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**THE ANALYSIS OF KNOWLEDGE RETENTION MECHANISMS FOR
LEAVING EXPERTS ISSUE, CASE STUDY OF VIMPELCOM LTD
RUSSIA**

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Abstract**Author:** Lukinskaya,Valeria**Title:** The analysis of knowledge retention mechanisms for leaving experts issue, case study of VimpelCom Ltd**Department:** School of business**Major/Master's Programme:** Master in International Technology and Innovation Management**Year:** 2013**Master's Thesis:** Lappeenranta University of Technology, 88 pages, 6 figures, 5 tables, 1 appendix**Examiners: Professor Aino Kianto****Professor Liisa-Maija Sainio****Key words:** Knowledge retention, Knowledge retention mechanisms, Knowledge management

The goal of this thesis is studying knowledge retention mechanisms used in cases of single experts' leaving in the case company, analyzing the reason for the mechanisms choice and successfulness of knowledge retention process depending of that choice.

The theoretical part discusses the origins of knowledge retention processes in the theoretical studies, the existing knowledge retention mechanisms and practical issues of their implementation. The empirical part of the study is designed as employees' interview with later discussion of the findings.

The empirical findings indicate the following reasons for knowledge retention mechanisms choice: type of knowledge retained, specialty of leaving experts and time and distance issues of a particular case. The following factors influenced the success of a retention process: choice of knowledge retention mechanisms, usage of combination of mechanisms and creation of knowledge retention plans.

The results might be useful for those interested in factors influencing knowledge retention processes in cases of experts' departure.

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1. Introduction

This study aims to examine knowledge retention mechanisms which are used in companies in cases of single experts' departure, concentrating on the following sub questions: which issues influence the choice of mechanisms and how successful a retention process is in each case. The research was conducted as a case study in VimpelCom Ltd Company, referred hereafter as VimpelCom or Case Company.

The current chapter establishes the basic structure of the work, starting with the background and purpose of the study, further presenting the key research problems. The chapter also includes a literature review that establishes the theoretical background of the research, research delimitations and brief methodology description.

1.1. Background for the research

Organizations have always used knowledge, but relatively recently have recognized it as a corporate asset and understood the need to manage knowledge and invest in it. No longer only products and practices give a competitive advantage, as it is more and more difficult to sustain using only these assets; companies have started distinguishing themselves from the position of what they know. The knowledge advantage is sustainable as it generates increasing returns and continuing advantages (De Long et al. 2003).

Later the economic value of knowledge management (KM) has been further emphasized, now it is viewed from gaining competitive advantage and considered as a focus strategy (Ndofor et al. 2004).

With the process of development KM as a discipline, have been formed several sub-disciplines (Levy 2011). One of them is knowledge retention management (De Long 2002) or knowledge continuity management (the

concept presented by Beazley et al. 2003), which is the main research area of this study.

The importance of knowledge retention comes from the concept of knowledge as a competitive advantage. The basic question in this case turns to be “the experts are leaving, what happens to the organizational knowledge?” and the following aspects are under attention:

- Experts earn unique individual knowledge, after their departure replacement and collaboration of this knowledge becomes an issue
- Experts may be owners of puzzle pieces of networked knowledge of a group or a team, the reconstruction of this knowledge without the experts becomes an issue
- Experts’ knowledge may not be unique, but question of location, access and linking arises.

In these cases according to Hofer- Alfeis 2003 reactive replacement of knowledge is the only right approach to shifting the business objectives to the directions besides experts’ exclusive knowledge.

Apart from classical KM that deals with situations when a knowledge sharing process takes place in an enduring environment, when people are eager to share knowledge, knowledge retention tackles cases when in limited period of time the most valuable knowledge of a leaving expert should become an organizational asset (Levy 2011).

Experts leave organizations for various reasons: moving to another part of an organization, taking position in another organization, starting up their own businesses, retiring and cutting off. Most of these reasons exist in every organization all together, but for specific industries may be distinguished the most threatening ones. In “old” industries, such as pharmacy, building and construction and chemical sector retiring is the key factor of experts’ departure. In low- profit industries or industries

experiencing decay such as automotive engineering cut-off is the main factor and for “young” industries such as computing, telecommunications or programming job swap and moving to other parts of organization are the main ones.

Each of these situations is also different in such conditions as:

- time before an expert’s departure
- specific relationships between an expert and an organization before and after the departure
- type of knowledge an expert earns.

The case of experts’ leaving due to retirement is the most widely studied one. Various strategies were created for capturing knowledge of retiring employees, and also several case studies were performed. The main advantage of this case is that the period of knowledge transfer is limited only by a level of knowledge management within an organization. This means that the earlier such cases are discovered, knowledge retention plans are created and implemented, the better result a company obtains (Levy 2011).

Many strategies for retiring experts issue were developed (De Long and Devenport, Rothwell, Levy); they are universal and can be used in other situations when knowledge capturing is needed. Apart from knowledge loss due to employees’ retiring, cases when experts leave for another job, own business or moving to another part of an organization are not so widely discussed, both in scientific literature and case studies (Hofer Alfeis. 2003). But we claim that for many industries these issues are more critical today than retiring.

Talking about telecommunication industry in Russia we should admit that the tendency for job swap has recently appeared there. There are three main players in the market nowadays (Megafon, MTS, VimpelCom) and several vendors, providing equipment and software (Nokia, Ericson,

Alcatel). In the last 5 years the situation of mass changes in organizational structures and management teams within the mentioned companies has appeared, for many key employees and managers the best way to increase their salaries and positions became taking a job in a compete company. Also many employees from front offices and sales departments have changed the industry and moved to IT sector, along linear and top management noticed the tendency to change their jobs for bank sector. Business analysts noticed that due to lack of experienced professionals in telecom industry today both in vendor and service companies the technological development has slowed down (Sabinina et al. 2011).

We can make a conclusion that one of the key tasks for HR managers in Russian telecom industry today is saving key employees and experts and capturing, keeping and transferring knowledge of leaving experts to other employees. For the process of extensive knowledge retention they usually have about 2 weeks (this is the period when leaving employee has to work in an organization after the signing of resignation letter, according to the Russian Labor Law).

In this study we explore the existing knowledge retention mechanisms which a telecommunication company VimpelCom Ltd. employs and evaluate them from the point of effectiveness, also we are going to investigate the necessity of creating knowledge retention plans and their influence on the success of retention projects.

1.2 Research problem, questions

This study has the following aims: to explore the knowledge retention mechanisms which are used in cases of experts' departure in organizations; reasons which influence the choice of these mechanisms and how successful a retention process is in each case. The case study research is chosen as the main research method.

The main research question of the paper:

- What knowledge retention mechanisms are the most effective in cases of a single expert's departure

The sub questions:

- What knowledge retention mechanisms exist
- Should knowledge retention mechanisms used in cases of experts' leaving be differentiated depending on the type of knowledge retained
- If a knowledge retention plan or a knowledge map increases the quality of knowledge retention process.

1.3. Theoretical framework

The preliminary theoretical framework of the study demonstrates the approach to choice of knowledge retention mechanism in a case of leaving expert issue. When creating this framework we considered the following factors:

- type of knowledge retained
- knowledge transfer barriers
- factors that influence knowledge retention
- mass or single employees' departure

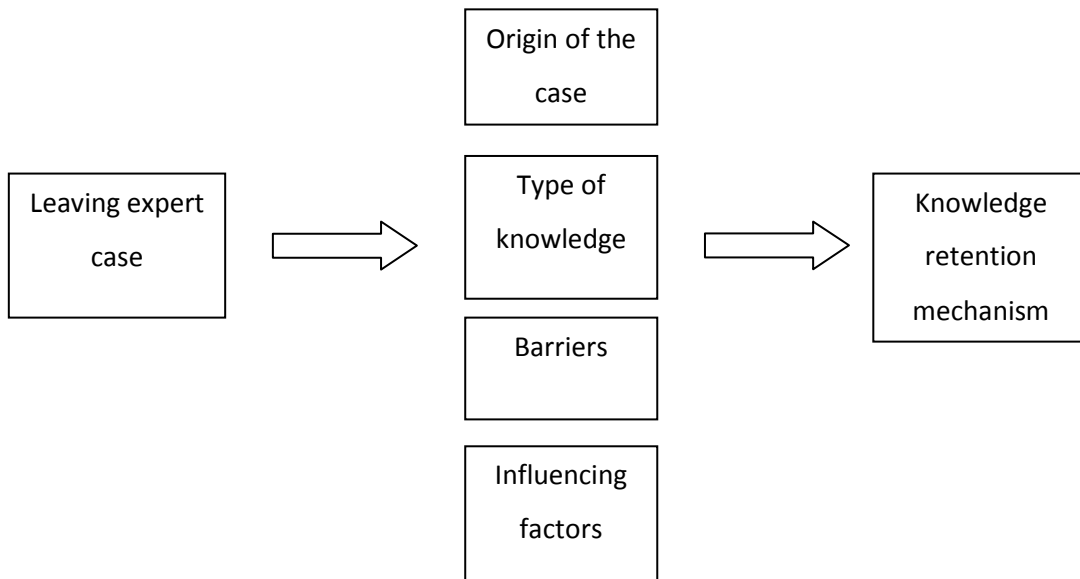


Figure 1: Preliminary theoretical framework of the study

1.4. Definition of key concepts

1.4.1. Knowledge

Knowledge is the mental state of ideas, facts, concepts, data and techniques, recorded in an individual memory. It is organized in the head of individual and based on information that is transformed and enriched by personal experience, beliefs, ideas and personal values (Bender et al. 2000).

1.4.2. Expertise

Expertise is specialized and deep knowledge and understanding in a certain field, which is far above average, if an individual owns expertise he or she is able to create uniquely new knowledge and solutions in the field

of expertise. It is built up from a long period of time and remains with the person (Bender et al. 2000).

1.4.3. Knowledge retention

Knowledge retention is a sub-discipline of knowledge management that deals with cases where expert workers leave organizations after long periods of time, and their knowledge needs to be retained, knowledge retention offers a set of activities which help to make expert knowledge an organizational asset in a limited period of time (Levy 2011).

1.4.4. Knowledge continuity

Knowledge continuity is a process of vertical knowledge transfer within organizations between employee generations and horizontal knowledge transfer among current employees, ensuring the preservation of organizational knowledge base and its enhancement over time (Beazley et al. 2002).

1.4.5. Knowledge transfer

Transfer of knowledge is a process which involves both the transmission of information to recipient and absorption and transformation by that person or group (Davenport et al. 1998).

1.5. Delimitations

Knowledge retention is a broad concept, covering several issues, in this research we concentrate on knowledge retention in cases of single employees' departure, due to different reasons. We don't consider knowledge retention as a part of employees' retention strategies.

In this research we don't study interpersonal interactions between a leaving expert and a successor, considering only knowledge transfer process issues.

As our research was taken in a single company, we assume that its results may be country specific and industry specific. Therefore all the results and conclusions we got should be checked and evaluated before applying in another company.

1.6. Research methodology

This study was conducted using: qualitative- desk research and interview research methods. These methods are considered to be the most suitable for the research due to the following reasons: they provide appropriate research sample, cost-effective and agreed and accepted by the organization they have been conducted in.

We combined these two research methods in order to compensate the weak points of each of them and enforce the strong ones.

Talking about the desk research the following weak points can be mentioned:

- we can not prove the reliability
- this method can not measure studies observable and simple indicators together with abstract constructs

To overcome these weaknesses we checked our findings with the survey research, which was created in a way that helped us to measure the abstract concepts (opinions and attitudes) and check our ideas previously obtained via desk research.

We believe that in our research we could overcome the following weaknesses of mail survey as a research method:

- lack of control over who responds
- understanding of questions
- low response rate

As the author of this study knows most of the interviewees as colleagues, it was possible to ask them informally to participate in the survey, discuss the content of the survey and all the raised questions.

1.7. Structure of the work

This study consists of 7 chapters. The chapter 2 presents the information about knowledge management in general, knowledge retention in the scope of knowledge management and importance of knowledge retention in managerial application and as a research field. The chapter 3 provides information regarding the knowledge transfer issue: the definition and description of the process, barriers for knowledge transfer and factors that determine it, the chapter is opened with the discussion of differences between knowledge and expertise in the context of retention and transfer. The next chapter (Chapter 4) is about knowledge retention mechanisms, its starts with the presentation of existing knowledge retention strategies, barriers and factors that influence the process, then the discussion moves to the classification and description of knowledge at risk identification and transfer mechanisms. The Chapter 5 describes the research method, case company, measures, survey design, reliability and validity of the research. In Chapter 6 the empirical findings are represented. And the final Chapter 7 consists of the results summary and discussion together with limitations, ideas for further research and managerial applications.

2. Knowledge retention in the scope of knowledge management

2.1. What is knowledge and expertise?

For further discussion we need to draw the difference between knowledge and expertise and distinguish different types of knowledge. Here we quote the definitions of knowledge and expertise provided by Bender et al, 2000, who defines knowledge as a mental state of ideas, concepts, facts, data and techniques recorded in the individual memory. We define expertise as specialized, deep and above of average knowledge and understanding in a specific field.

Difference between knowledge and expertise can be considered in relation to the depth of knowledge. If we speak about deep knowledge in the certain field that has been accumulated by long-time experience education and training we can define it as expertise (Starbuck 1992).

Both knowledge and expertise can be organized into the hierarchy. Where the base is data, which is an essential raw material for creating information, being discrete and objective about the facts and events, but at the same time data provides no information about its irrelevance and importance. Data becomes information with adding meaning and understanding. Knowledge is what individual transforms information into, using contextual information, personal experience, values and believes. From this perspective every person builds individual knowledge.

As every person creates own knowledge by transforming and enriching information it can't be easily transferred to another person (Fahey et al. 1998). The recipient gets knowledge in the form of data and knowledge creation process starts when the recipient adds meaning and transposes the data into information, then enriches the information with personal values and believes, which transforming into personal knowledge.

Knowledge is divided into two types. The explicit one is knowledge that can be expressed in words and numbers. But preliminary knowledge is tacit and difficult to visualize and express. It is highly personal and difficult to share with others. It is deeply rooted in individual experience and actions. The tacit knowledge can be segmented into two dimensions: the technical one, some skills and crafts that can be named “know-how” and the cognitive one, which expresses our image of reality and vision of the future.

The subjective and intuitive nature of tacit knowledge makes it difficult to communicate. For tacit knowledge to be shared, it has to be converted into words and numbers that everybody can understand (Nonaka et al. 1995). Some experts suggest that tacit knowledge may be best transferred through interpersonal means such as mentoring, teamwork, intranets, forums, and face-to-face conversation, personal reflection on lessons learned (Goh 2002).

Speaking about the transfer of expertise we should say that in the case when an expert shares expertise it does not make the recipients more knowledgeable or expert. Expertise can't be transferred; it is built up by an individual and remains with this person (Sveiby 1997).

2.2. What is knowledge retention? Theories of knowledge retention process

Knowledge retention problem was firstly discussed in literature at the end of 1990's when many companies realized that in several years with the retirement of Baby Boomers they would lose their critical expertise. The first publications in this field were cases from corporations (TVA, Siemens AG, Delta Airlines) which were investigating the problem and sharing their solutions.

Then appeared the first scientific publications, studying the practices of above mentioned corporations and adding to the list Siemens, Shell, Quaker Chemical and other (DeLong et al. 2003), where authors described “the set of better practices” in knowledge retention, claiming that they might not be the best in class, because the problem was new for that moment. The authors identified steps of knowledge retention process and knowledge sharing practices used in the companies and the reasons for their implementation. The discussed articles provided the base for the further research in the field of knowledge retention.

In 2002 De Long conducted a research among chemical companies (American, European and Asian), examining the problem of aging workforce and losing critical knowledge and expertise with the retirement of workers. The research described how the companies deal with the problem, identified the barriers for effective knowledge capturing within the companies and also presented a framework for creating a long-term knowledge retention strategy. We discuss the framework in more details further.

Field, 2003 reviewed more cases of knowledge loss connected with the retirement of the employees. At that work the term knowledge continuity is used as synonym to knowledge retention.

Hofer-Alfeis, 2008 in his publication investigated knowledge retention issues in case of employees' retirement, cases when an employee leaves a company for own business, moving to another branch, taking position in another organization, retirement or etc. It should be mentioned that the following reasons for an expert departure are different in several conditions as: time before departure, relationships with a company, prehistory of the departure and etc, apart from retirement that usually has pretty the same conditions, in these situations each case should be studied individually. The author in his article mentioned the only condition-specific relationships between an expert and an organization.

Beazlye et al. 2002 in their book also analyzed the problem of knowledge loss due to employees' transfers, resignations (employees leave their jobs voluntary), and terminations (situations when employees leave their jobs involuntary) which all characterize the current workforce situation. In these cases organizations tend to expect that replacement employee works with scraps of knowledge saved in documents and files or memories of coworkers of departed employees, instead of developing a system of saving the critical knowledge of leaving employees. In this study we consider knowledge retention and knowledge continuity as the same concept.

Levy 2011 defines knowledge retention as a sub-discipline of knowledge management, which deals with situations where expert knowledge workers leave organization after long periods of time and KM solutions which can help to package a person's immediate knowledge and then transfer it to others within the organization.

Beazley 2002 defines knowledge continuity, addresses the process of knowledge transfer between employees' generations, ensuring the preservation of organizational knowledge base and its enhancement over time. Joining these concepts together we define knowledge retention as a sub-discipline which tackles with knowledge preservation and transfer within an organization.

From our perspective the emergence of this sub-discipline appeared as a response to the trends in human resource management in the beginning of the 21st century, such as retirement of the Baby Boomers generation, cut-offs, entering of Y-generation, employees mobility increase, which all brought in light new challenges in recruiting and employee retention.

Intensive research work in the field of knowledge retention started in 2000's with wide range of case studies from specific organizations both in the USA and Europe. Among the organizations studied were chemical,

nuclear and gas industries' players, non-profit organizations and others those are facing dramatic change in their employees' demographics (Levy 2011).

At the same time started the methodological work focusing on the specific issues in knowledge retention. David De Long in the report "Confronting the Chemical industry brain drain: a strategic framework for organization knowledge retention", 2002 described how global chemical companies are "responding the changes in their workforce demographics caused by downsizing, aging workforce and a shrinking talent pool". In the research were studied 26 companies from the USA, Europe and Japan.

In the mentioned work David De Long not only described the cases where knowledge retention solutions were implemented but also presented the framework for creating a knowledge retention strategy within an organization. The author claims that the framework can help to create an affective approach for capturing and sharing knowledge before it gets lost to the organization. The approach consists of the following essential elements:



Figure 2: D. De Long's framework

We insist that this work provided methodological base and gave the direction for further research in the field of knowledge retention.

Levy 2011 suggested the following framework for the knowledge retention process in the cases of experts' retirement:

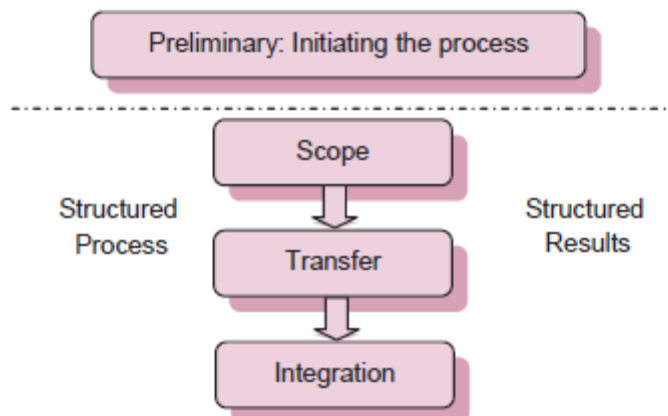


Figure 3: M. Levy's four stages framework for knowledge retention process

The author claims that the preliminary stage should be carried on organizational level and the following stages separately for each retiree. At the preliminary stage the knowledge retention issue is introduced to the

managers who point out the areas where knowledge retention is required, pilot retention projects are started. At the “scope” stage managers made the decision what should be retired and what should not, define what knowledge from the chosen person or area should the retention process focuses on. At the stage of “transfer” the knowledge is transferred from the retiree to the organization. The author claims that this stage is a core one in knowledge retention process. The last stage is “integration”, at this stage we measure how the transferred knowledge is integrated and embedded into organizations’ processes.

Apart from other researchers who were mostly focused on cases of Baby Bomer’s retirement and lost of their expertise, Hofer-Alfeis, 2008 made his research for the single experts leaving (LX) issues. He suggested the Leaving Expert Debriefing process as a framework for knowledge retention program in LX cases.

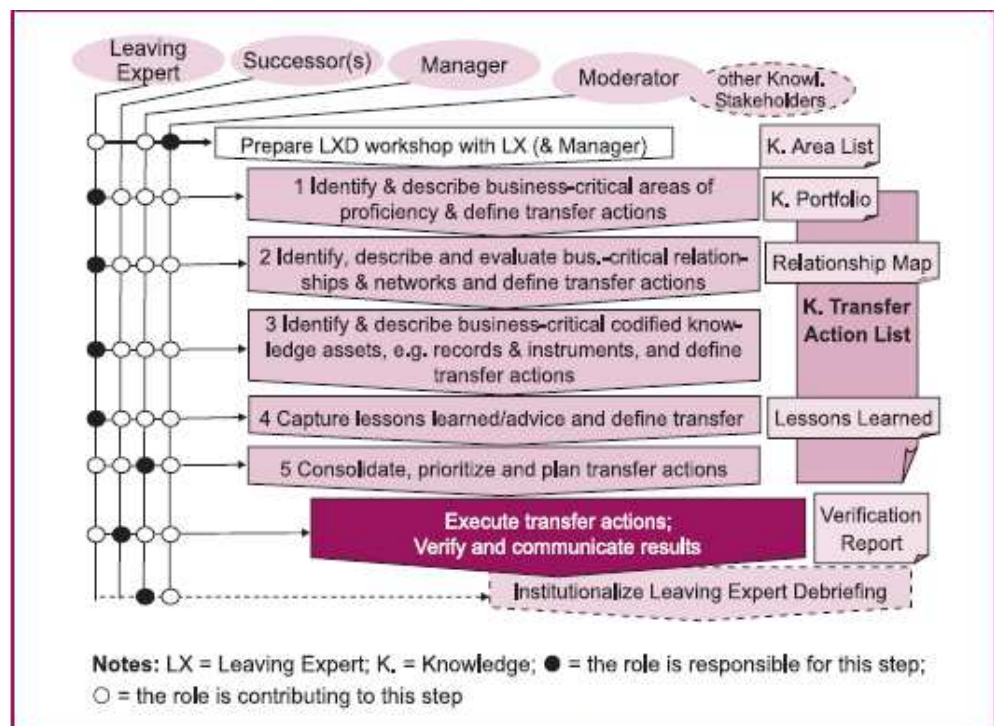


Figure 4: J. Hofer- Alfeis’ s Leaving Expert Debriefing

The basic approach in Leaving Expert debriefing is similar to the other frameworks and includes:

- “pre-stage” aimed for building contacts, describing what knowledge is important to safe, planning;
- “scope” stage that helps to find out critical areas and knowledge assets that will be used
- transfer process
- analysis of the knowledge transferred

Apart from other frameworks the author suggests deep analysis of the knowledge being retained, exploring it from relationships, networks, areas of proficiency.

In the book “Continuity management: preserving corporate knowledge and productivity when employees leave” Beazley et al. 2002 suggested 6 steps knowledge retention framework:

1. Conduct a knowledge continuity assessment to discover the level of knowledge continuity in the organization
2. Determine the objective or scope for knowledge continuity activities
3. Establish coordination responsibility for implementing continuity management
4. Plan the implementation activities
5. Create a methodology to capture and transfer critical operational knowledge
6. Transfer the operational knowledge.

2.3. Why knowledge retention is important

With the emergence of information age and knowledge economy, knowledge has transformed into a valuable asset, providing competitive advantage to a company. But knowledge is worthless unless it is accessible, communicated and enhanced (Beazley et al. 2002).

The most valuable knowledge is usually stored in the heads of employees. People have always left organizations for different reasons, taking their experience and knowledge away, but in the past periods when knowledge did not play so significant role in a company performance this was not a great problem.

Knowledge retention issue appeared in the 2000's as a response to changes in workforce demographics: loose of workforce through the mass retirement of Baby Boomers, fast turnover of young employees, changes in workforce mobility and other. According to the research by TVA University conducted in 2002 50% of the interviewed energy companies were going to loose 50% their employees retired in the next five years. According to Beazley, more than 17% of Baby Boomers, holding executive and managerial positions in all industries were expected to leave their posts by 2008. For several industries the situation is even worse, by 2010 about 60% of experienced managers from oil and gas companies were going to retire, according to the Oil and Gas Journal.

The issue of mass retirement is moving from industry to industry and from country to country. Additionally to that cut-offs and downsizings are frequent, due to the economical crises and international reorganization of production. Also each company may face an issue of a single expert leaving due to other reasons.

If knowledge of leaving employees isn't retained, organization can't learn from past experiences and has to continually reinvent processes and products. As Beazley 2002 says, "without adequate knowledge continuity organizational forgetting drains intellectual capital and squanders the knowledge assets". He also claims that when implementing continuity management activities organization may gain the following advantages:

- Decrease of the time a new employee needs to get the operational knowledge and to reach the productive phase of employment

- Better decision making and results in fewer mistakes
- Understanding of a skill set needed for new hires, so improvement of new employees training effectiveness
- Lower stress and increase in the commitment of both new and current employees
- Knowledge networks saving
- Organizational framework for identifying, prioritizing, transferring, acquiring, applying critical operational knowledge
- Knowledge hoarding prevention
- Institutional memory within an organization creation
- Facilitating of knowledge creation, innovation, improvement and organizational learning
- Increase in a sense of employees value and job turnover reduction
- Increase in the cost of job turnover
- Increase in long-term organizational effectiveness.

2.4. Knowledge retention strategies

Levy 2011 claims that any knowledge retention project described in the most of scientific literature includes three stages: at the first stage the decision is made- whether and what level vertical knowledge should be transferred, at the second stage the process is planned and chosen the way how the knowledge should be transferred and the last stage deals with the practical implementation of the plan. We will consider further the knowledge retention strategy as an above described set of actions and the literature review will be done following the same logic.

DeLong and Davenport 2003 described organizations which use voluntary surveys (as TVA) for their employees to find out who is going to retire and when. In Siemens AG if a manager determines that a departing employee has unique knowledge, the specific tool- a question list is used to determine the level of effort for keeping the knowledge and select a

mechanism for knowledge transfer. In Delta Company for identification of critical knowledge among retiring employees was used the following set of criteria: outstanding performance of a leaving employee, no more incumbents for that position, go-to position during crises, has important contacts inside and outside the company.

Levy 2011 criticizes the emphasis of the knowledge at risk assessment stage with above described analysis of a knowledge retention process and claims that this stage is unnecessary. When a knowledge retention issue is urgent, such projects can act as delayers. She concentrates more on an implementation stage. She suggests another framework for knowledge retention projects that includes the following stages: preliminary stage (focuses on the initiation of the project) it is conducted on organizational level, the next stage defines the project scope (what knowledge will be retained and what will be skipped), then follows the transfer stage (including planning and implementation), the final stage is knowledge integration.

DeLong and Devenport 2003 claim that the base for any knowledge retention strategy is knowledge –sharing practices. As there exists a wide range of such practices authors establish a certain criteria for their choice, the criteria evaluates impact of the knowledge, timing of its loss and sort of knowledge. In the article authors describe five the most popular knowledge-sharing practices: interviewing, mentoring, storytelling, communities of practice, training and education. They also provide the idea that information technologies play a secondary role in knowledge retention process.

Hofer-Alfeis 2008 develops the Leaving Expert Debriefing process as a knowledge retention instrument, tastes it in two cases in organizations of different size, additionally the reasons for experts' departure are different for each case. He claims that the instrument, he developed, may be useful both in cases of mass-retirement and a single expert departure.

Rothwell 2004 offers twelve strategies for knowledge retention for cases of retiring workforce: job-shadowing, communities of practice, process documentation, critical incident interviews or questionnaires, expert systems, electronic performance support system, job aids, storyboards, mentoring programs, storytelling, information exchanges, best practices studies or meetings.

Levy 2011 sites Landon and Walker who described the following tactics: documentation, education and training and two more specific techniques: change in work processes and update of equipment in order younger employees are able to run it and use other facilities, communities of practice and retirees as consultants.

2.5. Knowledge retention strategies associating with another knowledge management strategies

2.5.1. Hansen et al. 's personalization vs. codification

This model represents two different knowledge management strategies which exist in organizations. Codification is considered as strategy when knowledge is captured and stored in explicit forms for easy transfer and use. But personalization strategy is claimed to encourage interpersonal communication and enhance ability to communicate with each other. Authors claim that organizations should chose one of this strategies as a primary one, another-as a supplementing one. The strategy split should be 80/20. These strategies also concentrate on different types of knowledge: codification is for explicit one, personalization is for individual one.

Talking about knowledge retention, we assume that depending on a general KM strategy used in an organization, specific mechanisms of knowledge transfer and saving are used. Additionally, in the process of knowledge transfers both leaving expert and a replace employee unconsciously tend to use mechanisms typical for the organization (Hansen et al.1999).

2.5.2. Zack's KM strategy model

In this framework the connection between competitive situation in a company and its knowledge management strategy is a factor of establishing competitive advantage. Any of this competitive knowledge can be classified as core, innovative and advanced with respect to its innovation relativity for a particular industry. The other part of the

framework is a competitive analyses applied for the knowledge that creates a competitive advantage.

In the frame of the described KM strategy knowledge retention process is viewed from the position of retaining the knowledge that gives the competitive advantage to the company. It can be applied in the process of knowledge analysis, prior to the retention (Zack 1999).

2.5. Interrelation of knowledge retention and knowledge sharing

McDermott, 2001 defines knowledge sharing as a process that involves guiding someone else through their thinking, helping to see their situation better. Ideally the person, who shares knowledge, should be aware of the knowledge purpose, use of gaps of person receiving the knowledge. Van den Hoof 2009 claims that knowledge sharing is more than transferring knowledge, but creating it. There is less exploitation of existing knowledge than generation of new knowledge in this process.

Nowadays with understanding of the importance of knowledge as an intangible asset, giving a competitive advantage to a company, knowledge sharing becomes a complex process integrated in the knowledge management strategy of a company; often it forms a key component of a knowledge management programs. In the described situation knowledge sharing is viewed as a process that is needed to be carefully managed.

Van den Hoof 2009 describes two different approaches to knowledge sharing management: the emerged approach and the engineering approach. In the emerged one knowledge sharing is viewed as a process dependable only on social capital of a group of people. The engineering approach assumes that knowledge sharing process can be managed, it can be stimulated or an environment for the process can be created. As an example of such activities B. van den Hoof talks about cases when an

organization can create a favorable social context for knowledge sharing and establish knowledge-sharing friendly culture within itself.

We can make an assumption that in cases of knowledge retention engineering approach to knowledge sharing is mostly used. So further we are going to concentrate on the features of such the engineering approach.

The idea of creation the environment and creating a knowledge sharing culture within a company can be useful for such knowledge retention cases, when the retention process has enough time to be performed, for example, when knowledge is shared between different generations of employees, between different branches of a national or a multination company. In our work we concentrate on cases of individual experts' departure, when knowledge retention processes are urgent in nature and knowledge sharing processes should be organized in a short time. In such cases broader managerial interaction is required. Managers should provide not only the an environment for continuous and uninterrupted knowledge sharing processes, but in some cases plan the processes and watch how they go, motivate and lead the employees involved. So in these cases we should talk about extensive engineering approach to knowledge sharing.

In some literature the concepts of knowledge sharing and knowledge transfer are used interchangeably. In our research we distinguish them. More information about it find in chapter 3.1.

3. Knowledge transfer

3.1. What is knowledge transfer?

The processes of knowledge transfer and sharing are the key elements in the knowledge retention activities. In this research we only consider knowledge transfer within an organization or knowledge transfer between groups and individuals working in an organization. We define knowledge transfer as a process of exchange of explicit and tacit knowledge between two agents, when one agent purposefully receives and uses the knowledge provided by another, suggesting that organizational learning can thus be seen as an outcome of knowledge transfer (Kumar 2011).

In some literature the concepts of knowledge transfer and sharing are used interchangeably. In this research we are using them as interchangeable concepts with some difference in the process.

Knowledge sharing we define as a process that includes not only knowledge transfer but knowledge creation, less exploitation of existing one than generation of new knowledge (Van den Hoof et al. 2009).

There two main approaches towards knowledge sharing origins. The emergent one says that sharing of knowledge can not be forced and dependable on management intervention, it appears from instinct motivation to share gained by the donor when socially embedded. The other approach is the engineering one that claims that knowledge sharing can be managed; management stimulates it and creates the environment for the process of sharing (Van den Hoof et al. 2009).

The concept of “knowledge flow” is used with similar meaning to knowledge transfer. Nissen, 2002 claims that by using term “flow” they

refer to dynamic knowledge and subsume similar concepts as knowledge conversation, transfer, sharing, integration, reuse and other that show movements and changes of knowledge over time. Any knowledge exchange process involves two acts: the act of delivering knowledge and the act of receiving knowledge, without either the process of knowledge exchange is incomplete (Kumar 2011).

3.2. Barriers for knowledge transfer

Many companies have succeeded in knowledge transfer and sharing but these processes are very difficult, time-consuming and laborious. To organize effective knowledge transfer an organization should identify and overcome several barriers.

Szulanski indicates the following barriers for knowledge transfer:

- ignorance
- no absorptive capacity
- lack of preexisting relationship and motivation

Davenport and Prusak, 1998 described seven cultural factors which disturb the transfer of knowledge:

- lack of trust
- different culture and vocabulary
- frames of reference
- lack of time and meeting places
- knowledge owners receive status and rewards
- lack of absorptive capacity
- considering knowledge as prerogative of a particular group
- intolerance to mistakes or need for help

Additionally to the mentioned barriers Riege 2005 indicates the triad of barriers for knowledge sharing, categorizing them to individual,

organizational and technological ones. We listed the mentioned barriers below, paying attention to those which can affect on cases of individual employees' knowledge retention.

Among the potential individual barriers or barriers originating from individual behavior of actions and perceptions were indicated the following:

- lack of time to share knowledge
- fear that sharing may reduce job security
- low realization of benefit and value of possessed knowledge to others
- dominance in sharing explicit over tacit knowledge
- strong hierarchy, status and formal power
- insufficient past communication experience
- difference in the level of expertise and education
- poor communication and interpersonal skills
- age and gender difference
- ownership of intellectual property
- lack of trust
- difference in natural culture and background, including language

Although one of the key issues for effective knowledge sharing is suitable corporate environment and conditions, various organizational barriers for knowledge sharing may potentially appear. Among them are the following:

- knowledge management strategy and knowledge sharing activities are poorly or unclearly integrated into companies goals and strategy
- knowledge sharing processes suffer lack of leadership or clear managerial direction
- lack of formal and informal spaces to share knowledge
- lack of motivation system for sharing knowledge
- corporate culture doesn't support knowledge sharing practices

- knowledge and staff retention is not priority
- lack of resources and infrastructure
- external and internal competitiveness between business units and employees
- communications and knowledge flows are restricted
- hierarchy slows down sharing processes

Technology can act as a facilitator for knowledge sharing processes; therefore technology in some cases may act as additional barriers for knowledge sharing. Potential technology barriers are listed below:

- lack of integration and compatibility of IT systems and processes
- lack of IT support
- unrealistic expectation of employees regarding the technologies
- lack of experience and training
- lack of communication and demonstration of systems

3.3. Factors that determine knowledge transfer

Below we are discussing factors that enable knowledge transfer in organizations; all the assumptions are based on case studies and theoretical research. In many case studies information technology is mentioned as a factor influences positively on intra-organizational knowledge transfer as encouraging a learning environment and information sharing. This factor is especially important for large, widely dispersed companies. In cases when this factor doesn't work in a company or disappeared over time the reason was not technological but personal. For successful operation this factor needs to have successful management in such elements as motivation and willingness to share information.

Another important factor is the culture of organization. This concept is really broad and has many dimensions. Among cultural dimensions the

most critical ones are co-operation and collaboration. Also should be mentioned a fundamental variable in co-operation- the level of trust. The other element in this system is a culture of experimentation, which rewards and encourages employees for problem seeking and solving especially in a group environment.

Appropriate support structures for reinforcing and supporting knowledge sharing is one more important factor. This factor includes four areas: technology, training and skill development, rewards and organizational design. Nonaka 1995 claims that breaking down hierarchies in the organization enables knowledge transfer. In organizations that maintain hierarchical levels knowledge often becomes “sticky”. The solutions are developing horizontal communication flows which go beyond using technology, creation of tasks that require cross-functional collaboration. Another organizational support structure is the reward system, rewarding group solutions in problem solving. We should add time to the mentioned factors as employees need to have time to transfer knowledge also such process should not be time-taking. One more factor is the recipient of knowledge, a recipient’s poor motivation, and lack of absorptive and retentive capacity can result in fail of a knowledge transfer process. The last factor we are going to mention is a type of knowledge transferred. All knowledge transfer solutions may work for one type of knowledge but fail for another and it can be a critical factor in deciding on type of process for knowledge transfer (Goh 2002).

3.4. Interrelation of knowledge retention and knowledge transfer

To define interrelation between the concepts of knowledge retention and knowledge transfer we need to view the general description of the processes.

For description of knowledge retention process we use the framework for knowledge retention process suggested by Levy 2011. The framework consists of the following stages: creating the scope of knowledge needed to be retained, knowledge transfer process, integration of the retained knowledge. Knowledge transfer appears to be the key part of any knowledge retention process; for successful results it can't be skipped, conducted in unsatisfactory way or finished incomplete. Knowledge retention itself can not exist without knowledge transfer.

We define knowledge transfer process as the process of exchange tacit and explicit knowledge between two agents (Kumar, 2011).

The quality of knowledge transfer process and hence knowledge retention process depends on the following factors: existence of barriers for knowledge transfer and organization's ability to overcome them, existence of factors that can enhance the knowledge transfer process, management of the organization, organizational culture and use of technology.

4. Knowledge retention mechanisms

4.1. Knowledge retention strategy

Exciting research in knowledge retention mostly studies two types of cases: one with knowledge retention in case of retirement, cut-off, downsizing and other mass leaving of experienced employees; the other describes situations of a single expert leaving. The difference in these cases is usually in: depth and amount of valuable knowledge of a particular employee, time an organization has for knowledge retention and amount of employees whose knowledge is needed to be retained.

Retention mechanisms for any of mentioned cases exist in literature, but we assume that even though some mechanisms can be used in both types of cases, for a successful knowledge retention project should be chosen a particular set of mechanisms, correlated with the type of knowledge retention case, retention barriers existing in an organization and organizational factors that influence knowledge retention process. In the following parts we are describing barriers for knowledge retention, factors that influence knowledge retention process and knowledge retention mechanisms used by case companies or created by researchers.

4.2. Knowledge retention barriers

De Long 2002 identified the following organizational barriers for effective knowledge transfer and presented the framework for creating a knowledge retention strategy within an organization.

Among the barriers to organizational knowledge retention he mentioned:

- cost of lost knowledge is largely hidden (managers claim that in many cases it is difficult to predict and estimate the cost of

knowledge being lost or reduced efficiency of an organization happened due to experts' departure)

- uncertainty about where is in an organization the most vulnerable of lost knowledge
- no clear ownership of the knowledge retention problem within an organization
- no resources for knowledge retention activities
- lack of problem solving skills among younger employees that leads to difficulties in acquisition of knowledge captured and making decisions based on this knowledge

In some cases an organization may experience a situation when access to knowledge bank or critical operational knowledge is denied in any form to new hires and the resulting knowledge deficit seriously constraints their performance. Such situation is defined as knowledge discontinuity.

Beazley 2002 presents the following knowledge discontinuity crises:

- The crisis of knowledge vacuum appears when a limited group of people or a single employee has some knowledge in a particular question and with the departure of these knowledge holders knowledge disappears
- The crisis of knowledge panic appears when some knowledge holder or some document is needed to a new employee, but only departure employees knew where it is or who it is
- The crisis of knowledge bewilderment appears when some operation knowledge is available to a successor employee, but this knowledge is insufficient or inaccessible, so not enough to do the job
- The crisis of information overload but knowledge deficiency happens when a new employee is overloaded with information but not real knowledge, the information in this case is worthless because it is organized or transferred in unusable or indigestible manner

- Knowledge stuffing develops when a huge amount of information and knowledge is given to a new employee but it is obsolete, incorrect and immaterial
- Knowledge fantasy develops out of insufficient knowledge, successors develop wrong assumptions
- The last crisis is knowledge rigidity appears in organizational cultures closed to change and resist any modification in a ways things are done.

Greengard 1998 points out the following cultural barriers which an organization faces when adopting knowledge retention initiative: people do not like to share their best ideas, people do not like to use other people's ideas, people like to consider themselves as experts and do not collaborate with others.

So in order to facilitate knowledge sharing process in the scope of knowledge retention strategy, managers should overcome the barrier of knowledge hoarding. The second barrier that should be overcome is "not-invented-here" syndrome, which associated with not accepting other people's ideas for fear to appear less knowledgeable (Wiig 1995).

4.3. Factors that influence knowledge retention

Martins and Meyer, 2012 in their work describes several factors that influence knowledge retention in a firm:

- «Knowledge behavior»: learning, creating, sharing, knowing, transferring, applying knowledge, together with identifying knowledge at risk, effectiveness of communication between different age groups, acceptance of team goals, constructive solving of conflicts
- Strategy implementation or strategic risks of knowledge loss
- Effective mentoring or coaching process in a firm

- «People knowledge loss risks» refers to the understanding whose knowledge is at risk of loss and focus on retaining those people and their career development
- Leadership of managers encouraging the flow of knowledge, promoting cooperation and facilitating knowledge exchange and retention, creating awareness of organizational challenges
- «Knowledge attitudes and emotions» refers to individual personality and emotions regarding taking responsibility in building expertise and willingness to share and use expertise
- «Power play» refers to group characteristics such as resolving differences from conflict, making use of external expertise and etc.
- Knowledge growth and development covers such individual factors as ability, motivation, individual learning
- Performance management covers organizational practices which help to recognize expertise and develop it
- Organizational support and encouragement includes organizational culture, structure and design at organizational level.

4.4. Knowledge retention mechanisms

In this chapter we present a variety of existing knowledge retention mechanisms. We indicate them to the type of knowledge they used to retain and organize them in groups according to the type of cases they better used for: a single expert departure or mass departure of employees due to retirement and cut-offs.

Knowledge retention process is usually multi-phased and includes several stages. We describe the mechanisms used at each of the stages. In this research we used the stage description that was suggested by DeLong and Davenport, 2003:

- identification of knowledge at risk
- knowledge transfer process

4.5. Mechanisms which used for knowledge at risk identification

At this stage an organization should find out what knowledge is necessary to retain. We want to start our discussion with the situation of experts' retirement and cut-offs, these actions can be mass or single, they are similar in the fact that managers know or predict before hand who is going to leave an organization and when.

De Long, 2002 describing best practices in knowledge retention suggests starting the project with surveying all of employees to find out who is going to retire and when. That helps to overview the situation in the whole organization and then to identify the areas of greatest risk due to large amount of leaving experts or critical knowledge they possess. After the first stage of surveying, if managers determine that departing employees possess knowledge that is both critical and unique De Long, 2002 suggested using:

- Siemens managers' questionnaire that aims to determine the level of effort that should be put in retaining knowledge and selecting the best retention mechanism:
 - Is a leaving expert both willing and capable to share knowledge?
 - Is an expert leaving entirely or moving to another part of organization?
 - When an expert is leaving?
 - Is there a successor for an expert?
- Delta's managers performed interviewing of leaving employees with the aim to identify those who represent critical job loss and met the following additional criteria: 1) outstanding performance; 2) they occupy positions where they were single incumbents or no one was trained as back up; 3) they are considered as people who leave the company; 4) they have important contacts inside and outside the company.

Levy 2011 names this stage as “planning stage”, which includes two main phrases: determining the knowledge to be vertically transferred and determining mechanisms of knowledge transfer and expertise retention. Field 2003 suggests creating knowledge profiles at this stage, they should be easily accessible and include “knowledge DNA” of organization, each profile describes critical operational know-how required to do a particular job. For creation of this profile all key employees should answer a questioner while they are with the company.

In cases of single expert departure due to other reasons such as: starting own business, taking position in another company, moving to another part of a company and other, managers usually have very limited period of time for knowledge retention decisions. For such cases Hofer-Alfeis 2008 suggests the Leaving Expert Debriefing process that aims to plan knowledge transfer and then perform it. Leaving Expert Debriefing was generally presented in Chapter 1, so here we concentrated on some stages of this process, interesting in this context.

For discovering critical knowledge of a departure employee the authors suggests to create “knowledge area list”, according to the five-layer model, presented below. These layers represent more precise view of knowledge areas from knowledge portfolio scheme presented below.

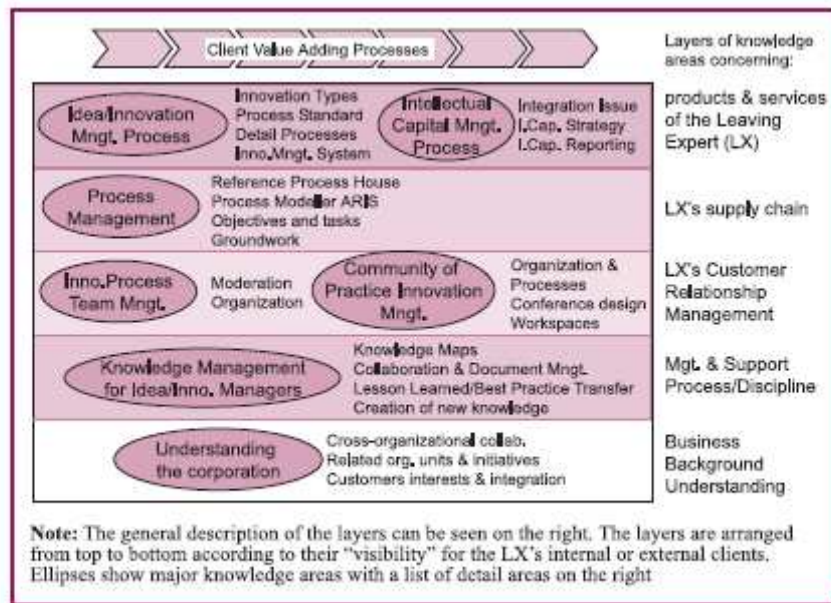


Figure 5: Business critical knowledge areas of a leaving expert in a five-layer model, by J. Hofer- Alfeis

The knowledge portfolio scheme is created to represent in a clear form the most valuable for business knowledge areas of an expert. The top right-hand area represents the most critical knowledge of an expert, which should be retained in the first place.

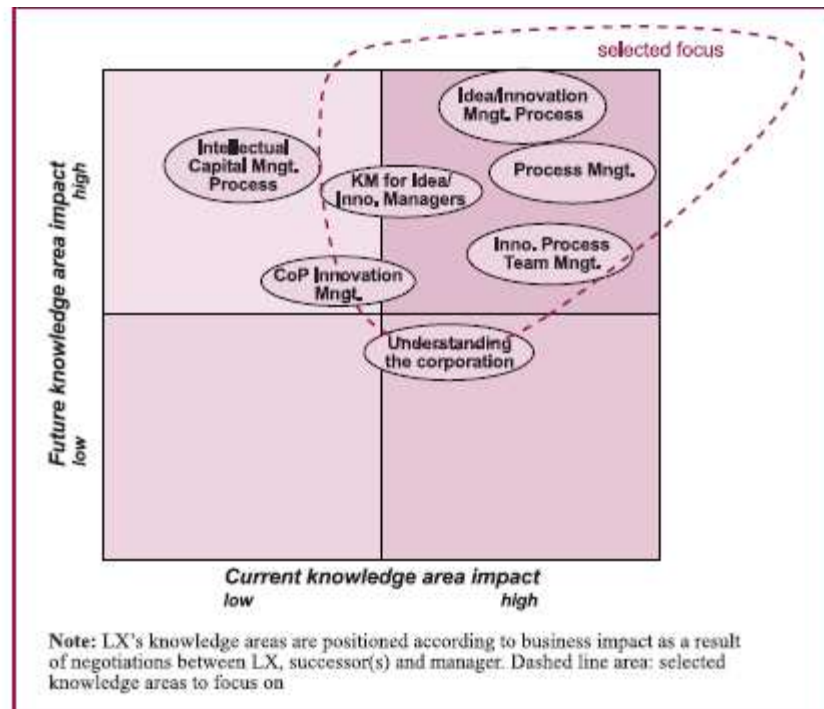


Figure 6: J. Hofer- Alfeis' s knowledge portfolio

Then at the meeting with a manager of a leaving employee the created knowledge portfolio should be aligned to future business needs. This step follows by the retention process planning actions.

4.6. Knowledge transfer mechanisms

There exists a great amount of knowledge transfer mechanisms, which of them should be chosen in a particular knowledge retention project depends on many factors such as:

- amount of experts whose knowledge is needed to be retained
- type of knowledge retained
- amount of time a company has for retention of particular knowledge
- available resources and costs of knowledge retention mechanisms
- knowledge life cycle
- experts' motivation and capability to share knowledge

(De Long et al. 2003).

In this research we describe knowledge transfer mechanisms used in retention programs in companies and mechanisms recommended by researchers in their scientific papers and articles. We comment on type of knowledge (tacit or explicit) these mechanisms are better used for and their applicability for mass or single cases of employees' departure.

De Long and Davenport, 2003 in their paper "Better practices for retaining organizational knowledge: lessons from the leading edge" described the following criteria for choosing between knowledge transfer mechanisms: the impact of knowledge; the timing of knowledge loss; kind of knowledge represented.

The following mechanisms were discussed in the mentioned paper:

- **Interviews and videotaping** are good for transferring tacit knowledge as they involve face to face interaction (cases of interviewing) or watching the work process that is good for transferring practices and knowledge difficult to explain with words. In the paper two cases of interviewing were described: Delta Company interviewed their experienced technicians who considered having the most critical and specialized knowledge on different aspects of company operation, TVA Company was conducted interviews to capture knowledge about task performance, general facts and lessons learned. This knowledge then dealt with directly without putting into trainings or codifying, it needed to be carefully cataloged and edited; also the successors of this knowledge should have access to it. These mechanisms are of expensive and time-taking, but they can be used in the situations of mass departure of employees. Interviews can be done about the critical incidents
- **Mentoring** is one-to-one coaching, that deals with situations when a leaving expert transfers important knowledge directly to a successor. But many companies, being resource-concentrated find

this mechanism is very difficult to sustain, because of the time needed to provide long-time experience. This mechanism is good for transferring tacit knowledge and using in cases of single experts departure

- **Storytelling** is considered to be a good mechanism for transferring tacit knowledge into explicit. Leaving experts are usually asked to tell some best practices of difficult situations which they were able to solve during their working life. This mechanism is good for conveying events that require interpretation, but it is not useful when transfer knowledge of concrete facts and issues, for example technical tasks
- **Communities of practices** are networks organized by experts or by companies for experts and customers for sharing their experience and knowledge regarding a particular product, program or problem. This knowledge sharing process can be organized on-line or in person
- **Training and education**, being a part of knowledge retention project, training can help to transfer knowledge to a successor. It might include several combinations, as classroom training, e-learning, coaching, shadowing and other. But it should be noted that training can be useful for transfer specific types of knowledge, regarding tacit knowledge in this cases emerges the danger that important knowledge will be missed.

Rothwell 2004 suggests some more mechanisms for knowledge retention:

- **Job-Shadowing programs** include situations when less-experienced successor is followed by an expert who is asked to share knowledge and know-how in the most difficult situations from his or her experience. This mechanism can be performed vice versa when a successor follows an expert employee during several working days, noting who he deals with difficult situations

- **Process documentation** involves recording of how the work is performed; it might include special cases of how a performer should act under special circumstances or deal with problems. It can also be done in form of manuals. This mechanism is good for transferring explicit knowledge
- **Job aids** are informational tools that help to perform in the real time: checklists or sign, anything that can be easily accessed when a need arises, good for sharing explicit knowledge
- **Storyboards** are set of pictures that describe a particular process or working situation, it can be done in graphic representation. This mechanism is useful for sharing tacit knowledge and know-how
- **Information exchanges** are like job fairs, but at this case veteran employees transfer their knowledge to less experienced colleagues, this mechanism works for explicit knowledge but in some cases can be used for tacit knowledge transfer
- **Best practices sharing meetings** can be organized in the same way as interviewing, storytelling or knowledge exchange but with the aim of sharing best practices. This approach can be used for transferring both tacit and explicit knowledge
- **Information technology for knowledge sharing**, includes such tools as; expert systems (a database or system that organized around the problems and how to troubleshoot them), electronic performance support system (a referencing system that provides access to organizational policies and procedures joined with e-learning and expert systems).

All of the above discussed knowledge retention mechanisms can be used in cases of a single expert departure either. Also for this specific type of cases Hofer-Alfeis 2008 created knowledge retention program, called the Leaving Expert Debriefing and as a knowledge transfer mechanisms he suggests workshops, interviewing and storyboards. According to this retention program, several meetings with the expert should be performed

and different areas of expertise are discussed, at each of these meetings the same mechanisms are used. They can help to transfer not only explicit but tacit knowledge.

In the process of knowledge retention managers should not forget about supportive activities such as:

- rewarding the process of knowledge sharing (material and nonmaterial)
- protect employees' privacy (information that an employee share should be shared only with the successor)

5. Research methods and data collection

The main research question of the study is:

- What knowledge retention mechanisms are effectively used in companies for cases of experts' departure?

The empirical research of this paper consists of two parts:

1. Firstly we conducted the survey for identifying cases of experts' departure in VimpelCom Ltd. and mechanisms which were used for knowledge retention. This part consisted of the following steps:
 - developing the questionnaire for the survey
 - creating the survey and sending it to the target responders
 - collecting responds to the survey
2. The results of the survey provided us the research scope for conducting phone interviews, which we used for more precise study of knowledge retention cases: measuring attitudes of people responsible for the retention projects towards the retention mechanisms used in the case company, estimating the effectiveness of mechanisms and evaluating the results for each case. This part of the research consisted of the following steps:
 - data analysis and development of the scope for interviews
 - developing the questionnaire for the interviews
 - conducting interviews
 - data collection and analysis
 - assessment for reliability and validity
3. The third part of the research included the following parts:
 - reviewing the literature in the area of knowledge retention
 - final discussions and conclusions

The research was decided to be qualitative case study and consisted of two stages, as at the first stage we conducted the survey as we needed to

establish a sample of responders and then at the second stage we conducted the interview as we needed to study in depth personal opinions and believes, regarding the effectiveness of mechanisms. Additionally to that we studied some company documents, describing the policies for knowledge retention cases. Below we are going to explain our choice of research methods.

There are four main qualitative research methods according to Silverman, 2001: interview, observation, analyzing texts and documents and recording and transcribing naturally occurring interactions. The analysis of written materials may be used in qualitative research for the following reasons: to produce a reliable evidence for the large sample, to understand the participants' categories and see how it is used in concrete activities (Silverman 2001).

In our study we used textual analysis of job descriptions and project manuals to establish a research sample, as we needed to find out people responsible for knowledge retention projects in the company and their responsibilities as project managers.

The main advantage of an interview as a qualitative research method is occurring from "offering "deeper" picture than variable-based correlations of quantitative studies" (Silverman, 2001). At the same time an interview with open-ended questions is viewed to be the best way to provide an authenticity of a research (Silverman, 2001). For that reason we used an open-ended questions interview as the main research method for our study.

5.1. Case company

The case company OAO VimpelCom is a part of VimpelCom Ltd that consists of telecommunication operators providing voice and data services through a range of wireless, fixed and broadband technologies. VimpelCom Ltd. is headquartered in Amsterdam and has operations in 18 countries all over the world, covering territory with a total population of about 782 million.

The Company is divided into five business units: "Russia", "Europe and North America", "Africa and Asia", "Ukraine" and "Commonwealth of Independent States" (CIS). VimpelCom Ltd.'s operating companies provide services under the "Beeline", "Kyivstar", "Wind", "Djuice" and other brands. VimpelCom Ltd.'s ADSs are listed on the New York Stock Exchange under the symbol "VIP".

According to the 2011 Company's Annual report, the actual revenue was USD 20.3 billion, EBITDA of USD 8.1 billion and the mobile subscribe base was 205 million. The Company was established in 1992 in Moscow on the base of former research institute by Dmitry Zimin from Russian side Augie K. Fabela II (Plexsys) from American side. VimpelCom Ltd. employs 66000 people worldwide. VimpelCom Ltd.'s main shareholders are Altimo and Telenor Companies.

Cases studied in this research were provided by Human Resources department of "Russia" brunch of the Company, which operates only within Russian Federation, so for the purposes of this research we consider the case company as a company operating in one country, with employees using one working language- Russian, without country and national differences.

5.2. Identifying items to be measured

Hinkin 1995 in his work mentions the following reasons for developing and use of inadequate measures in organizational research:

- Researchers may rely only on face validity of measurements, in this case they capture the construct of interest
- Some researchers are willing to save their time and development of adequate measures does not seem them efficient use of their time
- Researchers may put to great emphasize on statistics analysis, overlooking the accuracy of measurement
- The process of scale development may not be understood properly by researchers.

To overcome the mentioned problems Hinkin advices to put more attention and care to manner in which items for measurement are created, with clear links between them and theoretical domain. In scale construction the main concern is scale length, providing adequate domain sampling, reliability and minimizing response biases. Researchers should use standardized measures, developed on the base of large samples that can help them to overcome equivocal results.

Below we present our conclusions regarding the measures choice for the research. For the goals of our research, suitable measures should indicate the effectiveness of the chosen knowledge retention mechanisms. We consider effectiveness as an abstract concept in our research. As the aim for any knowledge retention process is knowledge transfer from a leaving expert to a successor, suitable measures should be created for the amount of knowledge transferred and the quality of that knowledge.

From our perspective, the amount of transferred knowledge can be estimated by questions about specific topics or knowledge areas that needed to be transferred or list of tasks that a successor should be able to perform after the transfer process. We assume that the quality of transferred knowledge can be measured (supposing that personal and professional characteristics of a successor are not taken into consideration) with ranked list of tasks that a successor will be able to perform after the transfer process. But research of this kind should be done in some time after the retention process. So we are not able to perform it within this study.

5.3. Development of the questionnaire for the survey

The survey questions were created according to recommendations of Fowler 1995:

- questions should be understood by responders in a consistent way and in a way that is consistent with the researcher expectations
- questions should communicate a kind of answers that are expected and acceptable by a researcher

As our survey is aimed to collect such factual data as existence of leaving experts' cases in a case company, reasons for their departure and mechanisms that were used to retain their knowledge, the following recommendations regarding question design were additionally followed:

- the objectives of the survey and the kind of answers needed should be defined
- all the perspective responders should have similar understanding of key terms and concepts used in a survey

The preliminary questionnaire was sent to training and development specialists, corporate trainers and HR- specialists responsible for

employees' retention programs. The estimated amount of responders was about 20. The questionnaire consisted of following questions:

- Have you ever faced a leaving expert knowledge retention issue, since you've been working for the case company?
- What were the reasons for employees' departure?
- What knowledge retention mechanisms have you used in the case of experts' leaving?

The second part of the research- the telephone interviewing was conducted only with those employees who provided information about cases of experts' leaving. As in this part of research we were mostly interested in personal opinions, evaluations and ideas about the knowledge retention mechanisms used, creating interview questions, we followed several specific recommendations from Fowler 1995:

- When measure responders agreement or support of an idea it's good to create questions in such a way, that responders can answer in agree-disagree or ranking form
- When measure responders' knowledge they should be asked to answer in narrative or open-ended form.

The second questionnaire consists of the following questions:

- What knowledge retention mechanisms have you used in cases of experts' leaving?
- When starting the retention project did you have specific set of knowledge areas that needed to be retained? Were all the necessary knowledge transferred to a successor?
- Estimate the effectiveness of the chosen mechanisms for the case:
 - Very effective
 - Effective
 - Not effective

5.4. Data collection and analysis

The sample audience consists of training and development specialists and HR specialists carrying special projects in the field of employees' retention, the total amount of interviewees was 19. The audience was chosen as it is assumed to be familiar with knowledge retention issue and has some experience in cases of knowledge transfer and employees retention. The data for the first part of research was collected in May 2012 by means of corporate mail system. Responders were given 14 days for answering, no reminders were sent. The preliminary questionnaire was sent to 19 specialists.

13 out of 19 specialists responded the survey; the response rate was 68%. 11 out of 19 responders provided information that they have faced cases of leaving experts knowledge retention, so the second part of the survey was conducted only with them. 2 out of 19 responders provided information that they have never faced cases of leaving experts knowledge retention.

Phone interviews were being conducted during a month in June 2012, 11 responders took part in the interview. The interview were chosen to be conducted by the phone, as most of responders work in several brunches of the company, situated in Moscow, Novosibirsk, Nishniy Novgorod, Voronesh, Ekaterinburg, Vladivostok, Rostov na Donu. One interview was made face-to-face in Saint-Petersburg. The interviews were hold during the working day and conducted in Russian. The duration of interviews was about half an hour. The interviews started with general information about the aim of the research, its structure and timeline.

All the interviews were recorded and transcript, with beforehand permission of the interviewees. The transcripts were translated from

Russian into English by the researcher. For recording purposes phone interviews were conducted in isolated rooms using speaker phone.

The employees who took part in the interview are presented in Table 1 below.

Table 1: The list of interviewees

Name	Title	Branch of the company
Valeria Stifeeva	Training and Development specialist	North-West region
Marina Shatilina	Training and Development specialist	Moscow region
Olesia Zaytzeva	Corporate Trainer	Siberia region
Ia Osipova	Training and Development specialist	Privolshsky region
Natalia Osipova	Corporate Trainer	Central region
Natalia Komissarova	Training and Development specialist	Ural region
Olga Molodzova	Corporate Trainer	Vladivostok
Shanna Sementchenko	Training and Development specialist	South region
Irina Rybkina	Special project manager	Moscow (Head Office)
Anastasia Iliana	Knowledge retention project manager	Moscow (Head Office)
Ekaterina Svitcheva	Training and Development specialist	Central Region

5.5. Reliability and validity of the research

Talking about reliability of interview as a research method, we should pay attention to the following issues:

1. It's important to create questions in such a way that all the responders understand them; also their answers should be coded without a possibility of uncertainty. This can be achieved by:
 - training of interviewers
 - pre-testing of interviewers
 - using fixed-answer questions
 - inter-rate reliability checks on the coding of answers to open-ended questions
2. Interview studies should also satisfy the criterion of using low-interference descriptors. To achieve this criterion :
 - interviews should be conducted in written form, in other cases recorded and carefully transcribed
 - interview data analyzed and compared by several researchers (Silverman 2005)

In this research the mentioned reliability criterion was satisfied by pre-testing (survey) of interviewers and tape-recording and transcription of the interviews. Guba and Lincoln, 1994 proposed four criteria for evaluation of validity of a qualitative research; they reflect the underlying assumptions involved in much qualitative research: credibility, transferability, dependability, confirmability.

Credibility criterion establishes the results of the research as credible and believable from the perspective of a participant of the research. The aim of qualitative research is viewed as understanding and description of the phenomenon from perspectives eyes- a perspective is the only one who can judge the credibility of results. *Transferability* refers to the degree how results of the research can be generalized and transferred to other contexts and settings. The person who is responsible for the transfer of results should make the judgment of how sensible the transfer is. The view of *Dependability* is traditionally based on assumption of replicability and repeatability, basically it's about if we can observe the same results twice,

measuring different things. *Confirmability* refers to the degree to which the results can be confirmed or corroborated by others. Data audit can be conducted to examine the data collection and make judgments about potential bias for distortion.

In this research the validity criteria was satisfied by presenting the results to the participants with the aim of checking credibility criterion, transferability criterion can be checked conducting the research with the same method in a company of the same size and operation, the same method can be used for dependability criterion. The conformability criterion can be satisfied by further research.

6. Empirical findings

6.1. Main findings

In this part of the research we focus on the results of the above described research. The aim of our research was to find out what mechanisms are used in the case company for knowledge retention of leaving experts and evaluate these mechanisms from the point of effectiveness. We asked interviewees regarding the effectiveness of mechanisms they used and whether or not in the beginning of retention process they had have a knowledge map with topics needed to be shared and how fully these topics were transferred to a successor during the retention process.

During the first part of the interview we created the research scope of 11 employees who provided 65 cases of leaving experts' knowledge retention processes.

The interviewees mentioned the following knowledge retention mechanisms as mostly used for knowledge retention:

- mentoring
- job-shadowing
- interview
- process documentation
- training

Further research was conducted to answer the following questions:

- Which of the mechanisms were the most widely used
- What factors influenced the choice of a particular retention mechanism in each case
- The effectiveness of chosen mechanisms for different types of knowledge retained

- In what way the effectiveness of retention process depends on prior created knowledge maps.

6.2. Mechanisms of knowledge retention

In the Table 2 you can see the distribution of knowledge retention mechanisms according to their usage in the case company.

Table 2: Distribution of knowledge retention mechanisms in the case company

Mechanism	Number of cases used out of 65	Percentage of usage
Mentoring	34 out of 65	52%
Interview	14 out of 65	22%
Job shadowing	7 out of 65	11%
Process documentation	6 out of 65	9%
Training	4 out of 65	6%

In most of the cases (48 out of 65) before the process of knowledge retention started a leaving expert and his manager have chosen one or two successors from the expert's department. In other cases there were more than 2 successors or knowledge was transferred to a whole department or a working group. So we can say that in most cases an expert had known a successor and had had some working interactions with him before the retention process started. This fact may explain the choice of such mechanisms as mentoring and interview as mechanisms with one-to-one interaction and direct transfer of knowledge.

Below we define these mechanisms according to the case company perspective and provide quotes from specialists responsible for the

retention projects, which illustrate the examples of mechanisms implementation.

6.2.1. Mentoring

De Long and Davenport, 2003 in their paper “Better practices for retaining organizational knowledge: lessons from the leading edge” described mentoring as a process of individual coaching when unique knowledge is transferred directly from a leaving expert to a successor.

Mentoring was mostly chosen by technical specialists who needed to retain some tacit knowledge regarding operation of systems and devices. We can make an assumption that this mechanism helps them to retain such type of knowledge in easiest and fastest way, as for some technical workers writing of manuals, presentations and trainings is time-taking and not effective as some technical specialists do not have enough developed communicative skills to make some presentations.

In the case company sometimes a single employee for the whole regional branch obtain knowledge about operating and maintenance of some specific equipment, in cases of his departure any problem appeared with the equipment may cause a break-down and lose of mobile network operation and hence profit for the whole region. So in cases of such employees' departure management provide all the necessary resources to organize the retention of this important technical knowledge.

We noted that no matter how urgent a technical expert departure was all the retention projects were conducted with very high quality and ended up with meeting knowledge retention project goals. Below we provide some quotas from interviews with knowledge retention process managers illustrating the implementation of this mechanism.

“Last year we faced 8 cases of high-qualified engineers’ departure from their positions. 3 departures had been planned due to career promotion, 5 employees unfortunately left our company. As I faced the cases of planned departures first, I had some time to master the knowledge retention strategy, which I later used for the urgent departures too. According to the company rules the first stage of any knowledge retention project should be a meeting with a leaving expert and his manager and drawing out the critical knowledge to retain and choosing a successor. Then I met with an expert and a successor and discussed the retention mechanism and the way it would be implemented, we made a plan with dates and deadlines, ending with an exam for a successor to check the quality and quantity of knowledge retained. The mentoring process in these cases included the combination of job-shadowing, interview and coaching of a successor”. (Stifeeva, 2012)

“We used mentoring for cases of engineers’ departure. They obtain knowledge that is difficult to communicate, but they could show to their successors how to operate, maintain and repair the equipment, watch and correct the mistakes of successors, then discussed the results”.(Osipova, 2012)

“In our regional brunch we used mentoring for the cases of engineers’ departure. We offered the leaving specialists to choose the successors by themselves and in all the cases they found successors in their departments and working groups, so they were the people who worked in the same area and with the same equipment. The leaving experts did not need to teach them basic theoretical things, they showed them how to deal with problems and breakdowns and other difficult situations, with some real-life practice with the equipment”.(Komissarova, 2012)

6.2.2. Interview

Such knowledge retention mechanism as interview was used mostly in cases of technical employees' departure and financial specialists' departure. The interview was used in cases when a leaving specialist and a successor worked in different regions and knowledge retention process was organized via phone or video calls. At the same time this mechanism was used in cases, when one expert had several successors. In all the cases successors had some background in the field of retained knowledge, during the interview they asked questions about cases and problems that the experts had faced or about particular features of equipment or software operation.

Below we provide some quotes from the interviews illustrating the application of interview as knowledge retention mechanism.

“When one of our financial analysts accepted a position in the head office we started the knowledge retention process. There are four financial analysts in the working group; each of them is responsible for particular sphere of business. They work with the same programs, use the same methods for analysis, but they should have some particular knowledge and contacts in the sphere they work. We were looking for an experienced person for the opening position, but at the same time we decided to share the main knowledge between the whole working groups to make it easier to start for the new person. The leaving expert specified the knowledge areas needed to be retained, introduced them to colleagues, they created their questions and we organized three thematic interview- meetings of the expert by the successors.” (Osipova, 2012)

“We used such mechanism as interview when one of our engineers was leaving the regional brunch. He was the only person in Saint-Petersburg working with some equipment; luckily we have the same equipment in our

Murmansk brunch and some engineers working with it there. These engineers could do only some basic operations, but with the departure of our Saint-Petersburg's expert they had to maintain the equipment fully. Our expert prepared the list of activities he performed with the equipment, sent it to the successors, they created their questions. The retention process was organized via phone calls, e-mail and video-calls. We didn't control every step of it, as employees were very motivated for the knowledge exchange". (Stifeeva, 2012)

6.2.3. Job shadowing

Job shadowing was mostly chosen in cases of managers' departure. In the case company a job shadowing program is called "a working day with a manager" and organized in the way of shadowing the manager in some activities during one or several working days, mostly during meetings and presentations. This mechanism is aimed to retain know-how, business contacts and explore interactions and links between a leaving manager and employees of his and related departments.

Below we provide some quotas illustrating the use of job- shadowing in the case company.

"We used a job- shadowing mechanism in a case of sales department expert's leaving. In that case an experienced employee responsible for high-margin customers' support was moving to the head office and we faced a problem of retention his contacts, connections and special information about his customers in our region. In our company such kind of employees as he was are usually responsible for a small amount of high-margin customers, but they know everything about their contracts, employees responsible for their technical support from our side and customer's side, they are responsible for solving all the problems a customer has, together with offering a customer special offers and services. The leaving expert organized meeting with all his clients, where

he introduces the successor and discussed all further interactions between customers and company. The successor also observed how the expert works with the customers, it was easy to organize as they work in the same department and during a month when an expert had some cases to solve, he called the successor to observe it.” (Svitcheva, 2012)

“One of our managers decided to leave the company, we found the successor fast and he spent about two weeks with the managers, just observing his day and interviewing him with the questions appeared”.(Iliana, 2012)

6.2.4. Process documentation

Process documentation was mostly chosen by technical employees who did not have successors. They documented issues related to operation of specific equipment, rules of network configuration, planning and development. The results of this work were stored within regional departments, in two cases was also copied by technical trainers for further training creation (knowledge that is unique for the whole company).

Below we provide some quotas illustrating the use of process documentation in the case company.

“One of our engineers had been promoted to the head of regional department and we faced a problem that he had some specific knowledge about the equipment configuration and interrelation in main city of our region. If some questions had appeared any employee could call him and got the solution. But with his new position he shouldn’t be disturbed so often, so we agreed that he created a special map with all the traces and connections and shared it with the colleagues. The map was created in electronic form and shared via corporate computers, so all the engineers

could use it and make some changes in it if necessary. It took the expert about three months to create the map.” (Komissarova, 2012)

“In our company we have to change equipment very often, our vendors have very strict rules regarding the use of out of date equipment, but in some cases we are not able to install for some time. One engineer who was the only employee in the regional office obtaining knowledge about new uninstalled equipment decided to move to another regional brunch, As his departure was really urgent we made a decision to retain his knowledge in a written form and asked him to make an electronic manual with basic information about the equipment. His manager pointed out the main questions that should be discussed in it and followed the process of writing; it took the engineer about 2 working days to write the manual and about a day for correction. (Zaytzeva, 2012)

6.2.5. Training

We found out that in most cases *training* was mentioned as knowledge retention mechanism with the wrong meaning. As we studied additionally most employees when named training as a retention mechanism meant mentoring or interview, they did not create and conduct any special training program; they showed or told to the colleagues how to work with some equipment.

Below we provide some quotas illustrating the use of training in the case company.

“That was the case when a leading engineer was leaving a regional brunch for the regional headquarters. As he was the main person responsible for whole power system in the brunch, he had a lot of information for transferring to his colleagues. We organized four meetings where he lectured the information to his department. We called it training, as it was some kind of school or university lesson.” (Rybkina, 2012)

6.3. Process of knowledge retention

For further discussion we need to describe the typical knowledge retention process in the case company.

For our research we used two types of cases:

- cases of urgent employee departure
- cases of planned employee departure

In the first type of cases, the company generally has two weeks time limit for retention process, as according to Russian labor law that is the maximum time an employee should work for the leaving company after a resignation notice handing. In these cases almost all the time before the departure employees were almost totally focused on knowledge retention projects.

In the second type of cases employees left their current positions due to promotion or change of position within the case company. There was more time before their leaving, in some cases (from two months to a year). In these cases knowledge retention projects were not so intensive.

In both types of cases general strategy for knowledge retention was generally the same with only time difference. Above we represent the stages of typical knowledge retention process in the case company.

Stage 1.

Manager of regional HR specialist indicates the case of an expert departure, contacts regional T&D specialist or talent manager (further referred as knowledge retention project manager).

Stage 2.

Knowledge retention project manager, leaving expert and his manager have a meeting where discuss knowledge areas that will be retained,

duration of the retention process, perspective successor and knowledge retention mechanism that will be used for the case.

Stage 3

Leaving expert, his manager and successor develop a knowledge retention plan. In the plan should be clearly indicated topics for retention, dates of retention activities, general retention mechanism and final test or exam activity for successor that aimed to indicate the successful acquisition of knowledge topics. All the plans afterwards submitted by knowledge retention project manager, then he controls the realization of the plan and the correct choice for knowledge retention mechanism for the case.

Stage 4

Process of knowledge transfer. The leaving expert and the successor perform the knowledge transfer activities according to the previously created knowledge retention plan and using the chosen knowledge retention mechanism or mechanisms. The knowledge retention project manager monitors the process providing necessary feedback, advices or correction. At this stage the retention mechanism, successors or project deadlines can be changed.

Stage 5

Leaving expert, his manager, successor and knowledge retention project manager have a final meeting when a successor accomplishes the final task aimed to show the knowledge acquirement. In cases when a leaving expert does not have a successor during the last meeting an expert represents his written work (usually manual or questions and answers) to the manager and knowledge retention project manager and they evaluate it from the point of meeting goals of original retention plan.

6.4. Effectiveness of knowledge retention mechanisms

In this research we evaluated the effectiveness of chosen knowledge retention mechanisms from two perspectives:

- Responders evaluated how fully the knowledge was transferred, according to knowledge retention plans (maps) they have created before the project started
- Responders provided their own opinions regarding the effectiveness of chosen retention mechanisms.

We present our findings below. Knowledge plans or maps had been created in all 65 cases, as that was obligatory for participation in the retention project. 58 out of 65 (89%) participants proved that all the necessary knowledge was transferred during the project. Table 3 retention mechanisms used in the cases where all necessary knowledge was transferred.

Table 3: Distribution of knowledge retention mechanisms in successful retention projects

Mechanism	Number of cases out of 58	Parentage of usage
Mentoring	32	55%
Interview	13	22%
Job-Shadowing	7	12%
Process documentation	5	9%
Training	1	2%

7 out of 65 (11%) participants mentioned that necessary knowledge was not transferred; mechanisms used in these cases are presented in the Table 4 below.

Table 4: Distribution of knowledge retention mechanisms in failed retention projects

Mechanism	Number of cases out of 7	Percentage of usage
Training	3	44%
Mentoring	2	28%
Process documentation	1	14%

We asked participants to evaluate the knowledge retention mechanisms used from their own perspective of effectiveness.

- 55 out of 65 (85%) responders named used mechanisms as “effective”
- 7 out of 65 (11%) responders named used mechanisms as “not effective”
- 3 out of 65 (4%) responders named used mechanisms as “very effective”

Among the “effective” mechanisms were mentioned:

- 13 out of 55 (24%)- interview
- 4 out of 55 (7%)- job-shadowing
- 5 out of 55 (9%)- process documentation
- 1 out of 55(2 %)- training
- 32 out of 55 (58%)- mentoring

Among the “not effective” mechanisms were mentioned:

- 1 out of 7 (14%)- interview
- 2 out of 7 (28%)- mentoring
- 1 out of 7 (14%)- process documentation
- 3 out of 7 (44%)- training

Among “very effective” mechanisms responders mentioned only job-shadowing.

6.5. Combination of knowledge retention mechanisms

In 9 out of 65 cases more than one knowledge retention mechanisms was used. The following combinations of mechanisms were used:

- mentoring and job-shadowing -2 cases
- mentoring and interviews-4 cases
- interview and process documentation-1 case
- training and mentoring- 1 case
- job-shadowing, mentoring and interview- 1 case

We evaluated the influence of using combination of mechanisms on the effectiveness of knowledge retention process and came out to the following results:

- 7 of the combinations were generally evaluated as “effective”
- the combination of three mechanisms was evaluated as “very effective”
- the combination of process documentation and interview was generally evaluated as “not effective” (See Table 5).

Table 5: Combinations of knowledge retention mechanisms

Responder	Case №	Knowledge retention method	Knowledge map	Knowledge retained/not	Effectiveness
1	1	Job-shadowing	Yes	yes	very effective
		Mentoring	Yes	yes	effective
		Interview	Yes	yes	effective
	2	Interview	Yes	no	not effective
		Process documentation	Yes	yes	effective
3	1	Mentoring	Yes	yes	effective
		Interview	Yes	yes	effective
4	2	Mentoring	Yes	yes	effective
		Job-shadowing	Yes	yes	effective
	4	Mentoring	Yes	yes	effective
		Interview	Yes	yes	effective
	5	Job-shadowing	Yes	yes	effective
		Mentoring	Yes	yes	effective
5	2	Mentoring	Yes	yes	effective
		Interview	Yes	yes	effective
6	1	Mentoring	Yes	yes	effective
		Interview	Yes	yes	effective
	4	Training	Yes	yes	effective
		Mentoring	Yes	yes	effective

7. Discussions and conclusions

This study has initially the following aims:

- to explore the knowledge retention mechanisms which are used in cases of experts' departure in organizations
- to explore the reasons which influence the choice of these mechanisms and how successful a retention process is in each case
- to measure the effectiveness of chosen mechanisms for each case.

Additionally we studied the influence of knowledge maps and plans creation on successful knowledge transfer process and effectiveness of differentiation of knowledge retention mechanisms depending on the type of knowledge retained.

7.1. Summary and analysis of the results

7.1.1. Knowledge retention

Knowledge retention process in cases of leaving experts has been under researchers' attention since early 2000s. Early researchers (DeLong et al. 2003) concentrated on the problem of knowledge loss due to soon the retirement of Baby Boomers generation, so they mostly studied cases of mass knowledge retention programs. These early studies, however, provided the theoretical framework for the further research and discovered and described the most commonly used knowledge retention mechanisms.

The investigation of single experts' knowledge retention started with the works of Hofer-Alfeis 2008 and Levy 2011 who used just several cases for their research studies.

During our research we did not meet great amount of experts' knowledge retention research studies based on real-life cases, what made us interested in working with our case company VimpelCon, where the program of experts' knowledge retention was used in numerous of cases.

Our research shows, that in the case company was implemented the whole knowledge retention process, as mentioned in scientific literature. The process can be described as the following: choice of knowledge that should be retained, planning of the retention process, retention process itself, follow-up analysis.

We also consider that our research results oppose Levy's idea of lack of necessity of assessment project, proving that in our case company the assessment had been done and only after it the main project started. We also claim that in any company it is not be possible to start successful knowledge retention or any other human resources project without prior analysis of the current situation.

7.1.2. Mechanisms

Mechanisms of knowledge retention have been described by many authors, some of them like Davenport and DeLong, 2003 present the set of mechanisms used in cases of mass knowledge retention issues, such as mass retirement of experienced employees. Other like Levy and Hofer-Alfeis describe mechanisms used in cases of single expert leaving.

In our research we studied the mechanisms used in cases of single employees departure, fortunately the program was managed in a good way, we got a wide range of cases, which helped us to study several consistencies in mechanisms' application. We discovered the most popular mechanisms and made assumptions regarding the reasons of that choice. We claim that the choice of mechanisms was originated by the

field where the leaving experts work. Technical specialists mostly chose mentoring, that proves that it works the best for retaining technical knowledge and know-hows, due to combination of explanation and demonstration. Opposite, in cases of non-technical specialists' departures interview and job-shadowing were mostly chosen, we claim that these mechanisms help to retain knowledge about useful contacts, business and personal interactions within the company and unwritten rules of communication with clients and colleagues. Also in technical and non-technical cases were mostly chosen mechanisms which help to retain mostly tacit knowledge.

Such mechanisms as process documentation and training were mostly chosen in cases ended with non-retention of knowledge; we can make an assumption that it was done for the following reason - leaving experts, managers and successors who chose these mechanisms had evaluated the cases in a wrong way, without clear analysis of the retention case, type of knowledge retained, expert's and successors personality and time limits.

The combination of mechanisms worked out to be very useful and productive. In the majority of cases where were used two and more mechanisms the results were more successful than in cases of single mechanism use.

7.1.3. Knowledge maps

Hofer-Alfeis 2008 in his work presents "knowledge portfolio" creation as an essential element of knowledge retention process. He suggests choosing for each case of a leaving expert knowledge areas critical for business process and concentrates the retention process on them. Also he provided an idea of the Leaving Expert Debriefing that should be holding together by Leaving Expert, Moderator and Leaving Expert Manager.

In our research we studied the practical implication of that idea, as in the case company for every retention process should be done a retention plan with critical areas of knowledge, mechanisms and due dates discussed and submitted by leaving expert, manager, and knowledge retention manager. In our research knowledge plan was created for all cases and as most of the cases ended up with the meeting retention goals we can make an assumption that a carefully made knowledge retention plan or knowledge portfolio can be one of the success factors, together with suitable knowledge retention mechanism chosen and well-organized companies retention policy.

As the result of our research we can indicate the most commonly used knowledge retention mechanisms in cases of leaving experts (with limitation for high-tech, Russian companies). According to our analysis the mostly used mechanisms are mentoring, interviews and job-shadowing, which all include face to face interaction between a leaving expert and a successor, mostly aim to transfer tacit knowledge and know-hows. In the case project this mechanisms proved to be effective, as led to the successful knowledge transfer.

We assume that any knowledge retention process should start with creation a well-developed portfolio for the retaining knowledge, which helps to organize the retention process, chose a suitable mechanism and evaluate the results.

7.2. Managerial applications

We are going to represent our recommendations in the form of practical advices for companies initialing the leaving experts' knowledge retention projects. We suggest organizing a retention process by stages.

At the first stage the following main steps should be done:

- The problem should be detected

- Roles in the project should be stated (an expert, a successor of successors, a knowledge retention process manager and a manager)
- Retained knowledge portfolio or map should be created (as a practical tool can be used a Knowledge portfolio model suggested by Hofer-Afeis 2008)
- Based on the following factors: type of knowledge retained, an expert's and a successor's personality and technical capability, should be chosen a mechanism or mechanisms of knowledge retention
- Knowledge retention plan should be created. When working on the plan special attention should be paid to planning of activities that aimed to control the quality and timeline of the retention process. The activities should be suitable for the chosen retention mechanisms and type of knowledge retained
- At this stage it is good to organize a meeting of a manager and a knowledge retention process manager with a successor to explain his or her benefits from the project.

The second stage- the retention process

- During the retention process an expert and a successor should not be left by their manager and knowledge retention process manager. At some stages they need assistance with the process regulation, implementation of the retention mechanism, control and motivation. At the same time such attention should not be too pushing and intensive not to damage the process
- It's a good idea to have as knowledge retention process manager a well-motivated employee. As in the case company process the management faced the problem of the lack of motivation among personnel responsible for the project. They considered it as extra, non-paid and boring activity and in some points their engagement to the project was very low.

The third stage- end of the project, analysis of the results:

- The main activity at this stage should be some a quality and quantity exam or a test of the knowledge transferred. It's good to have this exam previously discussed with an expert and a successor to be sure its comfortable to take and effective in the way it tests retained knowledge. It should correlates with a type of knowledge retained and a retention mechanism
- It's good to have double or triple test of retained knowledge in some fixed periods of time, for example: just after the retention process, in a month after and in a year after. That can help to measure different levels of knowledge acquisition
- We advice to make a careful analysis of each knowledge retention project conducted. For this purpose a knowledge retention process manager should conduct a final interview with an expert, a successor and a manager, when collect their opinions regarding the general usefulness of the project, mechanisms used, factors that influenced retention project in a positive or negative way.

7.3. Limitations and suggestions for the further research

At the last part of our research we represent the limitations appeared and give recommendation for the further research.

- The research was conducted in one company of telecommunications industry. The results might be valid only for chosen industry
- Different results might appear in a multinational company, as such factors as language and culture difference may influence the choice of retention mechanisms and results of each case project
- In our research we studied the first year of the first ever knowledge retention project in the case company. There is a need for further

research of the same topic in the case company in a couple of years, when the process will be established and analyzed

- It's necessary to conduct more precise research of the failed retention processes mentioned in the research results with deep studying of expert dependable, successor dependable and process dependable factors that influenced the failure
- It would be useful to study dependence of the chosen retention mechanisms on the field where an expert work and also study the reasons of that choice.

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Appendices

Appendix 1: Research data

Responder	Case №	Mechanism	Knowledge map	Knowledge retained/not	Effectiveness
1	1	Job-shadowing	yes	yes	very effective
		Mentoring	yes	yes	effective
		Interview	yes	yes	effective
	2	Interview	yes	no	not effective
		Process documentation	yes	yes	effective
2	1	Job-shadowing	yes	yes	very effective
3	1	Mentoring	yes	yes	effective
		Interview	yes	yes	effective
4	1	Job-shadowing	yes	yes	effective
	2	Mentoring	yes	yes	effective
		Job-shadowing	yes	yes	effective
	3	Mentoring	yes	yes	effective
	4	Mentoring	yes	yes	effective
		Interview	yes	yes	effective
	5	Job-shadowing	yes	yes	effective
		Mentoring	yes	yes	effective
	6	Process documentation	yes	no	not effective
		7	Mentoring	yes	yes
5	1	Mentoring	yes	no	not effective

	2	Mentoring	yes	yes	effective
		Interview	yes	yes	effective
	3	Mentoring	yes	yes	effective
6	1	Mentoring	yes	yes	effective
		Interview	yes	yes	effective
	2	Mentoring	yes	yes	effective
	3	Interview	yes	yes	effective
	4	Training	yes	yes	effective
		Mentoring	yes	yes	effective
	5	Training	yes	no	not effective
	6	Mentoring	yes	yes	effective
7	1	Interview	yes	yes	effective
	2	Mentoring	yes	yes	effective
	3	Mentoring	yes	no	not effective
	4	Job- shadowing	yes	yes	effective
	5	Process documentati on	yes	yes	effective
	6	Mentoring	yes	yes	effective
8	1	Mentoring	yes	yes	effective
	2	Mentoring	yes	yes	effective
	3	Mentoring	yes	yes	effective
	4	Mentoring	yes	yes	effective
	5	Mentoring	yes	yes	effective
	6	Mentoring	yes	yes	effective
9	1	Process documentati on	yes	yes	effective
	2	Interview	yes	yes	effective
	3	Job- shadowing	yes	yes	very effective

	4	Mentoring	yes	yes	effective
	5	Mentoring	yes	yes	effective
	6	Mentoring	yes	yes	effective
	8	Interview	yes	yes	effective
10	1	Mentoring	yes	yes	effective
	2	Mentoring	yes	yes	effective
	3	Mentoring	yes	yes	effective
	4	Mentoring	yes	yes	effective
	5	Mentoring	yes	yes	effective
	6	Mentoring	yes	yes	effective
	7	Mentoring	yes	yes	effective
	8	Mentoring	yes	yes	effective
11	1	Process documentati on	yes	yes	effective
	2	Interview	yes	yes	effective
	3	Training	yes	no	not effective
	4	Interview	yes	yes	effective
	5	Interview	yes	yes	effective
	6	Interview	yes	yes	effective
	7	Training	yes	no	not effective
	8	Process documentati on	yes	yes	effective