure 4-2. Being aware that the number of the elements should be limited, I made an effort to keep the System model simple.

**Figure 4-2 interim version of System Model for this thesis**

**System Approach:** The four elements of the reflective cyclical process (Modeling - Plan, Conducting Assessments - Do, Considering Values – Observe and Learning - Reflect) are depicted in Figure 4-2 on a white field. A green color field demonstrates that the project as a system should be considered together with the context as a whole.
**Modeling:** The thesis goal is to better understand how to enhance obtaining and aligning mutually agreed values by proactively dealing with EWSs in complex projects within a Russian context so that the likelihood of project success is enhanced.

**Conducting Assessments:** Efficient performance includes reaching desired results; these particular results, in turn, appear because of certain preemptive actions based on recognizing and dealing with EWSs have been taken. These actions are dependent upon particular skills, characteristics, or abilities that allow a manager to accomplish these specific actions (Boyatzis, 1982). Actors perform formal and informal actions for detecting EWSs and acting on them.

**Considering Values:** Values are considered an integral element of the whole system. The Russian researcher Anokhin (1974) introduced the term “system result”. System result is a core component of the whole system. In this research, “result” (see Figure 2-3) is replaced by “values” (see Figure 4-2). Visible (tangible) element of the system, such as earned value (in revenue or monetary terms) is not considered in this dissertation, since this concept is well-studied by academics and practitioners and the identified gap for this research has focused on a more holistic perspective.

**Error:** The need for feedback is very important to make effective decisions about the required corrections. Positive feedback has to do with reinforcing the original process. Unverified positive feedback can eventually destabilize the system; unchecked positive feedback can be a reason of the system’s collapse. Negative feedback has to do with moderating the original process; it tends to reduce the fluctuations in the output, prompts to reduce the gap between certain desired values and currently obtained values. The feedback (positive or negative) should be provided promptly rather than late when the individual may not remember or be able to understand the cause.

**Learning:** Learning is a formal process where the basis upon which decisions were originally made are periodically reviewed (ICCPM, 2012). Learning is a constant process of transforming existing knowledge into new knowledge through personal-social interaction (McNiff and Whitehead, 2000, p: 45).

The concept of “Triple-Loop Learning” (Authenticity Consulting, http://managementhelp.org/misc/learning-types-loops.pdf, retrieved on 13.03.2014) was added during the analysis of the interviews. Loops in learning (single-loop, double-loop and triple-loop learning) help people understand the dynamics of learning. Complex systems are regulated by feedback loops. Therefore, this concept was incorporated into the System model.

The System model demonstrates an existence of feedback loops among system components. Three arrows visualize the idea of a triple-loop learning curve. “The feedback loops that are contained within the systems to ensure that rich patterns are produced, and that the system’s behavior is strongly linked to its environmental context” (Cicmil et al. 2009, p 26-27). Ongoing feedback is a way of reducing the mismatch.
between the past, present and future. A late response is often derived not from the impact of this current irritation, but is rather a result of a past, undetected stimulus.

Loop-learning is not a vicious circle or perpetual motion. Each loop is a complication, an enrichment, and a continued upward path to "truth". The values guide actions, and knowledge derives from the actions (Oquist, 1978).

- **Single-loop learning** is the most wide spread method of learning due to its simplicity. The angle of this analysis is limited to concrete actions, which have been made at a certain time by actors to fix a highly visible problem.

- **Double-loop learning** is to re-frame and critically examine the strategy. Double loop learning assumes that as we change a system, so we change (ICCPM, 2012). Emergent strategy requires double loop learning (ICCPM, 2012). It takes into account lead and lag effects and both direct and indirect system relationship dynamics.

- **Triple-loop learning** focuses on restating, reframing and rethinking the problem situation itself. The third loop embraces a wider analysis than the single and double learning ones. The question posed is “Whether the rules should be changed?” and it can be explained as “Triple-loop learning might be explained as double-loop learning about double-loop learning” (Authenticity Consulting, http://managementhelp.org/misc/learning-types-loops.pdf, retrieved on 13.03.2014). Triple-loop learning is about game changing strategy.

**Attention:**

The differences between double-loop learning according to Argyris and Schön (1996) and triple-loop learning should be noted. Table 4-18 demonstrates the differences and a current gap in general PM practice. The introduction to the Cynefin framework (Snowden and Boone, 2007) helps us differentiate between the EWSs that indicate more immediate or more easy to fix problems from those of complex projects. The framework can also differentiate between situations bordering on the chaotic where EWS may be weak, and closely related to gut feel, and one in which the cultural environment has more relevance. In the study cited earlier by Walker and Lloyd-Walker (2011) they drew upon the Cynefin framework for inspiration in identifying key knowledge, skills, attributes and experience needed in highly complex project situations.

Table 4-18 Difference between the Loops by Argyris and Schön (1996) and this thesis

<table>
<thead>
<tr>
<th>Learning Loops by Argyris and Schön (1996)</th>
<th>Learning Loops in This Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Gap</td>
<td>The first loop connects detected error and action. It questions actions and is aimed at the rejection of the patterned actions. (Based on the suggestions of the interview respondents for conducting frequent self-</td>
</tr>
</tbody>
</table>
In Snowden’s Cynefin (Snowden and Boone, 2007) framework terms, the first loop is effective in dealing with simple situations with many known knowns.

| Single-loop learning is “learning that changes strategies of actions or assumptions underlying strategies in ways that leave the values of a theory of action unchanged” (Argyris and Schön (1996, p: 20). |
| The second loop connects detected error and the modeling / strategy and casts doubt on strategy for obtaining the values. This may relate to the situations, which Snowden refers to as complicated or perhaps into complex situations. |

| Double-loop learning is “learning that results in a change in the values of theory-in-use, as well as in its strategies and assumptions” (Argyris and Schön (1996, p: 21). |
| The third loop connects detected error and organizational context and aimed at collectively examining underlying assumptions and leads to the rejection of existing patterns themselves, change in attitudes and organizational norms. In the Cynefin framework terms, this is applicable to complex and chaotic situations. |

**Company Knowledge:** Respondents of this study were surveyed in an attempt to discover best practices of how to “unstick” tacit knowledge from its holders to make that knowledge more transferable. One of the objectives of this thesis was to develop a simple guide that can be used as a general reference document by people who are seeking knowledge on best practices for dealing with EWSs aimed at enhancing their "gut feel" capabilities to identify EWSs. The target audience of the guide might be project managers and be aimed at developing their competences; executives of the organizations interested in proactive measures taken upon the EWSs; assessors conducting formal and informal assessments; and consultants targeted on personnel’s development. The guidelines, which exist in the organizations, should consistently help in dealing with EWSs effectively (R #4).

**Knowledge Fusion:** During the course of the project, company knowledge supports the actors. The world is open for continuous knowledge fusion together with trusted companies. The context of the companies A and B in the System model in Figure 4-2 demonstrate that the context of the parent company is wider than it seems. “Programs and projects may be viewed as systems existing within other systems” (PMI, 2014, p: 17). The border between any pair of systems represents a certain zone of structural components or formations, which can be theoretically viewed as belonging to both systems, but not only to one of these systems. Thanks to such zones of interaction, the process of mutual interchange with other systems occurs (Parsons, 1998).
### 4.3 Stage 2: Case studies

#### 4.3.1 Purpose

The case studies aimed at strengthening the empirical basis of this research, illustrating current practices which mature project managers applied in uncertain and complex situations within the Russian context.

Each case study is presented and analysed in this section. The presentation structure of each case study is common and includes a description of the context, objectives, actions, reflections, and lessons learned. The structure remains Coplien’s (1996) form, helping to obtain a full picture of the problem, and to narrate the story while being sure that no important points were accidentally forgotten. Only case study #2 has its own structure as it was written by the main character (Respondent # 10).

#### 4.3.2 Participants

There are five cases, four (cases # 1, 2, 4, and 5) from recent times and one case is illustrated from an historical perspective of a situation that happened 15 years ago (case #3). There were 8 participants in the case study sample group. Table 4-19 provides the rationale for selecting these case-studies and introduces the participants who narrated these case studies.

<table>
<thead>
<tr>
<th>Case #</th>
<th>Title</th>
<th>Narrated by the protagonist of the case-study</th>
<th>Other respondents of this case-study</th>
<th>Purpose to consider this case-study</th>
<th>Key themes illustrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>“Artist Psychologist”</td>
<td>R #14</td>
<td>-</td>
<td>best practices in dealing with the EWSs</td>
<td>System thinking, Informal assessments, Psychological climate</td>
</tr>
<tr>
<td>2</td>
<td>“Inappropriate Partners’ Behaviour”</td>
<td>R #10</td>
<td>-</td>
<td>mistakes in dealing with the EWSs</td>
<td>Uncertainty, Crisis Management, Leadership, Relationships</td>
</tr>
<tr>
<td>3</td>
<td>“Experience Overload”</td>
<td>R #15</td>
<td>-</td>
<td>mistakes in dealing with the EWSs</td>
<td>Hidden factors of the Context, Leadership,</td>
</tr>
</tbody>
</table>
4.3.3 Case Study 1 Artist Psychologist

4.3.3.1 Presentation

The locus of this case is a university with staff of 1,000 and 6,000 students. The protagonist of this study is a mature project manager. He detects EWSs and deals with them successfully based on his experience. The following story was narrated by the main character (Respondent # 14) in the first person.

4.3.3.1.1 Context

When I was young, I went to the bank once to apply for credit. At the same time the bank manager invited a woman who was an observer. She was present during our conversation, however kept silent and did not take part in the discussion. This woman was just watching me, my gestures, facial expression, and my eyes without her saying a single word. At the end of discussion, she asked a couple of questions. As I understood, she was a psychologist whose job was in observing me. I received the credit, further I became friends with that woman, and moreover I used her services in my own business.

Then I became a psychologist myself. I began to feel and sense things not just to see things as it was before. Why do you think the contracting parties test each other before making a final deal? Now we make business with these contractors directly and trust each other. How could you say to a young manager whether he or she should “paint a psychological portrait of the partner”? The instruments applied in my work are unlikely to be useful for an inexperienced young specialist. These tools should be used by a person who has already seen something in his/her life. Such person is not being capable of changing the situation when needed. If an individual is just recently trained, he or she might not understand intuitively what exactly needs to be done. This person would not be able to see a turning point or recognize a stop signal.

I am managing the project, which is a part of the University’s strategic development program. This infrastructure project is a key to the University’s development program. More specifically our objective is to construct a building and create favorable conditions for the researchers who won grants and came to Russia from abroad for a couple of months. We do not erect a new building. We reconstruct the existing one. The budget of this project equals half of the whole program’s budget. The program consists of 20 projects. I work at the State University. State funding is directed for each concrete project by equal installments. All of our activities were subject to a very strict control from state and legislation bodies (because state funding was
used). I am not going to describe the all details of the project, but will just provide an example. We had two approaches in this situation. The first solution was concluded in providing the project plan with all detailed description of the building’s major overhaul. The second one was in considering the project as a current repair project excluding the development of the detailed project plan that itemizes everything. In such a case, we would need to act within this uncertainty. However, we had no time for detailed planning and had to manage completing all the works within only one year.

Definitely, we had to complete the project plan and take everything into consideration in advance. However, we had neither time nor finances and we started our work without a well-developed project plan and detailed specifications. Such approach led to immediate resolution of the various problems on the course of the project, for example quicksand muddy soil. We were constrained by underutilization of the allocated money for the project’s budget during the current year. The unspent money could not be used on any other projects and cash balances could not be transferred to the next year.

Thus, we had to urgently search for a contractor. What did I do in this situation? The answer is simple. At the stage of request for information (RFI), I started to talk to the individuals. I continued talking to them at the stage of request for proposal (RFP). The discussions were continued at the stage of contracting as well. After signing the contract with the selected partner, the non-stop conversations were continued up to the very end of the project. First of all, we had discussed the business in general. Afterwards, I tried to find out what this person had done previously, when these projects took place and how successful they were. My life experience has taught me the value of doing so. I have participated in a large number of projects, for example as an official major of Communist’s party during the Soviet era. I tried to artificially create a problem to test a potential contractor, not in our work, but in our discussion. After that, I observed his responses and the proposed problem solutions. Do you understand what I mean?

4.3.3.1.2 Objectives

I talked to many potential contractors. I tried to imagine the problems, which should have occurred. In my mind's eye, I lived through the cul-de-sac situations in order to understand what we would need to agree on, change and search for; which technologies we would need to use; which emerging problems we would need to solve. All these we should do without a well-developed project plan. Everything was created on the spur of the moment. This was not a detailed plan; it was more like a roadmap. When we track the route on this map, all the details are getting clear. The internal customer, the rector of the University, approved the decisions based on our exploration of what could be done in this or that situation. Next, we have taken the actions.

4.3.3.1.3 Actions

Firstly, we made the design of the construction project, worked out the tactical details and got to work. We were informed that the ground was in a good condition there and a system to dispose sewerage was there. However, during the digging stage, the ground turned out to be running (soil liquefaction) and some
problems with the sewerage and the water supply emerged. It often happens in Russia that at the tender stage the contractor agrees on any conditions. However, the attitude changes dramatically after the contractor was chosen. The contractor begins to renegotiate the terms in order to have more preferences (opportunistic behavior) and better conditions. I always have to create and recreate hypothetical problem situations in order to minimize the risks. By doing so, I am analyzing the contractor's outer layer (expressions and reactions). For example, I create a situation that I had a phone call. The contractor is present during this phone call. After this dummy call, I share my “problem” (a fictitious situation) with the contractor. I inform him that I have been cheated by this or that person, who is currently hiding from me. I ask the contractor what he would recommend me to do in such a situation.

Then he gives me an advice. For example, he could say, “Smash him! Do this or that...” Alternatively, he could say “I would not have played dirty games. I would rather step aside.” Alternatively, he could give other pieces of advice. Thus, I am creating a special bridge in order to identify possible actions and future behavior of this contractor in such a case when a similar situation would happen with this contractor and me. Hence, I am creating an image to understand the contractor. However, one conversation would not always be enough as the contractor might understand that I have tested him. There might be a series of discussions or two, three or four phone calls. The contractor involuntarily took part in analyzing the staged problem and hence revealed himself by demonstrating his attitude and his further actions as if he would be in the same situation. Then I assess whether the person is aggressive or not. If he is an aggressive one, I will make one further step. How does his aggression manifest itself: in a positive or in a negative manner? In other words, I am creating his psychological portrait by using these staged “traps.” Hence, I can analyze his deeper, inner layer, which is more valuable than the outer layer.

That is not all. Based on experience gained, I understand that three out of ten managers prefer to keep a check on everything themselves, while others can be manipulated and used by their subordinates. In the latter case, it is hardly possible to find creative solutions with this contractor. Indeed he is limited, in particularly his mind is overloaded with outdated concepts and approaches that would not allow him to find creative solutions. It is inevitably important to start from scratch. That is why I try to cut off the contractor from his assistants. The limitations are often invisible. Thus, discussions help to discover fake suppositions, which could prevent our cooperation. These future scenarios allow assessing the values of the contractor. Afterwards I invite more people to participate in such discussions. Finally, we need to understand each other and reach mutual consent.

Next, the game with the contractor is continued. On the one hand, I am getting closer relationships with him so I can even help him in some issues which go beyond the scope of our working relations. On the other hand, I am trying to keep a safe distance from him in order to ensure that everybody follows formally agreed norms. I conduct formal and informal assessments veiled by us drinking tea together. The contractor starts to trust me. I clearly explained to him that if he works honestly with us we would never let him down. Later, a period begins when difficulties occur with him and he needs help in other projects of his similar to ours over which he has been simultaneously working. When help is needed, I give him my hand. I could help him to
find the best prices on the market and can consult him on other issues. However, I never cross the line of undue familiarity. The contractor could be fined if the terms of the agreement have not been met according to intermediate project assessment. The rules and the norms were set at the very beginning, so I check that they are met.

Moreover, I try to clarify any possible misunderstanding, which could possibly appear between us. What do I do in such cases? I demonstrate to the contractor that there are regular checks of the documentation. We gather a group of advisors around the contractor thus demonstrating that our expertise is not worse than the expertise of his experts or advisors. Further, we clearly explain to the contractor that his initial project estimations have been artificially increased by 25% and we won't tolerate excess expenditure of the state's money. In addition, the following points are definitely clarified to the contractor that if he works honestly and openly with us, if he does not bubble the budget, he will be able to work with us on many projects in the future. Thus, he understands that he could honestly earn money and acquire long-term working relations, which is more preferable than an achievement of immediate gain based on dishonesty. We have a lot of projects to offer in the future, but the tender procedure should take place prior to signing a contract. We could not affect the result of this tender, especially if it was conducted electronically. Indeed, I could not set any unrealistic targets in the technical specifications in order to guarantee his victory in the future tender as we are fully monitored by the Federal Control and Assessment Authority. Moreover, small companies also participate in a competitive tender procedure. However, due to the insignificance of the firms' size, there is a high probability that they do not possess enough resources to complete our projects.

Let us consider the situation from the contractor's angle. The contractor's thought process might be as follows: "I work with a University, which is a large reliable partner. The University has money; it is a solvent client who is able to pay for our services. Moreover, their project manager always keeps his promises. If he promises to pay at a certain time, he will do it." I tell the contractor that if he has operating funds, he might use as a guarantee something like 30% of his operating funds to secure a completion of work. You have to freeze these funds as the guarantee for the period of time until the completion of the work. Yet if he completes the works fully and honestly and on time, he will get the money back. Not every company can volunteer such a risk. However, we do not contravene any laws. We definitely know the rules of tendering and we model the situation, which is a priori impossible to control. It turns out that we can manage uncertainty. The contractor won the tender. We were able to continue with our cooperation. Let him work with us, work honestly and let this cooperation be long-term.

4.3.3.1.4 Reflections

Those tools, which I have been using, are impossible to directly share or transfer within the organization. It is possible only to demonstrate them for the young specialists. I can share my approaches with the closest people, whom I can rely upon, whom I have 'eaten a bushel of salt with'. Definitely, managers' maturity differs. A young person is unlikely to understand all these things. You need to have some background, a school of life behind you. A person should be aged at least 40. In addition, openness and integrity of the
individual are important.

**4.3.3.1.5 Lessons Learned**

To identify the EWSs is not the first issue. This is the second step. The first issue is seeing the whole project in its total perspective. Then you start to forecast where these problems are likely to appear and where they are unlikely to occur. An experienced manager uses his intuition in order to eliminate the uncertain situations. Intuition helps when the situation comes to a dead-end. Then, I just sit down and model the situation in my mind. When I am approached by a contractor, I see and feel intuitively that he is not here to discuss project work, but in order to get some extra advantages for himself. The contractor should realize that we are good partners and that we do understand each other’s business priorities. He should feel that he can trust us and that we will not let him down.

**4.3.3.2 Analysis and Findings**

**4.3.3.2.1 System Approach Competence**

Initially it was a complex project. Later, in the course of the project the complexity level gradually died down to the simple level. It was not a mono project but a part of the University’s strategic development program interconnected with other projects. A lot of organizations were involved, namely: state governance bodies; tender providers; competitors; the general contractors; and related projects within the University. The mature project manager recognized visible elements of the system (campus, building for sport, work places for the researchers, IT infrastructure, etc.). The shadowed factors such as contractor’s cultural value and mood of the project team members were identified and understood by the protagonist as well.

**4.3.3.2.2 Considering Context Competence**

Disturbances (changes) might be within or beyond the control of the project manager (PMAJ, 2003). Considering the change, sufficient attention should be paid to the things (the features of the current situation) desired to be left unchanged (Dorner, 1996). The main character realized that the complexity level would rise if the project team continually has to deal with unknown and untested contractors as winners of tenders. For the contractor’s concern about risk, when considering EWSs about the vendor’s stability, reliability and cooperation within changing conditions such risk situations are unlikely to occur. This issue was detected in advance and the main character’s strategy was to hold this aspect of the project complexity as stable. Affecting the result of the state tenders was beyond the control of the project manager. A trial contract for a small amount was signed and successfully fulfilled. However, subsequent contracts should be conducted only on a tender basis. A priori it was impossible to influence the results of the state electronic tenders.

**4.3.3.2.3 Modeling Competence**

As a person who conducts a system analysis, the protagonist kept in mind a certain ideal model. The PM tried to determine the direction of possible changes over time and forecast the future. He said that in order to
minimize the risks in the realms of contemporary Russia, he has always to create and recreate the hypothetical problem situations. He imagined that the end product had not satisfied the customer; he analyzed the possible solutions together with the contractor, looked at the possible crises from different angles, and decided what can be done. To understand changes in behavior of a partner within the crisis, the protagonist solved jointly the imaginary problematic situations.

The play encourages the ideas generation and knowledge through the improvisation and experimentation (Cartwright, 2004). For the certain future one scenario might be enough, while uncertain future requires a set of scenarios (Snowden and Boone, 2007). The main character created several scenarios including a disaster (Kahneman’s (2011) premortem practice). All scenarios helped him to understand the key elements, paint a broad picture, reject some unworkable ideas, understand the forces, which tear the problem into different directions.

After the successful completion of the first trial contract, the contractor was willing to continue the mutual collaboration style of work. The main character reflected with the contractor in advance because they would have a lack of time to reflect on the course of the project. Doing such exercises together with the potential contractors, the main character comprehended the situation, created realistic picture and made the selection. Prediction is more essential than hindsight (Prahalad and Krishan, 2008).

4.3.3.2.4 Conducting Assessments Competence

The main character used the psychological approach to manage the team and the external contractors, applying formal and informal interactions. The first pilot contract was realized on such terms, and the key contractor had been selected. Based on a gradual understanding and feeling, a model of the ideal future was mutually created, clarified, and realized by the parties. The protagonist paid more attention to the ESSs (Early Success Signs) detection than to the detection of the EWSs (Early Warning Signs).

Being an executive, the protagonist was powerful to create in his department the internal control system called Complex Assessment of Work (CAW). The author of this thesis talked to the team members from this department informally to comprehend their attitude towards this system. They were satisfied with the system CAW by members’ words as it was an opportunity to talk in person with their manager. He did not try to find the problem solutions by himself. He did not force his subordinates to perform the action, but provided free choice to these people. Due to these evolving relations, people were developing themselves too.

For the main character as well as for an excellent psychologist, such face-to-face talks were a chance to check the psychological climate presented in the team, to identify any EWSs, and to make sure that nothing crucial was hidden from him. Moreover, the conversations can be well-timed to jointly workout proactive solutions to the possible problems. CAW is conducted on a monthly basis. The manager did not delegate this responsibility; he evaluated monthly achievements together with an employee as well as the plans agreed for the following month. Thanks to this soft method of control combined with the support of using
CAW, some members of the team even managed to give up smoking. The protagonist used the monitoring system not only to measure technical performance, but also to monitor the team members’ mood. The mood of project team is considered as important indirect factor for detecting EWSs (R #1). A positive mood has both direct and indirect effect on creative group performance (Grawitch et al., 2003).

4.3.3.2.5 Considering Values Competence

The main character discussed the future repeatedly with the various potential contractors to understand their values, predict their behavior in case of crises. The protagonist is able to step back and look at the situation from the angle of contractor. The protagonist paid attention to detecting and managing implicit and invisible EWS elements such as changes in a contractor’s behaviour. Morality dynamics often take place after the tender has been won and contract has been signed and either opportunistic or collaborative and cooperative behaviour can be observed. That is why the main character selected the contractor carefully and painstakingly. Mutual values were the key aspects to select the contractor. In order to secure the success in winning the tender, the potential contractor shouldered the risk. He volunteered to freeze his funds (about 30% of contract sum) for a long period until the fulfillment of the contractual obligations. Under such condition, the contractor became the winner of the tender and continued working with the University.

4.3.3.2.6 Learning Competence

The main character had constant feedback from his client saying “the internal customer, that is the rector of the University, makes decisions while we work out what can be done in this situation. Next, we act.” Pattern recognition and intuitive insight take place at the individual level; these processes quite organically flow into an integrating process at the group level, when team members try to reach mutual understanding and take coordinated actions; eventually coming to the institutionalizing of these informal best practices at the level of the whole organization (Crossan et al, 1999).

4.3.3.2.7 Relationships Competence

Social complexity could develop into a highly complex situation if proactive measures had not been taken by the project manager. The potentially complex situation was simplified thanks to establishing long-lasting working relations and mutual trust between key stakeholders. The main character found reliable suppliers, vendors and contractors able to meet their commitments and be aimed at long term relationships.

4.3.3.2.8 Leadership Competence

The protagonist is a vice rector who combines the role of the project manager. The project manager was not just a passive observer of the context; he exhibited fluid coordination combined with the creativity. He leded not by applying a command-and-control style. He demonstrated an adaptive style by helping others to adapt better to the changes. A lot of attention was paid to the social aspects of the project such as professional and expertise growth of personnel. The main character demonstrated transformational leadership according to
the MLQ model (Bass and Avolio, 2011). All four “I” components of leadership behavior specified by Bass and Avolio (2011) (Individualized consideration, Intellectual stimulation, Inspirational motivation, and Idealized influence) were demonstrated by him. Respondent #13 is the colleague of the main character. He is the manager of the interconnected project within the program of projects. Respondent #13 characterizes the protagonist as a manager who has a large repertoire of different styles: he can be kind or strict, flexible and fixed, compliant and intractable as needed to deal with the situation at hand.

4.3.4 Case Study 2 Inappropriate Partners’ Behavior
4.3.4.1 Presentation

This story is based on a business case from a real life example of AAA Company (2009 - 2013 years). The company’s name and the protagonists’ names were changed for security reasons. This case study presented as a long narrative of a situation in which EWSs were evident but not identified and various acts were taken to overcome the problems that emerged. The purpose was not to impair the authenticity of it in any way but to preserve the core of the story as a valid case study to illustrate EWSs and required skills to overcome problems caused by problems heralded by these EWSs.

The main character (Respondent #10) narrated the story from the first person and published on the Internet in order to receive Facebook questions, comments and suggestions on eliminating the grammatical errors and typos; get tips for reformulating in simple language; receive recommendations for being better supported with facts and discussion for deep reflection. The following story is presented as my word-for-word translation (but correcting typos to enable clear translation for the reader of this thesis) as it appeared in Russian on the Internet for feedback and questions from Participant 10’s Facebook Friends readership.

4.3.4.1.1 Background information

“It is essential to come in and come out correctly. This is a citation from a tea ceremony, which demonstrates the importance of the correct emotional state when starting a significant business and when finishing it. During business issues discussion it is hardly possible to get rid of a subjective individual perception of the situation. That is why I present the article as my personal point of view and allow others to share their own opinion. Some facts and data are provided to illustrate the case, which could be interesting for modern managers as educational material, if they own a business jointly or if they are planning to launch this type of a business. I would like to improve the quality of this case-study from the draft version to the ready to publish finished document.

Until 2009, I worked at the Microsoft Company at the position of a Department’s Manager / Department of Technological Partners Development. Our main objectives were consultation and development of small and medium-sized IT companies, which provide services and sell products of Microsoft. This was a well thought of international business practice application in Russia. The work was really interesting and I was good at it. I received bonuses and benefits, and the number of my subordinates — personnel of my department, was
growing. A fund of knowledge and experience was obtained through the both sources – internal company’s training and through the daily work. Yet nothing lasts forever. I have decided to take a new challenge and launched my own business – a service IT Company in a partnership with Microsoft. There were a number of reasons for starting up my own business. After six years of working at Microsoft, I started to feel some detachment from the real market realms and felt I needed to refresh my practical experience, so that I would not get stuck in the rut of academic knowledge work. By 2009, a lot of new interesting projects had emerged, caused by the crisis. In the opinion of IT business giants such emergencies served as an excellent window for new opportunities for start-up companies which were brave enough to undertake projects, which cost 500,000 rubles and more (it corresponded to at least 20,000 USD per project). Moreover, after six years’ experience of teaching other integrators, I understood that I wanted to put my experience gained into practice - the experience of starting an IT company from scratch.

While thinking about the new project, I turned to the ideas of Ichak Adizes (http://ibda.ane.ru/about/about_press/about_press_2006/list662.html). I possessed all the characteristics, described by Adizes, namely a lot of enthusiasm and passion, I was ready to risk (being a realist at the same time), and attention to detail. For me, the first question to answer before launching the company was whether to create the business alone or in partnership with other owners. In the past, I had two years' experience of owning a small regional IT service company. This experience taught me that there are some limiting factors for a company with only one owner. When you are alone, it takes too much time to grow; there is no person to keep pace with. Moreover, you are more likely to decline in the conditions of a fast changing IT market, because you do not specialize in one area and do not perfect your skills. You just have to bridge gaps all the time. Besides, launching a business from scratch on your own is a long process due to a lack of resources. Hence, a lot of time is needed to develop a company until it can function effectively at full speed.

In discussions of starting a company with colleagues and acquaintances, the business co-founders were found in the course of time. These co-founders simultaneously took the functions of top managers, managing partners, members of the board of directors. I (Andy) took the role of Chairperson of the Board of Directors and also the role of the Business Development Director. Kate specialized in financial and accounting issues. Bob took the responsibility of being the Commercial Director and managed the cost centers. Mark took charge of production and headed the Nizhny Novgorod team of SharePoint enablement. Sergey became the Director of box products development in Yekaterinburg; later on his was changed by his wife Natalia taking over that role.

A set of rules was introduced, so that the rights of minority shareholders (15% of the shares) were not derogated and the founders’ equal participation in the work of the company was guaranteed.

- Any shareholder could veto any change in the rules of the company's work. In other words, all the decisions had to be accepted unanimously. This rule seems to be the greatest. It worked for five years, but the business collapsed immediately after the first time this rule was neglected.
• Any co-founder had access to all the financial information. That means all the payments were registered at the internal portal, and all the founders had access to this portal. This rule is definitely important and useful. The only thing is that if a person is not prepared, it is often hard to understand the whole amount of payments. We changed the system several times, so that it would be easier to handle and would not take much time to drill down the data to better understand the financial position.

• Every co-founder had his or her own independent cost center (something like a self-financing system of work). Every such cost center received money, which had been earned by each of the co-founders and their teams. All the salaries, bonuses and expenses were allocated on these cost centers. Every cost center allocated a certain fraction of their funds for joint expenditures such an accountant, for example. There was such a rule in the company, that no cost center could have a budget deficit of more than its 3 monthly total salary fund.

• Decentralization rule: Every director had full autonomy for operational management of his or her cost center. Indeed, it is hardly possible to be responsible for financial indicators if you do not have the power and authority of decision making.

It is important that there were many other internal rules, such as:

• To work in a full compliance with the legislation, not to get engaged in mortgages among others.

• Later on, a new rule was added, which was: Not to work with the Russian government.

These rules can actually be the topic for another case-study. In this case-study, I aim at focusing on the relations between the shareholders. When the company was in a growing stage this business model was highly successful due to union of knowledge, connections and energy of different people into one. The first disagreements with the co-founders occurred two years after the start date of the company, in the year of 2011. This is the time when two cost centers (those of Mark and Bob) became unprofitable with the budget deficit exceeding three monthly salary funds. On the whole, this was not surprising. Indeed not every knowledgeable technical specialist could become a good business partner. The decision was made to close the unprofitable cost centers. This was because the risk was very high that we could lose the whole business and get indebted due to any financial gaps. Nevertheless, we (l – Andy, Kate, and Natalia) made the decision to pull residual funding from our business out of the problem zone and carry all the responsibility of the debt of the unprofitable cost centers.

In the process of resolving the inherited problems, we confronted some business nuances in Russia, which do not allow putting best Western practices into application in Russia. According to the current Russian legislation, the employer has absolutely no rights in relation to the employee. Even if an employee does violate a mutual agreement by leaking secret information to competitors, an employer could never receive compensation for the inflicted damage. Nevertheless, this employee would get all the bonuses if he or she is fired. Dismissal is a highly complex procedure a priori, which could be easily contested in the court by an employee. In Russia, potential employers do not ask for a reference from the previous job in 95% of cases.
That is why an excellent business reputation is not a top priority for employees when they are laid off. The legal bounds of the joint right on the business are insignificant. Nobody is responsible for anything or has any right on the company.

Everyone has own perspective of the situation and all excellent relationships are irrelevant when the question (a dispute for example) relates to money. In this case, a curious dualism exists. In other words, double standards inherent to Russian culture. The employees demand to be treated in accordance with Western standards from the first day of their employment. That means the company should be more attentive to their needs, in particularly invest more into their education, pay regular bonuses, and provide them with a flexible working schedule. Besides this, the company’s managers should be democratic and readily available for engaging in communication. At the same time, a traditional “Russian” attitude of employees to the company exists. Indeed employees think nobody should limit their use of their gained knowledge and experience by working for a competitor; they could easily resign by notifying the company’s executives two weeks in advance and leave their projects as uncompleted. The employees must always be provided with high and stable salary and bonuses irrespective of their achievements. They could easily publish the technical know-how of the company in their personal Internet blogs, etc. Thus, a European approach should be used in talking about the company’s treatment of their personnel. At the same time in the context of considering the employees' responsibilities, the “Russian” approach predominant in its worst form. It is impossible to prove the existence of consistency in the approaches to responsibilities and work – either for the European or for the Russian model. This is especially true for those employees whose specialties are in a high demand. Eventually, the arguments are often resolved in the court, although it is a contest in the Russian court in the form of the lawyers’ skills rather than a search for justice (Thesis authors’ note: there is a legal system operating but not necessarily a justice system).

In spite of the all pitfalls, we have managed a full resolution of the problematic situation with clients in relation to financial issues and legal disputes in the period of 2011. Hence, the business efficiency was significantly improved and the company became to be profitable again. Salaries levels were increased, bonuses were paid to the personnel and the losses of 2011 were partially compensated for. We even paid out the bonuses, which had been previously promised to the employees by the former cost center owners. Six key customers guaranteed a stable amount of orders. I started to manage sales in addition to my other responsibilities in order to cut costs. Natalia took the role of the Director of Production. Kate reduced expenditures on accountants by relocating the central office from Moscow to Nizhny Novgorod for a partial outsourcing of accounting functions.

However, some problems still remained. The existing partners were tired of court proceedings, financial and technical problems were left from the closed cost centers without receipt of the deserved money for that. This served as the background for a growing professional misunderstanding between the partners. The quality and efficiency of developers’ work managed by Natalia in Yekaterinburg was questionable. The development team stopped to grow despite the potential for greater project revenue. I was asked by Natalia to devote some of my time (besides sales) to implementation of her development projects and I started to do
so. Previously this action was performed by Natalia. In practice we moved from the model of cost center (the
self-sufficiency model) to the model of fixed payments for a fixed amount of work completed (when the sales
department earn revenue from sales, the production department reported on the amount of work completed
within a certain time period). We continued to work on returning to the model of cost centers, but this
initiative was not completed. The crucial advantage of this scheme was the financial stability of the situation;
the disadvantage was the tendency to cease developing box products. The significant turning point was at
January 2012 (more than a year ago) when Natalia’s husband Sergey was offered a job in Belgium, which
definitely meant their relocation. Right in a couple of days it turned out that Sergey did not plan to move
abroad. However I was surprised (even shocked) at the appearance of two new opposing sides in the
emerging conflict– Kate and I were on the one side (husband and wife) and Natalia and Sergey (they are
spouses also) were on the other side. Both of these two sides viewed the responsibilities of partners and the
rights of leaving the company in a different way. After several months of negotiations we came to a written
agreement that fixed a highly important agreement. According to this agreement, partners must necessarily
warn and agree their resignation in advance from the company.

This is the quotation: “The balance of powers and a guarantee to meet the obligations were supported by a
division of responsibilities. Formal legal procedures were changed into cooperation in the two areas, namely
business and technology. It was agreed that system will not function without each of these two parts”.

By the way, an additional hazard to the business came from outside. Microsoft almost fully stopped any
support of SharePoint for any partners who did not sell their licenses directly. Generally, this decision of
Microsoft significantly decreased the attractiveness of SharePoint’s business. Taking into account internal
problems of vendors and other vendors’ problems, the sudden possibility of employees’ getting sick and any
force majeure in such a small company as ours (with 11 employees in a head office), we started to transfer
the whole development to the customers and tried to persuade them to hire their own development teams to
secure themselves in case of an emergency. We were doing in that way during the whole year. Yet I
personally did not expect the unforeseen relocation of Natalia and Sergey to Australia and that the
consequences of this process would be so negative. My strategic vision of the company’s future was closely
related to the cloud services, the implementation of the quality control system and the increase in number of
consulting projects. At least one year was required for such implementation and additionally a joint work of
all of the partners was necessary

4.3.4.1.2 The decision making process to withdraw from the business

The process of making decision to withdraw from the business itself and the implementation of the
withdrawal were performed at a high speed. The time scale and events were as follows:

On the 3rd of May, Natalia informed me that Sergey was going to work in Australia starting from the 1st of
June. Their immigration documents had been accepted by the Australian Embassy and the visa documents
had been submitted. Sergey’s future Australian employer is an integrator, which works with the SharePoint
and is also a partner of Microsoft. Natalia expressed willingness to work until the end of the summer, under the specific condition to be met by us. Further, Natalia sent her own vision of how the transfer and closure of her production department should take place (Thesis author's note: in the form of a proposal including PowerPoint slides).

**By the 5th of May**, we had analyzed Natalia's proposal and commented on it. We identified the time frames to come up with alternative scenarios; the situation transferred into a firm but manageable mode of decision making under really extreme conditions.

**On the 10th of May**, Natalia was not ready with the revised version of her proposal. We extended the time frames till the 12th of May. However, on the 12th of May there was no agreement on the closure of her projects because Natalia's proposal was unacceptable.

**On the 13th of May**, we received a letter from Natalia that she had already sent the formal letter of resignation from her job.

**On the 17th of May**, we warned all the personnel, customers and friends that the attempts to find an acceptable decision had failed, unfortunately. I also let them know that Natalia and Sergey ceased to work with AAA Company, but that Kate and I would still continue our efforts order to compensate the parties, which had suffered losses caused by the refusal of Natalia and Sergey to meet their obligations.

**From the 17th of May till the 16th of June**, a huge amount of work was performed and I am really proud of it. Every key customer has a chance to continue their work on the projects under the previous or even better conditions. I cannot disclose all of the details, as they are commercial secrets. The interests of all employees (who were open for discussion and who were ready to take part, even passively, in resolving the situation) were considered and satisfied. We have been prepared for legal disputes with Natalia and Sergey and their team. It is really hard to predict but we continue to be optimistic about the results of the legal disputes. We have also found out the fact that even before employment at AAA Company and simultaneously with employment at AAA, Natalia and Sergey had their own business, a separate registered company. This fully proved that trust in these people was unfeasible and they had hidden something from us from the very beginning of their work for AAA. It is a big pity such data was not available on the Internet for the general public. The main outcome of this was that we were too optimistic about the future.

**4.3.4.1.3 Reflection on the proposal for closing Company**

"Fool me once - you fool, fool me twice - I fool."

S.King, "Dolores Claiborne"

Here the analysis of the Natalia's proposal for closing AAA Company projects due to her movement to Australia. The proper set of the measures taken to rescue the company was a separate unique project itself.
It was a project with very tough time constraints and scarce resources. More than a project, it was a program of projects aimed at cutting the production department, shutting down the current projects, etc. The analysis of this program included the risks analysis, review of the financial calculations and the feasibility study. However, the most important thing was that the actions were based on completely new terms (as the old terms were violated by Natalia due to her inconsistent change of previously agreed conditions regarding the operation of her department). The first thing to be fully checked is whether we could trust Natalia in her new role of project manager for the closure of the production department in Yekaterinburg.

During the check of the Natalia’s credibility, we have analyzed the received information:

1. It should be noted that the proposal was not profitable for AAA, and this is clearly stated on the very first slide of Natalia’s presentation. The actions have already been committed. Natalia made decisions primarily focusing on her movement to Australia. She has already scheduled it for late summer. Therefore, Natalia destroyed all of our mutual work and breached the rule of the unanimous agreement that all important MANDATORY decisions must be agreed with the other company’s owners. Thus, we have clearly stated to use Natalia’s own words as the fact of the agreement’s violation.

2. The Natalia’s analysis of the proposal clearly demonstrated her manipulative behavior. The ultimatum took place in her proposal stating that there are “no other alternative options / no other choices.”

3 According to the scheduled actions, Sergey and Natalia themselves decided to reduce the capacity of the production department and that decision was not subject to agreement with us, despite the fact that the proposed plan was not realistic for execution. The transition required a long time, which we just did not have. How was Natalia going to reduce this risk? Unfortunately, that information was not mentioned in her proposal.

The old problem of developers’ quality control was left unresolved. The employees who understand that they are still working just for the last 1-2 months could not be motivated to "lay oneself out" as we are all used to exploit ourselves in this way to finish our commitments.

We would have to sign entirely new contracts with the customers because Natalia’s and Sergey’s names were explicitly specified in the original contracts. Besides, it was necessary not only formally re-sign the existing contracts (though it is also a time consuming and costly) but also to convince all of the customers to welcome a new format of cooperation with them. All of this seemed completely unrealistic from the personal point of view because I was closely related and responsible for sales and understood the real situation.

In prioritizing the reaching of agreement with customers and employees, we have made the counter offer to Natalia in order at least to have a minimal chance to succeed. Natalia had not accepted the proposal and we finally recognized the impossibility of further co-operation. This stage has already been passed. The situation became crystal clear and we could move on further. Later on, we have received confirmation of the decision.
to stop cooperation with Natalia. On May 17, Natalia refused to complete the project previously negotiated
directly with the customer and thoroughly supervised by her personally. This action provided evidence that
Natalia was not taking responsibility for her promises. She was not going to close the projects and obtain
formally signed certificates on completion. Therefore, her plan was not feasible from the very beginning.

4.3.4.1.4 The issue of ethics

While making decisions we devoted more than 80% of our time on discussing and searching ethical ways
out of this situation. The situation was very ambiguous. In fact, neither Kate nor I were familiar with the
employees from the production department in Yekaterinburg. Some of the members of the development
team I have never seen live; some I just have come across a couple of times, including at the corporate
team building event a few years ago.

Our direct communication over the years was reduced to 1-2 short phone calls devoted to technical topics
and exchange of less than a dozen letters regarding the technical points also. How is this possible? Firstly,
this was the style of constructing business processes. The single point of communication was the head of
the production department (Natalia). Such an approach provided high efficiency and speed in decision-
making. Secondly, Natalia has always been strongly opposed to our direct communication with her staff.
Taking into account the different time zones such a group norm was justified. Third, Natalia, as a partner,
clearly had a right to lead her department according to her own rules.

This is an example of correspondence upon my arrival to Yekaterinburg (June 2013) for a meeting of AAA
co-founders: “The time for decision making (1-2 days max) was limited because I did not know what to
expect from Natalia and Sergey. On the other hand, there were still open questions regarding the customers
and documentation. It was not possible to invest all of the time only for meeting with the production
department’s employees. Natalia warned us too late about her decision to move to Australia. As a result I
was severely pressed for time”.

I performed the following actions. First of all, I immediately wrote to all employees of AAA Company a letter
based on the principle of honesty and openness with a detailed description of the current situation. I had
planned a full day for the phone calls to discuss with each team member in a one-to-one mode in order to
hear firsthand their opinion on the situation and find options tailored to mutual interests. However, no team
member of the production department did agree to talk by phone person-to-person. I received unequivocal
refusal on meeting from each of Natalia's employees. Nevertheless, in a month after his refusal, one of the
former employees discussed this problem with his Facebook community.

It is an excellent example of double standards, which clearly demonstrates the loyalty of employees to the
company. When they were invited to have open discussion they did not have his or her "own opinion", but
immediately after this they have right to have "a personal opinion" despite the fact that they had refused one-
to-one personal phone conversations with the management of AAA. Where do you find a place in the world
where employees could deny help to the company in a difficult moment in relation to just understanding the situation? By the way, humanly, I totally agree with these individuals. All of us (including me, Kate, staff of the consulting department, the employees of the production department, customers, etc.) do not feel guilty that Sergey and Natalia decided to give up their partnership and move without giving us notice within an agreed time frame. It's a big pity, but working in a small company such a risk should always be taken into account.

Finally, the decision regarding the production department on the basis of the mail correspondence was as follows.

- These employees do not associate themselves with the AAA Company. Moreover, I do not personally know them, and they do not know me.
- They are the team of Natalia and Sergey (this, by the way, deserves respect - loyalty is very important.)
- I do not have time within 1-2 days to re-educate them, to teach them to ask the right questions, to explain the situation and find an acceptable solution.
- They do not understand the real situation and, on this basis, take a very aggressive demanding position with a tendency of resolving the issue by applying the legal approaches.

If we had conversation one-to-one as I suggested, we might have been able to take a more objective decision. However, I had to work with the data that I had as of now. Based on this data I had to draw conclusions. Therefore, it was decided just do nothing beyond actions that already been done to help them in the future. Of course, we would not also harm them. It is not a tragedy for them. All of the questions (by the way, which are not our fault) could be solved. A good lawyer or even Google will answer their questions regarding the official record of services. From the financial side, AAA Company has reserved some funds for the completion of customer's projects. We did nothing to harm the employees, even disloyal ones. We were just doing what was necessary to ensure normal conditions for loyal employees. Even this article was written only after some of the former staff members of the production department started the public showdown using Facebook.

I was fully emotionally upset and did not see the way out and somehow a tale composed itself helping me reflect on the whole situation. Imagine that a dam has been collapsed on the river. Everything was flooded, moreover followed with a giant wave, which will wash away everything and raze it to the ground. A grandfather Mazzei was rowing his boat along the river and shouted "Rabbits, save your lives! The dam collapsed". A man is getting closer to the mound which surface is not yet under water to rescue a rabbit and rabbit says, "No, Mazzei, go away, I will not climb into your boat because you should pay me a debt. Do you remember that you have promised to give a piece of carrot last Wednesday? Therefore, I am angry with you. Besides, your boat is unpainted, not funny at all. I know my bunny right. So go ahead, Mazzei, float home, thank your boss for talking to me, we will discuss your behavior, grind your bones. I'll be with a wolf who is a great expert on dams. Look, what a great piece of the dam he snatched for himself! Surprisingly - exactly
right before the dam collapse. Just as he has known, he was constructing a raft from this piece of the dam to reach Australia. All of actions must be approved by the wolf. Moreover, you Mazzei should also bow at his feet and thank him for the good advice as well. Mazzei listened, scratched his head in surprise, sighed and swam to rescue other rabbits. Since the wave was getting closer and closer, he had no time for chatting. That's the story about the Darwin's theory of natural selection.

4.3.4.1.5 Personal opinion of Interested Parties

Personally, I always considered them as diehard developers understanding nothing about the legal and accounting business issues. I believed it was the source of difficulties in our interactions. After our mutual business ended, I realized that I was fully mistaken. As it turned out in the course of searching the Internet, in the public domain - Natalia and Sergey have been the owners of their own registered company for many years (2005 to 2012). I did not know what jobs they carried out, the company had already been removed from the register of legal entities. Nevertheless, the fact remains as it is, combining the work for the other companies (AAA, BBB, and CCC) - spouses were the owners of the family business. In the Microsoft Corporation, such things have always been strictly forbidden. The spouses did not inform AAA Company about this fact. I think other former employers of Sergey and Natalia would also not be thrilled to learn that fact.

4.3.4.1.6 Conclusion

I believe that both the situations of the partners leaving the company (first, Mark and Bob then Natalia and Sergey) were manageable and acceptable in terms of managing the legal process of meeting the obligations (in case of Mark and Bob) and in terms of division between different professional areas (in case of Natalia and Sergey). I managed to exit both situations without any crucial problems as I was attentive to details and had the correct emotional attitude. Strategically the company was successful and executed a lot of useful and interesting accomplishments. All the aims, which I had set for myself at the launch of my own business, were achieved. I am sure that none of us alone would have been able to reach such results. Definitely, we (and I in particular) did not do everything perfectly. Yet, we were always honest, open and proactive, which allowed us to obtain a priceless firsthand experience. If I had been offered to come back to the year of 2009 and to choose whether I should stay at Microsoft or I should spend these last years in the same way (without a chance to correct any mistakes), I would have chosen the launch of own business again. I hope that the case-study would be useful for my colleagues and other managers.

4.3.4.2 Analysis and Findings

4.3.4.2.1 System Approach Competence

From the very beginning, it was a complex project. A set of company rules was written down at its foundation. At the beginning, the rules were really excellent and effective. However, being in an unstable (mobilize) state, the parties ceased to adhere to formal rules being mandatory in peacetime. The geographically remote Yekaterinburg production department acted independently.
Actually, the existing company rules *a priori* contained “separation” with no support to integration to be provided. Thus, the separated production department benefited from their financial independence during a stable state when profit was gained and bonuses paid. However, losses at the closure of this department were shouldered by the head office. Hence, there was cooperation in terms of profit sharing but separation in terms of responsibility and losses bearing.

The project manager did not create an open system. The boundary between the Moscow and Yekaterinburg contexts were impermeable. Blurring the boundaries enables interpenetration of head office and remote production department into a mutual environment that supports obtaining the shared value. They even had separate, different “technopedias” (something like the Wikipedia) within one team.

The main character did not see the system as a whole. He was busy with the production department’s project. Sometimes managers are not able "to see the elephant in the room" (R #1). A deep specialization was labeled by Martin (2007) as “a victims of specialization”.

### 4.3.4.2.2 Considering Context Competence

In this case, both the external and internal contexts were dynamic. Some disturbances were not under the PM’s control. For example, the external partner of Microsoft Company unexpectedly changed their policy and almost fully stopped to support the company. Some disturbances could be under the project manager’s control but in the case of their early intervention, initially the main character was responsible for the most challenging sector of work, namely as managing business clients. Later, when problems with the Yekaterinburg’s production department occurred he had to take responsibility for two areas of work. He began to devote some of his time (besides sales) to implementation of the projects, which was initially led by the head of production department. The objectives of the production department were hidden for the main character. He attempted to return the production department to the cost centers model instead of a fixed payment model. However, this initiative was not completely responsible for the company’s shutdown.

This case is unique because the respondent had answered the interview questions before the events described in the case took place. Hence, it is even more interesting to trace his responses to the questions before his company had ceased to exist. Moreover, the case appeared *per se* as a result of the respondent's answer to question 20, “Can you describe the best practice (innovative achievement in dealing with EWSs) that can be duplicated? Please give example.” According to the respondent, the best example of these best practices could be his unique company and its employees. However, two weeks later, the events occurred, which were described day by day in the case-study. Speaking about the company that collapsed in two weeks, the main character of the case-study #2 proudly stated, “We are called a small German family business. Having reached the highest position at the market, our people feel absolutely safe. This is probably the greatest innovation and nobody has ever been able to duplicate it. Indeed, it would be hard to reach such high innovation achievements in any other field without this team. People who are working for us are unique.”
4.3.4.2.3 Modelling Competence

It is important to point out how the main character replied to the question regarding uncertainty management. He said that uncertainty management is limited at the personal level, the level of an office, an apartment in Bulgaria, or a chance that a stone may fall on your head. Moreover, talking about uncertainty, he mentioned the production department in Yekaterinburg to express his confidence about its bright future. He said about it the following way: “I do not want to talk about the production department, because now production is ok.” It means that at that time nothing indicated any emerging problems. Just two weeks later the production department had ceased to exist. In this case, uncertainty was unmanaged.

Sargut and McGrath (2011) advise managers to divide data among three buckets: (1) Lagging data; (2) Current data; (3) Leading data. The main character reflected in a similar way. He analyzed achievements and expressed his pride. He was satisfied with the present situation. He was mistaken only when predicting the production department’s future. Therefore, the main protagonist’s subjective perception of the situation was overoptimistic and wrong and perhaps complacent.

4.3.4.2.4 Conducting Assessments Competence

Speaking about the assessment which can help identify EWSs, the main character stated that he is highly opposed to the assessment, saying that “Normal people can organize themselves very well; we invest in personnel development. Abnormal people won’t be able to cooperate with normal people, even if we punish them and assess them”.

Moreover, the protagonist said that the company’s motivation system is linked to assessments; the project team members escalate the problems themselves. The main character believes that the self-checking system is more important. The aim is not to control, but ensure that the system could “cleanse itself”. The protagonist said that it is useless to write guides without considering culture and responsibility.

The EWSs had rung alarm bells; however, the main character did not intervene. For example, the Yekaterinburg’s heads Sergey and Natalia informed about their decision to move to Belgium. It was a weak warning signal. Later they changed their minds and chose to stay in Russia, but negotiated fixed payment terms instead of the previously agreed cost center model. This was a strong warning signal. When Natalia and Sergey were offered a job (in Australia) and they finally left the company, it was no longer the warning signal, but a 100% implemented crisis.

4.3.4.2.5 Considering Values Competence

Cultural values and the satisfaction of mutual-cooperation are often a kind of glue that keeps people together in a team. Finding common ground was not an easy task; the parties were unable to agree on common goals and benefits. The protagonist was distressed that people behaved according to double standards. Taking uncertainty as the norm of the life, all Russians, whether a worker or CEOs of the large
companies, have a national behavioral habit developed for centuries. In other words, they have two patterns of behavior that is deeply embedded into their consciousness which relate to either stagnation or mobilization states of the system (Prokhorov, 2002).

Before the crises occurred the main character spoke proudly of his employees, defined their personnel as unique. The protagonist stated that he highly appreciated the traditions of the Soviet Union in education and upbringing. He mentioned that during the times of the USSR, we were taught how to act as “good pioneers” and that this was the right way. By saying this, he meant that children were taught the right understanding of what it means to work diligently irrespective of difficulties, to follow the chosen way, once chosen, but not to search for easier routes by taking the ‘easy path’. Ethical norms, culture and the system of values determined a personality of people in Soviet times. He himself believes in the values of the past, emphasized on team work and cooperation.

After the crisis the main character said: “Russian people are mostly interested in material incentives.” He described his employees as unreliable, who are able to easily publish the technical know-how of the company in their personal blogs and to resign leaving projects uncompleted. The protagonist believes that the current system of values in comparison with the Soviet Union system is more consumption focused and money oriented. He insists that staff are only money motivated, stating that employees expect that they must always get a high and stable salary and bonuses irrespective of their achievements. Who hires such employees? Alternatively, if the right employees are hired, why do they turn into the unreliable workers, possessing all the above mentioned negative qualities? Is not the system of motivation of the company, which was centered on financial aspects only? The paradox is that he himself appreciates non-materialistic values of the past, however he ascribes to the employees that they are motivated by the financial aspect only. Hence, the clash of values was evidently manifest in the motivation system. When the respondent was asked to identify the criteria of value, he said that the measure of the client's satisfaction rate is definitely not such a criterion; the company is in search of the criteria and that next year they would be able to say something more specific in order to answer this question.

**4.3.4.2.6 Learning Competence**

The weak warning signals and the strong warning signals about the rising level of the complexity were ignored and it led to a catastrophe for the entire company. An integrative approach “logic plus intuition” would be helpful in this complex situation to foresee multidirectional causative correlations and to keep the whole picture. The respondent was questioned to describe his intuition use at work, “As an analytical person, aren't you trying to systematize and structure your sixth sense?” The response was negative and categorical as he said “Since my childhood I have been told that I am a very logical, science oriented person, I was even referred to as a Doctor of Science. I have found myself in IT and in some scientific areas. I do not use intuition. Moreover, I do not consider it important. I even try to approach intuitive issues from the logical perspective. I am aware of the archetypes of Carl Jung. Of course, it would be great to have both logical and intuitive thinking equally well developed. However, choosing between the development of my weak side
(intuition) and my strong side (logics), I personally prefer to develop further my strong side, my logical skills. I believe it is better to possess highly advanced logical skills and to be outstanding in this rather than to be average in logical skills and average in intuition”.

Managers often underestimate the advantages of the intuitive approach and are reluctant to rely on intuition to solve complex problems. However, going to court trials, and expecting a negative response from the employees (which he called “the “Russian” attitude of employees to the company”) demonstrate that he was unconsciously competent to detect the warning signs. Probably, being over-focused on the ideal of his logical abilities, he did not try to recognize his intuitive abilities. He strove to find a logical explanation to these phenomena.

4.3.4.2.7 Relationships Competence

The main character thinks that interpersonal relations become of minor importance when problems arise. Initially, this project was potentially of low social complexity due to a small and stable narrow circle of partners. Finally, it became a highly complex project from the social complexity point of view. The relationships between the head office and Yekaterinburg department were broken. The connections were solely monopolized and concentrated by the head of the production department. Natalia was a single point of communication. The Yekaterinburg department was a closed system. The closed system ineffectively interacts with other system elements, does not use feedback efficiently, and becomes less and less effective as an element in a shared context. The parties did not find the point at which they could compromise, adjust to each other for a joint agreement. Selfish interests of the opposing parties were the driving forces in this situation.

Each stakeholder (Sergey, Natalia, and their team) can be considered as a system capable of independent judgments and actions. Their internal contexts are subjective, with changing needs, emotions, abilities, qualities, and opportunities, realization of which, in turn, depend on the situation and determines the character of challenge for each concrete individual.

The main character used inappropriate “hard” communication means such as e-mail correspondence to resolve a “soft” issue. Vague problems cannot be resolved using rigid approaches. Being logical, the main character use a logic-centred and logic-restrictive approach to analyze the details of the external environment. Intuition is an ability to perceive information from the outside without going into internal details. One of the well-known methods to decrease the level of complexity is to unite ideas and to discuss the problems jointly through collaborative effort by understanding a range of perspectives. Why the protagonist did not simply take the airplane to conduct face to face talks, brainstorm, focus-groups, or modeling of the joint future? Instead, he negotiated and took important decisions via e-mail. IT specialists tend to be Hard Minded. What they happened to lack was some warmth, soft hearts. It is important to manage people’s emotions; EQ is rather more important than IQ (R #7). How can it be possible that the director of such a small company does not know the employees by sight? The protagonist attempted to get to know
employees when it was too late to change anything.

The main character managed relationships with the external clients very well. Indeed, he restructured relationships with those clients, who were ready to continue their cooperation with the company. He explained the situation to the clients and they adopted changes and agreed to work under the new conditions. As for the Yekaterinburg staff, their complex nonlinear behavior can be transformed to a simple particular solution for the complex issue to be found. However, people did not trust the protagonist, staff and Yekaterinburg’s co-founders did not join to find the best solution. The process of restructuring relationships with them was not successful.

4.3.4.2.8 Leadership Competence

People related “soft” issues were considered as unsolvable and so the small company closed. The main character demonstrated a transactional style of the leadership according to MLQ model (Bass, 1985). When the question of staff motivation arose, the main character discussed purely financial motivation: “financially motivated” personnel, “a transparent scheme of payments.” However, values cannot be limited to only financial motivation. This case proved that transactional leadership “often fails because the leaders lack the reputation for being able to deliver rewards” (Bass, 1985, p: 29). The Yekaterinburg team left the company demonstrating solidarity with the Yekaterinburg leaders (Sergey and Natalia) who escaped the company.

In addressing the question about the required competencies that a manager of complex projects should develop, the main character replied that it is crucial to be aware of legislation. He said that he had attended court hearings and that he took them to be significant live training for the future because now the protagonist knows and understands the procedures, the difference between the civil and the commercial court and understands the atmosphere of court litigations. It would have been useful for him to learn to understand the psychological atmosphere in the team in order to identify early signs which warn about the approaching problems. Nevertheless, the main character preferred to learn something different and highly transactional, namely how to win in court.

4.3.5 Case Study 3 Experience Overload

4.3.5.1 Presentation

“No two situations are the same, and patterns, while similar, are never identical” (Crossan et al. 1999, p 526). The main character (Respondent #15) works at the University. The following story is narrated by the main character (Respondent #15) from the first person.

4.3.5.1.1 Context

This is a story on how I managed to fail in a relatively simple project having experience of managing complex projects. I have a vast experience of managing projects. This is the main lesson I have learned and that I always kept in my mind happened in the end of 1990’s in Russia. At that time I was younger than 30. I had
already possessed a rich experience in campaigning for regional elections, for example for a governor or a city mayor. I was approached by a plant director whose aim was to be elected to the local Duma. He looked to be a strong candidate, a leader, unlike the other candidates, who seemed weaker than he was. The target election constituency was small in size and comprised of 40,000 residents. I had already had a rich experience of successful campaigns of a larger scale by that time.

4.3.5.1.2 Objectives

Thus, we agreed on the money and started our work. By that time, I had already developed a number of patterns, which had proved to be effective in campaigning at different levels of elections, up to those of the State Duma of the Russian Federation. This small election seemed as good as done, a simple project to manage successfully.

4.3.5.1.3 Actions

I started to follow my regular patterns of campaigning. I performed all that looked as necessary. TV commercials were launched, billboards were hanged all over the city and electioneers met the electorate and etc. The scope of the campaign was small, in terms of the time frames and in terms of the money. Therefore, it was decided not to run opinion polls but just adhere to the standard campaigning approaches. In general, an opinion poll can demonstrate ratings of popularity, its dynamics and changes. If the popularity index is falling or if it is unchanged that signals something is going wrong. Thus, some actions are required to change the trend.

Probably, formalized opinion polls are needed similar to the need for a measurement of body temperature for hospital patients. In this case, we were not measuring the temperature. Frankly speaking, I would not say that my intuition was prompting me about any danger. I had no feeling of an impending failure. Nevertheless, I was really shocked when the candidate had not won. It was an unexpected result. If he had just 40 votes more, he would have won. It looked to be a nuisance. However, this detail (40 votes!) was decisive. Then the question arose why it had happened.

4.3.5.1.4 Reflection

I started to think over what exactly had occurred that led up to this result. It turned out that the opponent, a local businessperson, had found a simple straight-forward solution to counteract our sophisticated political technology. Most likely, he had found the solution intuitively, because from what I know, he had not used any advanced professionals for his campaign. The main idea is the following. Based on the experience of previous years, he knew that in the region with 40,000 residents only 30% of the electorate cast ballots, which totals to 12,000 people. Due to the small size of the campaign, the main goal was not to canvass, but simply to buy them. The team of the opponent primitively went to the electoral district and offered people envelopes with money or contracts, and managed to purchase 6,000 voters, having paid them a rather low sum of money. They even did not cover the whole electoral district, but just chose the active voting stations
and achieved their aim. Our candidate actually won in all the other voting stations and districts. I did not expect such an approach from opponents. This pattern will not work at large-scale elections, namely at the elections to the State Duma, because it is more expensive and risky to buy so many voters compared to investing into a good PR campaign. When the size of the project was lower, it turned out that the cost of buying out the votes directly was much lower than the cost of a PR campaign, of paying professionals and for the advertising. Relying on ready-made patterns turns out to be a dangerous concept.

**4.3.5.1.5 Lessons Learned**

The first lesson I have learned is that when the scale of a project is changed the use of ready-made patterns may lead to a failure. In a new context, you should approach the patterns you are using more critically.

The second lesson I have learned is a bit of a paradox. This was that it was my previous own experience that had actually done an ill service to me. You should never underestimate the opponents. The objectives I had reached in the previous cases were, *a priori*, more complex. There had always been a challenge, a brainstorm and creative work. In that project, I simply applied the pattern that had proved to be successful, do this or that: take photos, make billboards in the style of the USSR era. Our initial supposition was that the factory was the main industry in the city and that the people were more likely to vote for the director of that factory, which means for their boss. He seemed to be a good manager. However, the paradox is that very often good managers are not really greeted and respected by people. He was one of those people who forced people to work hard. That is why it turned out they gave him their finger, behind his back, to put it figuratively. When the people got the chance to express anonymously their attitude towards the director, they did it, by voting against him at the election. If they spoke up against their boss at the factory, there is a danger of being fired. Hence, they were not able to express directly their opinion while being at the working place. Many of them did not go to cast their ballots at all. Yet the active voters were against their director, although the workers had received bonuses at the planet a month before the elections as a kind of a motivation to vote for their director. Actually, such details are not taken into account when the elections are of a larger scale (the level of a city or the State Duma elections). That case was about a concrete factory and about a concrete director of that organization. My past success records have not guaranteed success in the present and future. The border between the simple situation and a crisis situation is invisible and might be crossed without noticing that.

Third, I should have talked more to the people. For example, if I had gone and talked to the workers at the factory, I would have felt their mood and would have understood what to do.

Finally, I consider it to be a mistake to neglect such direct formal methods of assessment as opinion polls, which help monitor the popularity rating. A lack of this instrument did not allow us to understand that the situation was crucial. We were fully lullabied by our confidence in victory. It turned out that the plant workers had something to be hidden from us and the opponent's team also had a surprise for us. If three weeks prior
to the elections we had understood that the rating of the opponent was growing while the rating of our candidate was not, we would have taken some measures.

This excessive optimism, reliance on the ready-made patterns, and a 100% successful previous experience of campaigning for other candidates – all these factors considered together did a disservice to me. It turns out that formal instruments of assessment are important and one should not neglect them.

**4.3.5.2 Analysis and Findings**

**4.3.5.2.1 System Approach Competence**

The protagonist perceives the situation as a simple and definite; he was not worried and did not realize that in fact, the situation was already complex.

**4.3.5.2.2 Considering Context Competence**

He predicted success according to the starting conditions. In a complex system the same initial conditions can bring different outcomes due to the interactions of the elements in the system (Sargut and McGrath, 2011). To ensure project simplicity, the external environment factors were filtered out. The protagonist intentionally focused on 30% of the electorate based on the last year’s statistics. Important factors were discarded. The main character was managing only visible things (expected electorate, TV campaign, leaflets, etc.).

The external context could shape the internal context (actions and their behavior). However, this did not happen in this case. The project potential to have varying levels of the complexity at different project stages was not fully understood by the main character. He did not monitor the disturbances due to incorrect assumption of the situation that supposed to remain stable. In fact, it was dynamic. Indefinite, non-transparent, and hidden factors such as the candidate opponents’ election campaign program were not considered. Past experience of best practices, which helped in the past frame the protagonist’s mind of current and future best practice constrained his behavior. Many psychological experiments have demonstrated a range of people who preferred to act in accordance with pre-made patterns (Dorner, 1996). His tunnel vision appeared insufficient for orientation within this situation.

**4.3.5.2.3 Modeling Competence**

The main character kept his predetermined views unchanged and lost the opportunity to correct his incorrect strategy. The protagonist regrets that he was satisfied with a single decision and did not work out any alternative ways of action needed to foresee unexpected probabilities and to make sufficient decisions in uncertain situations. The hidden aspects such as the secret emotions of factory workers voting against their boss left a shadowed and eventually increased risk. The cause-and-effect relationships are discoverable but not immediately apparent to everyone (Snowden and Boone, 2007). Of course, it was necessary to identify these non-transparent players and take into account the fact that it was a large, city-forming factory. The
non-linear cause-effect links brought unpredictable outcome: the election campaign failed. Such cause and effects are only obvious in hindsight.

4.3.5.2.4 Conducting Assessments Competence

The number and intensity of the external disturbances, which influenced the internal environment were left unnoticed and, therefore, not acted upon. The main protagonist confessed that he was young while thinking that the world is certain; the future is predictable and manageable applying only traditional PM methodology. Organizing and winning of the elective campaign is a “soft” issue. The protagonist mainly focused on “hard” things such as WBS, scheduling, etc.

4.3.5.2.5 Considering Values Competence

The bonuses had been received by the factory workers a month before the election campaign. This kind of motivation to vote for their boss did not take effect. Workers voted against their director, as very often people do not like strong managers or may harbor resentment about perceived past grievances.

4.3.5.2.6 Learning Competence

When this case took place 15 years ago, the protagonist was young. Now the main character believes that intuition is really part of a rich and versatile experience of communicating with people and for resolving conflict situations. Intuition allows coming up with feasible hypotheses in complex situations. The development of intuition is neglected; traditional education focuses on logic development and reliance on formal knowledge.

The protagonist intentionally did not conduct assessments because he thought that the situation was too simple. He regrets that he did not “measure the temperature,” and had not checked the ratings of his candidate during the elections. He also admits that the issues in complex projects are usually rooted in people related factors. “Soft” issues are difficult but might be detected through formal assessments.

4.3.5.2.7 Relationships Competence

The main character of the case failed to establish close relationships with his customer. In the interview, the main character said that it is significant to define clear rules of collaboration from the very beginning. It is especially important when you create the system where a large number of unknown people are engaged. To see the whole picture, it was necessary to talk to people, estimate the percentage of the total number of voters who made up the proportion of these factory workers negatively inclined to vote for him. The protagonist delayed response to the “soft” issues and the whole amount of money invested in the lost project campaign.
4.3.5.2.8 Leadership Competence

The main character demonstrated laissez-faire style of the leadership according to MLQ model (Bass, 1985). He passively waited to take action until something went wrong. The protagonist did not create the environment that supported the innovations.

4.3.6 Case Study 4 Sticky Knowledge

4.3.6.1 Presentation

This case-study is narrated by the researcher of this thesis. The reason to consider this case was to reflect on sticky knowledge, to show how the parties failed in working together and using of knowledge.

4.3.6.1.1 Context

The competitors marveling at the success of one organization in the market decided to steal its knowledge by luring away a group of key managers that were the architects and bearers of this knowledge. The executives hoped implicitly that the new organizational culture would come with the newcomers as well. However, this attempt has failed and its needs left unmet. What was the strong “glue” that held back the knowledge in the organization? In addition, why do the people who left the organization not use this knowledge in another company in spite of the fact that they themselves had created it from the scratch?

In a small IT company with a staff of 30 people headed by a gifted young Chief Executive Officer (CEO), a “magic pyramid” was invented. This magic pyramid was based on SharePoint technology of Microsoft tools as an internal corporate website. However, this was not just physical shared space on a server, convenient for office and remote users. It was something much better. It was the focal point that hosted controversial debates, a place for meetings with no agenda set and a place to share fresh news. The pyramid existed at many levels within the organization. It was created from the top to the bottom and at first consisted of one document published by the CEO in the parent web-site that contained a manual describing the rules for publication of new documents on the web-site, the group norms of communication and ethics. Very soon, the pyramid justified its name when in a magic way its daughter web-sites consisted of hundreds of creative PM documents. Knowledge with a proven success of past usefulness was easy to transfer.

The magic pyramid was inflated by knowledge during three years by the members of different departments: training, consulting, development, and sales. The documents were constantly updated through their writing and rewriting, through adapting to the realities of clients and use of new projects, thanks to the free exchange between departments bypassing organizational barriers. The appropriate reward and recognition system was established to motivate employees to spend time developing the pyramid and sharing their knowledge. As a result, project documents were targeted, brief and useful. After improved and shared understanding of documents’ value, all redundant and irrelevant information was removed from documents. E.g., the charter of the project that initially contained 40 pages was later compressed and transformed turned into a 4-page document. The questionnaire for the initial diagnostics of the client that contained 170
questions was reduced to 20 key questions and 20 optional ones. So the company invented the end product named as the “magic pyramid” that was not just an electronic document repository. This product had become the hit of the market in 2008.

4.3.6.1.2 Objectives

The aim of the competitor’s was to use someone else’s knowledge. The competitor went so far as to lure away a whole team responsible for maintaining SharePoint technology in order to obtain it. It was expected that the new employees would share their knowledge with other groups on the basis of the knowledge accumulated earlier in the organization.

4.3.6.1.3 Actions

The competitor that had learned about a magic pyramid had first planned the acquisition of the whole organization but later decided to save money and to lure away the whole staff of the two key departments (consulting and sales) including the heads of these two departments. These departments were headed by ambitious and talented managers. People who left the parent organization, made copies of everything that was contained inside the magic pyramid and carried away all contracts and potential deals.

The owner of the parent company was in Redmond (USA) invited by Microsoft Company when this event had happened. He realized that in a crisis situation, an immediate response is needed. His decision model was “act – sense – respond” (Snowden and Boone, 2007). The owner of the business showcased his immediate actions. He caught the first flight and came back to Russia. However, all the actions taken have been associated only with extinguishing the fire.

The newcomers deployed an IT system – an exact copy of the magic pyramid – and administered an access for employees in the competitor’s organization. They were well empowered in a new organization – a high position, the permanent department stuff, attractive salary. They positioned themselves as mentors using their energy to explain how poorly things were organized in the new place and the necessity to improve the current state.

Knowledge that resides in shared spaces ba is intangible (Nonaka and Konno, 1998). Practice often has a tacit component, is embedded partly in individual skills and partly in collaborative social arrangements (Szulanski, 1996 referring to Nelson and Winter, 1982; Kogut and Zander, 1992). When knowledge was stolen, it was separated from the ba, it had merely been turned into a set of tangible documents inside the SharePoint portal but lacking the social capital and infrastructure created by the ba.

“Without meaning, knowledge is information or data” (Bhatt, 2001, p: 70). Information inside the magic pyramid was not relevant in the new context and remained unused. It was not knowledge even, because “knowledge is valuable information” (Tuomi, 1999 in reference to Davenport, 1997). The protagonists as the newcomers in the competitor’s company were in the awkward position of not being sure how to lead in either
a directive or democratic leader style. Soon, the competitor’s executives realized that the newcomers stood idle, that they brought just unused information that resides in organization’s networks and that further investments in this endeavor are useless. If knowledge system comprising of knowledge clusters or components are not reviewed and modified in an organization, they usually become passive (Spender, 1996).

Without the proven records of past successes, it is difficult to induce potential recipients to engage in the transfer of best practices (Rogers, 1983). In the beginning, the timeframe for implementation of the magic pyramid was not set clearly by the competitor’s executives. Later, they set a semiannual deadline. The main characters in this new setting realized that the goals were understood differently by the key stakeholders. The protagonists’ team was disbanded (one member returned back to his previous employee – the parent company of the magic pyramid). A new member (a famous Russian freelance expert) joined the team. Anyway, half a year later, the whole team was fired by the company. The stolen knowledge had remained alien to the organization. The magic of the magic pyramid disappeared.

Myers (2004) examines the complex simplicity of our natural smile. Our body instinctively knows how to smile, lifting the cheeks. However, when we are asked to smile at the camera, we get unnaturally stretched mouth into a smirk instead of a warm smile. How ironic that a natural action turned into a “mission impossible” when the competitors asked to repeat the success of the “magic pyramid”.

The system did not demonstrate magical attributes over of attributes inherent to component elements of the system. Such attributes known as emergent properties occur when the system works. It was impossible to expect that the emergent behavior of the system (the magic pyramid) was the result of the consulting and sales departments’ efforts only. Studying the consulting and sales departments (the individual parts of the system) and their actions was not enough. It was necessary to take into account the external and the internal factors and other elements of the whole system. The ambience of the project is the environment in which a set of internal and external factors contribute to or hinder the achievement of project objectives.

4.3.6.1.4 reflections

Szulanski and Jensen (2004) propose recommendations in order to surmount such issues. First, instead of looking for experts to understand complex activity it will be much better to have a look at work patterns. Second, looking directly at that activity, no need to assume that one fully understands what makes it work better than the experts, who have provided this success.

The “turncoats” did not understand who the knowledge owners were at the new place or how knowledge had been socially created. They erroneously thought themselves to be the only knowledge owners. The new colleagues did not understand it and, consequently, did not trust the new ideas propagated by the newcomers and refused to follow them to an unknown future. If we were too self-confident or conceited, the
exceptional results would tend to go back to normal. Many organizational routines are quite tacit in nature (Nelson and Winter, 1982).

A transfer of tacit knowledge may require numerous individual exchanges (Nonaka, 1994). The success of such exchanges to some extent depends on the ease of communication (Arrow, 1974). If knowledge distribution channels are informal, which were developed on the basis of trust and cooperation, distribution of knowledge can be fast and honest (Broadbent and Lofgren, 1993). In the new organization, to attain a shared understanding, the newcomers had to do a lot of things that they failed to accomplish: talking and acting through the group discussions, dialogues, conversations, brainstorming sessions, formal project reviews, lessons learnt meetings and intra-project correspondence analyses - essentially they needed to build and maintain trust and gain credibility as making a useful and valuable contribution. This led to what Szulanski and Jensen calls a barren organizational context.

The runaways did not realize the real values of the organization from where they had left. Therefore, they were not able to achieve the full integration of these foreign values into the culture of the new organization. The strategic data bank of the organisation is not in the memory of its computers but in the minds of its managers (Mintzberg, 1989, referred in Soliman and Spooner, 2000). In a certain sense, transfers of best practices can be understood as replications of organizational routines (Winter, 1995). There is no way to steal the “organizational memory” (Walsh and Rivera, 1991).

4.3.6.1.5 Lessons Learned

I was the researcher at the epicenter of these events. The employees who left the organization and staff of my department were co-located. I did not notice any EWSs as an early warning alarm. How did it happen? Professionals need only a cursory glance to recognize the situation. They can rely on intuition, spending a second. Unfortunately, six years ago, my intuition prompted nothing except vague premonition. It did seem strange to me that there were those long smoke breaks, when a lot of people at once went out to the yard to smoke and continued their long talking near to cooler. Now as I write on reflections of these memories it seems that the implicit, unspoken knowledge I had was that a conspiracy was maturing. I did not take into account these signs. I did not take preventive actions. Besides, the company did not fully understand the true value of the magical pyramid. Indeed, some sources of competitive advantage are so complex that the firm itself, let alone its competitors, do not understand them (Lippman and Rumelt, 1992).

4.3.6.2 Analysis and Findings

4.3.6.2.1 System Approach Competence

The protagonists of this story were disoriented. Up to the end, they were in the dark, not having objectively realized that the situation was complex.
4.3.6.2.2  **Considering Context Competence**

The main characters quickly accepted the job offers of the company that lured them and found themselves in an unknown environment. Many things were unclear for them: the required organizational culture and type of culture that was needed in accordance with the strategic goals. During the project implementation stage, various changes affected the team. It was important to manage initial conditions and monitor the emergence of changes as advised by Snowden and Boone (2007) for complex situations.

4.3.6.2.3  **Modeling Competence**

In a complex situation, the group of protagonists failed to identify the EWSs to forecast the future and make an appropriate strategic choice. Very often people are not able to explain the problem they are trying to solve. The protagonists had not realized that the stakeholders’ expectations in a new company were unrealistic. To change an organizational culture is not easy. Moreover, such an objective had not been explicitly stated when people are lured to another organization with a completely different culture.

4.3.6.2.4  **Conducting Assessments Competence**

The management approach may be either reactive or proactive, if one understands proactivity as a reaction to a socially constructed vision of future changes (Crossan et al., 2005). Known phenomenon of the student or novice syndrome took place in this case. The main characters of this case just stood idle; they demonstrated reactive behavior. Most people freeze in unknown complex situations when having ambiguous information at hand. Intuition is required to make quick decisions (Faith, 2009).

4.3.6.2.5  **Considering Values Competence**

The value of the magic pyramid was in its mental space. Knowledge was very sticky and was “glued” to the organization, not the people nor the IT technology. Szulanski and Winter (2002) suggest ensuring that you have got something that can be copied and that is worth copying. The protagonists were not mistaken that the magic pyramid was an asset that was worth copying but they did not know how to effectively copy it. Davenport and Prusak (2000) have a joke for it - the Spanish proverb “Well stolen is half done”. The initiative was not brought to a conclusion: knowledge was stolen but not “glued” to the new organization. Despite the sunk cost, the entire protagonists’ team was dismissed from the organization that hired them.

4.3.6.2.6  **Learning Competence**

Knowledge needs to be distributed and shared throughout the organization. Zack (1999) believes that codifying context-specific is not easy. The content of the magic pyramid was only the visible part, the top of the iceberg. The organization’s turncoats left behind the scenes such vital issues as compatibility or incompatibility of the different organizations’ cultures and intangible elements such as the organizational
culture, Community of Practice, tacit knowledge. All these were left unnoticed, unrecognized and unaddressed.

**4.3.6.2.7 Relationships Competence**

I (the researcher of this thesis) have my own life wisdom. I was an eyewitness of all the events of this particular case. When people were leaving with the hope to implement a "magic pyramid", the sad result was predictable. However, the events become obvious only in retrospect. Myers (2004) points out a wrong reflection - a retrospective distortion point of view ("I knew it"). People often tried to look smart by drawing a circle around the place when the arrow already pierced the target. Our inability to see through the prism of the information available on hand is called "the curse of knowledge". This project was highly dependent on interactions between the actors. They failed to build relationships with the internal and external stakeholders in a new company; they did not create panels of experts. The protagonists were outside of the company’s network of relationships, and therefore they were outside the system. Quite often, emergent informal networks help to succeed (Wenger, 1999).

**4.3.6.2.8 Leadership Competence**

The main character demonstrated a laissez-faire style of leadership according to MLQ model (Bass, 1985). The essence of a human being is the ability to face the challenge, commit social actions, which are more than behavior, but deeds. The person/group deeds are based on motives, wishes, knowledge, individual characteristics, experience, and values (Verbitsky and Larionova, 2009). “Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives” (Yukl, 2006, p: 8). The protagonists did not use power to influence others. Power in action is the ability of the individual to get things done on his or her way, to change the course of events, overcome resistance, and get people to do things that they would not otherwise do (Sense, 2003). Project leaders will have little control over the events within a project without the development of authority and political skills (Sense, 2003). The purpose of all political behaviour is to develop and keep power (Pinto, 2000).

**4.3.7 Case Study 5 Youth Camp Event**

**4.3.7.1 Presentation**

In this case-study the main character is Respondent #18. There were several other participants of this case that took part in this study as Respondents (4, 16, 17, and 19). The project ended successfully. The people participated in this project faced a lot of problems; however they timely detected the early signs of future problems and acted skillfully. This case contributes to the understanding of best practices, which were applied by mature project managers to deal with complexity. The case helps to illustrate some salient points relevant to EWS recognition and further actions to be taken based on those EWSs. The case is narrated interchangeably by both Respondent #18, who is the main character and by me as the researcher of this study.
4.3.7.1.1 Context

The Researcher: Thousands of youths from different regions of Russia competed for the right to go to the Seliger camp. The Seliger camp is an event in which young people are brought together in Russia to discuss topical economic, social and political issues. Interested readers can refer for more detail to http://en.wikipedia.org/wiki/Seliger (forum). Firstly, they completed on-line training and remote testing. At the next stage, the winners who had scored the highest points had to send their applications with the description of their own project to the selection committee. After that, the authors of the most interesting projects received confirmation of participation in one of the Seliger camps. The Russian University has implemented a project for conducting face to face training for more than 20 thousand participants within 35 days. The audience was grouped around five youth camps. Each camp lasted for seven days. The camps were organized in succession one after the other and were attended by 4,000 - 5,000 young participants. Each camp was different in its theme. During this one-week training, long intensive nonstop studies were organized (lectures, individual coaching sessions, "reflections next to fire" as a part of evening activities). Figure 4-3 depicts the conditions of the camp, where classes for the students were conducted.

Yet the mission of the Seliger 2009 project was vague and was formulated in rather broad terms. It was something like involving young people in social practices; raising young people's awareness about the opportunities for self-development; providing support to scientific, artistic and entrepreneurial innovations; building an integrated system to support the initiative of the youth and to enable future leaders to develop innovation, which in the long run would transform into the development of Russia. The state client expected that competency development would be monitored for 20,000 participants on all of the five camps. At the end of each training day, an interim assessment was conducted. Upon the completion of a week-long camp, the overall gateway review was performed.

The author of this thesis was the key developer, an expert on the PM subject theme at Seliger 2009. The external state client's recommendation was that the project performing organization (University) should include the researcher as an expert on PM in the project team. The project manager was selected from the staff of the University. The project manager had rich experience in managing similar projects but not of such...
a large scale as of this project. It was unclear how to determine the responsibilities of each person within the large team. The project team consisted of 50 instructors, eight PM team members, as well as various University internal customers and state’s external clients and stakeholders. Thus, the total number of the people involved accounted for 100 people. The project was challenging due to an inability of the same instructors to physically work seven days a week during the period of thirty-five days, living in tents, eating camp food in the field, working 16 hours every day. Due to this reason, there was a high turnover of staff. This led to the necessity to constantly recruit new specialists and train them from scratch. The instructors were coached just within three or four days and sent to the field.

The audience of each camp was a motley crowd from different regions of Russia with very different backgrounds, it was necessary to adjust slightly the program for each camp in order to make it more client-oriented. Among the 50 trainers project team, was a particular member (Respondent # 18 - the main character of this case-study) whose story is told in this case study. When the crisis occurred, he voluntarily took the function of crisis manager. This main character had a relevant life experience as an officer for special operations, and had taken part in three wars in Afghanistan as a ranger. Hereunder there is a story of this project, arranged by the researcher in the format of a dialogue between the main character (Respondent # 18) and me as the researcher-participant of this crisis event.

Respondent 18: In the first camp of Seliger 2009 at the very beginning, I found that there was disorder and even an administrative chaos within a rather large group of people (about 80 people including 50 trainers). The problems came all at once. We needed to agree and coordinate the schedules, had to be responsible for logistics, arrange the delivery of the study materials, and resolve different routine issues of settling in at a camp. We also had to guarantee a smooth change of the audience in each camp after a week’s session had been completed. We also dealt with the staff turnover, rainy weather and many other issues. It became evident that although there was a formal leader of the camp there was no real leader there.

4.3.7.1.2 Objectives

Respondent 18: I faced a dilemma. I needed to answer the question whether I had come just to earn some money or whether I had to actively assist in conducting this significant event successfully. Then, as it had been told before, I just had to take over the function of crisis manager.

Researcher: Yes, you understood that the project manager must remain calm, patience, have a positive attitude. So you were always near, ready to help and her fears disappeared. Then the situation was taken under control, and you and the manager just leded together.

4.3.7.1.3 Actions

Respondent 18: The operational control was introduced immediately. A couple of specialized workshops were conducted in order to train the instructors. The aim was to demonstrate to them some key points for evaluating the state of the audience. It was important to monitor the involvement of the audience in what was
going on. It is one thing to hold the attention of a 50 person audience and it is quite a different experience to speak in front of more than 200 people.

**Researcher:** Such activities became common and the spirit of creation was there in the camp. The people began to visit each other’s classes. They did not judge the others, but tried to learn, to apply experience, and share best practices.

**Respondent 18:** A project manager should possess skills on providing security and holding responsibility for people. This is not required only for achieving the desired goal, but it is also necessary for creation of a positive friendly atmosphere, improvement of people’s mood, and to guarantee their satisfaction. These skills allow the manager to feel the people’s mood. The second significant competence is built into the human psyche; this is the manager’s ability to identify any possible risks. He or she should set it as a high priority. The Eisenhower matrix, being effective by distinguishing between matters that are urgent and/or important, should just be built in their heads as a completely automatic tool that can immediately and instantly be applied in any new situation. The manager should always scan the environment to identify threats based on remote weak signals. In uncertain situations, the most difficult and the most important skill in management is to identify areas of uncertainty. We do not have exact data (quantitative or qualitative), but there is some apprehension in the form of the probabilities sense in the air. Working with the probabilities is an area of non-linear thinking. It requires special skills, but most importantly, it requires some understanding of the nature of the uncertainty. This is a question I suppose a certain philosophy of a shared value creation. Using vision is a critical success element in PM in uncertain settings (Christenson, 2007).

**Researcher:** Fifty instructors were divided into four groups based on the number of lecturers in each group, like in the army, to create four think tanks. We arranged consultations on narrow areas of specialization and evening discussions among the instructors.

**Respondent 18:** Initially, I did not want to take the initiative, but had to do it as soon as I understood that there would be a full discord in the project. Generally, I felt uncomfortable myself, that people were unhappy, scared and cold. Do you remember how I started to wake up people? Early in the morning, I switched on the classical music. I decided to use the classical music to wake up people instead of the national anthem of Russia, which actually did not suit the situation at all. People had a completely different mood when they woke up hearing the waltzes of Tchaikovsky. Improvisation actually is a manifestation of a highest efficiency at a certain moment. We had a lot of such moments.

**Researcher:** I remember that the area of the camp where our tents were located became a place of a massive pilgrimage, so to say. Despite our tents were located in the outskirts of the camp, people were always coming to us, because they felt interested in visiting us.

**Respondent 18:** Yes. The center of power and the geographical center are the two different things.
Researcher: It can be said that we were shaping the cultural space, which had its own symbols and heroes. Do you remember that wearing hats became a certain symbol of our cultural space? You and I, we were wearing hats. We also had special rituals and practices discussed every evening sitting around the fire. We were shaping these best practices and creating this culture, traditions and customs. Remember once it was very cold. We could have let the youth go, so that they would not have had any training. Suddenly we decided to read a lecture, because we clearly understood that these young guys had come to Seliger from different parts of Russia, from far away and that they were staying there for one week only. The lecturer (the main character) was standing in the middle of the circle and megaphoning the lecture. The wind was blowing his words away, and the audience was running around, catching the words, asking questions and thus getting warmer.

Respondent 18: We also had the encouragement system. We positively motivated the instructors by choosing the best instructor every evening by answering the question, “Who has been the most effective and the most useful instructor today?” There was such a feeling among the team that I am highly effective at every second of my life here. There were a lot of successful unprepared improvisations, which had not been staged by anybody, allowed people to express fully themselves as personalities.

4.3.7.1.4 Reflections

Respondent 18: The most difficult and the most essential issue for all of the participants of the project is a clear understanding that they create certain shared values. To show the most successful project of its kind on a global scale, I could give an example of creating the space industry in the Soviet Union, when the first space shuttle was launched. Then all of the participants understood their role in the creation of values whether they are state political leaders, whether they are the chief designer of space systems Sergey Korolev or whether they are the regular employees in Baikonur. Thus, we have to start with the initial values to be transformed into the goals and the objectives of the project and then decomposed into the functions of specific people. However, the main unifying leading motive for all of the interested parties must be the values created together by implementing the project. The risks are growing if people are not sincere; when they aimed at reaching their own goals and are unwilling to confess openly about their true intentions. In the end, such systematic distortion of the meanings would lead to a complete failure in a complex situation.

You must be able to shape the area of probability required to form a positive or a favorable image of the future and to exclude any likelihood of unfavorable image formation, which is totally rejected. This is a very special expertise. When nobody is yet able to see any problem, personal life experience allows me to form the desired, shared by the stakeholders’ image of the future at the right time, eliminating the worst-case scenario. When everything around me looks bad, I am suddenly able to find a way out to, to a more desired outcome, which turns into a fait accompli. Therefore, I take measure in order to avoid the worst case scenario, and do it in advance. This is an internal state of a person; it is a question of an ability to transform his or her current internal state into a desired future state. However, this way of dealing with the probabilities
does not fit into the classical management technology. It is a rather philosophical question of ability to share your vision with the others and transform it into reality.

4.3.7.1.5 Lessons Learned

Respondent 18: Thus, the manager of a complex project must have a proven experience of crisis management in such situations where the time factor or severity of the problem would be absolutely disastrous. If a person had been successful in such or less complex situations before, he or she would likely to be successful always. Crisis management can never be effective if it is not based on very precise, scrutinized interactions within a complex crisis management team and on the ability to react to changes at the level of micro nuances.

In Seliger instructors were not selected in accordance with common values. Nevertheless, most of the people had a deep inner desire to make contact with thousands of interested and talented young people. They believed their work was valuable and very important affecting the future of the country. This idea united all of the trainers. We observed first-hand how the audience was changing. They absorbed everything that we were saying immediately put the knowledge into practice, got results and gave us very positive feedback. I took responsibility for managing the crisis, because I had such an experience, charisma, toughness, crisis management skills, as well as a high personal motivation. I was chosen for a single vacancy of a lecturer out of 250 other applicants. It was such a great personal challenge and I am glad I have managed to overcome all the problems and found out the most effective solutions.

Researcher: Even now, many instructors say that they derive their expertise from the experience of Seliger 2009.

Respondent 18: It was something unforgettable, impossible to repeat. It was a state of happiness. Such events happen only a few times in a person's life. I am absolutely thankful to the organizers of this event, that they had invited me to participate in Seliger 2009. It was inspiring work, an unforgettable experience, a turning point in my life. I am that crazy guy who celebrated his 50th anniversary of being at Seliger. Usually, this is the age when people start to “pack their things,” but I understood at that very moment that I was making a new step in my life. Since that time, I have always had this feeling. My life undergoes changes as I have crossed a certain border, has overcome something and has started a new period of my life.

4.3.7.2 Analysis and Findings

4.3.7.2.1 System Approach Competence

The project was complex from the very beginning: technical complexity (training, infrastructure, logistics, IT, etc.); social complexity (a high staff turnover, changing audience of Seliger camps); context complexity (national level; program of projects in fact).
4.3.7.2.2 Considering Context Competence

The Project Board conducted evaluations at the end of each camp to authorize the next camp. The rector monitored the progress via taking part in the evening discussions and by ad-hoc recommendations provided to the project manager and project management team. The University executives established minimal internal constraints. The project board intervened only in cases of problems or managed by exception according to OGC (2010). People were free to improvise and create. The system displayed its self-organizing nature. Unofficially, the main character became an informal leader. Officially, the main character became a member of the PM Team. The decision of the rector was not required here. The rector as an internal client of this project pointed out the direction but did not interfere with the directives.

Half way through the first Seliger camp, the main character realized that the situation was worsening. The main personage of the case indicated the EWSs and worked in full mobilization mode. Several “general-seconds” are more valuable than “10 man-months” (Bushuev and Neizvestny, 2011). The protagonist divided people into subgroups like in the army. Yet, the teams inside the group were unstructured and had vague duties and responsibilities. The situation on the following camps improved and became ordered and simple. A lower amount of formalization associated with more innovativeness (Waldman and Bass, 1991 referred to Hage and Aiken, 1967). The organizational structure became more complex. The structure aimed to simplify fast decision making, institutionalize new behavior patterns and cancel the old ones. Corporate “culture can be a de facto governance system as it mediates the behaviour of individuals and economizes on more formal administrative methods” (Teece et al., 1997, p 520).

4.3.7.2.3 Modeling Competence

The protagonist of this case believes that risks grow when people are not sincere, when they aim to achieve their own goals and do not want openly to confess their true intentions. He identified these warning signs and started to act in the situation when others could not see the EWSs and had not acted to be prepared to meet problems they may face.

4.3.7.2.4 Conducting Assessments Competence

The protagonist switched to the mobilized mode. The immediate actions help to re-establish order (Snowden and Boone, 2007). The protagonist volunteered to take over the function of crisis manager. He became a member of the PM team. Such reconfiguration of the organizational structure helped him to gain the necessary power and authority. The protagonist is a veteran of three wars in Afghanistan and is an expert in crisis management. When he realized that the situation was worsening, he acted as he used to do in the past during war. The ability to act is a most essential capability for facing and coping with unsolved questions in contemporary complex world business situations (Martin, 2007).

The main character believes that there was no need to search for a special context to conduct assessments; they should be carried out on a weekly basis, even every second week. Self-assessments at the group level
were built into the system. The trainers performed these assessments but not in order to keep each other under control. Respondent #19, a Seliger trainer, also warmly remembers how the trainers conducted the assessment information daily. The best level for decision-making is the lowest possible level in which the decision maker has the necessary information, the contextual perspective, and organizational authority and responsibility to act (Strider, 2002). Some of the trainers did assessments honestly; some of them participated in the events unwillingly (R # 19). However, this was not a “formal assessment” per se. It was rather more like monitoring... monitoring which happened to be significant for ourselves (R # 19). Respondent #16 was a Seliger lecturer; he believes that these assessments increased sensitivity to changes in the project.

4.3.7.2.5 Considering Values Competence

The trainers of Seliger camp were heterogeneous in composition. Cultural diversity is driven by the differences in what people value (Johns, 2008). However, this was not a disadvantage; on the contrary, this even strengthened the creativity of the groups. To reach stability, the PM team articulated and institutionalized the behavior demonstrated by the best trainers of the first Seliger camp. The mechanism to neutralize the excessive level of the trainers' freedom / diversity of the training styles helped in achieving the desired value. For the trainers of Seliger 2009 camp, the primary drivers were not material things such as salary, but social (psychological) needs such as self-esteem, autonomy, and social group allegiance with certain ideas.

4.3.7.2.6 Learning Competence

Seliger trainers were the CoP. The CoP was the way to transfer both explicit knowledge (exchange of project documents, new exercises for Seliger students) as well as tacit knowledge (training in pairs, merging the groups, the substitution of trainers, etc.). Respondent #19 took part in Seliger camps every year since 2009. He believes that the most valuable asset of a company is personnel, who are filtered, crystallized, and who move from one project to another to transfer knowledge and values. The most novel solutions have been prepared as an improvisation, which are impossible to duplicate, because they were in different situations, with different people, at different times (R #19). These improvisations do not accumulate anywhere else, but for the individual experience of the improviser (R #19).

The combination of “hard” measures (organizational structure) and “soft” measures (leadership, formation of CoP) reduced the complexity level. The hard and soft measures were balanced taking into account that an excess in structure generates rigidity and stifles creativity. There are professions (firefighters, nurses, military) where intuitive predictions are based on the experience and decisions taken in stressful situations, and have a high degree of the efficiency (Klein, 1997). Intuition is highly regarded in the army. Commanders rarely have control over the events taking place at the battlefield. Rather than carefully implement their original plans, they intuitively ‘read’ the chaos on the battlefield to take advantage of opportunities. Managers rarely apply textbook theories in order to deal with difficult situations for which no “right” answers exist.
Danger recognition is a vital skill for military professions. In crisis management, intuition is the secret weapon of successful decision makers (Sinclair, 2011).

Many organizations believe that the institutionalization of certain rules will bring order in complex situations. However, these expectations are not always justified. To deal with difficult situations, managers should rely on their past experience, be capable in making knowledge actionable and be able to develop new knowledge suitable for the new contexts.

### 4.3.7.2.7 Relationships Competence

Social complexity depends on the number of players and a variety of methods to solve problems with (Johns, 2008). Characterizing the role of the intercommunication, Bekhterev (1994) evaluates it as a mechanism for the implementation of joint activities and formation of the collective unity. It is also understood as the conditions of preserving and sharing personal experience, transferring it further to the next generation and providing historical continuity of social values.

### 4.3.7.2.8 Leadership Competence

The main character demonstrated the transformation style of leadership (Bass and Avolio, 2011) and the second type of idealized influence. He moved the followers beyond their own self-interests for the good of the group, organization and even society. The main character combined the power with charisma and creativity. “Charisma is one of the elements separating the ordinary manager from the true leader in organizational settings” (Bass, 1985, p 34). “Charismatic leaders have great referent power and influence” (Bass, 1985, p 39). Traditional practices are often insufficient when applied to complex projects; leadership versus control can make a difference in such situations. The virus of creativity was introduced into the team of trainers, so that creative abilities of each and everybody were used. Creative thinking “refers to how people approach problems and solutions– their capacity to put existing ideas together in new combinations” (Amabile, 1998, p 79). Creativity is a combination of flexibility, originality and sensitivity to ideas which enables the thinker to break away from the usual sequence of thought to different and productive sequences (Brennan and Dooley, 2005). Improvisation is the way to test intuitive comprehension on the course of actions. Improvisation requires general knowledge, a large skill repertoire, a quick study doing ability, intuition trust and sophistication in cutting losses Improvisation can be at the individual, group and organizational levels (Crossan et al., 2005). In this case-study, improvisation was demonstrated at all three levels.

Flexible managers work within a variety of situations, individuals or groups (Dainty et al., 2005); they do not match their style to fit the checklist of situation, but realize the impact they are having on others to get the best results (Goleman, 2000). As events unfold, managers adapt their tactics (Faith, 2009).

Respondent #18 (the protagonist of the Case 5 “Youth Camp Event”) shares an example to demonstrate his flexing capacity in switching to totally different leadership style compared to the Seliger camp event.
Vignette: Crisis in Yakutia

I was invited to deliver a lecture in the youth event in Yakutia (the North of Russia) in spring of 2010. I went there and we were among the team of 100 students, teachers and moderators. It happened that during the youth event, a natural disaster occurred, so that we were separated from the main land, as the river Lena had been flooding. The river showed its power, it was a force majeure, which cannot be controlled; it is only possible to minimize the damage, hide from it, so that there would be no victims during this disaster. We found ourselves at the settlement, fully isolated from the main land. The water was rising. The emergency regime was announced in five regions of Yakutia. However, soon it became obvious that the local authorities were not planning, not willing or not able to do anything; they were in a flap. I realized that the people having the authority to make decisions, were staying at home and nothing was done. I understood that something should have been undertaken from my side to be survived. That is why I appointed myself to be the commander, as if during the war times. I knew that quick actions should be undertaken. All the food, including sweets, were gathered in one place. I also collected all the medications and personal hygiene items. The use of toilets was forbidden to save drinking water. I also arranged the places, to be used as water closets. I also worked out and announced the action plan in case the water reached the first floor level, in case the water reaches the second floor and in case it gets as high as the building roof, where the 100 students should be gathered, they were those people whom I was responsible for. It was obvious we were fully prepared to survive spending the whole week in full isolation.

Then the head of the local authorities came who had proved absolutely incapable of any proactive actions. He announced that he had come there to expropriate our food and medications. I decided not to participate in negotiations in front of the students and invited him to come out to a different room. Without any long discussions, I jabbed him strongly and I did it twice. This was enough for the local authority to understand that I was ready to fight to the bitter end to protect my students. Then we went to the public waiting for us, we hugged each other in public and I thanked him for the “support” provided.

Later, I was approached by some students, out of my group, who asked me to share our food and water with the local people. I responded to these kind-hearted team members that they
were free to give out anything they wanted from their personal share, but not from the collective food reserve.

On the second day, the congestion blockage was bombed out near Yakutsk. We were phoned and told that two or three hours were left until the second wave of the flood occurred and that the road had been washed out. We were transported up to the place where the road ended; next, we had to trek on foot for ten kilometers. I commanded that everyone should take only the essentials (such as documents, money, warm clothes) and that everyone should carry the own belongings only. I was asked by some girls how they were supposed to walk such a long distance wearing high-heeled boots. My answer was simple. I asked one girl wearing beautiful high-heeled boots to come up to me and to take off a boot. I tore the heel away and handed it to the girl saying that when we came to the city, she would have her heel fixed. She reacted emotionally, “How am I going to walk now!” I replied, “Yourself! Nobody is going to carry you!”

Then I sent a scouting group to make sure that the road was safe and we were not going to get buried under the waste. Two and a half hours later, all of the students arrived at the destination point, where transportation was waiting for them, which had been sent from the city of Yakutsk. Thus, the whole campaign lasted for twelve hours. The second wave flooded the first floor of the building where the youth event was supposed to take place. It can be concluded that crisis situations do occur during the execution of complex projects.

Historically, Russians are better skilled at mobilizing and redistributing resources. Let us recall that the state was able and empowered to conscript the whole male population and all the financial resources of the country during the Second World War (1941-1945). Reallocation of the resources guarantees larger gains. Thus, rationally minded Russian administrators do not invest their time and energy into managerial functions; they simply use power to mobilize and redistribute the resources. Local authorities came not to help but confiscate and redistribute the resources.

Crisis management may be in demand as the project becomes more complex. The protagonist believes that crisis management cannot be effective unless it relies on a very precise and accurately built cooperation in the anti-crisis team, and unless it rests on an integrated competency of responding to any changes of the situation, immediately on the level of very micro nuances. Strong “health, security, safety and environment” competence, in addition to a crisis management competence, was demonstrated by the main character in this small vignette.
4.3.8 Summary of Case Studies Findings

When dealing with complexity issues, it is not enough to understand separate competences in isolation. The key was to understand the object (the EWSs in complex projects) and subject (the Russian managers) in their process of cognition reality. The five case studies illustrated the eight key competences on real-life situations and demonstrated how Russian cultural habits influence the behaviour of the case studies’ characters. The cases showed which skilful actions are performed by experts in unfamiliar situations to respond to EWSs and helped in painting a clearer picture of project management within the Russian context.

4.4 Stage 3: Focus Group

4.4.1 Purpose

The purpose of the focus group feedback workshop was to present findings, obtain feedback on research findings and receive the additional insight through peer-review. The quality of data is usually enhanced if participants have been engaged in the corresponding field projects. Therefore, all participants of the focus group were from the Higher Education field. The participants from the other fields (IT, medicine) provided their feedback individually to me.

4.4.2 Participants

A focus group was composed of the experts from the case studies and non-case study sample groups. They were those who agreed to provide additional feedback and approve the final results of the investigation. Kamler and Thomson (2006) suggest using the useful metaphor of a dinner party when discussing choices made for undertaking research, who to interview or survey and who to discuss findings with as if one was planning a very special dinner party. I made every effort to appoint the participants from all of the case-studies to the focus group in order to receive their individual point of view. In addition, feedback from University colleagues and the Russian PM CoP members have been received in ad hoc manner.

The focus group seminar held on May 2014 and lasted more than one and a half hours. There were four people in this face-to-face focus group meeting (Respondents #14, 15, 4, 13). A System Framework was printed on a color printer prior to the focus group. The agenda of the focus-group seminar was as follows. The research presentation took not more than one-third of the duration of the whole event. Two-thirds of the remaining time was devoted to obtaining feedback from the participants of the focus group. Some participants provided their feedback individually and they were ready for a long conversation (from one to two hours). Four respondents provided their feedback individually to me (Respondents #10, 18, 6, 16).

The summary of the participants who provided feedback on research findings are listed in Table 4-20.
Table 4-20 List of the feedback providers at focus group stage

<table>
<thead>
<tr>
<th>Focus-group participants</th>
<th>Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>* - see the Table 4 - 1 Interview Participants Data, where the person's characteristics are given</td>
<td></td>
</tr>
<tr>
<td>case-study #4 “Sticky Knowledge”</td>
<td>Narrated by the researcher of this thesis.</td>
</tr>
<tr>
<td>case-study #1 “Skillful Psychologist”</td>
<td>Respondent #14 *</td>
</tr>
<tr>
<td>case-study #2 “Inappropriate Partners’ Behavior”</td>
<td>Respondent #10 *</td>
</tr>
<tr>
<td>case-study #3 “Experience Overload”</td>
<td>Respondent #15 *</td>
</tr>
<tr>
<td>case-study #5 “Youth Camp Event”</td>
<td>Respondent #18 *</td>
</tr>
<tr>
<td></td>
<td>Respondent #4 *</td>
</tr>
<tr>
<td>Non case-study participants</td>
<td>Respondent #6 *</td>
</tr>
<tr>
<td></td>
<td>Respondent #16 *</td>
</tr>
<tr>
<td></td>
<td>Respondent #13 *</td>
</tr>
</tbody>
</table>

4.4.3 Feedback of the Research Participants

4.4.3.1 General Feedback of the Research Participants

This was in every sense a peer-review process. The tips through ad hoc exchanges with peers were taken into consideration. I sought their opinions, reactions and insights that I may consider when finalizing the contributions that this thesis may make including the model, to visualize the types and interrelationship of PM competencies required for dealing with EWSs in complex Russian projects as well as the details of requirement competencies and the framework for evaluating levels of competence.

In general feedback can be distinguished between comments made that validated and supports the findings as presented to the focus group, and peer review comments that caused me to question re-visit and amend any part of my findings and approach. There are several topics, which were raised as important. Feedback aspects are summarized in Table 4-21 below.

Table 4-21 Feedback Outcomes on Research Findings

<table>
<thead>
<tr>
<th>Feedback aspects</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback that was generally confirming the validity of results presented.</td>
<td>In general, the respondents said that competencies are correct and have a right to exist. The graphical way of presenting the research findings also has the right to exist. The System Framework points out the matters, which are quite obvious, but oddly enough that these things still often neglected due to a lack of experience and expertise. The findings clearly shows the existence of some new PM methodology that will take into account not only explicit, known, available things in PM standards, but also draws attention to the</td>
</tr>
</tbody>
</table>
shadowed things, which are often overlooked by these standards.

Some specific feedbacks on competencies are provided below in Section 9.3.1.

Feedback that made me reflect on how I had presented my findings to be able to improve clarity or correct inaccuracies.

When presenting the results of the study, emphasis was placed on reflection, creating value in the project. According to respondents, the simulation of the future is a crucial aspect and it is also necessary to emphasize during the presentation of research results. Some specific feedback on modification of the Competency model as well as System Framework is provided below in Section 9.3.2.

Feedback that added new insights previously not considered that were either incorporated into this thesis or were rejected for scope reasons but could indicate useful future research directions.

The advanced competencies, which depicted as "shadow" elements on the System Framework are difficult to learn. These advanced skills cannot be formed quickly. The respondents noted that it is important to give people not only a scheme with the mapped key competences, but also to offer some methods of training to develop these skills. The researcher's role is not just to present the findings but also to develop the methodology of training. The respondents said that in the future it would be useful to offer even not just training, but education of project managers on development of these advanced skills and self-development techniques.

Other aspects worth recoding in this study.

Some of the respondents expressed a desire for further cooperation. Respondent #6 decided to change her career and become a researcher. Respondent #10 agreed on the need to co-author a joint paper for a scientific journal in the future. Respondent #18 is currently researching an uncertainty topic in his work place and invites the researcher of this thesis take part in his study. Respondent #15 believes that this research study should be continued as a longitudinal research.

4.4.3.2 Specific Feedback Comments on Competency model and System model

System Approach: Respondent #4 said that the key items were presented and covered well. He noted that the hidden elements depicted at the System model as the shadows were useful to visualize the foggy things. The complexity is the first step at zero systematicity.

(1) Ability to simplify is the first point. From the top with a bird's eye, one catches the sight of all complexity and then picks up only those things that are important for a particular case. Referring to the sociologist Niklas Luhmann and Humberto Maturana, Respondent #4 said, "The system approach is in simplifying your environment, choosing the most important elements, led to obtaining the objectives and declaring everything else as unimportant".
(2) *The boundaries definition is the second point.* The ability to draw boundaries helps to separate clearly things which are irrelevant to this particular system. Sometimes one thinks that the elements are in the system; however, they are outside of it.

(3) The *ability to complicate (self-elaborated the organizational structure to create the order) is the third point.* Now Russian politicians do not think systemically. They import organizational structures from the outside. As they find something interesting, they drag it here without taking time and energy to think through the system implications and consequences of differences between the Russian and ‘Western’ context. However, this is not a system approach.

The Respondent #14 (the protagonist of the case-study #1 “Skillful Psychologist”) pointed to the ability of the system to complicate itself by creating organizational structures.

**Crisis Management:** Crisis management is a core competence (R #18). This element of the competence must be depicted in the System Model of this thesis (R #18). Problem synthesis and fast reaction responses are important for the person engaged in crisis management. Synthesis is the ability to evaluate both the opportunities and threats at the same time, as well as the ability to estimate and mobilize required resources.

**Considering Context:** Respondent #10 (the case-study #2 “Inappropriate Partners' Behavior”) agreed with the findings at the tactical level. He also said that the strategic level has not been touched and this is correct. Any business cannot be described as black or white. There are a lot of interactions between the staff and management, between the company and vendors, between the business and the state, and so on. He also said that there is a desire to go beyond the boundaries of the case; that the issue is wider and requires further reflection and application of new approaches in the future.

The Russian Labor Code does not prescribe personal responsibility for the result (R #10). In the West, it is possible, but here to fix legally the responsibility of the results received is impossible. This is a key point. The protagonist noticed that the man could hardly be legally forced to achieve the results, KPIs.

**Modeling:** Talking about the values, we have to go beyond the project and even organization boundaries (R #10). Modeling his own future, the protagonist of the case study #2, said that the “West” is not a closed destination for him. As the leaders of the Yekaterinburg development department immigrated to Australia, the option of working abroad has not been excluded as well for Respondent #10. The protagonist believes that he is a representative of such generation that does not divide the world into East and West. Incidentally, the protagonist was in his own apartment, in the heart of Europe, when he gave feedback by Skype for this focus group. According to the protagonist’s opinion, rigid vertical power in combination with the manual of management used in Russia for a long time became obsolete. There is a demand in society to take a course on innovation.
Conducting Assessments: The reactive behavior leads to the semi-product (R #15). From time to time, it is necessary to arrange a day of sobriety to look openly and honestly at the situation and figure out the findings. To analyze the parts and the whole it is important to build the causal relationships. Working with the part, it can be discovered that the problem lies outside this portion or even outside the entire system.

Considering Values: For the Respondent # 15 (the protagonist of the case study #3 “Experience Overload”), the mutually agreed values are at the forefront. People must agree about the places they want to go, their strategy and what they should avoid doing under any circumstances. No need to work against his heart and mind, to escape in the beginning is better. As the values are collective, they should be mutually agreed.

The division of the world into the East and West is not productive (R #4). In the West, there are thinking people and capable professionals, consultants and we have such people here as well. Managers should not be divided into being Eastern or Western. They should be divided into those who are able and not able to face the challenge. Unfortunately, currently in Russia nobody is busy with system reforms. It seems that this idea is not in demand yet. Respondent #4 believes that all people, from the bottom to the top, are occupied merely with the imitation or pretense of reforms.

The protagonist of case study #2 also said that real patriotism could not be grown by means of threats. The protagonist wants to be proud of the country. In his childhood, he was a pioneer and was glad that he was born in the Soviet Union. Due to the absence of pioneers and pioneer’s education nowadays, new employees at organizations do not have such features. The term “pioneer” means to be responsible, honest and hard-working. Being the active participant of the Russian PM CoP in Facebook, protagonist of the case study #2 agrees that the shared value is a central element in the system.

Respondent # 18 (the protagonist of the case-study # 5 “Youth Camp Event”) said that needs and values are not the same notions. The values are a deeper concept than needs. For the sake of values, one can sacrifice his needs. The value approach defines Russian mentality. Respondent # 18 is currently working on a dissertation in distance mode at one of the American universities. He often faces misunderstanding due to the culture clash, when his ideas are not shared by his foreign scientific supervisors.

Learning: Western structures implanted into the Russian system with the incredible social costs remain unworkable (R #4). Let’s take the example of the mindless export of the bankruptcy mechanism from there to here. It works there, but in Russia, it degenerates to the raider seizure mentality. Here nobody is interested in bankrupting an indecent dying enterprise, the only interest is to bankrupt decent, healthy enterprise in order to grab and “pull apart” its resources.

Relationships: Respondent #10 (the protagonist of the case-study # 2) said that he is currently launching a new company: not classical, but virtual jointly with CoP members. He will combine centralization with decentralization in this company.
Leadership: The protagonist of case study #2 considers that “the West” does not exist in pure view. He believes that there definitely are a number of proactive leaders that exist both in Russia and Western countries, however, the vast majority of the managers in Russia are lazy and inert.

The peculiarities of the Russian management system are connected with the mentality, particularly, in-group collectivism and high distance from power (R #6). As the Russian proverb teaches us to keep our distance from the commanders and be closer to the kitchen. The community thereby protects the resources from being burned out with which they could perform the objectives when needed. Any organizational group is a collective with the particular culture. The West was always structured by the principle of the individual independence and responsibility. When misfortune appears the Western (affected) person is likely to blame himself rather than anybody else or fate, however, in Russia it is vice versa (R #6). During the Soviet times, the individual was told that the party of the homeland and government would completely take care of him; independence was not encouraged; initiative was often forbidden, every individual had the spirit of the collectivism (R #6).

System Model and Competency Model: Respondent #14 expressed the concern that the program system view was not explicitly depicted in the System model. Respondent #6 suggested moving the Learning competence to the Context competence group because this competence enables working successfully within the whole organization rather than in the particular project.

4.4.4 Revisiting Case Studies to reflect on Crisis Management Competence

The necessity of the additional competence titled crisis management is prompted at the focus-group stage of this research. I revisited the case studies to reflect on the Crisis management competence. The key concepts are integrated in Table 4-22.

Table 4-22 Key concepts on Crisis Management

<table>
<thead>
<tr>
<th>Key concepts</th>
<th>Comments</th>
<th>Supporting Arguments based on the case studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain and Uncertain</td>
<td>The crisis is a condition where the existing means of achieving the objectives become inadequate, resulting in unexpected situations and problems NCB (SovNet, 2010, p: 230). The crisis management competence is essential for</td>
<td>Case study # 1 (Artist Psychologist): In this project participants did not face a crisis. Crises do not germinate into being without roots; there are nearly always warning signs. The protagonist is an experienced PM, who has learned to recognize the warning signs and take appropriate actions in a particular situation. Case study # 2 (Inappropriate Partners’ Behavior): The participants as well as the main</td>
</tr>
</tbody>
</table>
conditions when the situation has turned into a new complex or chaotic direction, when a change in the economic, political, and social surroundings deteriorates to degrade the whole situation.

Character suddenly found themselves within a crisis.

Case study # 3 (Experience Overload): The main character did not realize that the situation is a crisis.

Case study # 4 (Sticky Knowledge): The preterm closure of the project was an unexpected disaster for the protagonists of this case-study. They did not notice when the crisis started.

A crisis is a fracture, a reversal decision, or severe transition state where almost all participants and stakeholders of the project were experiencing the negative effects.

Project management in a crisis requires special methods, tools, instruments adapted for maximum mitigation of the crisis and which help to overcome or reduce their negative impact on the project and its environment.

In a crisis, it is important to quickly identify the causes and the problems and their possible consequences; collect information for decision making and correctly assess situation, possible damages, uncertainties, risks; choose relevant methods, tools and techniques; take preventive actions against the negative impact of the environment; create and manage resources and personnel, and then decide on a concrete action in the situation within a crisis.

Case study # 1 (Artist Psychologist): It was a complex situation at the start, but due to the proficiency of the protagonist it became a simple situation at the end.

Case study # 2 (Inappropriate Partners’ Behavior): It is worth noting that in the crisis, the protagonist kept restraint, calm, positive attitude and undertook a variety of actions to combat the crisis and tried to reduce the negative impact.

Case study # 3 (Experience Overload): The protagonists did not take actions that would have demonstrated proficiency in managing the crisis.

Case study # 4 (Sticky Knowledge): In a crisis, the organizations liquidate the most inefficient projects, unnecessary work, resources and personnel.

Case study # 5 (Youth Camp Event): In dealing with crisis, the time factor plays a significant and pivotal role. The project manager's role is then to become a crisis manager. All the changes should be implemented fast, as if the process of change is lagged in time then it
implement optimal scenario to solve problems and overcome the crisis (NCB, SovNet, 2010).

enables the conservative forces to accumulate resources to resist the changes to work out a plan of counter-actions.

4.4.5 Finalizing the Research models of this Thesis
4.4.5.1 The Final Version of the Competency model for this Thesis

The Competency model was modified to address the feedback of the focus group.

- The ninth Crisis Management competence was added to the System competence group.
- The Learning competence element was moved from the Cultural group to the Contextual group.

In total, nine competences were defined as essential for dealing with the EWSs in complex projects (System Approach, Considering Context, Crisis Management, Modeling, Conducting Assessments, Considering Values, Learning, Relationships, and Leadership). Figure 4-4 illustrates the final version of the Competency model.

![Figure 4-4 Final Version of Competency for this Thesis](image-url)
4.4.5.2 The Final Version of the System model for this Thesis

The System model of this thesis was refined based on the feedback provided by the focus group (see Figure 4-5). The recommendation to map the program system level at the System model is left unaddressed because the additional elements on the scheme might make the model cluttered and challenging to fully understand. The following differences were made:

- All elements of the system were purposely depicted as double layer objects and subjects (shaded figures in the System model). The idea was in reminding that invisible elements should not be neglected.
- The competences were mapped on the System model (marked by circles and highlighted in red in the System model).

Figure 4-5 Final Version of System model for this Thesis
The holistic approach implemented in this study has allowed studying complex situations, observing the actions of subjects and distinguishing competences manifested in their actions. The essence of understanding the whole lies in understanding the interdependencies. The dependencies tie down system elements in such a way that the value component (a mechanism of interaction between the system's elements) signals its insufficiency to stimulate self-organizing system for changes immediately.

4.5 Addressing the Research Questions and Proposition

Three Research Questions posed in this research are:

<table>
<thead>
<tr>
<th>Research Question 1 specific to complexity and EWSs:</th>
<th>What are the current practices relating to detection and response to EWSs within Russia for complex projects?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Question 2 specific to Professional Excellence:</td>
<td>What are the essential skills in addition to basic PM skills needed by mature project managers within a Russian context to deal with EWSs in complex projects?</td>
</tr>
<tr>
<td>Research Question 3 specific to Best Practices:</td>
<td>Why are project managers often not able to reproduce best practices which they have successfully applied in the past to deal with EWSs in Russian complex projects?</td>
</tr>
</tbody>
</table>

4.5.1 Addressing the Research Question 1: The current practices on EWSs in Russia

The central objective of this thesis was to explore the antecedents of best practices.

O’Dell and Grayson (1998) refer to the Chevron example which recognized four types of best practices such as Good Idea, Good Practice, Local Best Practice and Best Practice. The first is Good Idea – an unproved intuitively derived practice that could positively impact on business performance, but is still not substantiated by the data. The second is Good Practice – a technique, methodology, procedure or process that has been implemented and has improved business results for the organization (to satisfy some element of customer’s and key stakeholders’ needs). The third is Local Best Practice – good practice that has been determined as the best approach for all, or the large part of the organization, based on the analysis of the process performance data. The fourth is Industry Best Practice – the practice that has been determined to be the best approach for all or large parts of the organization.

Best practices identified as the result of the study are the Local Russian Best Practices to deal with complex projects. These practices are listed below. Initially, as a result of the interview data analyses (stage 1) eight best practices were defined. The case studies discovered the ninth competence (stage 2). A focus-group recommendation resulted in adding the Crisis management competence element to the Competency model
(stage 3). This recommendation was addressed. Thus, there are nine competences listed as essential. All findings from all stages are combined here. The best practices are described using an instructive style. This style was selected purposefully. The first reason is that best practices might be short without any examples or lengthy explanations in order to avoid being repetitious about content already discussed in detail in earlier sections. The second reason is that these instructions should be considered not as mandates but as self-directions, which provide information on "how to do something". They then prepare the ground for the guide for dealing with EWSs in a Russian PM context.

4.5.1.1 Practices on System Approach

Experience

Evaluate the project to objectively understand the level of its complexity. Avoid oversimplification. Be aware of the project potential to have different levels of complexity in the course of the project journey. Assign experienced managers to manage complex projects to be able to see the situation holistically. Experts can evaluate an unfamiliar situation quickly and rely on summary information to be able to react intuitively, drawing their experience on the similar situations.

Visible and Hidden as an Interactive Whole

A complex system is considered to be a collection of identifiable elements (visible and invisible) which interact with each other in a non-simple way and these interactions lead to spontaneous occurrence of the order, the structure, the pattern and the novelty of the system. Each complex system is unique because the circumstances that converge to produce it are unique and cannot be perfectly replicated.

View the system holistically, identify and manage both visible and hidden elements using formal and informal, "hard" and "soft" approaches. Define the boundaries of the system with other systems. Search and analyze the linear and non-linear cause-effect links between the system elements and the other systems. Define the life-cycle of the whole including the desired value obtaining. Do not consider the system elements separately. Look at them as a whole rather than the isolation from the contextual, technical, social and cultural factors. The “emergent property” of the system (change of the organizational culture, strategic change and technical emergence) can be predicted by looking at a whole.

Centralization and Decentralization at the same time

Design the appropriate organizational structure and processes (product delivery and PM) to fit the system that has been visualized. Concurrently combine the seemingly incompatible forms, namely centralization and decentralization (autonomy of the units at the lower levels). Be aware that capability to integrate the centralized with the decentralized approaches is the recipe for success.
4.5.1.2 Practices on Crisis Management

Certain and Uncertain

A crisis is a particular inflection or breaking point when a simple complicated or complex situation is turning into a new chaotic direction, when changes in economic, political, and social surroundings are degrading the whole situation from stability to extreme instability and from order into disorder. Unattended EWS may result in a crisis being encountered and this necessitates dealing with EWS.

Be aware that most people are programmed to avoid errors; they might stand idle when facing unfamiliar complex situations. Evaluate (consciously and unconsciously) the elements of uncertainty. Make assumptions regarding the products, processes, context, culture and other factors. Convert this incomplete knowledge into hypotheses about there being known risks, make a fast decision. As Snowden and Boone (2007) advise, the applicable leadership style is to probe, sense and respond for complex situations but when in a chaotic situation there is little time for probing so the need is to act, rapidly sense for feedback and understanding of consequences of action then to respond rapidly to the feedback in a considered attempt to restore order. Instinctively and intuitively test hypotheses and assumption as part of the sense making.

Acting within a Crisis

Identify the problem areas generated by the crisis phenomena. Get rid of everything that could prevent survival in crisis cases and conditions that inhibit responding to probing or action to enable making sense of the situation as it unfolds. Develop a plan and inform all stakeholders accordingly in order to overcome the crisis. Apply the methods, tools, approaches used during the crisis that are different from used during the peacetime. Be aware that the norms limiting people’s actions should be adjusted (reassess actions, strategies, regulations). Inform people about the work in full mobilization mode: control is strengthened; time for actions is minimally sacrificed; the consumption of resources is sharply reduced; the saving mode is activated. Implement the changes systemically and energetically without panic. Remember that people should relax and need some vacation or rest at the end of the crisis because working in stressful conditions consumes enormous emotional, physical and material resources.

4.5.1.3 Practices on Considering the Situation Context

Scan the context

Evaluate the initial state and constantly scan the context to understand the current system’s state and conditionally predict its future state. "Feel" the situation, recognize the visible and hidden factors, detect the disturbances and calibrate the requirements for change. Avoid oversimplification by filtering out important factors. Pay attention to indefinite, non-transparent and hidden factors. Be aware that the level of project complexity may change during the course of the project (from stable, to unstable, and transitional). Feel confident working in the uncertain zone of conditions. A lack of knowledge of details is not an obstacle.
to give up making an effort to solve the system problem. Be creative and proactive. Remember that all assumptions are tentative and conditional, they rely on interpretation of incomplete information that you are continuously testing and sensing.

**Disturbances**

Disturbances (influences) can be political, social, economic and natural by their nature: multiple, quick, unexpected, spontaneous or gradual; occurring within the internal or external context, within or beyond the control of PM, impacting the project (positively or negatively). Scan to recognize the internal and external sources of the crisis. Diagnose the crisis situation. Do not miss the moment to act to minimize or maximize the effect of the change.

**Constraints**

Follow the constraints which projects must comply with; monitor changes of the constraints. Pay attention to unspoken organizational constraints / rules. Be aware that some team members might violate the rules being mandatory during stable times. Do not be managed by the rules instead of managing the project: escalate the need and validate the adjustment of the strategy and norms if the situation has changed, for example, if a crisis has occurred.

**Context Dynamics: Stable, Transition, Mobilize States**

Be aware of three states of the system such as Stable (stagnant, low dynamic and bureaucratic), Transition (between stability and mobility), and Mobilize (unstable, emergent). The mobilize state is the mode when the achievement of the objectives by using existing means become inadequate. Be ready to be challenged by unforeseen situations and problems. Adapt methods, techniques and tools to the current conditions to overcome or diminish any detrimental impact on the project and its settings. Switch leadership and management styles depending on the current state. Be aware that the desired results achieved during the mobilization period may require a great sacrifice. Limit any excessive duration of being in the mobilize state. The system destroys itself when it is functioning in the mobilized mode for a long period of time.

**4.5.1.4 Practices on Modeling**

**Hidden objectives**

Get mutual vision agreement together with the key stakeholders. Identify the zones of uncertainty. Be aware of the hidden agenda and make the effort to make them explicit. Reduce uncertainty by breaking uncertain elements down into component elements repeatedly until the level of uncertainty reaches an acceptable level. Stop decomposition at its critical point when it seems to make little sense to continue doing so, record the current state. Be aware that the objectives might change in the course of the project. Adapt to work in the conditions of uncertainty and lack of information, systematically remove residual uncertainty.
Strategy

Avoid the oversimplification of considering only a single scenario. Create as Courtney et al. (1997) argue a range of future scenarios for what they refer to as Level 3 uncertainty conditions. Employ assumptions to consider the EWSs and Early Success Signs (ESSs) associated with each alternative scenario. Conceptualize the abstract, synthesize and generalize in order to obtain the holistic picture. Focus on the creation and delivery of value; look from the different time horizons (today's and future perspectives). Focus on the whole project and product life-cycles. Make the decision and select the strategy taking into account the context and relying on both "hard" (relevant facts and figures) and "softer" qualitative data as well as judgment and intuition. Be aware of the planning fallacy (overestimation of good and underestimation of bad things). Implement ongoing changes to correct the wrong strategy and support the emergent strategy realization.

4.5.1.5 Practices on Conducting Assessment

Formal and Informal Assessments

Ensure assessments are built into the system and linked to motivation. Conduct formal and informal assessments. Ensure the reviewers are experienced in similar projects. Assess "hard" things such as documents and "soft" things such as the level of the stakeholders' satisfaction. Pay attention to body language and "feel" the atmosphere. State the objectives of the assessments in advance. Detect issues, paying attention to both ESSs and EWSs. Remember that weak signals are easy detected due to their unknown shapes, nature and sources. Be sensitive to feeling that something is wrong. Be ready to turn the system into the mobilize state in case of the crisis situation.

Assessments of stakeholders' satisfaction

Arrange one-on-one meetings with individuals to assess employee engagement. Use Gallup's (2010) G12 feedback system to measure staff engagement in the project. Be aware of stakeholders' viewpoints. Manage politics and people's emotions. Assess stakeholders' satisfaction and utilize the evaluation results for adjustments of actions, strategy and norms. Share data with appropriate stakeholders. Reflect on the data with a focus group. The use of rich pictures as a format using a soft systems methodology (Checkland, 1981) can be productively deployed for this purpose (Steinfort and Walker, 2011). Discover the random factors that generated the problem; search for key levers to influence the whole system, consciously avoid shifting the problem in other parts of the system. Smoothly resolve conflicts, handle claims as the expressions of the stakeholders' dissatisfactions.

4.5.1.6 Practices on Considering Values

Values and Culture
Understand Russian history and culture. Appreciate different cultures and subcultures. Be ready to handle a clash of cultures. Make sure that your values and moral project-related perspectives are understood by all stakeholders. Identify the importance of the project for you and assess its value to your life spent on the project. Keep in mind that the use of contrived values that are of no value to people can lead to lack of motivation.

Recognize differences in the people’s values you work with. Take into account prevailing values in society; recognize the similarities and differences in the economic, business, political, social, and technical norms of the various cultures. Be aware that values of the project are interconnected with the values of each person and of society in general. Anticipate the stakeholders’ values; identify the nature of their values and understand how these values interact with each other; use your influence to reach agreement on shared values. Use the understanding of values as a key driver and motivator towards future project success.

Mentality

The concept of “mentality” is a product of the nation’s development. Mentality can be defined as the system of the individual’s behavior stereotypes, special way to see the world (mindset), priorities and cultural values shaped by the geographical, social and cultural factors. The mentality concentrates everything in itself that has been previously created and accumulated by the preceding generations; it can unite all people inhabiting the territory of Russia by common norms, rules and laws. Take into account that generations are formed by different social and cultural conditions. Mentality is transformed under the influence of changed conditions: traditional, transitional and then innovative. Individuals of various generations took part in this study (Refer to Table 6-1 in Chapter 6 for details).

4.5.1.7 Practices on Learning

Loop Learning

Ensure that the mechanism of loop learning is built in the system. Perform single-loop learning to realize the necessity of adjusting the actions. Perform double-loop learning to understand the necessity of the strategy adjustment. Perform triple-loop learning to understand the necessity of the system adjustment itself.

Knowledge

Apply the principle of a “zero based” approach to prevent blindly following old patterns. Remember that best practices that helped in the past might frame the mind and constrain behavior in a new situation. Be aware that the team members might implement the tasks according to their own unwritten rules. Identify the essentials and innovations of the ways to do things in specific circumstances.

Critically evaluate the applicability of patterns in the new context setting. Do not hesitate to question the quality and applicability of existing knowledge for a particular situation. Create new knowledge and
document it as new “creative patterns”. Promote the knowledge to “institutionalize” it at the organizational level. Discuss the role of creativity, advantages of working smarter and the importance of making implicit knowledge explicit.

Maintain porous boundaries of the system through which useful ideas have been penetrated and knowledge exchanged between the trusted parties. Share the knowledge with staff, other members of your organization and its CoP (Community of Practice). Use the storytelling format to transfer the knowledge.

Utilize the existing institutionalized knowledge. Be aware that knowledge sources can support people; provide contacts for the parties. Review history (lessons learned, meeting minutes) and use these as sources of knowledge.

4.5.1.8 Practices on Relationships

Interpersonal relationships

Establish strong interpersonal relationships (formal and informal). Interact at all levels of the hierarchy: with clients, project teams and executives to communicate the project’s objectives and shared values. Influence key stakeholders and get their support. Establish sound long-term relationships through alliancing or partnering.

Communications networks

Develop the habit of choosing an effective communications strategy (appropriate combination of media). Be sensitive to non-verbal communications such as gestures, eye contact and poise. Create panels of experts to resolve complex issues; avoid working alone without the benefit of collaboration. Communicate frequently through multiple channels. Understand, define and support a broad spectrum of links for providing and consuming knowledge and services via networks. Implement a more informal network in order to respond rapidly to the complexity and unpredictability. Remember that people are not alone anymore; people are connected, related, cooperated and networked due to globalization. Dedicate a significant effort to maintaining relationships. Cherish good productive relationships.

4.5.1.9 Practices on Leadership

Flexing

Constantly adapt to the dynamic changes, applying the leadership style appropriate for the particular situation (with the team, executives and other stakeholders). Ensure the compatibility of your abilities. Seek the continuous improvement of your own competence in leadership. Seek feedback (from the team, senior management and other relevant interested parties) and modify the leadership style if necessary. Use power and authority fairly and justly (be authentic in your leadership). Mobilize the institutional, political, psychological and other resources to respond to change flexibly and strategically. Use power wisely when
creating the breakthrough, by turning the system into a mobilized state. Overcome resistance and convince people to do things in order to change the course of the problematic events.

**Authentic** Keep people around you motivated to beat the crisis, overcome resistance, remove barriers, and increase the driving forces. Develop team members’ talents, provide constructive feedback adjusted to each individual situation and the context, provide coaching and training for team members, advise, support, take care and treat each employee as the unique individual. Motivate the personnel applying materialistic and nonmaterial things. Motivate team members emotionally and professionally. Create an inspiring and energetic environment. Demonstrate interest in new ideas; envision a mutually attractive future. Maintain the achievement of shared values.

4.5.2 **Addressing the Research Question 2: The Essential Skills needed to mature project managers**

| Research Question 2 specific to Professional Excellence: What are the essential skills in addition to the basic PM skills needed for mature project managers within the Russian context to deal with EWSs in complex projects? |

The Competency model is one of the outcomes of this study. The model comprises a set of distinctive competences of the project manager’s ability to detect EWSs in complex projects and to act on them. These characteristics can serve as a guide to assess the level of the PM’s maturity and provide a framework for continuous improvement on dealing with the EWSs.

**Project Complexity Levels:**

Four levels of project complexity defined in this research.

- **Simple Project (variation):** Situation is simple when based on the initial conditions the outcomes can be obtained for sure or may be with some degree of variation.
- **Complicated Project (expected uncertainty):** Situation is complicated when based on the awareness of the initial conditions the outcomes can be predicted.
- **Complex Project (unexpected uncertainty):** Situation is complex when depending on the interactions of the elements in the system, the same initial conditions might produce unpredictable outputs.
- **Highly Complex Project (unexpected uncertainty):** Situation is chaotic when mess is aroused from the complete absence of order/anarchy.

**Project Manager's Competency Levels and matching them with the Project's Complexity Levels**

Four levels of a project manager’s competency are defined in this research. Competency levels are hierarchical. This means that each successive level includes those at lower levels. For example, the level of
the Competent Performer presumes that the level of the Advanced Beginner has been attained. Organizations need to ensure that project managers with appropriate competency levels are assigned to complex projects. Otherwise, inexperienced managers (Advanced beginner or the Competent Performer) will not be able to detect EWSs and take appropriate measures.

- **Advanced Beginner - Simple Project**: The PM is able to use PM knowledge. Common knowledge is sufficient to perform satisfactorily only the simple projects.

- **Competent Performer - Complicated Project**: At this stage, the PM learns from past experience and demonstrates the application of knowledge, skills and attitudes in complicated project situations.

- **Proficient Performer - Complex Project**: The PM demonstrates capability and evidence of practical experience in complex project situations. He manages a project, utilizing various PM methods, techniques, tools, and a different mind.

- **Expert Performer - Highly Complex Project**: The PM demonstrates the highest level of professionalism in highly complex project situations by applying novel practices. He contributes to the development of the PM profession by training, coaching, mentoring, and publishing papers.

### Competence and Competence Groups

Nine competences are identified as important for dealing with EWSs. The competences are clustered into five Competence groups. Each competence has a short description that elaborates the statement of the competence and defines its meaning, determines significant terms and provides background information.

- **System Competence** focuses on the way of managing projects based on the concept of systems and capabilities for implementing projects in the conditions of crisis.
  
  - **System Approach**: System approach is a way of managing projects based on the concept of systems and considering the projects as a conglomeration of the identifiable elements which interact with each other in non-simple way and these interactions lead to spontaneous occurrence of the order, structure, pattern and novelty of the system. The PM successfully deals with the EWSs based on system vision enabling him to see the visible and invisible elements of the system.

  - **Crisis Management**: Crisis management is an implementation approach of the project in conditions when the situation has turned into a new complex or chaotic direction, when a change in the economic, political, and social surroundings deteriorates to degrade the whole situation. The project manager’s role is then to become a crisis manager. He detects EWSs, takes preventive measures, switches the system into mobilize mode, determines priorities, makes decisions quickly to limit harm. He acts immediately and with maximum safety, constantly adapting to the changing conditions.
• **Contextual Competence** focuses on managing and reflecting the interaction of projects with the program, organization's processes and the external environment.
  
  o **Considering Context**: Considering context is an approach of managing a project as a whole, rather than in isolation from the context. The project manager pays attention to indefinite, non-transparent and hidden factors, reflects on the interaction of the project with other projects, programs and organizations’ processes and recognizes EWSs within both the internal and external contexts.
  
  o **Learning**: Learning is establishing a system of loop learning through ongoing feedback as the way of reducing the mismatch between the obtained and desired shared values of the key stakeholders. The project manager continuously reflects, critically evaluates whether or not certain actions have been taken towards the desired values, critically examines the suitability of a chosen strategy, and applicability of existing knowledge. The project manager seeks, creates, expands, and distributes best practices in dealing with EWSs.

• **Technical Competences** (Modeling, Conducting Assessments) focus on meeting the project requirements. It includes the project manager's ability to model the strategy and perform control on the course of the project
  
  o **Modeling**: The Modeling function lies in clarifying the objectives, discovering hidden objectives, detecting EWSs associated with alternative scenarios, providing a route map towards achieving the desired value (project benefit). The project manager takes into account the context of complex environments and dynamics, creates a range of future scenarios to avoid oversimplification, and considers feedback loops to monitor implementation and to appropriately adjust strategy. The project manager relies on both “hard” and “softer” qualitative data as well as judgment and intuition.
  
  o **Conducting Assessments**: Conducting Assessments (formal and informal) entails an examination of project documents and practices, enabling people to express their findings about the current conditions about EWSs they discover, applying intuition to produce insights pertaining to the current situation, providing ongoing support for decision making, ensuring that assessments are built into the system and linked to motivation for detecting EWSs to effectively respond to them.

• **Cultural Competence** focuses on considering the traditions and habits impacting the project managers in their efforts towards obtaining shared values.
  
  o **Considering Values**: Considering Values requires allocating specific values to specific stakeholders. The project manager perceives the intrinsic qualities in other people; understands their point of view, personalities, and cultural differences; discovers their hidden values; manages cultural dynamics; resolves cultural issues and influences the agreement on shared values. The project manager uses an understanding of values to detect EWSs of “soft” problems and take the appropriate measures in advance to prevent value degeneration.
• **Social Competences** focus on people's behavior. It includes the project manager's ability to unite the project actors, connect them in an effective PM organization for obtaining shared values.

  o **Relationships**: Relationships involves managing interactions with the stakeholders (formal and informal) and other project organizations. The PM aims to achieve the satisfaction of customers/stakeholders and to maintain and develop the continuous and long-term relationships with stakeholders. The project manager establishes an informal network to rapidly respond to unpredictable events. The project manager participates in power relationships, cooperates through alliances or partnerships. The project manager builds strong, trustful relationships with the internal and external stakeholders to deal mutually with EWSs.

  o **Leadership**: Leadership involves providing direction and motivating towards the desired values. The project manager applies an appropriate leadership style for the particular situation, motivates, develops team members' talents, inspires, and influences to overcome resistance, uses power and authority to get things done. The project manager detects EWSs related to people, seeks continuous improvements and maintains the achievement of value.

Project Manager's Competency model to deal with EWSs is summarized in Table 4-23. The format of this table was developed from ideas of how to best categorize and profile various levels of maturity and excellence in project manager expertise, referred to earlier in Chapter 2. Walker and Lloyd-Walker (2011) used a capability maturity model approach using the four profile levels of foundational aspiring, nascent recent, developing intermediary and mature experienced. They were able to create descriptors that effectively created a word picture of project managers’ skills and expertise at different levels of their professional development. Cicmil (2003) adapted the Dreyfus (2004) approach to identify what characteristics of their skill and expertise distinguished them at each identified level of their development. Both models developed by Walker and Lloyd-Walker (2011) in Australia and Cicmil (2003) in the UK adapted Dreyfus (2004) and it is appropriate to do so in the following competency model as it is a tried and trusted approach being adapted to a range of cultural settings.
<table>
<thead>
<tr>
<th>Project Complexity Level</th>
<th>PM Competency Level</th>
<th>Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
</table>
| Simple Project          | Advanced Beginner | System     | **System Approach:** Has the required knowledge on system methodology. Does not see the whole system.  
                           |                   |            | **Crisis Management:** Has the required knowledge on crisis management.                        |
|                         |                   |            | **Contextual Considering Context:** Has the required knowledge regarding the contextual factors, unaware of wider or deeper context of the situation.  
                           |                   |            | **Learning:** Follows the written rules, has limited critical thinking.                       |
|                         |                   |            | **Technical Modeling:** Determines the strategy in simple situations when the goals are clearly defined, the product is not technically complex, and the stakeholders certain about the methods to achieve the objectives.  
                           |                   |            | **Conducting Assessments:** Conducts formal assessments, evaluates the explicit things such as documents. |
|                         |                   |            | **Cultural Considering Values:** Focus on the fulfillment of the client’s needs. Has the required knowledge regarding the diversity of the values and understands the necessity to reach mutual agreement on values. |
|                         |                   |            | **Social Relationships:** Focuses on the establishment of reliable suppliers and contractors.  
                           |                   |            | **Leadership:** Has the required knowledge about leadership. Leads small teams.                 |
| Complicated Project     | Competent Performer | System    | **System Approach:** Visualizes the parts of the whole system. The system methodology to manage projects of the moderate complexity is successfully applied.  
<pre><code>                       |                   |            | **Crisis Management:** Successfully manages a crisis in moderately complex projects.            |
</code></pre>
<p>|                         |                   |            | <strong>Contextual Considering Context:</strong> Orients successfully in moderately complex situations, is aware of the context |</p>
<table>
<thead>
<tr>
<th>Complex Project</th>
<th>Proficient Performer</th>
<th>System</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical</strong></td>
<td><strong>Modeling</strong>: Sees alternatives, makes efforts to reach agreement on the strategy for achieving goals. Mainly deals with explicitly stated objectives. <strong>Conducting Assessments</strong>: Conducts formal assessments, pays attention to &quot;soft&quot; aspects such as people's emotions and body language.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td><strong>Considering Values</strong>: Successfully influences stakeholders’ agreement regarding the values to be generated through the projects with limited complexity. Feels comfortable in culturally homogeneous groups.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td><strong>Relationships</strong>: Establishes formal and informal relationships with the suppliers and contractors. <strong>Leadership</strong>: Effectively practices leadership in projects with limited complexity. May be inflexible in changing leadership styles. Motivates using mostly materialistic inducements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contextual</strong></td>
<td><strong>Considering Context</strong>: Has a good sense of unknown situations. &quot;Feels&quot; a situation, recognizes the visible and hidden contextual factors and applies contextually appropriate methods. <strong>Learning</strong>: Reflects, and identifies effective patterns and converts tacit knowledge into an explicit format. Expands and distributes knowledge, collaborates with partners for knowledge fusion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Technical</strong></td>
<td><strong>Modeling</strong>: Clarifies objectives, discovers hidden objectives and creates a range of strategies to achieve the objectives. Makes choice based on the judgment dynamics. Able, if needed, to make decision without reference to the rules. <strong>Learning</strong>: Challenges the existing knowledge. Modifies rules based on experience gained.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and intuition.

**Conducting Assessments:** Conducts formal assessments combined with the informal ones. The assessments are built into the system and linked to motivation.

<table>
<thead>
<tr>
<th>Cultural</th>
<th><strong>Considering Values:</strong> Anticipates the stakeholders’ values. Successfully discovers hidden values, influences culturally heterogeneous international groups to reach agreement on shared values. Takes into account the values in the society, “feels” the psychological climate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td><strong>Relationships:</strong> Participates in power relationships, co-creates cooperation with suppliers and contractors through alliances or partnerships. <strong>Leadership:</strong> Applies a leadership style appropriate to the situation. Motivates by using materialistic and non-materialistic rewards and inducements. Guides team leaders to develop their leadership skills.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highly Complex Project</th>
<th>Expert Performer</th>
<th>System Approach</th>
<th>Crisis Management: Successfully manages a crisis in highly complex projects. Detects crisis symptoms early, takes preventive measures, switches the system into the mobilize mode. Determines priorities, acts immediately, constantly adapts to a changing conditions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contextual</td>
<td><strong>Considering Context:</strong> Has successfully been oriented in the realm of diverse and extremely unordered systems. Moves rapidly to promptly make decisions, maintains the pace, and recognizes the visible and hidden contextual factors. <strong>Learning:</strong> Continuously reflects, intuits by observing and matching patterns. Innovates, seeks knowledge within a CoP and disseminates knowledge at professional and societies’ levels.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical</td>
<td><strong>Modeling:</strong> Makes decisions about the future unconsciously and rapidly relying on intuition, recognizes any hidden objectives, develops a creative strategy, considers the present and models the future.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In this table, the answer to the second research question was presented. The best practices (the answer to the first research question) and the competences (the answer to the second research question) were integrated and summarized as a Guide on dealing with EWSs (see the Attachment H to this report).

4.5.3 Addressing the Research Question 3: Barriers to Reproducing Best Practices

| Research Question 3 specific to Best Practices: Why are project managers often not able to reproduce best practices that they have successfully applied in the past to deal with EWSs in Russian complex projects? |

In this thesis, I hoped to summarize the barriers to best practice reproduction to deal with EWSs that have been collected in the course of this study. The barriers are presented in Table 4-24.

Table 4-24 Barriers reproducing Best Practices to deal with EWSs

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Supporting Arguments of Interview Respondents</th>
<th>Measures to remove barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Mentoring, Coaching</td>
<td>Currently one of the modern Western managers’ training methods is to become the ghost of his/her tutor in order to learn and be able to repeat the success of his/her teacher. The German proverb states: follow me, do it with me and we will do it better (R #5).</td>
<td>Modern methods for training project managers are not widely introduced. Organizations should have mentors to supervise, coach and mentor project managers. Knowledge is dead without continual (mentoring, coaching, etc.) (R #12).</td>
</tr>
<tr>
<td>Culture</td>
<td>The main mistake that Russian authorities</td>
<td>It is crucial for both foreign and Russian</td>
</tr>
<tr>
<td>differences</td>
<td>make is to attempt to mechanically transfer evolutionary development principles and European trajectories into the Russian realms (R #6). Success can be difficult to repeat in other projects due to an absence of culture-bearers. (R #17).</td>
<td></td>
</tr>
<tr>
<td>What instead of Why question</td>
<td>Respondent #4 told the researcher a short story about Buddha. Once when Buddha’s disciples asked him what they need to do to become a Buddha, Buddha responded very precisely: “You need to kill Buddha!” That means that it is not worth copying him. Otherwise, copying him you will not become Buddha, but an idiot. The East goes that the teacher’s steps should not be followed; you should be directed by him only. These are different things. To follow the steps is almost like imitation; it means never to reach any destination. One should follow the teacher’s direction and this is a very different point. Managers should realize that they need to have enough wisdom to understand the teacher’s direction to move in and then to choose his or her own way to use the same direction without copying the teacher. It is important not to duplicate another’s experience; it is important to capture and to use the style permitting to achieve the success (R #17). Project managers are unable to reproduce best practices successfully applied in the past because they focus on learning the “what” not “why” questions needed for decision making to change conditions. It is necessary to know best practices generally; it is useless to precisely copy and apply them to new projects (R #11).</td>
<td></td>
</tr>
<tr>
<td>Tacit</td>
<td>There is a lack of connection between the source and knowledge recipient. People transfer knowledge as well as value (R #19). People may be unaware of their tacit knowledge. Organizations focus on the transfer of explicit knowledge rather than tacit knowledge. The most valuable company’s asset is people (R #19). Personnel are filtered, crystallized and move from one project to another in the company. It is more preferable to retain people rather than focus only on their explicit knowledge.</td>
<td></td>
</tr>
<tr>
<td>Lack of Support</td>
<td>It is necessary to carry out another project after the main project’s end but also to be oriented for collecting best practices from all participants: internal and external (R#1). It is necessary to maintain a system of knowledge management and to allocate the necessary resources for it.</td>
<td></td>
</tr>
<tr>
<td><strong>Shortage of Best Practices</strong></td>
<td>A typical mistake of the Russian elite is to copy outdated Western models (R #4).</td>
<td>Outdated models do not deserve to be copied.</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>Uniqueness</strong></td>
<td>Projects are not identical; therefore, success could hardly be repeated by other people (R #2). Thorough knowledge of best practices is useless for a new project, where new stakeholders, another context, another atmosphere will take place (R #11).</td>
<td>The undervaluation of key factors in a unique context can impede achieving success in other companies, projects or situations.</td>
</tr>
<tr>
<td><strong>Lack of CoP</strong></td>
<td>A CoP allows creating a large group of talented people having the necessary skills at this industry and this direction, dealt with similar problems (R #8). It will be difficult for the project manager if he is not a member of a professional community (R #8).</td>
<td>CoP is valuable tool for learning, sharing and connecting with practitioners.</td>
</tr>
<tr>
<td><strong>Clash of Culture</strong></td>
<td>This is the law of the system: if the subsystem (foreign culture) contradicts the system, then the subsystem will either be rejected or will be adjusted and naturally get embedded into the system (R #16).</td>
<td>Foreigners should adjust to the Russian realm; this scenario is the most realistic (R #16).</td>
</tr>
</tbody>
</table>

### 4.5.4. Addressing the Research Proposition and Grounding the Findings

The main proposition of this research was that:

PM theory and practice in dealing with EWSs will be advanced through combining several concepts (EWSs and Complex projects, Competency models, Agile and Improvisation Practices, Sticky Knowledge) and applying them within the a new geographical area context (Russia).

The literature review provided a great number of various concepts. The diversity of concepts helps to examine the problem of the study more thoroughly. The additional concepts derived from the empirical stage of the research were combined into the final versions of the System model and the Competency model. The nine best practices and the key concepts are analysed once again to highlight key points, and to support them with arguments of scholars in Table 4-25.
### Table 4-25 Grounding the Main Findings

<table>
<thead>
<tr>
<th>Best practices</th>
<th>Concepts</th>
<th>Grounding arguments of scholars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Approach</strong></td>
<td>Experience and Intuition</td>
<td>Gut instincts can be strong tools for success in the hands of experts (Faith, 2009). Intuition is an experience translated into action (Klein, 2003).</td>
</tr>
<tr>
<td></td>
<td>Interactive Whole and Emergent Properties</td>
<td>The emergent properties are making whole more than the sum of its parts (Checkland and Williams, 2011).</td>
</tr>
<tr>
<td></td>
<td>Centralization and Decentralization</td>
<td>The decentralized system is capable of &quot;self-control&quot; and can be guided by the simple rules of operation and governance (Johns, 2008). High-flex' capability to ensure decentralization and local autonomy helps companies to minimize the cost of change and to gain an advantage (Teece et al., 1997). “Autonomous decentralization does not mean it is a laissez-fair system where rules are absent” (Shimizu, 2012, p: 68).</td>
</tr>
<tr>
<td><strong>Crisis Management</strong></td>
<td>Certain and Uncertain</td>
<td>Any complex project has built in problems; it requires different types of knowledge, attitudes, competencies, behavior, being stable and unstable at the same time, predictable and unpredictable at the same time, known and unknown, certain and uncertain (Cicmil et al., 2009).</td>
</tr>
<tr>
<td></td>
<td>Acting within a Uncertainty</td>
<td>“A certain amount of creative madness is undoubtedly good for the acceptance and utilization of the early warnings idea: one has to be prepared to accept stupid questions instead of trying to repress them” (Nikander, 2002, p:127).</td>
</tr>
<tr>
<td><strong>Considering Context</strong></td>
<td>Scan the context</td>
<td>Respond quickly and effectively to a whole range of different alarms (Ansoff, 1975).</td>
</tr>
<tr>
<td></td>
<td>Disturbances</td>
<td>The settings of a project and its stakeholders are under the constant influence of negative consequences of the crisis, including stagnation and a decrease in production in most of the industries NCB (SovNet, 2010).</td>
</tr>
<tr>
<td></td>
<td>Constraints</td>
<td>Stagnation and mobilization states are periodical by their nature and can be described as an interchange between ups and downs accelerating alongside the overall upward trajectory (Chernevsky, 2000).</td>
</tr>
<tr>
<td><strong>Modeling</strong></td>
<td>Context Dynamics</td>
<td>Stagnation and mobilization states are periodical by their nature and can be described as an interchange between ups and downs accelerating alongside the overall upward trajectory (Chernevsky, 2000).</td>
</tr>
<tr>
<td></td>
<td>Hidden objectives</td>
<td>Needs considered not real, parties voicing reservations and politically hedging their positions, vague or unclear reasons for undertaking the project are the EWSs that need clarification (Klakegg et al., 2010).</td>
</tr>
<tr>
<td></td>
<td>Strategy</td>
<td>Strategy involves choosing what games to play, as well as playing with skill (Teece, 1998).</td>
</tr>
<tr>
<td>Conducting Assesments</td>
<td>Formal and Informal Assessments</td>
<td>Managers rarely apply textbook theories in order to deal with the difficult situations where no &quot;right&quot; answers exist (Schön’s, 1983).</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Assessments of stakeholders’ satisfaction</td>
<td>Assessment refers to systematic evaluation, maintenance and advisory means, which are used to increase or to prevent degradation of values (PMAJ, 2003).</td>
<td></td>
</tr>
<tr>
<td>Values and Culture</td>
<td>Value circulation is a process where knowledge and experiences acquiring from project actions of organizations are accumulated as value sources and are practiced as feedback for projects (i.e., new value creation) (PMAJ, 2003).</td>
<td></td>
</tr>
<tr>
<td>Mentality</td>
<td>“Elements of the visible part of the mental space are visible to stakeholders like a model of the iceberg” (Bushuev and Yaroshenko, 2012, p: 13).</td>
<td></td>
</tr>
<tr>
<td>Loop Learning</td>
<td>Feedback loops connect detected error not only to strategies and assumptions but also to norms and values (Argyris and Schön, 1996). The intuitive processes are not isolated from the environment; they are considered to be a fundamental part of it (Love et al. 2005).</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Opening interfaces to the trusted partners, for example, to suppliers helps to find balance between openness and closeness and facilitate fusion of knowledge, exchange of ideas from both outside and inside the firm (Shimizu, 2012).</td>
<td></td>
</tr>
<tr>
<td>Interpersonal relationships</td>
<td>In order to get things done surely, Russians, traditionally, rely on their personal networks of trusted friends and colleagues (McCarthy and Puffer, 2002).</td>
<td></td>
</tr>
<tr>
<td>Communications networks</td>
<td>Stakeholder community is dynamic not static; the members of the community change during the course of the project (Bourne, 2009).</td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>Flexible managers work flexibly within a variety of situations, individuals or groups (Dainty et al., 2005); they do not mechanically match their style to fit the checklist of the situations (Goleman, 2000), but are exquisitely sensitive to the impact they are having on others to get the best results (Goleman, 2000). As events unfold, it is important to adapt tactics (Faith, 2009).</td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td>Authentic leaders (Avolio and Gardner, 2005; Avolio and Luthans, 2006) “demonstrate a passion for their purpose, practice their values consistently, and lead with their hearts as well as their heads” (George et al., 2007, p: 130). They also model behavior and set an example by matching their espoused values with their ethical and authentic actions (Lloyd-Walker and Walker, 2011).</td>
<td></td>
</tr>
</tbody>
</table>
4.6 Conclusion

Useful criteria to assess “good” theory

Wacker (1998) provides the overview of the virtues of the ‘good’ theory. Some of the criteria recommended by Wacker have been already overviewed in §3.2.5. We discuss here these criteria once again.

- **Uniqueness**: One theory must be differentiated from another. Research without theory has no ground and theory without research has no evidence to prove its correctness. This research provides an example of value of a “bricolage” epistemic script. Bricolage refers to assembling and using as building blocks different knowledge elements (empirical material, theoretical concepts, and metaphors originated from various disciplines, organizational practices, and social contexts) help to form valuable new knowledge (Boxenbaum and Rouleau, 2011).

- **Conservatism**: The theory built in this research is not aimed to replace existing theories. It is a useful addition, a refinement to established theories. The System framework of this thesis considers the cycle that consists of four steps such as: Modeling, Conducting Assessments, Considering Values, and Learning. The cycle is similar to the Kolb’s (1984) cycle: Plan, Do, Review, and Reflect. It also can be viewed as the quality management Plan, Do, Study, Act cycle. Finally, it can be viewed as the reflective cycle: Plan, Do, Observe, and Reflect (Steinfort and Walker, 2011). Then, the following question arises: how does the grounded theory developed in this research challenge existing ideas, concepts and practices? (Charmaz, 2006). The answer is that the theory is extended due to this process (sub-system) being placed into a wider context and shows its connections with the other elements of the system depicted at the System model.

- **Generalizability**: There are more areas where the theory can be applied to make it a better theory. In this research, the concept of EWS was studied within limited areas (Higher Education and IT projects). However, the findings could be more widely applied. The study is limited by interviewing Russian participants. Western project managers working in Eastern cultural environments might have experience great difficulty in gaining agreements on shared values. Findings of this research might be applied to international projects running in Russia.

- **Fecundity**: The intuitive approaches combined with the formal approaches of dealing with the EWS have the potential to expand into new conceptual areas. The purpose of this research is also to facilitate the learning process applying intuition. The process of the grounding theory itself is “based on a great deal of intuition” (Flick, 2009, p: 441). It seems that there is “a residual suspicion among many academics that practitioners cannot be trusted to base findings on intuition” (Steinfort and Walker, 2011, p: 119). This research shows that people from the medical and military professions actually apply intuition in their practices.

- **Simplicity**: In this research I had only one key proposition stated as: Project management practices will be advanced through the combination of several concepts (EWSs and Complex projects, Competency models, Agile and Improvisation Practices, Sticky Knowledge) and their application within the context of the new geographical area (Russia). My aim is to have managed to break the
assumptions and create a guide for the improvement of current practices to deal with EWSs in complex projects.

- **Internal consistency:** To comply with this criterion Chapter 4 was devoted to the interview analysis, and findings were structured in a three column table. In the first column the concept was discovered, the next column commented on the findings and the last column contained the supporting arguments of the interview respondents. This way to present the analysis helped to demonstrate explicit links between the data and arguments to give adequate explanations. In addition, the level of project complexity and the level of the project manager’s proficiency are linked.

- **Empirical riskiness:** The empirical test of the theory should be risky. The current “hard” practices are not good enough to detect the EWS and to act upon them. In this research intuition, “gut feeling”, “soft” approaches were considered. These are the areas which are risky enough for investigation; they go beyond traditional practices.

- **Abstraction:** The abstraction level of theory means that it is independent of time and space. The cyclical process (Modeling, Conducting Assessment, Considering Values, and Learning) is abstract. The process can be performed at any time: in the beginning of the project, in the middle and in the end. It is not the substitution of formal assessments such as audits, gateways reviews, etc. However, it is the useful addition that helps to successfully deal with EWSs.
5. Chapter 5: Conclusions and implications

5.1 Concluding Comments

Projects are becoming dynamic in time and getting more complex. EWSs such as unusual events, unfamiliar changes in the organization's future remain shadow and difficult to detect. At the basis of a research problem, there are two situations: the desired or undesired. The undesired future (current) situation is that dealing with an EWS is far from easy and businesses often fails in their attempts to develop a guide for detecting “gut feeling” EWS indicators. The desired future situation is that the guide developed based on the understanding and reflection of seasoned project managers on their experience on identifying and acting upon EWSs of potential failure in complex projects. The gap between the desired and undesired situations was bridged by conducting this research project and by proposing the best practices. These best practices are documented as Guide on dealing with the EWSs (see Attachment H). The usefulness of these practices proven through this applied research and, therefore, they were recommended by to follow when dealing with EWSs in complex projects.

Ideas, insights, observations, and findings bounded together, and this clear presentation as the single System model helped to simplify the complexity. We have to be explicit about the system and consider the projects as a conglomeration of identifiable (visible and hidden) elements. The mature project managers rely on both “hard” and "soft" qualitative data as well as judgment and intuition in providing a route map towards the desired value. The professionals lead team by applying different styles as events unfold. The experienced performers develop the relationships with the stakeholders (formally and informally), unite them, discover hidden values, and influence the agreement on shared values among stakeholders. The mature project managers on conducting assessments (formal and informal) rely on intuition to detect the EWSs, pay attention to indefinite, non-transparent, and hidden contextual factors (internal and external). In conditions where the situation has turned into a new complex or chaotic direction the professionals act immediately to limit harm, manage dynamically to overcome the crisis. Being the reflective practitioners, they identify effective patterns and convert tacit knowledge into an explicit format, expand and distribute knowledge, and collaborate with partners for knowledge fusion.

5.2 How specific to the Russian context are these findings really?

Professional excellence in dealing with the EWSs in complex projects within the Russian context was researched in this study. Historically derived values mentally program our behavior. This research with the help of the case studies illustrated how specifically Russian managers deal with the EWSs in complex projects. Complex project, being a system changes, transforms, and evolves in conjunction with the environment and builds its environment, which in turn has an inverse effect on the environment, defining it. Grasp the project manager's professionalism in dealing with the EWSs in complex projects within the Russian context means to apprehend this holistically through the real life stories. International PM Community might find beneficial get acquainted with west practices and different individuals' points of views introduced in this thesis.
5.3 Future Directions of East and West Knowledge Fusion

What are the perspectives of the innovation diffusion of the external practices in the Russian context? There are three options at least that might be considered: (1) literal copying; (2) without any copying; and (3) combined approach to knowledge fusion.

- **Literal copying**: The first scenario of the Western experience literal copying seems unrealistic. Multinational corporations transfer the leadership styles and know-how management to Russia (Chhokar et al., 2007). What worked well in one country may not work in another one. (House et al., 1999). The number of studies (Beamish, 1992; Bollinger, 1994; Puffer et al., 1997) suggests that the Russian environment is immensely complex and that the Russian cultural milieu is significantly different from the Western one. The foreign approaches might not be workable in this country (Kets de Vries et al. 2004). It is hard to imagine that the Russian people would reject their mindset that formed them as a nation. The national way of thinking could not be changed quickly. It is most likely that it will remain the same. Russia would not be able to deny its mind-set neither on the personal nor on the nationwide level (Prokhorov, 2002).

- **Without any copying**: The second model is the way of not to copy the Western experience. This scenario, preserving the Russian management practices unchanged, seems improbable and highly controversial. The advantage of the second scenario is the low implementation cost. The drawback of this approach is to obtain real-life experience for a long time. The experience may even be harmful if new projects are significantly contradicted with the previous experience. When the focus is mainly at internal ideas, it is a closed Innovation. The closed system always tends towards degeneration (R #6). The consequence of a closed system is a lack of development in Russia. The escalation of the reforms, the turbulent context and globalization demand change and innovation.

- **Combined approach to knowledge fusion**: Hence, the most probable perspective scenario of the Russian managerial system is the third one, namely its transformation and evolution through the adaptation of the Western experience. The Western experience combined with the Soviet and Russian experiences taking into account the mentality, culture and traditions is the most effective way to duplicate western best practices (Mishin, 2006). However, caution should be taken. For example, the Federal Agency for Technical Regulation and Metrology issued National Standards for the project (2011a), the program (2011b), and the portfolio management (2011c). The requirements for the program management (2011b) are based on the PMI standard on Program management, and at the same time, they strongly reminiscent of the Soviet time of planned economy. In this standard most of the processes is devoted to the planning processes are distilled while the implementation processes and value delivery processes neglected. The Russian way of management does not correspond to the existing challenges to be confronted at the turn of the 21st century.
5.4 Areas for improvements for future researches

The limitations of the research were explained and areas for improvements for future researches are defined in this section.

- **Scope**: Due to resource and time constraints, the scope of this qualitative research is limited. In terms of the participants, the interviewees comprised the Ph.D. degree people (over half of the respondents) mainly from the Higher Education professional field. Most of the cases represent a subjective view of one person - the narrator (biased selectivity). Common sense says that facts about the world are always someone’s facts, interpreted and presented by someone somewhere, and open to negotiation with others (McNiff and Whitehead, 2000, p:39). For greater objectivity, there is a need to interview more people related to the each case. A more diverse and a wider audience could be invited to reflect on the research issue collaboratively. Only a few fields are covered with case studies in this research (IT (Information Technology), education and politics (election campaign)). Future research needs people from broad professional fields’ poll.

- **Language**: Only English and Russian literature used in this research. A larger number of books and papers on project management in Russian might be involved in the scope of this study in the future. All empirical data was being gathered and coded in Russian. Only the most relevant data was translated in English due to a scope limit. More data could be translated into English as many valuable data were collected.

- **Generations**: The current PM workforce comprises in project managers with experience across several generations who have worked under rapidly transforming economic and political systems. Representatives of the old generation who participated in the great Soviet-era grandiose projects are still alive and could share their experience. Some known “best practice” in the Soviet era may not provide the best outcomes at the current moment. However, some of the best practices of those times still might not have lost their relevance. Representatives of young generation could be involved in the future investigation. For example, in case study # 2, the protagonist (the generation of 2000’ of the Post-Soviet era) is upset that his company has disappeared, and that case ended unsuccessfully. While discussing that case with contemporary youth, it was realized that, they perceive the case as a successfully finished story.

- **Geographical and cultural settings**: This thesis is rare because little if any research work of this kind has been undertaken in Russia. A set of PM practices may differ from region to region. The research could be expanded geographically, because Russia it is such a vast country that spans many cultures from the Far East to European Russia. This research involves only Russian speaking respondents and cases from Russia. Practices on dealing with early warning signs in complex projects can be influenced by local and national economic frameworks, culture and tradition (Klakegg et al., 2010). The authors call for caution if the
answers found in a separate study would be transferred to other parts of the world. Russian management does not easily fit internationally recognized practices (Chhokar et al., 2007). The study does not include international projects. These limitations provide the following opportunities: to repeat the study in the international organisations which have multinational teams, extend to include ex-pat project managers working within a Russian context.

5.5 Contribution of this Research to the theory and practice

This thesis meets all criteria of RMIT for Ph.D. degree such as originality, critical insight, capacity to carry out the independent research; contribution to the existing knowledge database; and compliance to be published (see the Attachment G: Guidelines to examiners of theses). The contribution of this research to the theory and practice are listed below.

- **Contribution to the existing theory:** The thesis represents a comprehensive study of practices in the Russian context. Klakegg et al. (2010) wondered about the further development of their research for considering which early warning signs are the most important in each industry/project type. This thesis is the key to this question as it contains Russian cases of complex projects from different industries. Profiling professional excellence was addressed by building the Competency model where the cumulative competences required to deal with the EWSs were defined. A System model is a simplified representation of reality. It describes the dealing with the EWSs in complex projects in a simple, practical and useful way. Using the System model, the five case-studies were narrated and were analyzed in a unified manner. The System model helped to shape and narrow the research. It is a substantial contribution to knowledge to look at research problem in such a new way by combining several theories and gain new insights. The thesis in itself is a guide.

- **Contribution to practice:** The thesis in itself is a useful guide to deal with the EWSs in complex projects within the Russian context. The System Framework of this thesis can be used as a tool for reflections by the practitioners. The contribution made was in better understanding how project managers respond to EWS within a Russian setting. I shared the framework with some of the research participants when they asked about it. They even asked to share the interview questionnaire; the thesis is a good tool that can be used by trainers to teach case-studies. Three case-studies (2, 3, and 4) are situations, which ended unsuccessfully because the EWSs were not detected and acted upon. Two case-studies, 1 and 5, are situations with a successful end, because the EWSs were detected and responded in a timely and skillful manner. Attachments of this thesis include useful guides, which could be helpful for practitioners.

5.6 Chapter Conclusion

This final chapter wrapped up the thesis. It is a short chapter but it provided concluding comments and insights and framed the thesis in terms of what ‘good theory’ may mean. More specifically it framed the study
within the Russian context of dealing with EWSs in a range of complex projects. It makes the point that culture matters and that the Russian history and culture has a profound impact upon what may be described as best or better project management practice. In section 5.3 some indication of future directions of an east-west knowledge fusion is offered and this is followed in Section 5.4 with some direction and ideas about how research into theory and practice may be advanced. We live in a global world where the history, culture and exposure to new ideas offers many opportunities. A common mistake made in the search for best or better practice is that context is glossed over or ignored. This thesis seeks to rectify in some small measure that tendency and to assertively discuss, in this case, the Russian context others in various geographical and time-space contexts may make similar contributions so that globally we have a better understanding of the diversity of what best or good practice may actually mean when coping with EWSs.
Attachments

Attachment A: Consent form

RMIT HUMAN RESEARCH ETHICS COMMITTEE

Prescribed Consent Form For Persons Participating In Research Projects Involving Interviews, Questionnaires, Focus Groups or Disclosure of Personal Information

Discipline/School/College: School of Property, Construction and Project Management, RMIT University

Name of participant:

Project Title: Towards best practices in project management: Profiling Professional Excellence in Identifying and Acting on Early Warning Signs in Complex Projects within a Russian Context

Name(s) of investigators: (1) Gulnara Sharaborova Phone: +7 926 538 50 91
                (2)

1. I have received a statement explaining the semi-structured interview involved in this project.
2. I consent to participate in the above project, the particulars of which - including details of the semi-structured interview - have been explained to me
3. I authorise the investigator to conduct a semi-structured interview.
4. I acknowledge that:
   a) Having read the Plain Language Statement, I agree to the general purpose, methods and demands of the study.
   b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied.
   c) The project is for the purpose of research. It may not be of direct benefit to me. The privacy of the information I provide will be safeguarded. The privacy of the personal information I provide will be safeguarded and only disclosed where I have consented to the disclosure or as required by the law.
   d) The security of the research data is assured during and after completion of the study. Data will be stored for 5 years after publication of research findings. The data collected during the study may be published by the Gulnara Sharaborova and RMIT University. Any information which may be used to identify me will not be used unless I have given my permission.

Participant’s Consent

Name: ___________________________ Date: ___________________________
          (Participant)

Name: ___________________________ Date: ___________________________
          (Witness to signature)

Participants should be given a photocopy of this consent form after it has been signed.
Any complaints about your participation in this project may be directed to the Executive Officer, RMIT Human Research Ethics Committee, Research and Innovation, RMIT, GPO Box 2476V, Melbourne, 3001. Details of the complaints procedure are available at: http://www.rmit.edu.au/rd/hrec_complaints
Attachment B: Plain Language Statement (Case-study participants)

Dear XXXXXX,

My name is Gulnara Sharaborova. I am a research student of the DPM (Doctor of Project Management) program at RMIT University (Australia). I’m currently working on my thesis:

"Towards best practices in project management: Profiling Professional Excellence in Identifying and Acting on Early Warning Signs in Complex Projects within a Russian Context."

I would like your permission to conduct one or two case-studies based on the recently completed complex projects. Three to five mature project participants from each case will be interviewed to collect best practices based on the reflection, analyzing their past experience on the detection and action of EWS of potential failure in complex projects. I have attached the questionnaire for your information.

**Actuality of the research:** Often project participants focus on traditional management practices. However, in the case of complex projects, this may not be enough. In complex projects, under conditions of uncertainty experienced, managers often respond intuitively. Their knowledge, skills, abilities, and experience help them to see the whole picture, to identify potential problems, and to fix them successfully. Participation in this research study is an opportunity for mature project managers to reflect upon their experience, collect and document tacit knowledge, identify innovative approaches, and participate in the exchange of best practices.

**The following information will not be available for public use on the results of the research:** Names of participants will be anonymous. Name of the organization and case-studies (projects) will not be specified. Tape recordings of interviews to be transcribed and coded; storing of the files provided in a safe place at the University, access to which will be password protected.

**The following research findings will be available for public use:** Key characteristics of the participants in the interviews such as personal info (age, gender, experience, education, etc.); key characteristics of the case-study projects (duration, technological and organizational complexity, the changing nature of the internal and external environments, approximate number of participants etc.); and the best practices and innovative approaches which participants share based on their experience. The research findings will be disseminated via conference, journal, and industry magazine papers.

**Voluntary participation on this research:** I will respect the privacy of your organization, both during and after the completion of this research endeavor. I fully respect your right to withdraw from participation at any time and to remove unprocessed data previously supplied. I am a self-funded student and will not receive any payment for this work.

I look forward to your participation in the survey and thank you in advance for taking part in this important research. If you are willing to participate in this research, kindly issue an official permission for conducting the webinars. Should you have any question, feel free to contact me.

Sincerely,

Gulnara Sharaborova:

e-mail: sharaborova@hotmail.com, Mobile: +7 926 538 50 91

In case of further questions, you can direct them to my scientific supervisor:

Dr Derek H.T. Walker PhD MSc Grad Dip (Mgt Sys)

Professor of Project Management, Director of Research, School of Property, Construction and Project Management, RMIT University, +61 3 9925 3908, mob +61 (0) 40 996 0121, Email: derek.walker@rmit.edu.au, URL http://dhtw.tce.rmit.edu.au/ or http://rmit.edu.au/staff/derekwalker

Kind regards Gulnara Sharaborova

Any complaints about your participation in this project may be directed to the Executive Officer, RMIT Human Research Ethics Committee, Research and Innovation, RMIT, GPO Box 2476V, Melbourne, 3001. Details of the complaints procedure are available at: http://www.rmit.edu.au/rd/hrec_complaints
Dear XXXXXXX,

My name is Gulnara Sharaborova. I am a research student of the DPM (Doctor of Project Management) program at RMIT University (Australia). I’m currently working on my thesis:

"Towards best practices in project management: Profiling Professional Excellence in Identifying and Acting on Early Warning Signs in Complex Projects within a Russian Context."

I would like your permission to conduct one or semi-structured interview to collect best practices based on the reflection, analyzing of your past experience on the detection and action of EWS of potential failure in complex projects. I have attached the questionnaire for your information.

**Actuality of the research:** Often project participants focus on traditional management practices. However, in the case of complex projects, this may not be enough. In complex projects (technologically and organizationally) under conditions of uncertainty experienced managers often respond intuitively. Their knowledge, skills, abilities and experience help them to see the whole picture, to identify potential problems, and to fix them successfully. Participation in this research study is an opportunity for mature project managers to reflect upon their experience, collect and document tacit knowledge, identify innovative approaches, and participate in the exchange of best practices.

**The following information will not be available for public use on the results of research:** Names of participants will be anonymous. Names of the organizations you may mention during the interview will not be specified. Tape recordings of interviews to be transcribed and coded; storing of the files provided in a safe place at the University, access to which will be password protected.

**The following research findings will be available for public use:** Key characteristics of the participants in the interviews such as personal info (age, gender, experience, education, etc.); key characteristics of the projects that you may give as an example of complex projects (duration, technological and organizational complexity, changing nature of the environment, approximate number of participants etc.); and the best practices and innovative approaches which participants share based on their experience. The research findings will be disseminated via conference, journal and industry magazine papers.

**Voluntary participation on this research:** I will respect the privacy of your organization, both during and after the completion of this research endeavor. I fully respect your right to withdraw from participation at any time and to remove unprocessed data previously supplied. I am a self-funded student and will not receive any payment for this work.

I look forward to your participation in the survey and thank you in advance for taking part in this important research. If you are willing to participate in this research, kindly issue an official permission for conducting the webinars. Should you have any question, feel free to contact me.

Sincerely, Gulnara Sharaborova:

e-mail: sharaborova@hotmail.com, Mobile: +7 926 538 50 91

In case of further questions, you can direct them to my scientific supervisor:

Dr Derek H.T. Walker PhD MSc Grad Dip (Mgt Sys)

Professor of Project Management, Director of Research, School of Property, Construction and Project Management, RMIT University, +61 3 9925 3908, mob +61 (0) 40 996 0121, Email: derek.walker@rmit.edu.au, URL http://dhtw.tce.rmit.edu.au/ or http://rmit.edu.au/staff/derekwalker

Kind regards Gulnara Sharaborova

---

Any complaints about your participation in this project may be directed to the Executive Officer, RMIT Human Research Ethics Committee, Research and Innovation, RMIT, GPO Box 2476V, Melbourne, 3001. Details of the complaints procedure are available at: [http://www.rmit.edu.au/rd/hrec_complaints](http://www.rmit.edu.au/rd/hrec_complaints)
Attachment D: Interview Questionnaire

In total of 19 people responded to the 24 questions of the Interview Questionnaire. It contains three groups of questions specific to (1) practices in identifying and acting on EWSs in complex projects; (2) profiling professional excellence to deal with EWS; and (3) towards general improvement of current PM practices. Because of the size limits, only a part of the interview data has been presented here.

Questions specific to Practices in Identifying and Acting on EWS in Complex Projects

Question 1: Experience in Simple Projects

The Question 1 was regarding the respondents' experience, “I would like to start by asking you to briefly tell me about your experience in simple projects. After that, we will move on to discuss your experience in complex projects (for example, the number and the type of projects and the number of years during which this experience has been gained).”

There were various answers regarding experience in simple projects. The respondents explained their understanding of simple projects. Some respondents pointed out that they view a simple project as a project with a limited number of subjects and functional areas (R #1). For example, when they manage a project that is purely IT oriented, it is simple, but if it is necessary to launch an IT system and to also earn a business profit, it would make the project complex (R #8). One respondent pointed to value creation during a project as a criterion of its complexity, saying that projects with a small social significance are simple for him (R #10). The Respondent # 4 pointed out that when a project is aimed at creation of new products or services within the organization it is simple, but if it is required to establish service and ensure benefit realization, the project becomes complex. Most of the respondents mentioned that projects with a high degree of certainty about the final product are simple.

Question 2: Experience in Dealing with Complex Projects

Question 2 was regarding experience in dealing with complex projects. The wording of the question was the following: “Now please tell me about your experience in dealing with complex projects [for example, the number and the type of projects and the number of years during which this experience has been gained].”

The respondents' experience in managing complex projects ranged from 5 to more than 20 years. The number of years over which this experience was gained ranged from 5 to 10 years. The respondents provided a number of comments in their answers to this question: “In 2009 I switched to complex projects, so since that time I have not managed simple projects anymore. Everything is just on the rise and I have been managing national level and international level complex projects” (R #19). “For me, the most challenging projects are in the field of HR” (R #18). “Transition of the end product of a project into ongoing operations and ensuring the organizational transformation in order to gain benefits from owning this new
product" was identified as a complex project (R #4). "After getting to know the P2M standards, I have been pretty much concerned about the value delivered from a project that determines its complexity" (R #10).

Question 3: Differences between Simple and Complex Projects

Question 3 was about differences between simple and complex projects. The question: "Reflecting on your project experience, could you please tell me about the differences you can identify between simple and complex projects?"

Reflections of the interviewees about the distinguishing characteristic of simple and complex projects differed significantly. The respondents consider various aspects of project complexity. One respondent summed this up quite shortly: "all that is not mono projects, I consider and manage as complex projects, even as program" (R #12). Another respondent (R #10) said: "a simple project becomes complex when during implementation a project manager is replaced or a customer is changed because all the agreements are immediately gone, the values are changed, and the goals are understood differently by the new key stakeholders."

For example, for some respondents factors concerning people were important, namely, the number of stakeholders was important. Hence, the following criteria were mentioned as significant for determining the project's complexity: the number of performers, the quantity of organizations involved in a project, its supervisory bodies and affiliated entities, the parties linked by contractual obligations, the amount of parties, which must be coordinated. Some participants stated that the more people are involved in a project the more difficult it is to manage. Besides, such characteristics of a complex project were mentioned as a lot of connections between parties, a high role of external stakeholders, complex relationships (for example, between departments), a multiple and unstable customer (in other words, there are several customers and/or the customers are changing over time). Moreover, according to the interviewees, a project is complex when it is unclear who the real customer is. Influence links between people, the existence of outsourcing sides, competence smeared; power games, and political games were also mentioned as significant factors impacting a project's complexity. A project was described by the respondents as complex when it is unclear who is responsible for what and if there are no clearly defined perimeters of responsibility or when the clients are subdivided into several groups with the different needs.

Further, some details of the technical side are presented, which were mentioned by the respondents as essential for referring a project as complex. They include technical complexity of projects, a non-traditional end product, application of completely new technologies; unclear understanding by customers of what kind of an end product they would like to obtain, a wide variety of requirements, and the risk of missing someone’s key requirement. Besides, the project has been characterized as complex if it is at the intersection of several subject areas, if the profiled missions are complex, if it contains a large number of components and many relationships among its elements, if there are a lot of tasks in the project, and if various professional fields are involved. Business-processes are also seen as a project-complexity factor.
That means the project has been described as complex by the interviewees if there are many processes consolidated into one integral business-process.

The contextual factors have been also mentioned by the respondents as affecting the level of a project's complexity. Example are external disturbances influencing internal environment, a highly uncertain environment, context turbulence, international projects at the national level (Olympic Game Sochi 2014), constantly expanding horizons of a project, and active interactions with the market. Internal orientation factors of the project within the organization have also been stated as instrumental to the project's complexity, which can be exemplified by a complex organizational hierarchy and the situation when project managers found themselves managing not projects but programs.

As Respondent #16 said, “A complex project can change radically not only in terms of the context but also in terms of the desired end product. This is the first point. Secondly, it is impossible to influence external factors. The more external factors, which change the situation, the project contains, the more emphasis should be put by the PM in order to orientate oneself here and now to achieve the desired outcome. The third factor is complexity of the project's team. When complementary skills are required, the project is more complex, because it means that team members possess different values and a different life experience”.

**Question 4: Differences between Complex and Highly Complex Projects**

In question 4 the respondents were asked about differences between complex and highly complex projects. The question was the following: “Reflecting on your project experience, could you please tell me about differences between complex and highly complex projects as you see them?”

The respondents were not unanimous in their views on the differences between complex and highly complex projects. According to Respondent #4, presence of several complexity factors makes a project highly complex. A lack of any complexity factor diminishes the project's complexity, making it moderate. For example, it is a complex project if the situation of the project launch is unclear, but the final outcome is clear and understandable, but there is a shortage of knowledge of strategies to guarantee the transition from one stage to another (R #4).

Highly complex projects contain an element of an absolute technological innovation and organization of cooperation of a substantial amount of people or of several project teams, according to Respondent #18. Another respondent pointed out that one more criterion to differentiate between a complex and a highly complex project is the factor of availability of resources. According to Respondent #16, a deficit of resources combined with tough deadlines and high demands to quality make a project highly complex indeed, in terms of optimization of the triad: price, time-frame, and quality. Respondent #17 identified the context as a determinant of high complexity. He mentioned large-scale educational projects, which were run for the youth in the areas where military conflicts had taken place before. For example, a youth summer forum was
organized at North Caucasus in 2010 with the extensive use of metal wires, metal grating, and cells for the purpose of protection (R #17).

Respondent 13 views the transition from complex to highly complex projects as palette of colors. In his opinion, the whole specter is predominantly gray, as it is impossible to see the project as black and white. Moreover, for this or that manager, an ordinary project may seem as highly complex. As Respondent #13 puts it, "Complexity is a relative phenomenon." According to Respondent #10, there exist no highly complex projects at the stage of planning, because his company tries to avoid this type of projects. However, during its implementation the project may turn into highly complex if conflicts and lawsuits occur. Respondent 8 considers any project which comprises enclosed sub-projects to be a program and, that is why, approaches it as a highly complex project. According to Respondent #9, the factor that increases project complexity is a lack of ability to determine all the stakeholders, which signals future changes and need for a lot of efforts to resolve the situation. Respondent #11 identifies the following factors as intensifying a project's complexity: a difficulty in coordinating sub-projects and in correlating the outcomes of the sub-project. One should see the results of each project and be able to distinguish the impact of each project on the result of the former projects. It is necessary to always keep in mind the holistic picture, argued Respondent #7.

The complexity of outcome achievement criteria, imposed from above, modifies a project’s complexity. Not only are these criteria unclear, but they are also often controversial, as when one criterion is met, there is still a risk of not meeting another one (R #1). Moreover, it is hard to define relations between these criteria, as their formation has entailed a lot of conditions and factors. Hence, these criteria do not guarantee a clear measurement and assessment of reaching the outcome. The Respondent #1 believes that they have to work with these factors under the conditions of a full uncertainty. The experience of Respondent #3 has taught him that a remote distance makes a project highly complex alongside with high competition, changes in legislation and influences of other external factors (a change of the government, changes in the prices and in the environment).

**Question 5: Existing Practices for Detecting EWSs in Complex Projects**

Question 5 was about existing practices on formal assessments, namely “Which formal assessments/analyses (such as project reviews, audit, and health checks) do you perform to detect potential problems in complex projects?”

Respondent #3 and #11 mentioned auditing (during the project and after the project), regular monitoring, and assessments (discussions of the project run on a weekly basis, on-going assessment conducted on a monthly basis, fiducially assessment conducted on a quarterly, half-yearly, and annual basis). A failure to meet the deadlines by a certain time signals a need for further research and analysis of the situation, as was pointed out by Respondent #2. Auditing the project when each of its stages has been completed, testing instructions on untaught users, monitoring compliance with the time-frame, checking the list of open questions in terms of weak points are types of formal assessments, according to Respondent #11.
Respondent #12 carries out a PM quality testing and applying a certain framework in accordance with which all the processes and participants and their iterations are determined. According to Respondent #9, management meeting minutes with a detailed description of the objective and of how these objectives are being met is an essential method of formal assessment. As it was told by Respondent #16, auditing is crucial on all the stages of a project. Respondent #18 is currently trying to work out such an evaluation of uncertainty as technology.

Some of the respondents (8, 7, 6, 10, 13, 19, and 4) do not consider formal assessments essential and thus do not carry them out. They believe that it is too late to fight a fire if it has already started, as it is necessary to predict the possibility of the fire. Hence, such practices of assessment can be recommended to less experienced managers as an instrument of self-auditing, or they believe that these assessments are not the most crucial point in PM and that a system of self-checks is more important. According to Respondent #4, no assessment can eliminate cultural differences. These assessments cannot identify deep problems; moreover, an assessor can be deceived, as was stated by Respondent #6 and #1. "I would prefer not to use the term 'formal assessment'. We do not carry them out and will not do it even after the system of the total quality control has been launched," said Respondent #10.

**Question 6: Contextual Factors Essential to Identifying Problematic Issues/ Possible Challenges**

In question 6 the respondents reflected on contextual factors when answering the following question: When it comes to contextual factors, how relevant are the project assessments which you use in identifying problematic issues/ possible challenges?

It is also essential to look at opinions about contextual factors. A situation to illustrate the importance of the context can be a case when there is a conflict in an organization. In this example, the team is worried, one third of the personnel have been dismissed, and the emotional tension is high (R #4). In this context, conducting a project assessment bares some definitely negative connotations (R #4). There exists an option of carrying out an informal checking of the documentation, payments, receipts, and other items of the checklist. Indeed, formal assessment does not reveal early warning signs. As Respondent #4 puts, “Dancing around the fire to evoke rain is highly unlikely to be effective.”

Respondent 18 is sure that there is no need to search for a special context because assessment should be built into the system. Thus, assessment should be carried out on a weekly basis, even every second. Moreover, they should be embedded into the job descriptions of each member of the project team (R #18). “We collected assessment information daily,” states Respondent #19, “and some team members did it honestly and fully. The rest of the team participated in the assessment unwillingly. Yet, this was not 'formal assessment' per se, I would rather call it monitoring... monitoring which happened to be significant for us.” According to Respondent #16, assessment is appropriate in order to inculcate some sensitivity to changes which occur in the project. Thus, they should become an element of the subculture.
Respondent #17 thinks that assessment should be a soft and unobtrusive monitoring. In this adapted form, such a flexible mechanism of assessment is fine (R#17). At present, the entire context is highly turbulent, asserted Respondent #5, and that is why a lot of attention should be paid to the level of uncertainty in which problems arise. “My attempts of controlling people were unsuccessful even in large-scale projects such as Sochi 2014 and even when the team had been warned about the forthcoming assessment. This does not work in Russia,” said Respondent #9. “It is crucial to assess the context, rather than to control the project manager,” states Respondent 1, “who is to monitor the context and to capture its changes and make corrections. Otherwise, it is easy to miss the elephant in the room.” Respondent #2 says, “What to diagnose and whom to get protected from are just empty and swashbuckling promises of some managers which cannot be implemented in real life. The context of implementing university programs of strategic development depends in how transparent the project is (R #3).” Respondent #3 poses the questions: “Why get into this assessment if the situation is clear anyway? Why distract people with the checks?”

Respondent #5 is sure that a well-developed system of indicators is indispensable. He also says that usually there are 30-40 indicators of the context (of internal and external context). What we can see is bubbles blown up in the systems of management and triggers that can spur a chain reaction (R #5). We see the triggers which can start the chain reaction (R #5). We need to understand how context can impact the triggers activation and how these triggers can spur the chain reaction within the context (R #5).

**Question 7: Usefulness of Formal Assessments**

Question 7 focuses on the usefulness of formal assessments and sounds like this: “In what ways are this formal assessment and the resulting EWSs useful in forecasting potential problems? Does it allow the organizations to react to problems and mitigate consequences?”

Inevitably, there are various viewpoints as well as expectations regarding formal assessment and its usefulness in forecasting potential problems and acting upon them. There is some usefulness, indeed. It is one thing, for instance, if the problems have been identified before the goods are purchased, but it is a different story if the materials have already been purchased and later, after the inspection, it turns out that the desired outcome will not be achieved (R #3). Hence, undertaking competitive procurement assessment is necessary before signing contracts (R #3). Respondent 2 also finds regular inspections useful in revealing significant problems. For examples, the reports of the University to the Ministry of Education regarding the spent state subsidies contained mistakes, which were conditioned by some circumstances. Namely, a reorganization was taking place at the University, which triggered changes in the staff and the PhD defending committee. The assessment identified 20% of PhD candidates cannot graduate and defend their dissertations even though they are absolutely ready for that. This happened to be just a technical issue, stemming from lack of personnel and changes in the committee. If the PhD candidates had not been able to graduate that year, the University would have failed to receive state grants for the following year. The assessment helped resolve the issue. The candidates were given a chance to present their dissertations at other partner-Universities and thus graduate timely, obtaining their PhD degrees within the required timeframes. Respondent #16 recommends conducting formal assessment on a regular basis, for example, as
often as 5-7 times per year. The personnel should have been notified about the assessment. Hence, two
goals are reached, as Respondent #16 thinks. It is assessing immediate results and shaping the working
culture. In other words, a tradition or regular assessment is formed, which are not aimed at punishment but
bare a fiscal function. If this practice gets embedded into routine work, the people themselves would be
interested in what is happening, according to Respondent #16.

An assessment can be purely technical and can include, for example, checking the documentation (that it is
present and filled out correctly), monitoring how projects are being executed, and how management is run
(R #1). As for Respondent #1, she would rather assess other criteria at the university, such as whether the
university management is authoritarian or not. In complex projects, especially when there is automation,
some resistance is very common. The success of such projects is possible when there is consent in them,
as it was put by Respondent #1. In real life, people can agree formally but be against it, because they have
been ordered to do something. If assessment reveals such an issue, it signals a deeper problem and the
need to dig deeper (R #1). Assessments, especially regular checks, allow cheering up. “They would help,”
according to Respondent #8, “but I have not found the suitable methods and forms for IT projects. We have
applied only one method of assessment; this is whether a project has been accepted or not by the client.
This is the only reliable way to assess work. However, this criterion is not a panacea. Indeed, if the customer
accepts the intermediate outcome, then the potential risks have not worked yet; if otherwise (if the customer
decides the outcome), it only means that the risks have actually worked already (R #8).”

“The last assessment method we used was questionnaires to determine the clients' satisfaction rate.
However, we do not use this feedback collection any longer,” said Respondent #10,“as our company is a
self-regulating, open system. If a conflict occurs, then the customer takes part in the regulation. Our system
of motivation is linked to assessment. If the project is not completed (is not accepted by the client), then the
project team members themselves escalate the problem; there is no need for assessment procedures to
resolve the issue. In other words, formal assessment does not identify early warning signs and hence are
useless.”

When formal assessment only states the fact that a problem exists, it is useless, according to Respondent
#18. If assessment is a part of monitoring measures, if the participants who are assessed have some rights,
if assessment bears a function of self-control and self-monitoring, if testing is constant and simultaneous,
and finally if assessment is aimed at ensuring cooperation between the technological links of the project; in
this case the assessment is useful. It is also useful if motivation of people is tested, if motivation is assessed
from the angle of preventative measures, and if testing of motivation effectiveness is carried out (R #18).

**Question 8: Why Formal Assessment Often Fail**

The Question 8 focused on the reasons of failure in detecting EWSs, “In your opinion, why are these formal
assessments often fain in detecting EWSs in complex projects?”
The participants shared their individual expertise through a thoughtful sense-making mode. According to Respondent 4, the reason of formal assessment failures can often be stipulated by a lack of experience of the assessors. Respondent #17 said, “The assessor may declare that he or she does not like the teacher in case of a youth project, or that he or she does not like the lecturer for the audience of 500 students simultaneously. My opinion is this: if you do not like the lecturer, go ahead and lecture yourself!”

Respondent #5 also believes that participation of qualified experts is required for conducting formal assessment. These experts should be able to clearly identify the problem and to demonstrate best practices by applying their own experience and ways of solution. In other words, formal assessment per se is not sufficient without expert knowledge. At the same time, the expert data should be shared with the team. In the opinion of Respondent #1, those who are being assessed have a lot of power, because if they are experienced in being assessed, they can cheat any assessor.

Respondent #3 believes that everything is a matter of practice and if assessment helps reveal problem areas, the team would be even grateful for that. For example, a formal assessment was carried out over equipment delivery from the USA to Russia. The employee showed documentation and stated that the equipment is on its way from America to Russia. The experienced assessor made a phone call to the US Company, demanding the shipment scan copies. Unable to provide such information, the vendors confessed that the order had not been shipped yet.

Respondent #18 is sure that some data revealed by assessment can even have a negative impact on the project. He gives an example of Titanic, because motivation was not a part of the system in that case. The metal ship girder was built by framing the steel sheets with thick metal nails. The performance indicator was a number of details produced per time unit. In order to enhance the productivity, the workers took initiative and started to add “some improvements” to the metal of the riveting. Hence, the nails got softer and it was easier to rivet the sheets. This negatively affected the durability of the ship and was one of the reasons of its sinking. Thus, the breach between the system of assessment and the system of motivation was one of the causes of the world-known catastrophe.

Respondent #12 thinks, “Formal assessment does not reveal the EWSs because either they are simply not conducted or because the quality of this assessment is rather low and does not embrace all the project participants”. As for Respondent #11, he considers it impossible to perfect the mechanism of assessment and to increase attention to details of the assessors when identifying and recording the problem, because of a constant time pressure.

According to Respondent #19, formal assessment is not linked to motivation. Moreover, the results of this assessment are often not available to those who are actually assessed. The problem stems from the approach a priori, confessed Respondent #7. It is like some kind of a disease in approaching the project. This assessment is just a part of situational management, when management turns into revealing and
bridging the gaps (R #7). When you begin to assess, it is believed that you suspect the team of something. Here come the conflicts (R #8).

Formal assessments are not workable in Russia (R #9): “The mindset of Russians is that if you assess, then you must respond yourself. People act in matrix organizational structures, but they do not feel responsibility and do not understand work in a project team. We still have the institute of serfdom. We still have boyars (Russian aristocracy). Just try to make a boyar work! In Russian organizations, there is a constant struggle for building a vertical hierarchy. This is done to win a huge power and authority. Yet, when a Western project model is introduced, the power is dispersed. The structure changes into flat and horizontal” (R #9).

Actually, Respondent #9 has a wide experience of project work in different capacities. He said that when you come to assess a project, people believe that your aim is to find something negative in their work, to catch them, and even to humiliate them; that you are a snitch.

**Question 9: Informal “Gut Feel” Approaches for Detecting EWSs in Complex Projects**

Question 9 dealt with informal “gut feel” approaches for detecting EWSs. “Which informal “gut feel” approaches (such as vague answers to critical questions, continually unfulfilled promises, frequently changed decisions, and sponsor abrogation of responsibility for maintaining focus) help you in detecting potential problems in complex projects?”

- **Respondent 12:** Methods should be based on two constituent factors. Besides formal documentation required for the project plan, the second aspect is also essential. This is a subconscious understanding by all the participants of how the project is evolving, which is willingly recorded in the course of assessment. This is recording of non-verbal, non-documented knowledge. Here a real world picture is being shaped as they record their state.
- **Respondent 9:** Management is political, not formal. Formal assessment may not work. You need to have a cup of tea and to shake hands with each and everybody. It takes a lot of your efforts. If you do not have any assistants, you get completely overloaded.
- **Respondent 6:** Physicians have a very good intuition. Good assessors have a well-developed intuition as well. Some identified micro-signs of potential project problems should be given the name of those people who first discovered them, as is the practice in medicine. In medicine, some symptoms of diseases bear the names of those people who discovered them. Physicians were virtuoso in diagnosing with system thinking during the Soviet Union times. At that time, there were no computers at disposal, which could help in diagnosing a disease. The Russian school of physicians takes its roots from regional medicine. As managers specialize in different functional areas (IT, higher education among others), so do narrow specialists in medicine, who specialize deeply in certain parts of the human body (ear, throat, stomach, etc.). An expert assessor can have a fresh look on the issue and may advise a non-trivial solution.
• Respondent 16: Whispering, gossiping, passing of rumors about the project, and attempting to find out something from each other are all signs of a lack of information regarding the most crucial aspects of the situation. People are unlikely to understand what is going to happen in the future. They get irritable and slide into confrontation instead of making decisions to resolve the situation. In other words, they try to shift responsibility to each other, being aware of the fact that something is going wrong.

• Respondent 19: We were not waiting for a feeling that will suddenly dawn on us. We have adopted the partnership model a priori. This is when each and everybody are responsible for the final outcome. We tried to unite our experience in order to predict problems and neutralize them; we did not wait for a crisis. We have worked so well because we took the lead.

• Respondent 18: We used intuition when selecting the personnel. We evaluated whether they suit this or that assignment. Intuition is just a vast practical experience that has been modified into a set of informal criteria. Yet, it automatically gives you a cue if this is correct or false. On a regular basis, I use the method of Professor Anuashvilli, that allows identification of compatibility of people in a team with a high degree of certainty. In case of absence of consistency, we move from planned management to situational (R #7).

Below some quotes are provided to illustrate a fresh outlook on informal approaches.

• Respondent 1: Make pictures come alive is an art, so is improvisation. The performance can’t be achieved without flexibility.

• Respondent 3: The results are created on the base of confidence and informal arrangements. Payment is made later after all documents preparation is complete.

• Respondent 4: It is obvious that education improves the intuition.

• Respondent 7: It is important to manage people’s emotions. EQ is more important than IQ.

• Respondent 9: Being in game condition helps to attract the right people, go to right direction without a fear that you will be fired or something else.

• Respondent 10: I was always told since childhood that I strictly formalized man and intuition is not used. I try to formalize even intuitive things.

• Respondent 11: The main thing is to get involved into the battle, and then the war will show further plans. A novice’s fresh look is always valuable as it is new. To bring the unconscious to the consciousness level, we need to ask questions.

Question 10: Barriers to Identifying “Gut Feel” Indicators of Potential Problems

In question 10 the respondents were answering to “What are the barriers to identifying ‘gut feel’ indicators of potential problems?”
The respondents mentioned a lot of different reasons why gut feel is hindered. First, not all people are intuitionists; some possess the rational logical type of thinking (R #18). Intuition does not appear from nowhere; this should be a summarized synthetic experience, because if intuition does not work, it just means that the necessary experience has not been accumulated yet (R #19). Respondent #7 asserted, “No one can live in a state of uncertainty and turbulence for long. One day individuals are going to burn out. Defense mechanism is aimed at decreasing the mobilization mode in a project.

Respondent #9 is sure that: the skills of tuning up a person’s emotional state have nothing to do with intuition. Respondent #12 states, “Indeed, intuition requires some different state. I would call it trance and always use it. If there is no relaxed atmosphere in a team, there will be no intuition of its members, with the exception of the intuition of only one person – the leader.” According to Respondent #1, lack of information is a barrier. If she has not gathered information, Respondent #1 is not ready to 100% follow intuition, because she is used to supporting intuition by facts. No copies in the intuition, be in the track of teacher is incorrect (R #4). Pretty idea will appear once I wake up and make a note in my diary (R #4). If a person is one-ideated, he will not be able to determine values (R #9). People need to be tested in an experimental environment created as so many nuances can’t be described in a book; they have to lived (R #8). Everybody reached the unified solution on actions to be taken and commitment to results (R #1). Exhaustion, routine, lack of the interest can lead to failure in the achievement of the results (R #1). The result is useless even with the strict control if people are repressed and do not create (R #3). When you are asked to estimate the confidence level of a project’s results on the scale of 0 to 10, you can see the bridge to the objectification of the situation (R #16). If we did not reach an agreement on the coast, then we should manage the result (R #7).

Questions specific to Practices in Profiling Professional Excellence to deal with EWS

Question 11: The essential PM skills needed for mature project managers to deal with EWSs

In question 11 the respondents reflected on essential skills of mature project managers’. “What are the essential skills in addition to basic PM skills needed for mature project managers to deal with EWSs in challenging situations in complex projects?”

These interview fragments indicate various skills needed by professional experts to deal with EWS. In the opinion of Respondent #4, the first skill to deal with EWSs is leadership. The second skill is result orientation; and the last skill of understanding the values is also crucial. Respondent #15 considers a broad outlook to be essential. It is important to have a lot of metaphors in the head, because these metaphors are like a scan of a situation, a recording of the key model... The more metaphors of a situation you have in your head that have been derived from different theories and models, the more different angles exist for you to look at the situation. This is especially significant for an unusual situation, because you can catch hold on more hints and see more potential ways to overcome the problem.”
Respondent 9 prefers a systematic approach as it is important to step back and look at the situation from the angle of other project participants. This approach is called personification. Respondent 4 believes that the main skill for a manager of a complex project is “the skill of a complementary function”, or to put it simply, a skill of supplement. According to Meredith Belbin (1981), there are different roles in a team, namely the role of a Plant, Resource Investigator, Co-ordinator, Shaper, Monitor Evaluator, Teamworker, Implementer, Finisher, and Specialist. Thus, a good manager should understand which roles are needed at each stage of a project and then should play these roles himself or herself to bridge this gap (R #4).

Life experience is important for Respondent #11. A certain level of culture is required and excellent communication skills are necessary, as was put by Respondent #13. According to Respondent #10, legal experience is crucial. Respondent #10 tried to enhance knowledge and enrich understanding of legal practices by visiting labor disputes and court hearings (civil and commercial). Hence, it enabled the respondent to better understand the atmosphere of the court, the psychology of the judge, and the contract law. “We have never paid bribes to anyone and are not going to do it in the future” (R #10).

Charisma is also significant, thinks Respondent #10. “It is important to be able to pull yourself together (kind of yell at yourself in your thoughts), calm down people around you, and lead them further” (R #10). Respondent #19 said, “You should be quickly able to win the trust of audience in different situations. That means you should hear the other part, understand their viewpoint, and scan their mood. Respondent 10 mentions, “Besides, courage is required to sign a challenging project. “In the times of the USSR, we were taught to be real pioneers, which were a moral category, a system of values and a certain maturity level.”

In a complex project, the psychological climate is crucial, and it is essential that the project manager should create a favorable working atmosphere (R #1, R #12). Respondent 1 provides many arguments to support the importance of the psychological climate. Physiological preparation is important, so that no one falls out and everyone should be deep into the work. She advised to reach consensus, to immediately describe and write down the principles, explaining that we won’t move on until team members have any doubts. It is necessary to catch the psychological signs, which will go ahead and show the weak points that may cause the project to fail. The team would be afraid to report to an authoritarian leader about problems; there would be just showing off, because people would be scared of losing a bonus and being dismissed (R #1).

**Question 12: Project Managers’ Uncertainty Management Skills**

Project managers' Uncertainty Management Skills are covered in questions 12, “Do you believe that uncertainty management skills are paramount in a highly complex project? If so, how is it different compared with traditional risk management practices? Please give examples.”

A wide variety of responses to this question was received. To manage uncertainty means to manage the part of a project which has not been achieved yet; we are not capable of influencing uncertain events, mentioned Respondent #7. Respondent #4 differentiates between uncertainty and risks. By uncertainty, he
understands a situation in which it is impossible to calculate the probability of risk, with certainty, say, from 0 to 1. Risks can be calculated, for example, we say that the probability of risk is 0.7. Uncertainty a priori is a lack of any measurements and any criteria to specify the information (R #18). All the risks are activated under the conditions of uncertainty; entropy is a measurement of uncertainty in systems. We should manage not risks per se, but the level of uncertainty that is acceptable for us, explained Respondent #4. We should be aware that the level of uncertainty cannot increase above a certain point. This is the level, at which we should stop, record the working state, and say, “Let us see what is going to happen in the future (R #4).”

According to Respondent #9, uncertainty is a cause of risky events. A shortage of information or inaccurate information leads to risks. Clarify imprecise demands; collect the missing requirements to reduce uncertainty to a certain degree (R #9). Further, by specifying the whole range of stakeholders’ interests and managing their interests we continue uncertainty management.

In the situation of uncertainty, the most crucial step is to identify zones of this uncertainty, mentioned Respondent #7. There are no data there; be it quantitative or qualitative data. Yet, there is some apprehension and feeling of some probabilities. Respondent #19 was lucky to have employees with work experience in uncertainty management in his team. That is why it was easy to find a common language with them. They might not be managing uncertainty per se but adapting and re-adjusting themselves to the situation, deriving something from their inner selves (e.g. creative solutions) that would help them deal with this uncertainty (R #19). Respondent #13 thinks that uncertainty can be dealt with effectively and says, “If there is a lot of uncertainty in projects, I always try to set intermediate goals and turn them into definite; kind of ‘preparing emergency routes’ and ‘building stare’, so that the whole ladder will come out of the fog.”

Uncertainty triggers events (both positive and negative), asserts Respondent #8. Forecasting is managing uncertainty. Using slightly seen warning signs, studying scenarios of actions is like assembling the jigsaw puzzle. Addressing the EWSs is not compiling check-lists action but improvisation (R #8).

Risk management is the highest skill for me, confessed Respondent #12. Respondent #12 considers the notion of uncertainty to be a constituent part of risk management field of expertise. Respondent #11 thinks that uncertainty should be decreased by reviewing the case gradually. Then, the whole picture will gradually come out of rough brush-strokes from one stage to another.

Question 13: Project Managers’ Value Management Skills

Question 13 dealt with project managers’ Value Management Skills: “Do you believe that delivery of value skills is paramount in a highly complex project? If so, how is it different compared to traditional cost management practices? Please give examples.”

The interviewees shared their opinions stating that different stakeholder may place a different value onto a certain factor (R #8). For example, employees may value the usability of the interface input. Respondent 8 says, “For a middle manager, the speed of input is more important while it is highly valuable to get relevant
and full information timely. Here, it is essential if there appear any value which can unite people in the project. If some values are shared by the majority, the project is going to evolve.” According to Respondent #7, standard P2M describes different types of values very well. Genuine values work on long distances and this will enable the project to function for long (R #6). In order to maximize the effect of the values, it is necessary to identify the values and how we understand their nature, and how these values interact with each other (R #5). According to Respondent #13, every person identifies himself or herself what these values are in different areas, including the career growth. “I am undervalued thrice. However, because I am interested in the work I am doing, why should I waste my life on something that I am not interested in doing?” (R #13). Values of a project are interconnected with the values of each concrete person and of society in general (R #16).

University projects have their own traditions. A project should be managed by the individual devoted his life to the University (R #1). Unfortunately, we are enforced by the relativistic structure of the values; that is, all values are relative. This approach is dominant in the world model and dying in values structure. Therefore, there is values displacement even at intuition level. The typical mistake of Russian elite is to copy the West outdated models (R #4). You must clearly show the value foundations of your work choice in this project: the project’s importance for you and project’s worth (R15).

**Question 14: Project Managers’ Relationship Management Skills**

Question 14 asked the respondents about project managers’ Relationship Management Skills, namely it sounded as follows: “Do you believe that relationships management skills are paramount in highly complex projects? If so, how do relationships management practices differ from traditional communication management practices? Please give examples.”

The interviewees paid attention to several skills. On the one hand, managing relationships is the essence of communication (R #19). On the other hand, the objects of these two processes (communication and relationships management) are different. In other words, relationships management tunes up relations and managing group dynamics, whereas communication management has information as its objective (R #19).

The current time is crazy; in order to make a decision more information is said to be required (R #4). Why do you need more information? What you need is not more information but more understanding of what is going on (R #4). This respondent also believes that there is an excess of information in organizations for making decisions nowadays. It is indispensable to weed it, sort it out, and filter, excluding some parts of information to make a decision quickly and effectively. The most challenging part of communication is the ability to see the plausible picture of the existing world in the on-line regime. This is what Respondent #4 considers is real communication. Respondent #4 believes that team work is not required for two thirds of enterprises; it can even be even harmful. He says that we are deceived by psychologists who say there always must be team work.
Respondent 10 thinks that when problems arise, interpersonal relations become of minor importance. This is what has been written in formal documents. However, cultural values are still essential. Even if the situation is problematic, people should not go beyond the verge of business vocabulary and recourse to the uncensored one. Cooperation means joint project tasks fulfillment in order to reach the desired objectives (R #11). According to Respondent #1, it is essential to look deeper into this issue. Not tuning or mending of relations is required and not just an external consent is demanded, but it is necessary to reach an internal concord and value orientation. Hence, it is necessary to reshape the mindsets (R #1). Definitely, by demonstrating skills of team-play and cooperation, you achieve the result that people start to cooperate as well; otherwise, nothing is going to work, as was mentioned by Respondent #17.

At the same time, Respondent #16 considers human being to be the most definite uncertainty factor. In order to construct behavior and relate it to behavior or another person, one should use communication competencies as the key instrument. These competencies comprise transfer of information, relationships building, ability to understand the emotional state of a different person, and what has triggered this situation or these emotions. Communication with the colleagues of the same level gives energy a boost. (R #1). Connections and relationship building is indicator number one; you need to get consultations on specialized forums, so that you are not cheated (R #3).

**Question 15: Particular skill would you look for in such candidates of highly complex projects**

Question 15 looked into project managers’ particular skills needed in moderately complex projects. “If you are employing project managers for moderately complex projects and highly complex projects what particular skill would you look for in such candidates? Please specify.”

A proven, reliable experience of crisis management is highly important; and is especially significant when the time pressure and the scope of a problem are catastrophic (R #18). Crisis management cannot be effective unless it relies on a very precise and accurately built cooperation in the anti-crisis team, and unless it rests on an integrated competency of responding to any changes of the situation, immediately on the level of these very micro nuances (R #18).

One must have a vision of not only here and now but also of tomorrow and after tomorrow. These characteristics can be easily detected in sportspeople, states a respondent. The required skills are similar to those of athletes who break the record when finishing (R #8). A person who is capable of achieving challenging assignments must possess similar characteristics, said Respondent #8. Common, shared values are important (R #8). Cooperation, co-creation, no Russian word can be used that covers all P2M philosophy (R #7). Motivated people are working at our company, motivated financially and interested in material things. We have a model consisting of 5 large blocks – 5 departments. It is important to fix the project results to be reached (R #10).
The most important is people and their relationships. It is important to observe the system of relations (R #15). The art of the reported personnel will help them to deceive inexperienced auditors (R #1). A good acquaintance with the team working with should be in place (R #2). The ability of separating truth from falsehood and getting truth from a conversation partner is also important skill (R #2).

There must be two managers in complex projects: one manager organizes while the other deeply knows the subject (R #2). Most people are passive and do not make any abrupt actions in order not to become a nill (R #2). PM should be as "a black sheep" (R #3).

Women’s brain structure is more oriented to intuition. She goes with her feeling, for example, in the period of carrying a child (R #9). You need to find people that can cooperate with each other (R #15). To control the psychological climate in the team, individuals for monitoring are required (R #1).

Establishing partnership relations reduces the uncertainty (R #3). Weak signals of tacit resistance of overloyal employees in organizational changes project were identified with the help of focus groups (R #7). There is a department that accumulates most of the information about the system and provides a quick response to almost any request (R2 #). A big task is to be divided and subdivided further, so finally only people’s art can help to see the resulting complex whole picture (R #2). People do not realize the importance of their work and usually do not see the whole picture (R #2). People do not understand the global target (R #1). With each stakeholder you speak different languages and cooperate based on various principles (R #7).

Questions specific to General improvement of project management practices

Question 16: Guidelines and Information needed to support Formal Assessment

In Question 16 the respondents were in search of tips regarding Formal Assessment, answering the following question: “Which types of guidelines and information are used to support formal assessment?”

In reply to this question, the respondents offered a variety of approaches. Recommendations of respondent 11 were short. In order to conduct a formal assessment, it is necessary to be reasonable and to grasp all the information available, both formal and unofficial. Respondent 10 was opposed to formal assessment. He reminded once again that he would not carry out any assessment because, in his opinion, his aim is to ensure that the system could cleanse itself.

Respondent #5 is sure that the standard P2M is such a guideline. Respondent #4 provided 5 conditions used for these guidelines. First, the instruction should be written by an experienced professional. Second, the users of these guidelines should have been taught with concrete examples and case studies. To put it in simple words, users are seated and told, “Look! This is a white key and that is a black key; this is a diesis and that is a bemolle; and these are clean notes!” The third condition is that the users who are given the guidelines should practice the diagnostics under the supervision of experienced professionals, at least in the beginning. Next, they should use reflexive procedures, applying special techniques. They also need to be
taught these techniques. Finally, they should reflect on what they have detected in the organization. Best practices are participation in the project (R #1). If there is no culture, there is no responsibility; it’s useless to write the guides (R #10).

**Question 17: The Role of Lessons Learned in Identifying Best Practices**

The respondents tried to understand the role of lessons learned in question 17. They responded to the following question: “What role does post-project reviews or lessons learned play in identifying best practices?”

The responses were different. In the opinion of Respondent #16, “The more unique is the project, the less helpful is the hindsight. Look ahead and calculate everything! There is no use analyzing last year’s snow. What is usually called the sixth sense is actually some effective pattern that has been used many times. This is a patterned analysis that is performed automatically.” Respondent #4 is also pessimistic while answering the question and says, “Best practices are not a book of recipes. I am against storing the ashes of somebody else’s experience. I am for keeping the fire burning, both in thoughts and in actions.” Respondent 5 believes that “lessons learned” accumulate, but it is unclear how to apply them in the future. The problem is that some organizations have thousands of lessons, which are stored as if they were garbage; they are just some impediment. They have not been transformed into “creative patterns”. They just prescribe “do this!” or “do it this or that way!” This is the problem. That is why we have chosen the route of “creative patterns” technology. It is indispensable to transform all this garbage into some system which will enable us to achieve this or that goal quickly and effectively”.

**Questions 18 and 19: Systematizing and Structuring Informal Approaches**

Two Questions were about Systematizing and structuring informal and formal approaches:

Questions 18 sounded as “How can informal ‘gut feeling’ approaches be systematized and structured in an organized manner?”

Question 19 was targeted at combining the two approaches (formal and informal) and was the following: “In what way may guidelines for informal approaches serve as an input to improve guidelines used for formal assessment?”

Respondent 16 confessed that it is absolutely hopeless. That is why we say that a project manager is different thanks to this sensibility. Writing some formal stuff in the most complex projects cannot substitute such a manager. What is the difficulty of a project? This is its uniqueness. The project creates unique risks related to uncertainty. Indeed, no instruction can cover all the occurring changes, nuances, and details.” Respondent 12 proposes the following approach:”The method is based on two constituent components. The first source of information is the documentation, which is provided in the project plan. The second constituent is subconscious understanding by all the project participants of how the project is being realized. This
understanding, stemming from subconscious and conscious feelings, is documented at the moment of implementation. To be more exact, this is what is described at the moment of assessment. Standard documentation does not contain this. Here comes the answer. This is fixing of non-verbal knowledge. This is recording of the current state.”

**Question 20: Examples of the Best Practice Descriptions**

Question 20 looked for best practices, asking the following: “Can you describe a best practice or an innovative achievement in dealing with EWSs that can be duplicated? Please give examples.”

It must be admitted that the respondents did not shared many examples of the best practices that can be duplicated. The respondents experienced certain difficulties when they were asked these questions. Some of them did not answer the question directly and just speculated out loud about various issues that they seem to be important for them.

Respondent #2 recollected the case when a so called center of “crystallization”, a center of “prototyping” or, to put it simply, a center of excellence, was created in his organization (the University). The leading scientists of the organization were gathered in this center; and they got orders for unique products and executed them in single quantities. Very soon, the scientists started to earn a huge amount of money. Gradually, such centers happened to be not unique. This was a break-through for the University (R #2).

Together with the customer we sit and properly define the project boundaries (R #10). It's better to improvise future than in the present face the problem of lack of people and work at an emergency regime. A lot of actions are superimposed simultaneously (improvised and compared) and every day you are to get out of different situations (R #3). Dealing with uncertainty it is important to form scope of expectations suited for us and strongly eliminate the probabilities we are not satisfied with (eliminate negative scenarios) (R #18). We imagine far results unclearly; only immediate results we clarify. Flexible and traditional approaches can be combined, as one doesn’t exclude the other (R #3, R #8).

No direct connection between success and methodology; the main project part is people (R #9). Intuitive mechanism is necessary in minor tasks; the formal approach based on measurable indicators and clearly defined connections are needed for major tasks (R #10). The ability to move up and down: convergence and divergence in order to initiate or activate your intuition based on a vision (R #5). You need to have a check tool which is directly connected with the long-term outcome and to define the cause-and effect link between the current and long-term outcome (R #16).

People may have a hidden agenda, engage in a behind-the-scenes struggle, and achieve quite other hidden goals (R #4). You need a set of specific situations that have taken place inside the organization (R #3). It’s hard to develop something new all the time (R #1). Even those who are responsible for individual parts of the project should psychologically, mentally, and soulfully agree with the objectives (R #1). You should be able to simplify complexity (R #8).
When you create a system from the ground up, where a large number of unknown persons are engaged, it is significant to prescribe exact rules from the very beginning (R #15). People should see the hierarchy of significance, value, and priority system that is primary, and then there will be a clarity of alternative choice that determines the action’s uniqueness under conditions of uncertainty (R #16). Observe cause-and-effect relationships: connection between projects within the program, how each project impacts on previous result, connection of the projects aims and tasks with implementation stages, connection between aims and involved parties (R #1, R #7). You can’t work without honesty. Abandoning the project is better than only a formal approach if there is no trust (R #3). The situation in Russia is turbulent. On the one hand, one cannot work without written agreements. On the other hand, it is sometimes necessary to rely just on the partner's oral promise, especially under time pressure when there is no time to follow all the written procedures. The need has been seen in advance and indicators to be checked were predicted and achieved the performance of 90%, and thus the university has been passed the accreditation (R #3). Many things are of no value and people perform them formally for the record because they have no effect (R #9).

**Question 21: The reasons of failures to duplicate best practices**

In question 21, the respondents searched for the reasons of failures to duplicate best practices. The following was the question: “Why project managers are often not able to reproduce the best practices which they successfully applied in the past to deal with EWSs in complex projects?”

Respondent 4 answered back by posing his own question, “How can practices be copied? There are no copies in intuition. That is why we say what exists in the intuitive part, in the part of epiphany, cannot be replicated. It is impossible to copy intuition. It is unique for each and everybody. Reflecting on the work we have been taught to complete, being honest to what you are doing will trigger intuition.” The researcher replied dreamingly, “What if inspiring stories would be written down into instructions!” Respondent 4 had a short story to tell the researcher, “Buddha’s disciples asked him a similar question, ‘What do we need to do to become a Buddha?’ The reply of Buddha was very precise, ‘You need to kill Buddha!’ That means you do not need to copy him. Otherwise, if you try to copy him, you will not become a Buddha, but will turn into an idiot. As it is said in the East, one should not follow the steps of the teacher; you should go in his direction. These two are different things. To follow the steps is almost like imitating; it means to never reach any destination. One should follow the direction of the teacher, and this is a very different point. In other words, it is to have enough wisdom to understand in which direction the teacher is moving; and then to choose your own way in the same direction but without copying the teacher.”

**Question 22: Applicability of Agile and Improvisation Practices in a Highly Complex Project**

Question 22 asked, “To what extent do you believe the Agile and Improvisation Practices are paramount in a highly complex project compared with traditional PM practices defined by the Project Management Body of Knowledge (PMBOK)?”
Respondent 17 proposed the assessment mechanism that should be adapted flexible, unobtrusive and which should account for what is being controlled. It is one thing when the quality of management is monitored, for example making sure that the project is within the budget; if the budget is exceeded, the reasons should be found out and analyzed. It is a completely different thing to assess the quality of the project’s outcome, the product. For example, this is the case when the quality of providing an educational service is assessed. Here the quality of PM is significant, as well as the quality of the personnel, those people who are providing this educational services. The third point to consider is the practical side. Namely, it is about the correlation of the author's opinion, the author's methods of teaching, and the unique character of the fundamental principles. In other words, there are a lot of angles for monitoring in these cases and each of them requires its own unique adapted mechanism, which should not be obtrusive in most of cases. This can be monitoring and this is normal.”

**Question 23: Commonality of Flexibility and Improvisation practices**

The respondents answered close-end question 23, “Are flexibility and last minute improvisation common? Yes or No.”

All the respondents answered in the affirmative, yes. Respondent #19 strongly believes that what happens to be the most interesting has been prepared as an improvisation, but it is impossible to duplicate. This is a different situation; these are different people; this is a different time period. This improvisation does not store up anywhere else, but for the individual experience of the improviser. The success hurts. The treatment of it is a reflection (R4). In an emergency the ability to abstract from the situation is important (R #7). Reflection is an ability to bifurcate, to rise to the top and monitor the result and actions (R #4). You make a pause only when you see that everything can be crashed (R #3). I do a very short loop of the feedback and do not carry old mistakes to the future (R #9).

**Question 24: PM’s Knowledge Management Skills**

The Question 24 was “To what extent do you believe the Knowledge Management practices are paramount in a highly complex project to stimulate the duplication of best practices in dealing with EWSs in your organization?“

Respondent #8 considers that the knowledge base will be a dead-load without a live dialogue. For such a dialogue time is required, and so does the availability of experts. According to Respondent #9, it is necessary to shape the network where feedback is ensured and where it is possible to become a real Expert. Respondent #19 is sure that a database of documents is unlikely to be demanded in the future. The most valuable asset of a company is people (R #19). The personnel is filtered, crystallized, and moves from one project to another in the company. It is more preferable to keep the people, not knowledge, because they transfer knowledge as well as values (R #19).
Respondent #16 believes that inspiring examples are indispensable. They should be accumulated in an organization. Such stories, resembling American ones, are like “chicken soup for soul” that encourage people to strive for something similar, even if it is from a different area of actions. Yet, the spirit (the spirit of winning) and the paradigm are similar. Such stories do not automatically guarantee success, but they increase chances for success.

Existence of dynamic knowledge base within the community is important (R #7). Best practices should have tags and key words (R7). Work closely with the right people for knowledge handover (R #8). The significance of a knowledge data base is that it is dynamic and self-renewable (R #9). Knowledge is dead without continuity (mentoring, coaching, etc.) (R #12). We have an internal “techno-pedia”, a set of our know-how (R #10). Meetings with different experts of different areas are important (R #9). It is necessary to carry out another project after the completion of the main project oriented for best practices collection from all participants, internal as well as external (R #1).
Attachment E: Example of an Interview Transcript

I: I would like to start by asking you to briefly tell me about your experience on simple projects. After that we will move on to discuss your experience on complex project (e.g., number and type of projects and number of years over which this experience was gained).

R1: My participation in the projects began a long time ago when I worked as the chief accountant of the organization. I am a specialist in automation, with applied mathematics being my main specialty.

I: I see.

R1: I was involved in projects that, in general, I do not consider as simple. These were projects on automation of information management in higher education: logistics challenges, electronic document management, automation of the entire logistics, and budgeting. These automation tasks we implemented as projects. Well, this is just the answer to the question regarding my experience about projects from which I started.

I = Interviewer
R1 = Respondent under number 1

Attachment F: Personal Lessons Learned

The interim results of this dissertation were presented at local and international conferences. The interaction with the Russian and international CoP helped to enrich the thesis through the incorporation of the ideas shared by the community members.

- Presentation at International Business-Forum “Project Management - Explorer of Innovation Development, April, 2013, Moscow, Russia
- Presentation at VIth Youth Scientific and Practical School: Management of Innovative Projects and Programs from the World Gurus on PM (Project Management) and Information Management Practices, December, 2013, Moscow, Russia
- Presentation at PMI Research and Education Conference 2012, Doctoral Colloquium - 14 July, Limerick, Ireland
- Guest Lecturer at the Bern University of Applied Sciences and interaction with the international colleagues, International Day, April, 2012, Bern, Switzerland

Coursework papers and Publications

Coursework papers reflected the academics’ attention paid to the EWSs phenomenon through the following publications:
• Sharaborova G.K., (2014), *Community of Practice "Seliger-2009": What is the "glue" that binds experts so far?* Technology to educate adolescents and youth, development of youth policy personnel reserve. Universum, Moscow, Russia, pp: 166-173

• Sharaborova G.K., Krutizkaya E. V., Sofonov M. Y. (2013), *Simple Tools for Managing Programs of Strategic Development: Life Experience of Managing Complex Social Project on Volunteerism Development in Russia.* Moscow, Sholokhov Moscow State University For The Humanities (Toolkit)

• Sharaborova G.K., et. al, (2013), *Three Aspects of Teambuilding Training: Methodological for Trainers, Contextual For Team, and Innovative for Client.* Moscow, Sholokhov Moscow State University For The Humanities (Toolkit)


**Personal Lessons Learned**

In the course of this research journey I focused on the knowledge closer and developed the rules for myself.

- **Defining the concrete research questions:** “Research questions do not come from nowhere” (Flick, 2009, p.98). The research questions of this thesis originated from my practical interests and from face-to-face contacts with my scientific supervisor. This PhD program is conducted mainly online. Doctoral students travel to Melbourne to participate in one orientation session. During my stay in Australia, the theoretical perspectives of complex projects slightly started to form and they finally were embodied in the research questions of this thesis.

- **Disturbances:** During the 7 years research journey I took a one year of LOB – Leave Of Absence Holiday- in 2008 when the financial crisis occurred.

- **Constraints:** For this study, four research perspectives were selected to be discussed and develop the Competency model. The fifth perspective emerged from the analysis of the interview data. here are many other themes, lenses, angles to look at the research issue, but once again, space, time, resource constraints have forced me to select those, which I felt most relevant to the research issue of this thesis. I hope that this study stimulates the interests to the Russian practices and that the future studies will continue this type of work.

- **Single-loop learning:** keep the knowledge in the organized manner; maintain good working relationships with the CoP; be open, trust, give more than take, mix knowledge from different fields; continuously repeat actions until you gain the speed in writing; relay on your family and celebrate the interim accomplishments.

- **Double-loop learning:** fix the strategy as late as possible; stick to the research proposal after its official submission; be creative by incorporating new insights so that they feed a validated strategy; be patient until your solutions for the problems will be found; ask for help; change the
place of the location to get fresh ideas; accept criticism, share your own ideas and be open to sharing interim results.

- **Triple-loop learning**: do not change you research topic; do not change your supervisors; improve your own behaviour and do not blame others; be flexible to switch from one pace of journey to another in order to be in parallel with the turbulent context.

- **Relationships**: The trustful relationships with the supervisors are crucial to the successful completion of the study. Open communication with the supervisors by Skype, face-to-face; discussions on personal and research related issues; family members help to feel motivated and supported.

- **Incubation**: A researcher somehow has to escape the very features of his or her work that “may otherwise block the new perspective inherent in the sudden hunch, the flash of insight, the brilliant idea, or the profoundly different theoretical formulation” (Strauss and Corbin, 1990, p. 29). Sadler-Smith (2007) believes that certain problems can be solved after the period of incubation. It is the period of non-conscious mental process, which starts when we are at a dead end. In a situation where the problem solver has reached an impasse, at this point, the recommended course of action is isolation and temporary disengagement. Trip to Melbourne arranged by RMIT helped me to come out from the dead end.

- **Creative Insights**: Ideas do not come to everyone and about everything; those insights arise under certain conditions (Strauss and Corbin, 1990). It takes some time before the answers to research questions have broken through the consciousness. I applied various techniques which include but are not limited to use of questioning; analysis of a single word, phrase, or sentence; a flip-flop procedure; making of comparisons both close-in and far-out; and waving the red flag (Strauss and Corbin, 1990). I also used a drawing with colored markers, recommended by my scientific supervisors.

- **Analyzing data of this research**: Some researchers believe that data should not be analyzed, *per se*; but rather the researcher’s task is to gather data and present them in such a manner that “the informants speaks for themselves” (Strauss and Corbin, 1990, p. 21). Other qualitative researchers are over-concerned with an accurate description and presentation of their findings. Another common mistake made by research novices is thinking that data analysis is performed only once (Burton and Steane, 2004). The authors warn that although this sounds logical, in reality it never happens. The process of reanalyzing data often continues for a prolonged period of time. They suggest not starting to write up the thesis until the researcher is fairly sure of the final form of analysis. Ones again, Burton and Steane warn that this method of analysis, while commonly used, is unpopular with some researchers. This is often called an “*ad hoc*” approach. Writing this thesis disciplined me and helped me to avoid disordered continuous searches by changing and adapting data analysis procedure.

- **Virtual community of practice (CoP)**: On the course of study for the PhD program at RMIT University, I accomplished the course assignment that aimed at gaining preliminary understanding of writing styles and research approaches used in various dissertations. Derek
Walker has supervised over 25 doctoral dissertations on various research topics and themes. I selected nine of these dissertations to scan-read and understand the format and research methodologies applied by the colleagues, namely Maqsood (2006), Bourne (2005), Bower (2007), Christenson (2007), Grisham (2006), Nogeste (2006), Norrie (2006), Peansupap (2004), and Strang (2005). This virtual community of practice (CoP) was extremely helpful and supported me by providing valuable tips. Wenger (1999) explains that a CoP is comprised of a collegial network of people interested in a common topic that cooperate, collaborate, and support each other in that enterprise. With some of the colleagues I met face-to-face.

Attachment G: Guidelines to examiners of theses

An extract from the RMIT professional doctorate guideline to define the criteria for the examination of the PhD theses is presented below. The link to the full document is: http://rmit.com.au/browse;ID=72biuv5va3bs (retrieved on 21.03.14)

2.2. Doctor of Philosophy

- **a significant and original contribution to knowledge of fact and/or theory**
  While it is difficult to assess what constitutes a 'significant contribution', one important way of gauging if a candidate's work meets this expectation is to consider the extent to which the thesis is publishable. Normally a satisfactory PhD thesis would be expected to form the basis of at least one article in a recognized research journal, conference proceedings or, in some disciplines, a monograph from a specialist publisher. It would be helpful for the examiner to offer an opinion on the publishable content of the thesis. However, the thesis should not be failed solely because similar work conducted simultaneously elsewhere has resulted in prior publication, unless such simultaneous work could be reasonably expected to be known to the candidate.

  'Originality' may be shown in several ways. For example, a candidate may have posed an important new problem, have formulated an existing problem in a novel and useful way, investigated previously ignored material, offered new and significant insights about issues which have been examined by other researchers, developed new techniques for investigating issues or have applied appropriate techniques to a new set of problems. Replications of previous investigations would be acceptable only if they incorporated important new elements in the design or execution of the investigation.

- **Independent and critical thought.**
  The candidate should show that he/she has the ability to conceive original ideas for further investigation from independent, critical examination of the literature, to state clearly the central theme or argument, to develop this theme systematically and to assess the results of those investigations in a critical manner, relative to the work of others.
• **The capacity to work independently of supervision.**

The originality and significance of the contribution to the field, and the rigor of the independent, critical thought should be high enough to suggest that the candidate can initiate and conduct independent research leading to publication in a scholarly journal or equivalent.

Self-assessment of meeting the criteria of RMIT for the Doctor of Philosophy degree is provided below.

- **Originality:** Originality in this thesis was demonstrated by the development of the System model tool to collect the best practices. The best practices and key competences are mapped on one System model to demonstrate the dynamism of the environment (links between the system components) and uncertain nature of the modern context (visible and hidden factors for each system element).

- **Critical insight:** A substantial amount of literature was analyzed and compared. The relative works of the other scholars were examined in a critical manner. The limitations of the existing theories were discussed. Identical theories were considered as a single theory and grouped under five headings of complexity dimensions such as System, Context, Technical, Social, and Culture. The choice of nine key competences were supported by arguments and backed up with the quotes of the participants’ interviewees.

- **The compliance of the thesis for publication:** The thesis is written in a slightly informal manner. It has the story telling format in common with many other theses that adopt this approach to research. Thesis extracts will be subsequently published with the minor adjustments to share the best practices with a wider audience, to learn from the incidents, to “feel” Russian realities and to understand the mindset of people working in other countries. It is intended that papers in the English and Russian language will be written from this work.

- **Capacity to carry out independent research:** The literature review, the originality of the conceptual frameworks, the way the empirical part of the research were structured demonstrate a strong systematic approach to conduct the independent research.

- **The extent of the contribution to knowledge database made by the thesis:** The contribution of this research to the theory and practice are listed below.

  o **Contribution to the existing theory:** The thesis represents a comprehensive study of practices in the Russian context. Profiling professional excellence was addressed by building the Competency model where the cumulative competences required to deal with the EWSs were defined. Using the System Framework, the five case-studies were narrated and were analyzed in a unified manner. It is a substantial contribution to knowledge to gain new insights and develop new models by combining several theories.

  o **Contribution to practice:** The thesis in itself is a useful guide to deal with the EWSs in complex projects within the Russian context. The System Framework of this thesis can be used as a tool for reflections by the practitioners. The contribution made was in better
understanding how project managers respond to EWS within a Russian setting. I shared the framework with some of the research participants when they asked about it. They even asked to share the addition; the thesis is a good tool that can be used by trainers to teach case-studies. Three case-studies (2, 3, and 4) are situations, which ended unsuccessfully because the EWSs were not detected and acted upon. Two case-studies, 1 and 5, are situations with a successful end, because the EWSs were detected and responded in a timely and skillful manner. Attachments of this thesis include useful guidelines, which could be helpful for practitioners.

Attachment H: Guide on dealing with the EWSs

The purpose of this guide is to help practitioners to deal with the EWSs in complex projects by providing a system approach on complexity of project (categorizing the complexity levels of projects, useful practices for detecting the EWSs, and recommendations to address the EWSs).

Project Complexity Levels:

This guide defines four levels of project complexity.

- **Simple Project (variation):** Situation is simple when based on the initial conditions the outcomes can be obtained for sure or may be with some degree of variation.
- **Complicated Project (expected uncertainty):** Situation is complicated when based on the awareness of the initial conditions the outcomes can be predicted.
- **Complex Project (unexpected uncertainty):** Situation is complex when depending on the interactions of the elements in the system the same initial conditions might produce unpredictable outputs.
- **Highly Complex Project (unexpected uncertainty):** Situation is chaotic when mess is aroused from the complete absence of order/anarchy.

Project Manager’s Competency Levels and matching them with the Project’s Complexity Levels

This guide defines four levels of a project manager’s competency.

- **Advanced Beginner - Simple Project:** The PM is able to use PM knowledge. Common knowledge is sufficient to perform satisfactorily only the simple projects.
- **Competent Performer - Complicated Project:** At this stage, the PM learns from the past experience and demonstrates the application of knowledge, skills, and attitudes in complicated project situations.
- **Proficient Performer - Complex Project:** The PM demonstrates capability and evidence of practical experience in complex project situations. He manages a project, utilizing various PM
methods, techniques, tools, and a different mind.

- **Expert Performer - Highly Complex Project:** The PM demonstrates the highest level of professionalism in highly complex project situations by applying novel practices. He contributes to the development of the PM profession by training, coaching, mentoring, and publishing papers.

**Competences**

This guide defines nine competences as important for dealing with the EWSs, which are clustered into five groups.

- **System Competence** (System Approach, Crisis Management) focus on the way of managing projects based on the concept of systems and capabilities for implementing the projects in the conditions of crisis.

- **Contextual Competences** (Considering Context, Learning) focus on managing and reflecting the interaction of projects with the program, organization’s processes and the external environment.

- **Technical Competences** (Modeling, Conducting Assessments) focus on meeting the project requirements. It includes project manager’s ability to model the strategy and perform control on the course of the project.

- **Cultural Competence** (Considering Values) focuses on considering the traditions and habits impacting the project managers in their efforts towards obtaining the shared values.

- **Social Competences** (Relationships, Leadership) focus on people’s behavior. It includes project manager’s ability to unite the project actors, connect them in an effective PM organization for obtaining the shared values.

Competence (for this thesis) can be defined as demonstrated ability to apply different types of knowledge, skills, personal attitudes, and relevant experience (KSAE) to deal well with the EWSs within a turbulent project context. Further follow a description of each competence and best practices identified as a result of this study.

**System Competences**

**System Approach Competence**

**System Approach:** System approach is a way of managing projects based on the concept of systems and considering the projects as a conglomeration of the identifiable elements which interact with each other in non-simple way and these interactions lead to spontaneous occurrence of the order, the structure, the pattern and the novelty of the system. The PM successfully deals with the EWSs based on system vision enabling him to see the visible and invisible elements of the system.
**Levels on System Approach Competence**

Each competence includes the criteria required per PM’s competency level.

<table>
<thead>
<tr>
<th>The Project Complexity Levels and Corresponding PM Competency Levels</th>
<th>Competency Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Complexity Level</td>
<td>PM Competency Level</td>
<td>System</td>
</tr>
<tr>
<td>Simple Project</td>
<td>Advanced Beginner</td>
<td>System Approach: Has the required knowledge on system methodology. Does not see the whole system.</td>
</tr>
<tr>
<td>Complicated Project</td>
<td>Competent Performer</td>
<td>System</td>
</tr>
<tr>
<td>Complex Project</td>
<td>Proficient Performer</td>
<td>System</td>
</tr>
<tr>
<td>Highly Complex Project</td>
<td>Expert Performer</td>
<td>System</td>
</tr>
</tbody>
</table>

**Practices on System Approach**

**Experience:** Evaluate the project to objectively understand the level of its complexity. Avoid oversimplification. Be aware of the project potential to have different levels of complexity in the course of the project journey. Assign the experienced managers to manage complex projects to be able to see the situation holistically. Experts can evaluate an unfamiliar situation quickly and rely on summary information to be able to react intuitively, drawing their experience on the similar situations.

**Visible and Hidden as an Interactive Whole:** A complex system is considered to be a collection of identifiable elements (visible and invisible) which interact with each other in a non-simple way and these interactions lead to spontaneous occurrence of the order, the structure, the pattern and the novelty of the system. Each complex system is unique because the circumstances that converge to produce it are unique and cannot be perfectly replicated.

View the system holistically, identify and manage both visible and hidden elements using formal and informal, “hard” and “soft” approaches. Define the boundaries of the system with other systems. Search and analyze the linear and non-linear cause-effect links between the system elements and the other systems. Define the life-cycle of the whole including the desired value obtaining. Do not consider the system elements.
separately. Look at them as a whole rather than the isolation from the contextual, technical, social and cultural factors. The “emergent property” of the system (change of the organizational culture, strategic change and technical emergence) can be predicted by looking at a whole.

**Centralization and Decentralization at the same time:** Design the appropriate organizational structure and processes (product delivery and PM) to fit the system that has been visualized. Concurrently combine the seemingly incompatible forms, namely centralization and decentralization (autonomy of the units at the lower levels). Be aware that capability to integrate the centralized with the decentralized approaches is the recipe for success.

**Crisis Management Competence**

**Crisis Management:** Crisis management is an implementation approach of the project in conditions when the situation has turned into a new complex or chaotic direction, when a change in the economic, political, and social surroundings deteriorates to degrade the whole situation. The project manager’s role is then to become a crisis manager. He detects the EWSs, takes preventive measures, switches the system into the mobilize mode, determines priorities, makes decisions quickly to limit harm. He acts immediately and with maximum safety, constantly adapting to the changing conditions.

**Levels on Crisis Management Competence**

<table>
<thead>
<tr>
<th>The Project Complexity Levels and Corresponding PM Competency Levels</th>
<th>Competency Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Simple Project</strong></td>
<td>Advanced Beginner System</td>
<td><strong>Crisis Management:</strong> Has the required knowledge on crisis management.</td>
</tr>
<tr>
<td><strong>Complicated Project</strong></td>
<td>Competent Performer System</td>
<td><strong>Crisis Management:</strong> Successfully manages crisis in moderately complex projects.</td>
</tr>
<tr>
<td><strong>Complex Project</strong></td>
<td>Proficient Performer System</td>
<td><strong>Crisis Management:</strong> Successfully manages a crisis in complex projects. Evaluates (consciously and unconsciously) uncertainty zones, recognizes the occurrence of crisis, mobilizes resources and rapidly springs into action.</td>
</tr>
<tr>
<td><strong>Highly Complex Project</strong></td>
<td>Expert Performer System</td>
<td><strong>Crisis Management:</strong> Successfully manages a crisis in highly complex projects. Detects crisis symptoms early, takes preventive measures, switches the system into the</td>
</tr>
</tbody>
</table>
Practices on Crisis Management

Certain and Uncertain

A crisis is a particular inflection or breaking point when a simple complicated or complex situation is turning into a new chaotic direction, when the changes in economic, political, and social surroundings are degrading the whole situation from stability to extreme instability and from order or unorder into disorder. Unattended EWS may result in a crisis being encountered and this necessitates dealing with EWS.

Be aware that most people are programmed to avoid errors; they might stand idle when facing unfamiliar complex situations. Evaluate (consciously and unconsciously) the elements of the uncertainty. Make assumptions regarding the products, processes, context, culture and other factors. Convert this incomplete knowledge into hypotheses about their being known risks, make a fast decision. As Snowden and Boone (2007) advise the applicable leadership style is to probe, sense and respond for complex situations but when in a chaotic situation there is little time for probing so the need is to act, rapidly sense for feedback and understanding of consequences of action then to respond rapidly to the feedback in a considered attempt to restore order. Instinctively and intuitively test hypotheses and assumption as part of the sense making.

Acting within a Crisis

Identify the problem areas generated by the crisis phenomena. Get rid of everything that could prevent survival in crisis cases and conditions that inhibit responding to probing or action to enable making sense of the situation as it unfolds. Develop a plan and inform all stakeholders accordingly in order to overcome the crisis. Apply the methods, tools, approaches used during the crisis that are different from used during the peacetime. Be aware that the norms limiting people’s actions should be adjusted (reassess actions, strategies, regulations). Inform people about the work in full mobilization mode: control is strengthened; time for actions is minimally sacrificed; the consumption of the resources is sharply reduced; the saving mode is activated. Implement the changes systemically and energetically without panic. Remember that people should relax and need some vacation or rest at the end of the crisis due to the work in stressful conditions consume the enormous emotional, physical and material resources.

Contextual Competences

Considering Context Competence

Considering Context: Considering context is an approach of managing project as a whole rather than in isolation from the context. The PM pays attention to indefinite, non-transparent, and hidden factors; reflects on the interaction of the project with other projects, programs, and organizations’ processes; and recognizes the EWSs in the internal and external contexts.
### Levels on Considering Context Competence

<table>
<thead>
<tr>
<th>Project Complexity Level</th>
<th>PM Competency Level</th>
<th>Competence Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Project</td>
<td>Advanced Beginner</td>
<td>Contextual</td>
<td>Considering Context: Has the required knowledge regarding the contextual factors, unaware of wider or deeper context of the situation.</td>
</tr>
<tr>
<td>Complicated Project</td>
<td>Competent Performer</td>
<td>Contextual</td>
<td>Considering Context: Orients successfully in moderately complex situations, is aware of the context dynamics. Able, if needed, to make a decision without reference to the rules.</td>
</tr>
<tr>
<td>Highly Complex Project</td>
<td>Expert Performer</td>
<td>Contextual</td>
<td>Considering Context: Has successfully been oriented in the realm of diverse and extremely unordered systems. Moves rapidly to promptly make decisions, maintains the pace, and recognizes the visible and hidden contextual factors.</td>
</tr>
</tbody>
</table>

### Practices on Considering Context

**Scan the context**

Evaluate the initial state and constantly scan the context to understand the current system's state and conditionally predict its future state. "Feel" the situation, recognize the visible and hidden factors, detect the disturbances and calibrate the requirements for change. Avoid oversimplification by filtering out important factors. Pay attention to indefinite, non-transparent and hidden factors. Be aware that the level of project complexity may change during the course of the project (from stable, to unstable, and transitional). Feel confident working in the uncertain zone of conditions. A lack of knowledge of details is not an obstacle to give up making an effort to solve the system problem. Be creative and proactive. Remember that all assumptions are tentative and conditional they rely on interpretation of incomplete information that you are continuously testing and sensing.

### Disturbances
Disturbances (influences) can be political, social, economic and natural by their nature: multiple, quick, unexpected, spontaneous or gradual; occurred within the internal or external context, within or beyond the control of PM, impact the project (positively or negatively). Scan to recognize the internal and external sources of the crisis. Diagnose the crisis situation. Do not miss the moment to act to minimize or maximize the effect of the change.

Constraints

Follow the constraints which project must comply with; monitor the changes of the constraints. Pay attention to unspoken organizational constraints / rules. Be aware that some team members might violate the rules being mandatory during stable times. Do not be managed by the rules instead of managing the project: escalate the need and validate the adjustment of the strategy and norms if the situation has changed, for example, if a crisis has occurred.

Context Dynamics: Stable, Transition, Mobilize States

Be aware of three states of the system such as Stable (stagnant, low dynamic and bureaucratic), Transition (between stability and mobility), and Mobilize (unstable, emergent). The mobilize state is the mode when the achievement of the objectives by using existing means become inadequate. Be ready to be challenged by unforeseen situations and problems. Adapt methods, techniques and tools to the current conditions to overcome or diminish any detrimental impact on the project and its settings. Switch the leadership and management styles depending on the current state. Be aware that the desired results achieved during the mobilization period may require a great sacrifice. Limit any excessive duration of being in the mobilize state. The system destroys itself when it is functioning in the mobilized mode for a long period of time.

Learning Competence

Learning: Learning is establishing a system of loop learning through ongoing feedback as a way of reducing mismatch between the obtained and desired shared values of the key stakeholders. The PM continuously reflects, critically evaluates certain actions that have been taken towards to the desired values, and critically examines suitability of the chosen strategy and applicability of existing knowledge. The PM seeks, creates, expands, and distributes the best practices in dealing with the EWSs.

Levels on Learning Competence

<table>
<thead>
<tr>
<th>Project Complexity Levels and Corresponding PM Competency Levels</th>
<th>Competency Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Complexity</td>
<td>PM Competency</td>
<td></td>
</tr>
</tbody>
</table>
Practices on Learning

Loop Learning

Ensure that the mechanism of the loop learning is built in the system. Perform the single-loop learning to realize the necessity of the adjusting the actions. Perform the double-loop learning to understand the necessity of the strategy adjustment. Perform the triple-loop learning to understand the necessity of the system adjustment itself.

Knowledge

Apply the principle of a “zero based” approach to prevent blindly following old patterns. Remember that best practices that helped in the past might frame the mind and constrain behavior in a new situation. Be aware that the team members might implement the tasks according to their own unwritten rules. Identify the essentials and the innovations of the ways to do things in specific circumstances.

Critically evaluate the applicability of patterns in the new context setting. Do not hesitate to question the quality and applicability of existing knowledge for a particular situation. Create new knowledge and document it as new “creative patterns”. Promote the knowledge to “institutionalize” it at the organizational level. Discuss the role of creativity, advantages of working smarter and the importance of making implicit knowledge explicit.

Maintain the porous boundaries of the system through which the useful ideas have been penetrated and knowledge exchanged between the trusted parties. Share the knowledge with the staff, other members of your organization and its CoP (Community of Practice). Use the storytelling format to transfer the knowledge.
Utilize the existing institutionalized knowledge. Be aware that the knowledge sources can support people; provide contacts for the parties. Review history (lessons learned, meeting minutes) and use these as sources of knowledge.

**Technical Competences**

**Modeling Competence**

**Modeling**: The Modeling function lies in clarifying the objectives, discovering hidden objectives, detecting EWSs associated with alternative scenarios, providing a route map towards achieving the desired value (project benefit). The project manager takes into account the context of complex environments and dynamics, creates a range of future scenarios to avoid oversimplification, and considers feedback loops to monitor implementation and to appropriately adjust strategy. The project manager relies on both “hard” and "softer" qualitative data as well as judgment and intuition.

**Levels on Modeling Competence**

<table>
<thead>
<tr>
<th>Project Complexity Level</th>
<th>PM Competency Level</th>
<th>Competency Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Project</td>
<td>Advanced Beginner</td>
<td>Technical</td>
<td><strong>Modeling</strong>: Determines the strategy in simple situations when the goals are clearly defined, the product is not technically complex, and the stakeholders certain about the methods to achieve the objectives.</td>
</tr>
<tr>
<td>Complicated Project</td>
<td>Competent Performer</td>
<td>Technical</td>
<td><strong>Modeling</strong>: Sees alternatives, makes efforts to reach agreement on the strategy for achieving goals. Mainly deals with explicitly stated objectives.</td>
</tr>
<tr>
<td>Complex Project</td>
<td>Proficient Performer</td>
<td>Technical</td>
<td><strong>Modeling</strong>: Clarifies objectives, discovers hidden objectives and creates a range of strategies to achieve the objectives. Makes choice based on the judgment and intuition.</td>
</tr>
<tr>
<td>Highly Complex Project</td>
<td>Expert Performer</td>
<td>Technical</td>
<td><strong>Modeling</strong>: Makes decisions about the future unconsciously and rapidly relying on intuition, recognizes any hidden objectives, develops a creative strategy, considers the present and models the future.</td>
</tr>
</tbody>
</table>

**Practices on Modeling**

Hidden objectives
Get mutual vision agreement together with the key stakeholders. Identify the zones of uncertainty. Be aware of the hidden agenda and make the effort to make them explicit. Reduce the uncertainty by breaking the uncertain elements down into the component elements repeatedly until the level of the uncertainty reach the acceptable level. Stop decomposition at its critical point when it seems to make little sense to continuing doing so, record the current state. Be aware that the objectives might change in the course of the project. Adapt to work in the conditions of the uncertainty and lack of information, systematically remove residual uncertainty.

**Strategy**

Avoid the oversimplification of considering only a single scenario. Create as Courtney et al. (1997) argue a range of future scenarios for what they refer to as Level 3 uncertainty conditions. Employ assumptions to consider the EWSs and Early Success Signs (ESSs) associated with each alternative scenario. Conceptualize the abstract, synthesize and generalize in order to obtain the holistic picture. Focus on the creation and delivery of the value; look from the different time horizons (today's and future perspectives). Focus on the whole project and product life-cycles. Make the decision and select the strategy taking into account the context and relying on both "hard" (relevant facts and figures) and "softer" qualitative data as well as the judgment and intuition. Be aware of the planning fallacy (overestimation of good and underestimation of bad things). Implement the ongoing changes to correct the wrong strategy and support the emergent strategy realization.

**Conducting Assessments Competence**

**Conducting Assessments**: Conducting Assessments (formal and informal) entails an examination of project documents and practices, enabling people to express their findings about the current conditions about EWSs they discover, applying intuition to produce insights pertaining to the current situation, providing ongoing support for decision making, ensuring that that assessments are built into the system and linked to motivation for detecting the EWSs to effectively respond to them.

**Levels on Conducting Assessment Competence**

<table>
<thead>
<tr>
<th>The Project Complexity Levels and Corresponding PM Competency Levels</th>
<th>Competency Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Complexity Level</strong></td>
<td><strong>PM Competency Level</strong></td>
<td><strong>Technical</strong></td>
</tr>
<tr>
<td>Simple Project</td>
<td>Advanced Beginner</td>
<td></td>
</tr>
</tbody>
</table>

230
Practices on Conducting Assessment

Formal and Informal Assessments

Ensure the assessments are built into the system and linked to motivation. Conduct formal and informal assessments. Ensure the reviewers are experienced in the similar projects. Assess “hard” things such as documents and “soft” things such as the level of the stakeholders’ satisfaction. Pay attention to body language and “feel” the atmosphere. State the objectives of the assessments in advance. Detect the issues paying attention to both ESSs and EWSs. Remember that week signals are easy detected due to their unknown shapes, nature and sources. Be sensitive to feeling that something is wrong. Be ready to turn the system into the mobilize state in case of the crisis situation.

Assessments of stakeholders’ satisfaction

Arrange one-on-one meetings with the individuals to assess the employee engagement. Use Gallup’s (2010) G12 feedback system to measure staff’s engagement in the project. Be aware of stakeholders’ viewpoints. Manage politics and people’s emotions. Assess stakeholders’ satisfaction and utilize the evaluation results for adjustments of actions, strategy and norms. Share data with appropriate stakeholders. Reflect on the data with a focus group. The use of rich pictures as a format using a soft systems methodology (Checkland, 1981) can be productively deployed for this purpose (Steinfort and Walker, 2011). Discover the random factors that generated the problem; search for key levers to influence the whole system, consciously avoid shifting the problem in other parts of the system. Smoothly resolve conflicts, handle claims as the expressions of the stakeholders’ dissatisfactions.

Cultural Competence

Considering Values Competence

Considering Values: Considering Values requires allocating specific values to specific stakeholders. The project manager perceives the intrinsic qualities in other people; understands their point of view, personalities, and cultural differences; discovers their hidden values; manages culture dynamics; resolves cultural issues and influences the agreement on shared values. The project manager uses an understanding
of values to detect EWSs of “soft” problems and take the appropriate measures in advance to prevent value degeneration.

**Levels on Considering Values Competence**

<table>
<thead>
<tr>
<th>Project Complexity Level</th>
<th>PM Competency Level</th>
<th>Competence Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Project</td>
<td>Advanced Beginner</td>
<td>Cultural</td>
<td><strong>Considering Values:</strong> Focus on the fulfillment of the client’s needs. Has the required knowledge regarding the diversity of values and understands the necessity to reach mutual agreement on values.</td>
</tr>
<tr>
<td>Complicated Project</td>
<td>Competent Performer</td>
<td>Cultural</td>
<td><strong>Considering Values:</strong> Successfully influences the stakeholders’ agreement regarding the values in the projects with the limited complexity. Feels comfortable in culturally homogeneous groups.</td>
</tr>
<tr>
<td>Complex Project</td>
<td>Proficient Performer</td>
<td>Cultural</td>
<td><strong>Considering Values:</strong> Anticipates the stakeholders’ values. Successfully discovers the hidden values, influences culturally heterogeneous international groups to reach an agreement on shared values. Takes into account the values in the society, “feels” the psychological climate.</td>
</tr>
<tr>
<td>Highly Complex Project</td>
<td>Expert Performer</td>
<td>Cultural</td>
<td><strong>Considering Values:</strong> Describes the organization as a trusted partner for the stakeholders. Manages culture dynamics, interacts with the diverse communities, detects the hidden values, resolves cultural issues, and influences the agreement on the values.</td>
</tr>
</tbody>
</table>

**Practices on Considering Values**

**Values and Culture**

Understand Russian history and culture. Appreciate different cultures and subcultures. Be ready to handle a clash of cultures. Make sure that your values and moral project-related perspectives are understood by all stakeholders. Identify the importance of the project for you and assess its value to your life spent on the project. Keep in mind that the use of contrived values that are of no value to people, can lead to lack of motivation.

Recognize differences in the people’s values you work with. Take into account prevailing values in society; recognize the similarities and differences in the economic, business, political, social, and technical norms of the various cultures. Be aware that values of the project are interconnected with the values of each person.
and of society in general. Anticipate the stakeholders’ values; identify the nature of their values and understand how these values interact with each other; use your influence to reach agreement on shared values. Use the understanding of values as a key driver and motivator towards future project success.

**Mentality**

The concept of the "mentality" is a product of the nation’s development. Mentality can be defined as the system of the individual’s behavior stereotypes, special way to see the world (mindset), priorities and cultural values shaped by the geographical, social and cultural factors. The mentality concentrates everything in itself that has been previously created and accumulated by the preceding generations; it can unite all people inhabiting the territory of Russia by common norms, rules and laws. Take into account that generations are formed by different social and cultural conditions. Mentality is transformed under the influence of changed conditions: traditional, transitional and then innovative. Individuals of various generations took part in this study.

**Social Competences**

**Relationships Competence**

**Relationships**: Relationships involves managing interactions with the stakeholders (formal and informal) and other project organizations. The PM aims at achieving the satisfaction of customers/stakeholders and in maintaining and developing the continuous and long-term relationships with stakeholders. The project manager establishes an informal network to rapidly response to the unpredictable events. The project manager participates in power relationships, cooperates through the alliances or partnerships. The project manager builds strong, trustful relationships with the internal and external stakeholders to deal mutually with EWSs.

**Levels on Relationships Competence**

<table>
<thead>
<tr>
<th>The Project Complexity Levels and Corresponding PM Competency Levels</th>
<th>Competency Group</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Complexity Level</td>
<td>PM Competency Level</td>
<td></td>
</tr>
<tr>
<td>Simple Project</td>
<td>Advanced Beginner</td>
<td>Social</td>
</tr>
<tr>
<td>Complicated Project</td>
<td>Competent Performer</td>
<td>Social</td>
</tr>
<tr>
<td>Complex</td>
<td>Proficient</td>
<td>Social</td>
</tr>
</tbody>
</table>

- **Relationships**: Focuses on establishment of reliable suppliers and contractors.
- **Relationships**: Establishes formal and informal relationships with suppliers and contractors.
- **Relationships**: Participates in power relationships, co-creates.
**Practices on Relationships**

**Interpersonal relationships**

Establish strong interpersonal relationships (formal and informal). Interact at all levels of the hierarchy: with clients, project teams and executives to communicate the project’s objectives and shared values. Influence key stakeholders and get their support. Establish sound long-term relationships through alliancing or partnering.

**Communications networks**

Develop the habit of choosing an effective communications strategy (appropriate combination of media). Be sensitive to non-verbal communications such as gestures, eye contact and poise. Create panels of experts to resolve complex issues; avoid working alone without the benefit of collaboration. Communicate frequently through multiple channels. Understand, define and support a broad spectrum of links for providing and consuming knowledge and services via networks. Implement more informal network in order to respond rapidly to the complexity and unpredictability. Remember that people are not alone anymore; people are connected, related, cooperated and networked due to globalization. Dedicate a significant effort to maintaining relationships. Cherish good productive relationships.

**Leadership Competence**

**Leadership:** Leadership involves providing direction and motivating towards the desired values. The project manager applies an appropriate leadership style for the particular situation, motivates, develops team members’ talents, inspires, and influences to overcome resistance, uses power and authority to get things done. The project manager detects EWSs related to people, seeks continuous improvements and maintains the achievement of value.

**Levels on Leadership Competence**

<table>
<thead>
<tr>
<th>The Project Complexity Level</th>
<th>Corresponding Competency Levels</th>
<th>Competence and its Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex</td>
<td>Expert Performer</td>
<td>Social Relationships: Continuously manages power relationships, builds strong cooperation with suppliers and contractors by establishing shared norms.</td>
</tr>
<tr>
<td>Simple</td>
<td>Beginner</td>
<td>Social</td>
</tr>
<tr>
<td>Competent</td>
<td>Social</td>
<td>Leadership: Effectively practices leadership in projects with</td>
</tr>
</tbody>
</table>
### Practices on Leadership

#### Flexing

Constantly adapt to the dynamic changes applying the leadership style appropriate for the particular situation (with the team, executives and other stakeholders). Ensure the compatibility of your abilities. Seek the continuous improvement of your own competence in the leadership. Seek feedback (from the team, senior management and other relevant interested parties) and modify the leadership style if necessary. Use power and authority fairly and justly (be authentic in your leadership). Mobilize the institutional, political, psychological and other resources to respond to change flexibly and strategically. Use power wisely when creating the breakthrough, by turning the system into a mobilize state. Overcome resistance and convince people to do things in order to change the course of the problematic events.

**Authentic** Keep people around motivated to beat the crisis, overcome resistance, remove barriers, and increase the driving forces. Develop team members’ talents, provide the constructive feedback adjusted to each individual situation and the context, provide the coaching and training for team members, advise, support, take care and treat each employee as the unique individual. Motivate the personnel applying materialistic and non-materialistic things. Motivate team members emotionally and professionally. Create an inspiring and energetic environment. Demonstrate interest in new ideas; envision a mutually attractive future. Maintain the achievement of shared values.

### References


<table>
<thead>
<tr>
<th>Project</th>
<th>Performer</th>
<th>Leadership:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex Project</td>
<td>Proficient</td>
<td>Applies a leadership style appropriate to a situation. Motivates by using materialistic and non-materialistic things. Guides the team leaders to develop their leadership skills.</td>
</tr>
<tr>
<td>Complex Project</td>
<td>Expert</td>
<td>Effectively practices leadership within the project context, the program, and the parent organization contexts.</td>
</tr>
<tr>
<td>Highly Complex Project</td>
<td>Expert</td>
<td>Social</td>
</tr>
<tr>
<td></td>
<td>Performer</td>
<td></td>
</tr>
</tbody>
</table>

**Project Performer** limited complexity. May be inflexible in changing leadership styles. Motivates by using mostly materialistic things.


ITIL (2007). *The Official Introduction to the ITIL Service Lifecycle* (ITIL®), The Stationery Office, UK


Turner, J. R. and Müller, R. (2006). *Choosing Appropriate Project Managers: Matching Their Leadership Style to the Type of Project.* Project Management Institute


