

**MATEJ BEL UNIVERSITY, BANSKÁ BYSTRICA  
FACULTY OF ECONOMICS**

**SYSTEM OF PROFOUND KNOWLEDGE IN SLOVAK  
SMEs**

**MASTER THESIS**

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Department: Department of Corporate Economics and Management

Supervisor: Ing. Denisa Malá, PhD.

**Banská Bystrica, 2015**

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Zadanie

### **Declaration**

I hereby declare that this thesis is my own work and effort. Where other sources of information have been used, they have been acknowledged.

Banská Bystrica, 24 April 2015

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*Signature*

### **Acknowledgement**

I would like to express my sincere thanks to my supervisor Ing. Denisa Malá, PhD. for her professional, constructive and constant guidance throughout the study. I also have to say thank you for all those who supported me during the period of elaboration of the study.

## **ABSTRAKT (IN SLOVAK)**

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Diplomová práca sa zameriava na systém zdieľaných vedomostí vyvinutý Dr. Edwardsom Demingom. Cieľom diplomovej práce je primárny výskum v malých a stredných podnikoch na Slovensku, ktorý je zameraný na otázku využívania tohto systému, porovnanie využitia systému s teóriou a predloženie návrhov na maximalizáciu prínosov systému a minimalizáciu možných rizík.

Definície a teoretické východiská sme čerpali z dostupnej odbornej zahraničnej literatúry a z odborných časopisov v internetovej a tlačenej forme. Analytická časť sa zameriava na daný dotazníkový prieskum v slovenských podnikoch, ktorý bol inšpirovaný teoretickou časťou práce. Sumarizovaním údajov a porovnaním s teóriou témy sme vyhodnotili aktuálnu situáciu v malých a stredných podnikoch na Slovensku.

Diplomová práca sa zaoberá štyrmi časťami systému zdieľaných vedomostí. Zaoberá sa taktiež jeho pôvodným a dnešným využitím v podnikoch, ktoré sa vyvinulo v priebehu rokov existencie systému zdieľaných vedomostí.

Očakávaným prínosom práce je prieskum situácie v malých a stredných podnikoch na Slovensku týkajúcej sa využívania daného systému a taktiež aj identifikácia problémov a rizík tohto systému. Očakávaným prínosom tejto práce je aj návrh vlastných riešení problematiky, ktoré by boli ľahko aplikovateľné a finančne nenáročné.

**Kľúčové slová:** Systém zdieľaných vedomostí, Malé a stredné podniky na Slovensku (SMEs), Procesný manažment, Systémový prístup, Manažment rizika, Znalostný manažment, Učiace sa organizácie, Emočná inteligencia.

## ABSTRACT

KIANIČKOVÁ, Daniela, Bc. System of profound knowledge in Slovak SMEs. [Master thesis] / Daniela Kianičková. – Matej Bel University, Banská Bystrica. Faculty of Economics; Department of corporate economics and management. – Supervisor: Ing. Denisa Malá, PhD. – Qualification degree: Engineer – Banská Bystrica: Faculty of Economics, MBU, 2015. 72 p.

Master thesis is focused on the system of profound knowledge developed by Dr. Edwards Deming. The objective of this thesis is the primary research in the Slovak small and medium enterprises which is aimed at the question of the usage of this system, comparing the usage of the system with the theory and submission of suggestions for maximizing the benefits of the system and minimizing the potential risks.

Definitions and theoretical basis are based on the available professional foreign literature and professional journals in the online and printed form. Analytical part is focused on the questionnaire research in the Slovak enterprises which was inspired by the theoretical part of this thesis. By summarizing the data and comparing them with theory of the topic, we evaluated the situation in the Slovak small and medium enterprises.

Master thesis deals with the four sections of the system of profound knowledge. It also deals with the original and contemporary utilizations of the system in the enterprises which were developed over the years of existence of the system of the profound knowledge.

The expected contribution of the thesis is the research of the situation in the Slovak small and medium enterprises concerning the usage of the given system and also the identification of the problems and risks of this system. Of course, the expected contribution is also the own suggestion of the solutions of the issue which would be easily applicable and financially undemanding.

**Keywords:** System of the profound knowledge, Slovak small and medium enterprises (SMEs), Process management, System approach, Risk management, Knowledge management, Learning organizations, Emotional intelligence.

## **FOREWORD**

Master thesis is focused on the system of profound knowledge and its four sections- appreciation for system, knowledge of variation, theory of knowledge and understanding of psychology. It identifies these sections and its current utilizations in order to show that this system is still alive and actual in the Slovak small and medium enterprises. The choice of this topic was connected with the interest in the Slovak business environment and the way of improvement of manager's and employee's performance. This system is not well-known in Slovakia which can be caused by the older creation of the topic.

The aim of the master thesis is to find out if the SMEs in Slovakia are using the system of the profound knowledge and its current utilizations. The method of the primary research is the questionnaire which was spread into the Slovak SMEs. Subject of the research is the Slovak business environment- small and medium enterprises.

This master thesis is concentrated on the relaunch of the system of profound knowledge and also it wants to show to what extent it is possible to apply it in Slovak SMEs in order to maximize the benefits and minimize the potential risks of the system.



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## INTRODUCTION

Probably every enterprise wants to be successful and wants to satisfy its employees and customers. In order to fulfil these needs, some SMEs are using various systems and theories and some of them are trying to break through with their own ideas. Slovak market is becoming more distinctive than ever and it brings many different thoughts about how to be prosperous.

The aim of this master thesis is to introduce and clarify the known system of the profound knowledge together with its four basic sections and to show through the analysis of the business environment that Slovak SMEs can use this system in order to have satisfied employees and customers so they can operate more effectively.

The first part of the master thesis will be focused on the theoretical basis of the quality management and clarification of the concept of the system of profound knowledge. We will deal with the basic definitions from the quality management, beginnings of the quality management and merits of the Dr. Edwards Deming. Later we will describe the most relevant theories and systems of Dr. Deming such as 14 points of management, 7 deadly diseases, Plan-Do-Check-Act and Plan-Do-Study-Act cycles.

The second part of the master thesis will be concentrated on the primary research elaborated through our questionnaire in the Slovak SMEs. We will choose a certain number of questions and statements from each section of the system of profound knowledge which will be graphically shown and described. We will find out concrete problems, strengths and weaknesses in the Slovak business environment.

In the third part of the master thesis, we will compare the theory and our research of the system of profound knowledge and we will suggest various recommendations and measures for the SMEs which will be easily applicable and financially undemanding.

This master thesis shows the advantages of the system of profound knowledge and its positives which it can bring into the enterprise.

# **1. THEORETICAL BASIS OF THE DIPLOMA THESIS**

Before the analytical research, we need to define and describe various basic expressions, facts and theories which will be necessary for understanding the next sections of this study.

## **1.1. Basic definitions, beginnings of quality management and Deming's merits**

System is an organized, purposeful structure that consists of interrelated and interdependent elements (components, entities, factors, members, parts etc.). These elements continually influence one another (directly or indirectly) to maintain their activity and the existence of the system, in order to achieve the goal of the system. All systems have (a) inputs, outputs and feedback mechanisms, (b) maintain an internal steady-state (called homeostasis) despite a changing external environment, (c) display properties that are different than the whole (called emergent properties) but are not possessed by any of the individual elements, and (d) have boundaries that are usually defined by the system observer. Systems underlie every phenomenon and all are part of a larger system. (BusinessDictionary.com)

Quality has been the integral part of all products including services. The word quality is generally associated with manufacturing organizations to maintain the required standard/ quality of their products. While it is important that the quantity requirements and the specifications of the product is also the main concern of organization but it is most important that the finished product meets the desired quality standard as well. Because, the customers satisfaction can be derived from the quality of products and services. With the development of techniques, organizations have to face tough competition to market their products at national and international level. The awareness of the customers requires production of quality products/services for the survival and growth of organization. It is the quality of product and productivity which can bring prosperity into the development of country and improve the quality of the life of their follow citizens. The quality of a product or service can be its ability to ensure complete customer satisfaction and will depend upon the use of product. The quality can be defined as the fitness for use/purpose at the most economical level. It also depends upon the perception of a person in a given situation

and can be user-oriented, cost-oriented or supplier-oriented. Quality is therefore to be planned, achieved, controlled and improved continuously. (Mishra and Sandinya, 2009)

Quality management is cross-functional in nature and involves the entire organisation. Operations in an organisation have a special responsibility to produce a quality product for the customer. This requires the cooperation of the entire organisation and careful attention to the management and control of quality. Quality management has had many different meanings over the years. In the early 1900s, quality meant inspection which was the primary method to ensure quality of products. In the 1940s, quality took on a statistical connotation as statistical methods were first used to control quality within the natural variation of the process. Statistical control charts were developed to maintain a process within a state of statistical control and thus reduce the amount of inspection required. In the 1960s, the meaning of the term 'quality management' was expanded to include the entire organisation as all functions helped in designing and producing quality products and services. Quality was not viewed as just an act of production; rather it was something the entire organisation should strive to provide for the customer. Nowadays, quality is assuming a broader meaning, including continuous improvement, competitive advantage and consumer focus (i.e. customer satisfaction). (Bhat, 2014)

The modern quality movement has its roots in both Britain and America. British statisticians contributed seminal work which led to the development of techniques for statistical quality control, while the applied work of Walter A. Shewhart in 1924 (a physicist in the inspection department at Western Electric Company) was America's contribution. Shewhart suggested that better quality could be achieved at a lower cost if one moved from a system of inspecting products for defects, and instead looked at production processes. Monitoring and improving these processes would result in elimination of defects at the source, and thus result in lower costs. Shewhart's book *Economic Control of Quality of Manufactured Products* was published in 1931, and his ideas played a direct role in the 1935 publication of the first British Standards Institute standard on quality control. Despite some heightened concern with industrial quality during World War II and the development of military procurement standards (the beginnings of ISO 9000) in both Great Britain and the United States, the next real marker on the road to quality didn't occur until 1950. In

that year Armand V. Feigenbaum (who worked at General Electric) published Total Quality Control, W. Edwards Deming began working with the Japanese on quality improvement and developing his ideas on statistical process control, and in 1951 Joseph Juran published the Quality Control Handbook. At this point, the key ideas of quality management— continuous improvement, management responsibility, statistical controls, and organization-wide investment in quality— were all in place. (Avery and Zable, 1996)

Shewhart, who was a major contributor to the development of the field of statistics, also became known as the father of the quality movement. As Deming's mentor in the 1920s and 1930s, he had a major impact on Deming's theoretical underpinnings both as a statistician and as a quality expert. As might be expected, Deming's views about management evolved over a considerable length of time. While his publications prior to the Second World War focused on the use of statistics, there is clear evidence that he was concerned about management's responsibility to improve the system and to correct the errors he was identifying. (Petersen, 1999)

In recognition of his contribution to the economy of Japan, the Union of Japanese Science and Engineering (JUSE) instituted the annual Deming Prizes for contributions to quality and dependability of product. The emperor of Japan awarded him in 1960 the Second Order Medal of the Sacred Treasure. Dr. Deming has received numerous other awards, including the Shewhart Medal from the American Society for Quality Control in 1956 and the Samuel S. Wilks Award from the American Statistical Association in 1983. The Metropolitan section of the American Statistical Association established in 1980 the annual Deming Prize for improvement of quality and productivity. (Deming, 2000)

## **1.2. Deming's systems and theories**

In this section, we decided to describe various popular theories of Mr. Edwards Deming. We will discuss the 14 Points of Management, 7 Deadly Diseases, Total Quality Management and Plan-Do-Check-Act Cycle which are necessary to be mentioned.



### **1.2.1. 14 Points of Management**

Firstly, I would like to focus on the 14 Points of Management as the one of the most substantial theories of Mr. Deming.

The 14 points are the basis for transformation of American industry. It will not suffice merely to solve problems, big or little. Adoption and action on the 14 points are a signal that the management intend to stay in business and aim to protect investors and jobs. Such a system formed the basis for lessons for top management in Japan in 1950 and in subsequent years. The 14 points apply anywhere, to small organizations as well as to large ones, to the service industry as well as to manufacturing. They apply to a division within a company.

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs. (Deming, 2000)

Deming was appalled by the short-term focus on quarterly results. Good management must be focused on long-term objectives (Larson, 1994). Management has two sets of problems-those of today and those of tomorrow. We're all too familiar with the problems of today: budget, time frames, employee issues, reports and the like. However, a company focused only on today's issues will not be a leader in innovation, research or continuous improvement. The proven path to creating consistency of purpose is to clearly define your company's purpose through a published set of value statements (sometimes called a mission statement, core values, design statements or company objectives). (Jankowski, 2006)

2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change. (Deming, 2000)

Managers must recognize and respond to the challenge by learning new responsibilities and assuming leadership for change (Phelps, 1998). The new philosophy Deming was referring to is an emphasis on quality as a way of making more money. Philip B. Crosby, in his 1979 bestseller *Quality Is Free: The Art of Making Quality Certain*, points out that the cost of doing something right once is cheaper than having to rework something. Although our industry is less affected by the cost of machine failure and waste, the costs of errors in our business in terms of dollars, reputation, settling customer complaints, rework and potential litigation are

higher than the cost of producing a quality service initially. Simply stated, the lack of well-defined processes capable of producing high-quality output on the first try increases costs. (Jankowski, 2006)

3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place. (Deming, 2000)

Too many companies try to "inspect out" poor quality products at the end of the production process. According to Deming, quality has to be "built in" from the beginning (Larson, 1994). The cost of inspection is high, and often adds to the cycle time. Audits that look at 100 percent of an output are, in essence, working the function twice and doubling the cost. If a process is turning out errors, the process itself must be reworked based upon true cause-and-effect analysis. Specific tools such as Professor Kaoru Ishikawa's cause-and-effect (C&E) diagram or the Failure Modes and Effect Analysis (FMEA) brainstorming approach should be applied to design the errors out of the process. (Jankowski, 2006)

4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust. (Deming, 2000)

Sticker price has no meaning without the quality of the deliverable factored in. Selecting a vendor on the basis of low price alone may ultimately be the more expensive option if poor quality causes you to have to rework items or have a higher cost of inspection. The champion/challenger testing approach of picking two contractors may have some benefits. However, it also tends to introduce more variation into your process-which, in the long run, has its own set of hidden costs. Search for vendors that can show a dependable pattern of performance rather than the lowest price. Stay clear of vendors whose eyes get cloudy when you ask to see their formal quality plan. (Jankowski, 2006)

5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs. (Deming, 2000)

Improvement is not a one-time effort. Management is obligated to continually look for ways to reduce waste and improve quality. This idea is equally applicable to contracting activities from conceiving to negotiating to administering the contract (Phelps, 1998). The companies that will be tomorrow's leaders are those that follow

systematic innovation that deploys a managed sequence of steps using appropriate tools to improve the companies' competitive position and quality of service while reducing their costs. (Jankowski, 2006)

6. Institute training on the job. (Deming, 2000)

Too often, workers learn their job from another worker who may not have been properly trained. Poor or inadequate training is at the root of a great deal of poor quality output (Larson, 1994). Go back to Point One. If providing your employees with the skills necessary to succeed is not one of your core values, you're on the wrong path. In order to install all 14 points of the Deming Method, you will need a highly skilled work force. Arguably, in the world of mortgage banking, where most everything is regulated and where many companies use the same systems, it is the people within the organization who give it its individuality.

The leading companies within our industry have highly defined procedures and a formal learning process so new employees learn in a controlled environment. This is contrary to some environments where new employees are trained by coworkers or forced to rely on their own means to learn the job. (Jankowski, 2006)

7. Institute leadership (see Point 12). The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers. (Deming, 2000)

Leadership is responsible for setting the course of the company, and ensuring that the course is well-defined, promulgated to the staff and integrated in all business drivers, including employee goals, compensation, measurements, processes and marketing. Leaders cannot suggest, delegate or even mandate company values. They must conspicuously demonstrate, through their continual behaviour, that all business decisions are linked back to the company value statements. For instance, if one of the company value statements is to create an environment in which employees are valued, a linked actionable item would be the existence of a robust employee training curriculum. (Jankowski, 2006)

8. Drive out fear, so that everyone may work effectively for the company. (Deming, 2000)

Many employees are afraid to ask questions or take a position, even when they do not understand what the job is or what is right or wrong. The economic loss from such fear is appalling. In order to achieve better quality and productivity, people need

to feel secure (Phelps, 1998). Point Eight is about creating an environment where management maintains an open line of communication to what is going on. Managers value input, even when it is contradictory to their views. They look at problems as opportunities for improvement. When errors occur, they ask "Why"-not "Who?" (Jankowski, 2006)

9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service. (Deming, 2000)

In every organization, the friction between different functional areas consumes much wasted energy. Management must continually break down these barriers (Larson, 1994). All too often, we see supervisors or managers employ the "throw it over the wall" approach. These are clearly environments where a balanced score card approach based upon company values is not followed. Examples of functional barriers frequently seen in our industry may include barriers between originations and servicing, between systems and operations or between one department and another. In some instances, the compensation or bonus structure may actually escalate the silo mentality within an organization. It is leadership's responsibility to make sure the entire organization is focused on an objective and all resources are aligned to achieve that objective. (Jankowski, 2006)

10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force. (Deming, 2000)

Ask yourself: Has a poster ever caused you to work harder? Implicit in many posters and sloganeering is the supposition that the employees could do better if only they would try harder. Setting a goal of zero defects without providing the methods for achieving it does nothing to improve quality. Motivation is intrinsic to each individual. Management can only create an environment that either turns that intrinsic switch on or turns it off. (Jankowski, 2006)

11. a. Eliminate work standards (quotas) on the factory floor. Substitute leadership.

b. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership. (Deming, 2000)

A person under pressure to meet a numerical quota can cause considerable damage (Larson, 1994). Similarly, the overreliance on averages, leads managers to draw wrong conclusions. Average does not factor in range, variation, customer expectation or other important measures. Average is like having one foot resting on ice while the other rests on hot coals, producing a comfortable average temperature. Managers need to take advantage of more robust measurement systems like those found in statistical process control-based (SPC-based) programs such as Six Sigma. (Jankowski, 2006)

12. a. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.

b. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual or merit rating and of management by objective. (Deming, 2000)

Most people are eager to do a good job and distressed when they cannot. Too often, misguided supervisors, faulty equipment, and defective materials stand in the way. These barriers should be removed (Phelps, 1998). When Denning wrote this point, he was referring to barriers such as poor equipment, poor maintenance on equipment, hectic floor plans, assembly line quotas and other items that were mostly manufacturing-related. However, we can see within our own industry, to varying degrees, barriers such as poor computer response times, absence of timely and meaningful reports, lack of documented procedures, inadequate training, unclear job descriptions, broken copiers and unrealistic production quotas that inhibit quality. What barriers exist within your organization? It's easy to find out: ask the employees. (Jankowski, 2006)

13. Institute a vigorous program of education and self-improvement. (Deming, 2000)

This point differs from Point Six. Point Six refers to training on the process. Point 13 refers to the development of employees to prepare them to accept more responsibility within the organization. Employees who are promoted must be given a new skill-set package. All too often, we see supervisors acting like superprocessors and managers acting like supervisors, because they haven't been given the training necessary to be successful in their new position. For instance, the

super-processor who is promoted to supervisor will need an entirely new set of tools to be successful in his or her new role. New supervisors will need to enhance their communication skills and learn how to delegate. Without this training, they will often continue to rely on the skill set they are most comfortable with, such as doing it themselves. (Jankowski, 2006)

14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job. (Deming, 2000)

To carry out the quality mission requires an action plan backed by the full commitment of top management (Larson, 1994). This point refers to management's permanent and enthusiastic commitment to ever-improving quality and productivity, and its obligation to implement all 14 of the principles. Deming referred to it as his "consistency of purpose" point. If leadership loses interest or moves on to other things, the approach will ultimately fail.

Leadership is the key. Creating an environment that embodies the Deming principles cannot be driven from the staff level. Intrepid transformational leadership based upon Deming's teachings changed Japan's approach to the way it did business, and the rest of the world spent years figuring it out and attempting to catch up. (Jankowski, 2006)

### **1.2.2. Deming's Seven Deadly Diseases**

In addition, Dr. Deming also pointed out that there are hurdles to achieving the goals stated in the 14 points, which he called the "Seven Deadly Diseases."

1. Lack of constancy of purpose to plan product and service that will have a market and keep the company in business and provide jobs (Perrin, 2008). Beckford (1998) says that inherent in this is a continuing drive towards better quality and reliability of product in order to drive down costs, protect investment and employment, create and enlarge markets and hence generate more jobs. It is seen as providing a positive and achievement oriented focus for the organisation.

2. Emphasis on short-term profits: short-term thinking, fed by fear of unfriendly takeover and by push from bankers and owners for dividends.

3. Personal review system, or evaluation of performance, merit rating, annual review, or annual appraisal, by whatever name, for people in management, the effects of which are devastating. Management by fear would be better than management by

objectives without a method for accomplishment (Perrin, 2008). While acknowledging Deming's belief in the potential damage that a poor appraisal system can cause, this is rather more a function of a badly designed system than a necessary outcome of performance review. As with the quality of a manufactured product, the quality and impact of an appraisal system will depend upon the quality of its design. Most of us need and enjoy recognition of our achievements and can benefit from the guidance delivered through a constructive and effective appraisal system. This perhaps partly reflects the esteem element in Maslow's hierarchy of needs. (Beckford, 1998)

4. Mobility of management; job hopping (Perrin, 2008). Originally seen as a particular attribute of Western management, this is increasingly common in Far East locations such as Singapore and Hong Kong. Job-hopping is considered to lead to instability and further reinforce the short term orientation of the organisation. (Beckford, 1998)

5. Use of visible figures only for management, with little or no consideration of figures that are unknown or unknowable (Perrin, 2008). Here Deming criticises failure to recognise and evaluate the intangible aspects of the organisation, for example, the additional sales generated through satisfied customers, the benefits to productivity and quality derived from people feeling part of a success story and the negative impact of performance appraisal or barriers to achieving quality. (Beckford, 1998)

6. Excessive medical costs (Perrin, 2008). The cost of insurance is driven by claims experience and actuarial expectation and it is arguable whether Deming is making a fair point. Medical costs are currently covered in every developed nation. If they are not supported by private insurance schemes such as prevail in the USA, France, Singapore and many other nations, they may be met by a national scheme such as the NHS (Author's note: National Health Service) in the UK. Either way, the company may be considered to bear the cost, through direct contribution, or by increased basic wages which enable the employees to meet the cost themselves. (Beckford, 1998)

7. Excessive costs of warranty, fueled by lawyers that work on contingency fees. (Perrin, 2008) The seventh and final sin is one that is now considered to be gaining further ground that is 'liability costs'. There is evidence throughout the

developed world of an increasingly litigious public perhaps encouraged by lawyers working on a 'no win, no fee' basis. While many potential liability issues are insurable many others are not. The costs of these must be borne by the organisation. Whether management and manufacturers can reasonably be blamed for this issue is certainly arguable and it is questionable whether it is within their power to effectively control. It is suspected that it relates to broader societal changes such as an increasing trend towards individual rather than collective values and the hunt, whenever things go wrong, for the often elusive 'someone to blame'. (Beckford, 1998)

The relevance of Deming's contributions has not diminished since they were introduced. The 14 points and System of Profound Knowledge have been critical influences in the development of total quality management (TQM) and the concept of quality culture in general. (Radziwill & Benton, 2013)

### **1.2.3. Total Quality Management**

During the 1980s and the first part of the 1990s Total Quality Management (hereinafter referred to as TQM) was a popular subject for many people, especially leaders, managers, consultants, business writers, business school professors and students. The subject, represented by the acronym TQM, was contained in countless books, articles, papers, seminars, and consulting efforts. Often promoted as a solution for many of our organizational ills, it failed to materialize when it was applied superficially. Apart from these TQM efforts, Deming had his own approach for improving organizations. He argued that his approach was an economic necessity and spelled out his approach for transforming the ways of western management. Careful not to invent an acronym or even a phrase that could become a "buzz" word, he sometimes referred to his approach as "my way" or "the transformation into a new style of management".

Many people continue to view TQM as excellence in management, which Americans have been working on for many years. Unfortunately for them, TQM is so much more than this. In addition to being a transformation and a way of thinking, TQM should not be considered as a recipe that can be applied and forgotten. Further, instead of solving problems as they occur, an effective quality effort should improve the system to prevent these problems in the first place. The Deming approach



accomplishes this and focuses on top management and the need for top management to change the system. That is, rather than dwell on special causes of variation and search for errors caused by individual workers, Deming emphasizes the removal of common causes of variation by improving the system. Deming's approach emphasizes that top management must implement what he elaborated in his 14 points and his system of profound knowledge. (Petersen, 1999)

TQM is an enhancement to the traditional way of doing business. It is a proven technique to guarantee survival in world-class competition. Only by changing the actions of management will the culture and actions of an entire organization be transformed. TQM is for the most part common sense.

TQM necessitates realisation of Quality ideals of being Top Management led, with an integrated approach focused towards customer satisfaction through continuous improvement. Often these ideals are not realised primarily because the Quality costs are high in both manufacturing and service sector, often it is un-quantified. TQM has become the key success factor for building Business Excellence for several organisations all around the world each one of them adopt different models and different routes but invariably all of them with one ultimate goal of becoming the best. Although the philosophies of various gurus on Quality Management appear to be varying considerably, it can clearly be seen that there exists a common thread passing through all these philosophies. The American gurus focused more on the social systems including employee involvement concepts, the Japanese gurus successfully translated these into the shop floor management systems through Just-in-time and the Western Gurus concentrated largely on the Total Quality Control elements of the Technical system. The TQM Philosophy is the integration of these three systems viz., the social system, the management system and the technical system. Hence understanding of the preaching of all these Gurus make the understanding of TQM more complete.

TQM requires six basic concepts:

1. A committed and involved management to provide long-term top-to-bottom organizational support.
2. An unwavering focus on the customer, both internally and externally.
3. Effective involvement and utilization of the entire work force.
4. Continuous improvement of the business and production process.

5. Treating suppliers as partners.
6. Establish performance measures for the processes.

These concepts outline an Excellent way to run an organization. A brief paragraph on each of them is given here.

1. Management must participate in the quality program. A quality council must be established to develop a clear vision, set long-term goals and direct the program. Managers participate on quality improvement teams and also as coaches to other teams. TQM is a continual activity that must be entrenched in the culture it is not just a one-shot program. TQM must be communicated to all people.

2. The key to an effective TQM program is its focus on the customer. An excellent place to start is by satisfying internal customers. We must listen to the “Voice of the customer” and emphasize design quality and defect prevention.

3. TQM is an organization– wide challenge that is everyone’s responsibility. All personnel must be trained in TQM, statistical process control (SPC) and other appropriate quality improvement skills so they can effectively participate on project teams. People must come to work not only to do their jobs, but also to think about how to improve their jobs, people must be empowered at the lowest possible level to perform processes in an optimum manner.

4. There must be a continue striving to improve all business and production processes. Quality improvement projects, such as on-time delivery, order-entry efficiency, billing error rate, customer satisfaction, cycle time, scrap reduction and supplier management are good places to begin.

5. On the average 40% of the sales is purchased product or service, therefore, the supplier quality must be outstanding. The focus should be on quality and life cycle costs rather than price. Suppliers should be few in number so that true partnering can occur.

6. Performance measures such as uptime, percent non-conforming, absenteeism and customer satisfaction should be determined for each functional area. (Naidu, 2006)

TQM principles and techniques are now a well accepted part of almost every manager's tool kit. Proponents of TQM maintain that there is a universal set of practices that, if implemented, will lead to high performance. While it is certainly true that other sets of factors and measurements could be developed or

defined differently in the future, this set appears to capture most of the important aspects of effective TQM as recommended by today's leading researchers and practitioners. (Motwani, 2001)

#### **1.2.4. Plan-Do-Check-Act and Plan-Do-Study-Act Cycle**

After the 14 points, 7 deadly diseases, Total Quality Management and System of Profound Knowledge, I decided to introduce also PDCA cycle or in other words- Deming's cycle.

The plan-do-check-act (PDCA) cycle is a well-known model for continual process improvement. It teaches organizations to plan an action, do it, check to see how it conforms to the plan and act on what has been learned.

The PDCA cycle is made up of four steps for improvement or change:

1. Plan: Recognize an opportunity, and plan the change.
2. Do: Test the change.
3. Check: Review the test, analyze the results and identify learn-tings.
4. Act: Take action based on what you learned in the check step. If the change was successful, incorporate the learnings from the test into wider changes. If not, go through the cycle again with a different plan.

The PDCA cycle is also known by two other names, the Shewhart cycle and the Deming cycle. Walter A. Shewhart first discussed the concept of PDCA in his 1939 book, *Statistical Method From the Viewpoint of Quality Control*. Shewhart said the cycle draws its structure from the notion that constant evaluation of management practices, as well as the willingness of management to adopt and disregard unsupported ideas, is key to the evolution of a successful enterprise. W. Edwards Deming was the one who first coined the term "Shewhart cycle" for PDCA, naming it after his mentor and teacher at Bell Laboratories in New York. Deming promoted PDCA as a primary means of achieving CPI (Author's note: continual process improvement). He also referred to the PDCA cycle as the PDSA cycle ("S" for study). Deming is credited with encouraging the Japanese in the 1950s to adopt PDCA. The Japanese eagerly embraced PDCA and other quality concepts, and to honor Deming for his instruction, they refer to the PDCA cycle as the Deming cycle. (Johnson, 2002)

The plan-do-check-act (PDCA) cycle can organize your quality management system's (QMS) management review process and help you focus on specific organizational needs. In the first phase of the PDCA cycle, review the quality policy and objectives and determine whether they align with the business or marketplace. In the second phase of the PDCA cycle, review the processes and business management systems alignment. In the third phase, review the performance of the QMS in operation. Finally, review and improve any QMS projects. (Omens, 2006)

No matter if problems are big or small, this and other quality tools can help solve them all. Whether at work or home, quality improvement involves problem solving and learning. The plan-do-study-act (PDSA) cycle is a good generic model of how these activities take place: In the plan phase, a plan is developed to determine what changes and resources are needed to solve the problem. Sometimes this involves developing a hypothesis. In the do phase, the plan or experiment is carried out. In the study phase, the results are studied. The question, "What can be learned from the results?" is answered. In the act phase, action is taken based on what was learned. A new cycle of learning is started. Any problem-solving effort involves multiple cycles of PDSA. Each cycle leads to new knowledge. (Dooley, 1997)

### **1.3. System of Profound Knowledge**

To restore motivation, innovation and joy in work and learning, a transformation of management is essential. This transformation requires the application of a system of profound knowledge and an understanding of processes and statistics. Areas of understanding include system optimization, statistical variation and losses resulting from tampering. Additionally, the transformation requires that management must comprehend human behaviour, cultural forces and motivational techniques as well as the process of change. What is needed is a "new" theory of management! Now such a theory exists. No longer can it be said that there is nothing to be learned about management. Dr Deming's articulation of his message has of course evolved over the years. Originally, he focused on practical business issues. Now, however, his expanded view encompasses a theory to address individual organizational and societal issues. (Anjard, 1995, s. 8)

Dr Deming always spoke of the need for a transformation of management. Knowing that without theory there is no knowledge, Dr Deming attempted to teach

western managers the theory needed for this transformation. But this was not sufficient. They wanted some simple rules or guidelines. Dr Deming responded with his 14 points. Although there was a constancy of purpose in the 14 points, the words change based on the feedback from others. When organizations in industries other than manufacturing began talking with Dr Deming and attending his seminars they began asking how the 14 points applied to their industry. Although others modified the 14 points using the language of health care, education, etc. Dr Deming started looking beyond to a 'General Theory of Quality'. The result is his SPK (author's note: system of profound knowledge).

He was careful to include the article 'A' in front of System of Profound Knowledge since he acknowledged that there may be other such systems. After all, as G. E. P. Box said "All models are wrong, but some are useful". Although this system was voiced after the 14 points, it actually precedes them. That is, the SPK provides a basis, a theory, for the 14 points. SPK consists of four parts:

- (1) appreciation for systems
- (2) knowledge of variation
- (3) theory of knowledge
- (4) understanding of psychology. (Gruska, 2000)

Defining a system as a "network of independent components that work together to try to accomplish the aim of the system," Deming stresses that without an aim, there is no system. An example of a system is a successful string quartet. In this case there is cooperation where each member supports the other three. Obviously, none of them should be there to attract attention to him or herself. Instead, each member is part of a system that has the aim of providing pleasure to the listeners. Individually they may receive self-satisfaction for the part they accomplished as well as the overall accomplishments of the quartet.

As an example of a much larger system, Deming describes how transportation can be managed as a system. The components involved consist of the carriers, the shippers that they serve employees of both, communities that they operate in, the environment, the nation in a macro sense and the many government agencies involved. The key point is that all of these components are interrelated and interdependent. As an aim for this system, Deming proposes a central idea that is evident in much of his work: specifically, that good

quality produces many other attributes that leaders are striving for today. (Petersen, 1993)

### **1.3.1. Appreciation for systems**

The knowledge of systems forms the foundation for the system of profound knowledge. All organizations, whether they are service or production organizations, must be viewed as a system or network of processes. The goal is to optimize the entire system, not individual sub-systems or components. A "constancy of purpose" is essential for all participants, for only with an aim does optimization - moving the system towards its goal so that everyone benefits - become possible and the system can then succeed. The gap between the aim and the present state of the system provides direction for optimization. The boundary of the system, which can range from a single company to an industry to an entire country, must also be identified. The larger the system, the greater the benefits; however, as a system increases in size, the complexity of managing it also becomes more difficult.

Fundamental to system optimization is co-operation, which involves the eradication of competition among components. Performance of the individual components is rated according to the contribution by each to the system, rather than individual ratings of profit, production, or other competitive standards. Therefore, the interdependent relationships between the components of the system must be identified to manage the system properly, and it is management's responsibility to reconceptualise and reconstruct the system constantly to move it towards optimization over time, making necessary changes as conditions require, for if one component in the system is altered, the entire system changes. Thus, a long-term, future-oriented view is essential, and this allows organizations to shape their own future, rather than be shaped by it. A recognition that the system will not manage itself is fundamental; indeed, left to themselves, the components revert back to selfish independence which will eventually destroy the system. (McNary, 1997)

A manager's role is to understand how the organization works as a system and to know when and how to optimize the system. Micro-management, improving one part of the organization at the expense of another, demanding results from people that the system is not capable of producing, and automating faulty processes are examples of mistakes managers make when they do not understand the system of work.

The organization must have a well-defined process to:

- Recognize a system
- Define it so others can recognize it
- Analyze its behavior
- Work with subordinates in improving the system
- Measure the quality of the system
- Develop improvements in the quality of the system
- Measure the gains in quality, if any, and link these to customer delight
- Take steps to guarantee holding the gains.

Product defects are rarely the fault of the worker; the process, established and controlled by management, is more likely to be at blame. Workers work in the system, management works on the system. People are trying their best in the system they are given. They have an intrinsic desire to improve themselves. Deming really believed that people were doing their best and always concluded his four-day seminars by saying, “And now I leave you with five words, I have done my best.”

Only about 20% of all problems are caused by workers. They are responsible for only a trivial small part of the problems, management is responsible for 80% of the problems because they have the responsibility for changing and improving the processes. Deming in his later years stated that management was responsible for more like 94% of the problems.

Management is the major cause of:

- Waste
- Rework
- Untold losses

Management must understand their system and how it works before they can make any recommendations for improvement. ([basicbusiness.areavoices.com](http://basicbusiness.areavoices.com), 2013)

Nowadays, the utilization of the first part of the System of Profound Knowledge- appreciation for a systems is the so called process management. The analysis of Palmberg (2009) revealed two distinctly different movements; first, process management for single process improvement, meaning a structured systematic approach to analyze and continually improve the process; and second, process management for system management (process management as a part of managing the whole organization), meaning a more holistic manner to manage all

aspects of the business and a valuable perspective to adopt in determining organizational effectiveness.

Another nowadays utilization of appreciation for a systems is the system approach. According to Simonovic (2010), it is, in essence, concerned with good design: a logical and systematic approach to problem solving in which assumptions, goals, objectives, and criteria are clearly defined and specified. Emphasis is placed on relating system performance to specified goals. A hierarchy of systems is identified, and this makes it possible to handle a complex system by looking at its component parts or subsystems. Quantifiable and nonquantifiable aspects of the problem are identified, and the immediate and long-range implications of suggested alternatives are evaluated. The systems approach establishes the proper order of inquiry and helps in the selection of the best course of action that will accomplish a prescribed goal by broadening the information base of the decision maker; by providing a better understanding of the system, and the interrelatedness of the complete system and its component subsystems; and by facilitating the prediction of the consequences of several alternative courses of action.

### **1.3.2. Knowledge of variation**

In order to generate valid data to manage the system of processes properly, including the people that run them, statistical theory -especially the key concept of variation - must be studied. The use of analytical studies which allow for future prediction, rather than enumerative studies which are merely descriptive of a given sample, is also important. As it is difficult for a system to understand itself, the guidance of an outside expert to direct the transformation of an organization towards optimization is advocated. (McNary, 1997)

Managers must have knowledge of variation, which exists in everything—systems, services, people, and nature. Understanding what a system can do, and what it cannot do, depends on having statistical data and knowing how the data was obtained. The past is helpful to us only if it helps in the future, if it predicts. Management is prediction.

Deming gave lectures to top Japanese business leaders in the 1950s regarding the importance of management's understanding of statistical methods, which helped them attain a significant role in world trade. There are no absolute truths, only data



from measurement of observation. Deming used to use the example of our perception of the value of the speed of light to support this statement. What was considered to be the absolute speed was changed several times over the years as we developed new ways to measure it. He jokingly credited Galileo with saying that if the speed of light is not infinite, then it is awfully darned fast.

Like Shewhart, Deming identified two ways to improve work processes; resolving “special” causes of variation and reducing “common” causes variation. Managers must know the difference. Special causes of variation appear on a control chart as a point lying outside the calculated control limits or as other non-random patterns. A manager should ask, “Is the process performing in a dependable, predictable way over time, with no evidence of assignable causes of variation?” If the answer is no, the process is not stable, that is, there are sources of variation that are not part of the process. These are called special causes of variation, which must be identified and resolved before the process can become stable. The elimination of special causes is often the responsibility of someone working directly with the operation. Common causes, or problems with the overall system, are the responsibility of management. Common causes of variation are those inherent in a system. Management’s efforts to reduce variation must be unceasing and must be consistently communicated to the workers. (basicbusiness.areavoices.com, 2013)

Current usage of the knowledge of variation can be understood as a kind of risk management. According to Agrawal (2009), attempting to identify and then manage threats that could severely impact or bring down the organisation is known as risk management. Generally, this involves reviewing operations of the organisation, identifying potential threats to the organisation and the likelihood of their occurrence, and then taking appropriate actions to address the most likely threats. Traditionally, risk management was thought of as mostly a matter of getting the right insurance. Insurance coverage usually came in rather standard packages, so people tended to not take risk management seriously. However, this impression of risk management has changed dramatically. With the recent increase in rules and regulations, employee-related lawsuits and reliance on key resources, risk management is becoming a management practice that is every bit as important as financial or facilities management. (Agrawal, 2009)

Preventing and correcting unwanted actions and outcomes have long been a part of ISO 9001, but it has been limited to specific elements of the quality management process. ISO 9001:2015 is about to change that.

The objectives of injecting more risk management into ISO 9001 may be aimed at addressing a variety of management needs such as:

- Moving to more of a data-driven decision process that increases objectivity.
- Being able to more accurately prioritize risks and allocate resources to mitigating them more successfully.
- Being truly preventative with respect to those risks that have the potential for greatest harm.
- Capturing, retaining and transferring organizational knowledge regarding risk mitigation as employees and managers change.
- Broadening the knowledge base regarding risk and creating communication and trust among those who are involved.

The draft text of the ISO 9001:2015 revision expands the more limited view of trying to find the "root cause" of a problem, then fix it and keep it from happening again. Instead, it elevates the idea of risk management into higher priority. It examines system-wide risks that can be concerns of a broader base that the organization may serve. This can include not only customers, but other "stakeholders" as well including employees, vendors, communities in which the company operates, unions, regulators and beyond. It also asks the company to balance the likelihood versus the impact of these potential events. (So for instance the impact of a meteor strike is enormous, but the likelihood very small.) (The 9000 Store, 2014)

### **1.3.3. Theory of knowledge**

Deming bluntly states throughout his work and public seminars that "there is no substitute for knowledge". Theory is important in understanding knowledge, for knowledge is built on theory. However, theories are never actually proved or established. Theories require adjustment or even dismissal as new knowledge is discovered. Theories naturally lead to important questions, especially when combined with experience and example. Indeed, theories give meaning to experience, for they are a systematic summation of previous experiences based on safe, tested predictions.

Any sound interpretation of data requires some knowledge of the subject matter. Knowledge can aid management in its job of making predictions of customer needs. A prerequisite of a rational prediction is theory which can ultimately build knowledge through a methodical process of comparing the prediction to the actual outcome, making necessary changes based on the data. Yet, knowledge itself is relative, as it is often based on measurement or observation which can change - depending on different characteristics or conditions. Thus, operational definitions are essential for communication. (McNary, 1997)

Current utilization of the theory of knowledge is the concept of knowledge management. According to Emerald Insight Staff (2005), at the centre of every successful organization is the knowledge of key managers and their ability to apply it. In a globally competitive world, it is becoming increasingly important to capture knowledge, develop people and establish lifelong learning to continue to compete at the leading edge of business. By definition, managing knowledge is not what "knowledge management" is about. It is about exploiting and realizing knowledge in the workforce, fostering a culture where knowledge sharing can thrive and how an organization develops its people and their knowledge as individuals, as teams and at an organizational level. Knowledge relies not on technology but on people, who have knowledge, develop it and act on the basis of it. Knowledge is likely to play a big part in corporate culture in the new millennium. (Emerald Insight Staff, 2005)

Another current utilization of the theory of knowledge is the concept of learning organizations. According to Gephart (1996), all organizations learn, but not always for the better. A learning organization is an organization that has an enhanced capacity to learn, adapt, and change. It's an organization in which learning processes are analyzed, monitored, developed, managed, and aligned with improvement and innovation goals. Its vision, strategy, leaders, values, structures, systems, processes, and practices all work to foster people's learning and development and to accelerate systems-level learning. In any organization, learning occurs at multiple levels: individual, group, and organizational. Although individuals and teams or groups are the agents through which organizational learning occurs, learning organizations focus primarily on systems-level organizational learning. Systems-level learning is more than the sum of employees' intellectual capital and learning. It occurs when organizations synthesize and then institutionalize people's intellectual capital

and learning that are housed in their memories-their cultures, knowledge systems, and routines and in their core competencies. (Gephart, 1996)

#### **1.3.4. Understanding of psychology**

Knowledge of psychology is fundamental to optimization of a system, for optimization is not possible without understanding the people involved in the system of processes. In understanding people, knowledge of intrinsic and extrinsic motivation is essential. Most important is the fact that an over-emphasis on extrinsic motivation can crush intrinsic motivation. Additionally, extrinsic motivators such as bonuses and grading systems can, in actuality, be de-motivators, for people become ruled by external, not by internal forces. Often tasks done for pleasure, self-satisfaction, and pride are unnecessarily rewarded with money, often resulting in the phenomenon of overjustification. Overjustification occurs when an extrinsic reward (e.g. money, prizes) is given to someone who was intrinsically motivated, thus making the extrinsic reward unnecessary. There are fine lines between extrinsic motivation, intrinsic motivation, and overjustification, but it is the responsibility of management to discern the differences between these concepts. (McNary, 1997)

Current development of the understanding of the psychology also stresses the concept called Emotional Intelligence. According to Kendra Cherry, emotional intelligence (EI) refers to the ability to perceive, control and evaluate emotions. Some researchers suggest that emotional intelligence can be learned and strengthened, while others claim it is an inborn characteristic. According to the Emerald Insight Staff (2005), there have been numerous definitions of what constitutes emotional intelligence. All reference the thoughts and feelings behind people's actions, which guide their response patterns in different situations. It therefore follows that people who are emotionally competent are able to recognize these different emotional patterns in themselves and others, and to direct them in appropriate ways. Traditionally, the term "emotional intelligence" encompasses:

- Self-awareness - recognizing and understanding our own thoughts and feelings as they occur.
- Self-regulation - managing our responses appropriately.
- Social awareness - recognizing the thoughts and feelings of others, which includes having empathy at the individual, group and organizational levels.

- Social skills - inducing effective and desirable responses in others.

Emotionally intelligent managers, therefore, are likely to be able to manage both themselves and others more effectively. (Emerald Insight Staff, 2005)

## **2. ANALYTICAL PART OF THE DIPLOMA THESIS**

In the second part of the diploma thesis, we will focus on the practical usage of the given topic. We will see how the system of profound knowledge and its parts are used in the current small and medium enterprises in Slovakia (hereinafter referred to as SMEs).

### **2.1. Research methodology**

Research was carried out in the two phases. First one was focused on the analysis on the foreign literature sources and sources available at licensed databases. We were finding out different sources and comparing theories and opinions of the authors. It was really hard to find reliable literature sources because there is no Slovak author which would focus on this topic as such so we decided to concentrate on the foreign literature. Nevertheless, we were successful in the secondary research and we found many foreign sources which discussed the topic of the profound knowledge and at the end, it formed a suitable basis for the creation of the questionnaire- our form of primary research.

The questionnaire was aimed at the system of the profound knowledge and its potential usage in the current SMEs. Our primary research was created electronically by the Google Form which allowed us to spread it easily between the SM's. Questionnaire was randomly spread into the 600 SMEs in Slovakia. We obtained 584 filled responses from which we selected 366 questionnaires which form the representative sample of the SMEs in Slovakia. Questionnaire was available to fill in from the 2<sup>nd</sup> of March until the 16<sup>th</sup> of March. Despite this short time period, we were successful in the collecting of the necessary number of the questionnaires. Questionnaire itself included the questions from the four basic topics or parts of the given topic which were also presented in the previous chapter of the diploma thesis. We also focused on the development of this topic and we integrated it into the questionnaire in the form of the additional questions. First part- appreciation for systems also included questions oriented on the process management and system approach as the current usage of it. Second part- knowledge of variation included questions about the risk management. Third part- theory of knowledge contained questions about the knowledge management of the company and the four part-

understanding of psychology comprises different questions about the learning organizations and emotional intelligence as the form of the current usage. Respondents of our research were managers of different levels who answered our questions on behalf of the enterprise where they are employed. Representativeness of the sample according to chosen attributes – size of enterprise, which was determined on basis of the number of employees and the industry, was tested by means of the Chi-quadrat test.

## **2.2. Results of the research**

Our questionnaire included 6 main questions and some of them were divided into the certain amount of statements. Especially, sixth and the most essential question included 72 statements. We will analyze only the questions and statements with the highest importance. One of the types of the questions was a multiple choice question. In the second type, respondents had to state if they agree or disagree with the statement. The third type and the most common, was the question where respondents had to choose between answers: totally agree, somewhat agree, somewhat disagree, totally disagree or cannot assess.

### **2.2.1. Initial questions**

The first question asks for the agreement or disagreement with the statement. We formed three basic statements:

- a. Enterprise where I am employed has a department for quality or at least some employees dedicated to the quality of the enterprise.
- b. Enterprise where I am employed has a clearly formed vision.
- c. Enterprise where I am employed has clearly specified goals.

As we mentioned before, we used 366 representative responses. Concerning the sub-question a., 237 respondents agreed and 129 respondents disagreed. It means that almost two thirds of the respondents work in the enterprise which cares for the quality of the product or service. This number is not very high but we can see that companies nowadays try to produce quality goods or services and mostly try to get rid of the unnecessary claims.

Results of the sub-question b. were: 335 respondents agreed and 31 respondents disagreed. We can say that majority of the SMEs know where they are

heading and they want their employees and customers to be familiar with it. Running the business is hard without the clear vision because you have to know what you want to achieve.

As to the sub-question c., 349 respondent agreed and 17 respondents disagreed. It means that the vast majority of the SMEs have clearly specified goals of the future businesses and they really know where they want to be in the future. Numeric goals like the annual turnover or profit are the most relevant one because at the end of the year, enterprise exactly knows if they were successful or not.

Second question of our questionnaire was asking about the size of the enterprise where respondent is employed. Small enterprise is a company with number of employees from 0 to 24 and medium enterprise is a company with number of employees from 25 to 249. As we mentioned before, we had 584 filled-in questionnaires. Initially, 364 respondents answered that enterprise where they are employed belongs to the category of the small enterprises and 220 respondents are working in the medium enterprise. In order to retain the representativeness of the sample, we decided to use 364 questionnaires from small enterprises and just 2 of the medium enterprises because the latest available data (from the year 2013) showed that in Slovakia operates 559 973 small enterprises and 2 751 medium enterprises. That is why we used just 2 questionnaires from medium ones- to mirror this ratio.

The third question was asking about the business sector of the enterprise. Because the statistical data from the year 2013 showed only number of SMEs in sectors of trade, agriculture, construction industry, manufacturing industry and services, we decided to include only these sectors to our questionnaire.

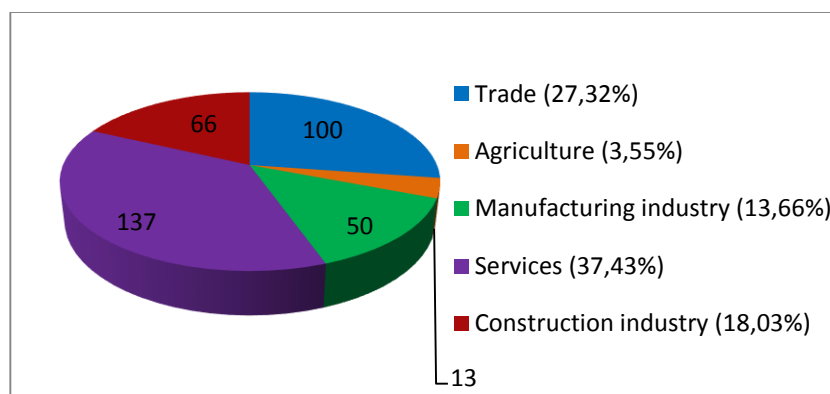


Chart 1 Question 3- Business sectors

Source: Own elaboration



As you can see in the Chart 1, respondents are employed mostly in the SMEs from the sector of trade (27,32%) and services (37,43%).

### 2.2.2. Appreciation for systems

The last question of the questionnaire contained 72 statements. As we mentioned before, respondents should choose between answers: totally agree, somewhat agree, somewhat disagree, totally disagree or cannot assess. These 72 statements were arranged according the four main sections of the system of profound knowledge. In this sub-chapter, we will analyze the results of selected statements from the first section- appreciation for systems.

First statement in this section was asking if respondents agree that the quality is an inseparable component of all products and services. Results can be seen in the Chart 2.

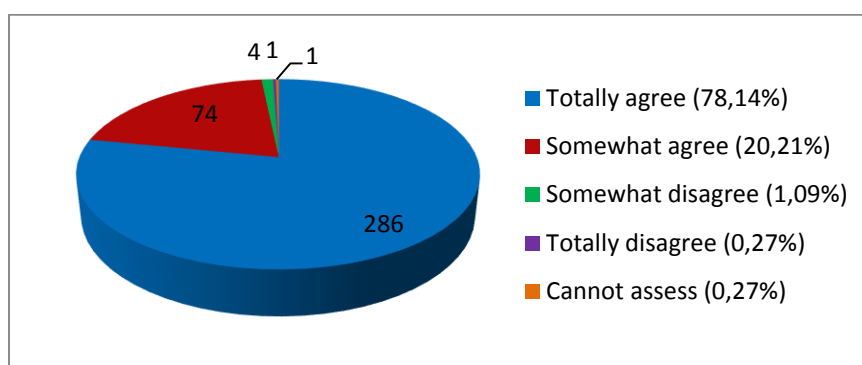


Chart 2 Statement 1: Quality is an inseparable component of all products and services.

Source: Own elaboration

As you can see in the Chart 2, vast majority answered that they totally agree (78,14%) or somewhat agree (20,21%). It signifies that SMEs see the quality like a really necessary element of the product or service. They probably know from own experiences that their customers are searching for the high-quality goods.

Second statement of this section was asking if the enterprise identifies needed sources for every process which they are running. Results can be seen in the Chart 3.

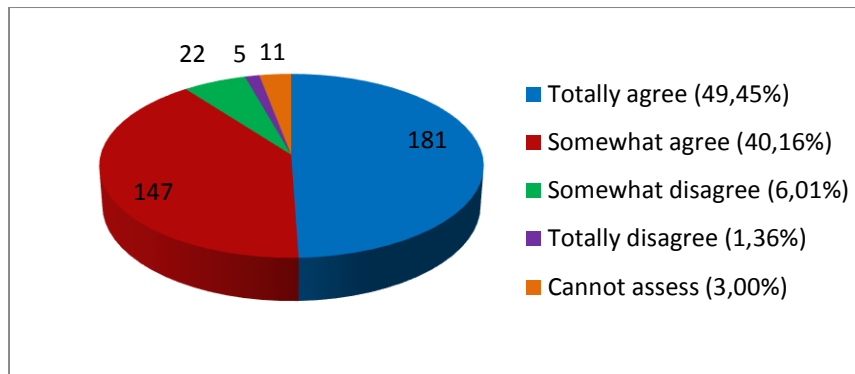


Chart 3 Statement 2: Enterprise identifies needed sources for every process which they are running.

Source: Own elaboration

As it is shown in the Chart 3, majority of the respondents totally agree (49,45%) or somewhat agree (40,16%) with this statement. They have allocated sources for the each company process which is recently running. It means that they should not have problems with securing of given processes.

Statement 3 of the last question of our questionnaire was asking about the goals of the given processes. Statement reads as follows: every process in the enterprise has given goals which should be achieved. Result can be seen in the Chart 4.

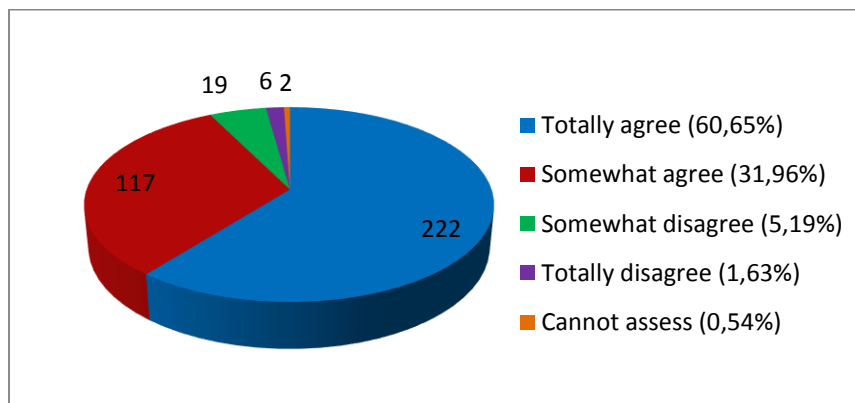


Chart 4 Statement 3: Every process in the enterprise has given goals which should be achieved.

Source: Own elaboration

As we can see in the Chart 4, again the vast majority totally agree (60,65%) or somewhat agree (31,96%) with the statement. SMEs where our respondents are employed seem to be reliable as we talk about the goals of their processes. They probably know what they want to achieve in every stage of production of the service or the good.

Fourth statement of the question was to express own opinion then we talk about the system in general. Statement reads as follows: system is a network of the independent components which work on the fulfilment of the common goal. Respondents's answers can be seen in the Chart 5.

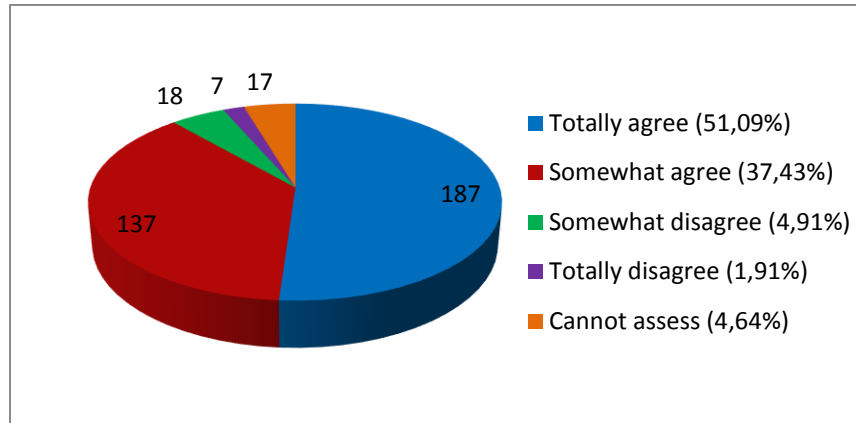


Chart 5 Statement 4: System is a network of the independent components which work on the fulfilment of the common goal.

Source: Own elaboration

In the Chart 5, we can see that again majority of the respondents totally agree (51,09%) or somewhat agree (37,43%) with our statement. It signifies the fact that their processes in the enterprise work together and at the end enterprise achieves the aim which was stated before the production process.

Statements number 5 in the section Appreciation for systems considers the monitoring of the system. Statement says that every process in the enterprise in regularly monitored and measured. Results are interpreted in the Chart 6.

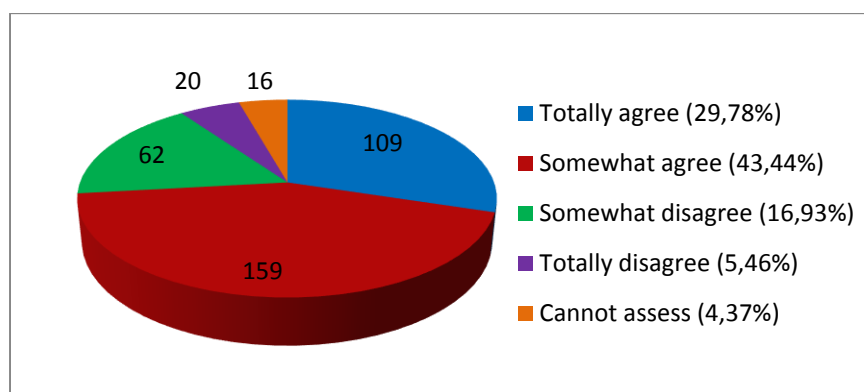


Chart 6 Statement 5: Every process in the enterprise in regularly monitored and measured.

Source: Own elaboration

As seen in the Chart 6, again majority of the respondents totally agree (29,78%) or somewhat agree (43,44%). But for the first time, there is a significant

proportion of the SMEs which disagree with this statement. So we can say that not every enterprise measures and monitors its processes but majority probably knows that this activity is relevant for the future development of the enterprise.

The last statement of this section considers the imperfections of the product or service and whose fault it is. Statement says: imperfections of the product or service are rarely a mistake of the regular employee (more often it is the fault of the management). Answers of our respondents can be seen in the Chart 7.

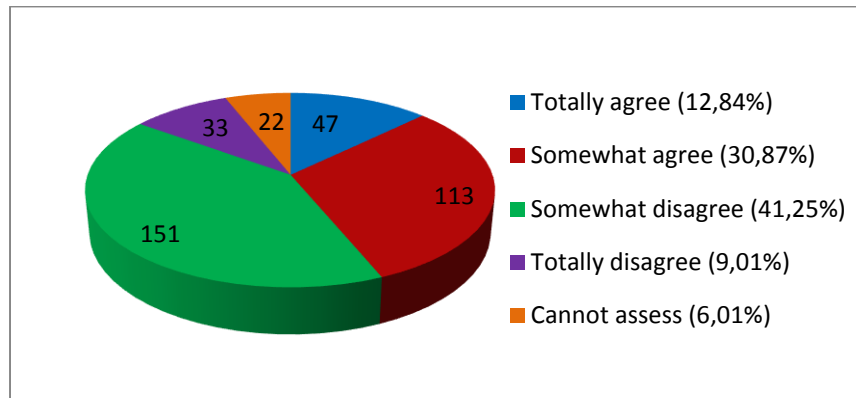


Chart 7 Statement 6: Imperfections of the product or service are rarely a mistake of the regular employee (more often it is the fault of the management).

Source: Own elaboration

In the Chart 7, you can see that less than the half of the respondents agrees. Majority of the respondents totally disagree (9,01%) or somewhat disagree (41,25%) with this statement. They think that mistakes in the production process or other processes are the fault of the regular employee. We cannot conclude it as a truth because respondents's answers could be influenced by the fact that they belong to the management of the company.

As a conclusion of this section of the questionnaire, we can say that majority of the respondents agreed with the selected statements. Only the last statement was rejected by the majority of the respondents from the SMEs. It means that SMEs strongly utilize the appreciation of the system as the first part of the system of profound knowledge and the process management and system approach like the current tools. We created a multiple evaluation of the analyzed statements which is reflected in the following Chart 8.

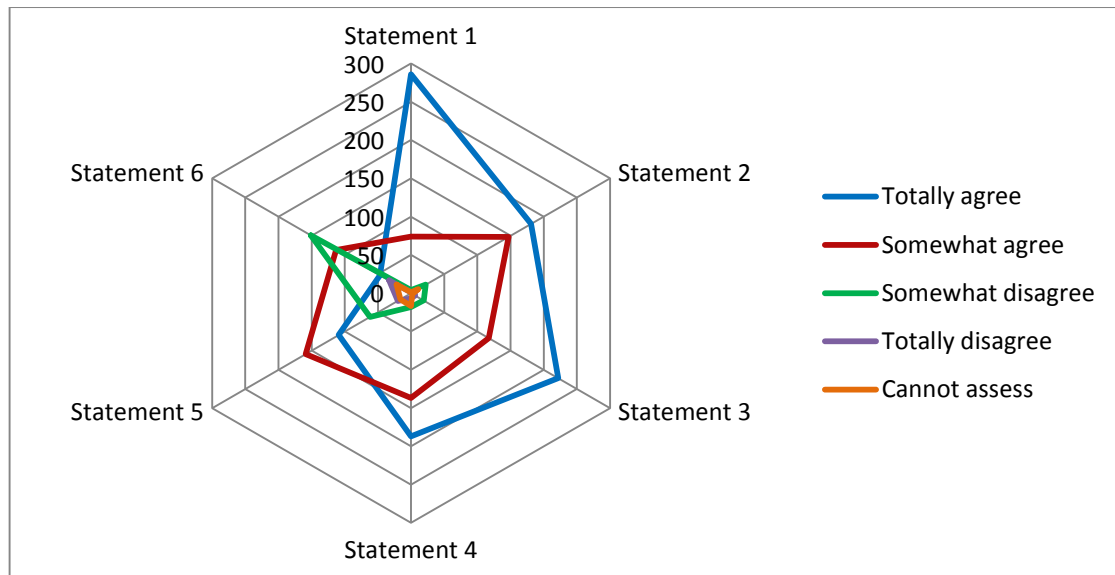


Chart 8 Appreciation for systems- multiple evaluation of the statements

Source: Own elaboration

Chart 8 represents the multiple evaluation of our statements in the first section of the system of profound knowledge. We can see that majority of the respondents totally agree or somewhat agree. But the total agreement with the statements is gradually decreasing and total disagreement is gradually increasing.

### 2.2.3. Knowledge of variation

In this sub-chapter, we will again analyze results of the statements which were presented in the last question of our questionnaire. But as we mentioned before, this question was divided into the four sections according to the system of profound knowledge. This sub-chapter will be dedicated to the section called knowledge of variation. Respondents could answer similarly as in the previous section.

The first statement in this section is talking about the employees of the SMEs. The exact wording is: every employee of the enterprise knows his/her own competences and responsibilities. Results are stated in the Chart 9.

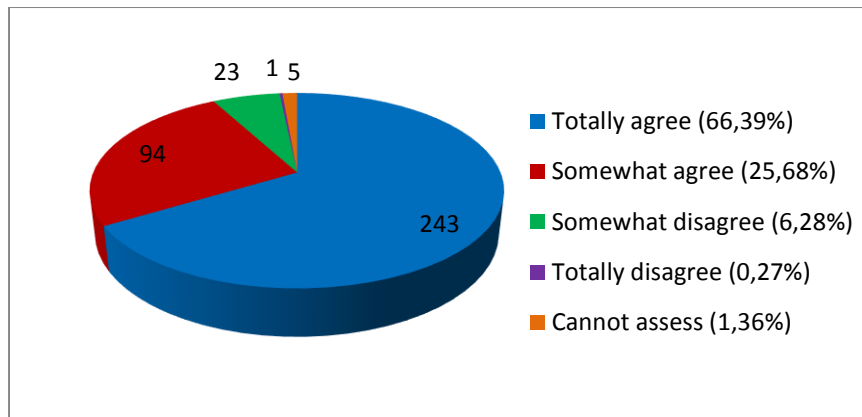


Chart 9 Statement 1: Every employee of the enterprise knows his/her own competences and responsibilities.

Source: Own elaboration

As we can see in the Chart 9, vast majority of the respondents totally agree (66,39%) or somewhat agree (25,68%) with this statement. It signifies that management of the SMEs probably knows that employees have to know what they need to do to be effective and they are trying to teach them well.

Another statement of the section about the knowledge of variation is concerning the problems in the workplace. Statement reads as follows: problems in the workplace are clearly communicated and solved with subordinate employees. Results can be seen in the Chart 10.

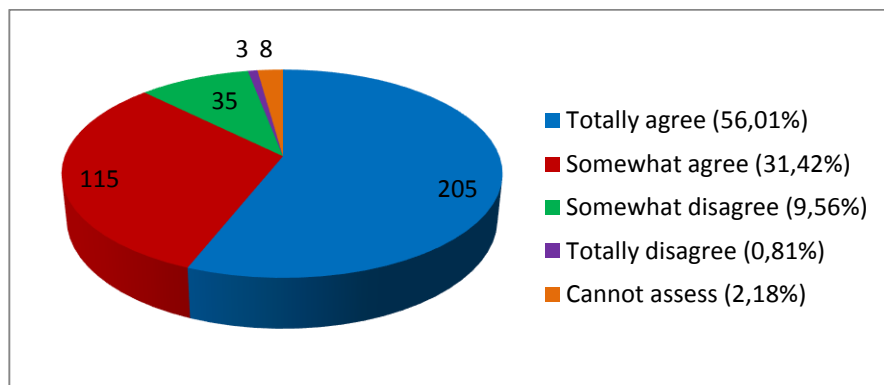


Chart 10 Statement 2: Problems in the workplace are clearly communicated and solved with subordinate employees.

Source: Own elaboration

The Chart 10 shows the results of the statement 2. Again, the vast majority totally agree (56,01%) or somewhat agree (31,42%) with this statement. These results tell that managers strongly solve the problems which occur in the workplace. Majority of managers probably prefer the fast solution of the various problems.

The next statement is focusing on the management of the enterprise together with the risk management. Statement says: management of the enterprise identifies the risks which can negatively influence the running of the enterprise and they are trying to get rid of it. Answers of the respondents are reflected in the Chart 11.

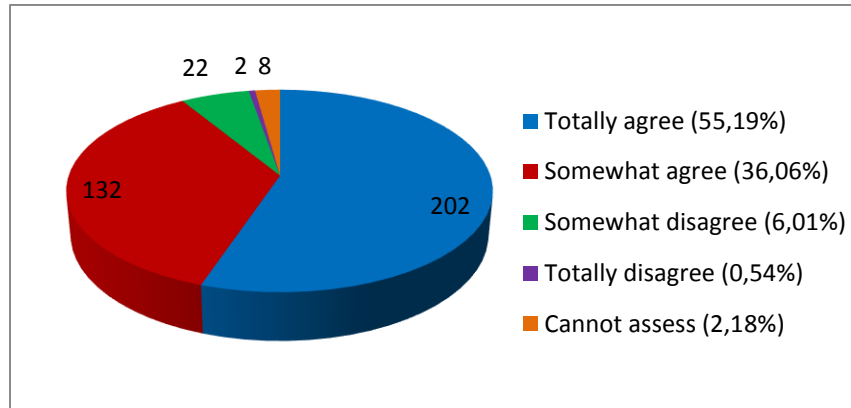


Chart 11 Statement 3: Management of the enterprise identifies the risks which can negatively influence the running of the enterprise and they are trying to get rid of it.

Source: Own elaboration

Results of the statement 3 are quite similar as the results of the statement 2. But statement 3 means that SMEs use the risk management in order to prevent various potential risks which can occur on the market. Majority of the respondents also tries to get rid of them.

Another statement enlarges the usage of the risk management in the SMEs. It considers the insurance as a tool of risk management. Statement 4 read as follows: enterprise where I am employed has at least the standard insurance against the risks which can negatively influence the running of the enterprise. Results can be seen in the Chart 12.

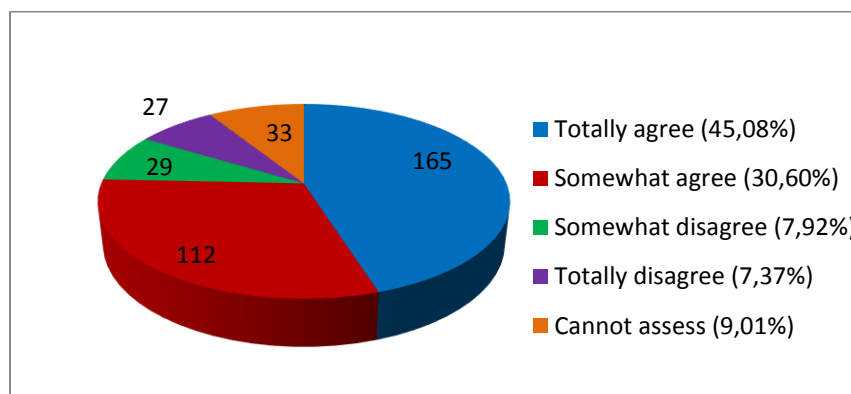


Chart 12 Statement 4: Enterprise where I am employed has at least the standard insurance against the risks which can negatively influence the running of the enterprise.

Source: Own elaboration

As we can see in the Chart 12, still the vast majority totally agree (45,08%) or somewhat agree (30,60%) with this statement but number of these respondents is smaller than in previous statement. Not all SMEs have at least the standard insurance. But majority probably knows that it is necessary to prevent various potential risks which can occur.

Statement 5 of the section about knowledge of variation includes also consideration of the ISO certification of the SMEs. Statement read as follows: I think that ISO certification serves also as the preventive measure for the potential risks in the enterprise (regardless of the fact that enterprise where I am employed has this certification or not). We can see the results in the Chart 13.

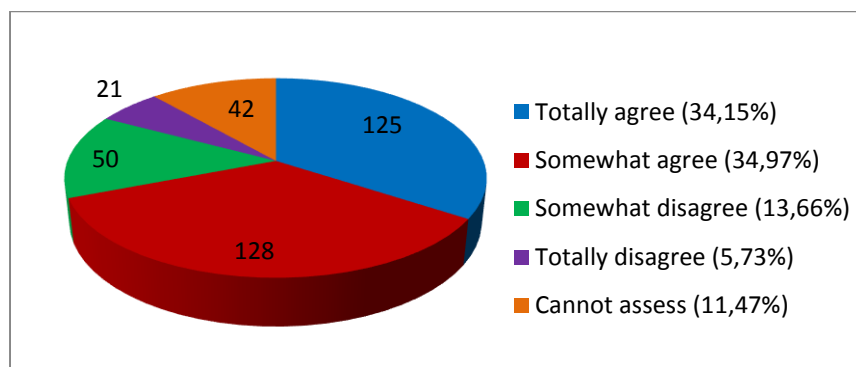


Chart 13 Statement 5: I think that ISO certification serves also as the preventive measure for the potential risks in the enterprise (regardless of the fact that enterprise where I am employed has this certification or not).

Source: Own elaboration

As we can seen in the Chart 13, again the majority totally agree (34,15%) or somewhat agree (34,97%) with this statement. But you can notice also greater number of respondents who somewhat disagree (13,66%) or totally disagree (5,73%) with this statement. We can conclude that majority of the SMEs probably thinks that ISO certification may prevent various risks so they incline to it.

The last statement of this section is focusing on the innovations and the potential financing of it. Statement says that the enterprise has allocated resources for the innovations in the enterprise. Results are shown in the Chart 14.



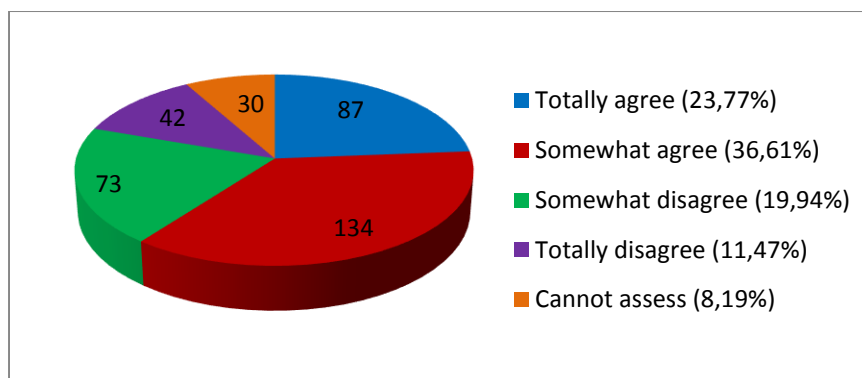


Chart 14 Statement 6: Enterprise has allocated resources for the innovations in the enterprise.

Source: Own elaboration

As it is shown in the Chart 14, not all the SMEs have allocated resource for the innovations. Majority of the respondents answered that enterprises where they are employed have allocated resources for innovations but again there is a greater number of respondents that somewhat disagree (19,94%) or totally disagree (11,47%) with this statement than in previous statements. If we compare Chart 14 with the Chart 3 (Statement 2: Enterprise identifies needed sources for every process which they are running), we can see that number of the totally agreeing and somewhat agreeing respondents is totally different. It can probably mean that SMEs which totally agree or somewhat agree with statement 2 of the section about appreciation for system and at the same time totally disagree or somewhat disagree with statement 6 of the section about knowledge of variation do not have a process connected to innovations. These two statements are closely related.

As we can see in this section, results were similar to the results in the first section. Majority of the respondents from the SMEs in Slovakia communicates with their employees and shares with them relevant information about their responsibilities or about potential problems. Management of these enterprises identifies risks and has at least the standard insurance which can lower the negative impact of these risks. Majority of the respondent's employers have allocated certain resources for the innovations in their enterprise. We can conclude this section with the statement that majority of the Slovak SMEs utilizes the principles of the knowledge of variation. Multiple evaluation of the statements from this section is reflected in the Chart 15.

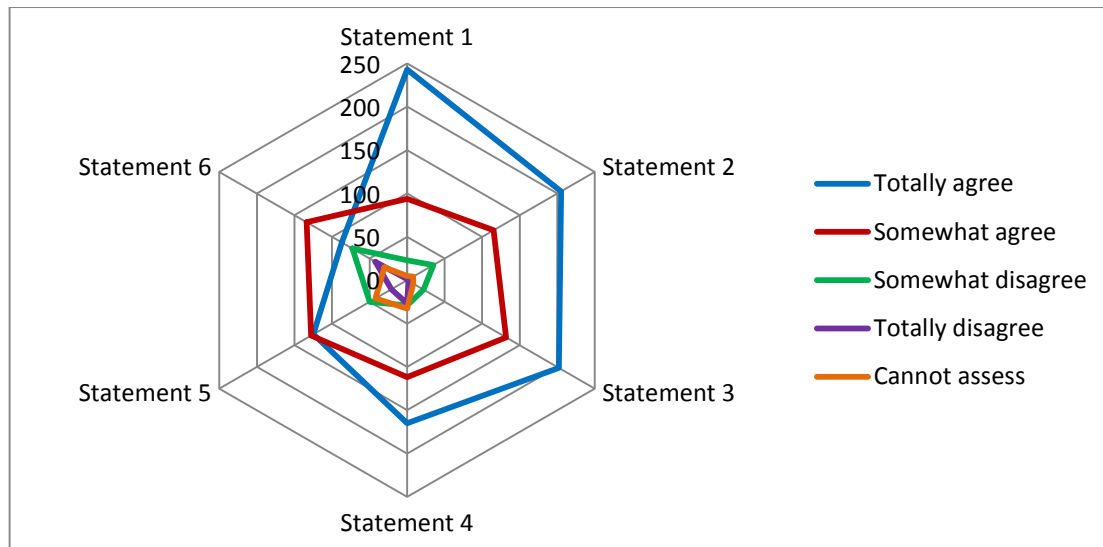


Chart 15 Knowledge of variation- multiple evaluation of the statements

Source: Own elaboration

As it is shown in the Chart 15, majority of the respondents totally agrees or somewhat agrees with all the statements in this section. Number of totally agreeing respondents is gradually decreasing but still there is a majority that agrees.

#### 2.2.4. Theory of knowledge

The next section of the system of profound knowledge which we will analyze is the theory of knowledge. We will analyze statements from the questionnaire which are related to the knowledge of employees and their employers. As the current utilization of the theory of knowledge, we will also analyze the statement related to the learning organizations.

The first statement of this section is focused on the general definition of the knowledge which we mentioned in the theoretical part of this paper. Statement says that knowledge itself is relative and it is based on the measurements and observations of the environment. Results are shown in the Chart 16.

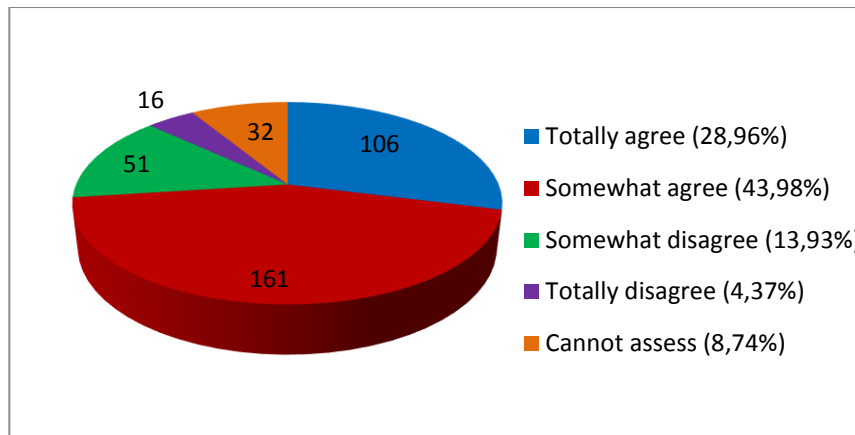


Chart 16 Statement 1: Knowledge itself is relative and it is based on the measurements and observations of the environment.

Source: Own elaboration

As we can see in the Chart 16, majority of the respondents totally agree (28,96%) or somewhat agree (43,98%) with this statement. There occurred also a small proportion of respondents who somewhat disagree (13,93%) or totally disagree (4,37%). But generally we can say that respondents agree with this definition of the knowledge.

Another statement of our questionnaire considers the knowledge of the key managers in the enterprise. Statement reads as follows: knowledge of the key managers and their ability to apply it is the centre of every successful enterprise. We can see the results in the Chart 17.

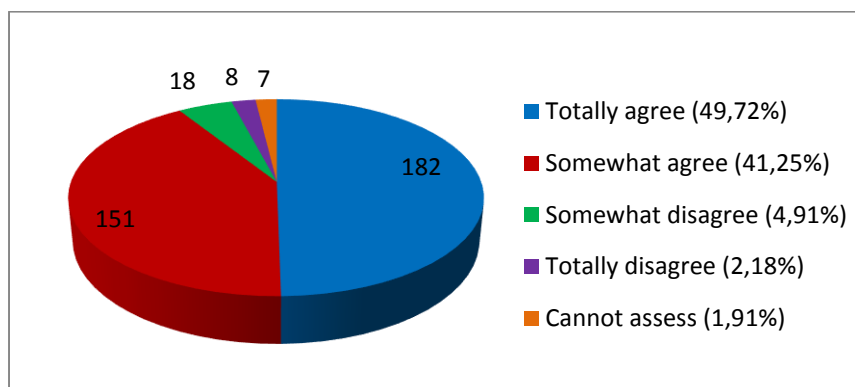


Chart 17 Statement 2: Knowledge of the key managers and their ability to apply it is the centre of every successful enterprise.

Source: Own elaboration

As it is stated in the Chart 17, vast majority totally agree (49,72%) or somewhat agree (41,25%) with this statement. It signifies that our respondents probably know that managers are the necessary part of all SMEs and their knowledge supports the key activities and processes in the enterprise.

As we know from the theory of economy, assets of the enterprise are divided into current and non-currents assets. The third statement states that enterprise recognizes their knowledge (know-how) like a part of the non-current assets. We can see the results in the Chart 18.

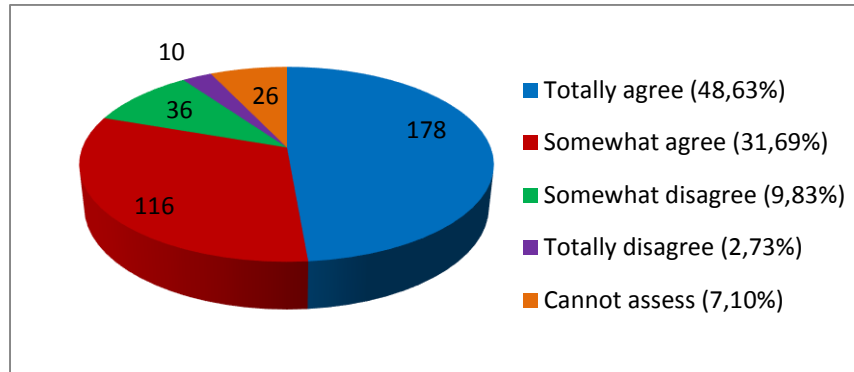


Chart 18 Statement 3: Enterprise recognizes their knowledge (know-how) like a part of the non-current assets.

Source: Own elaboration

Chart 18 shows the proportion of the respondents answers. Again, the majority totally agree (48,63%) or somewhat agree (31,69%) with our statement. It probably means that SMEs where they are employed take into account the knowledge as one of the tools of potential success of the enterprise.

The fourth statement of this section is focused on the specific forms of the personal development of employees. Statement read as follows: enterprise where I am employed provides to its employees at least one of these forms of the educational development: briefing, coaching, mentoring, assistance, solving of case studies, brainstorming, workshops, e-learning, various presentations and courses. Results can be seen in the Chart 19.

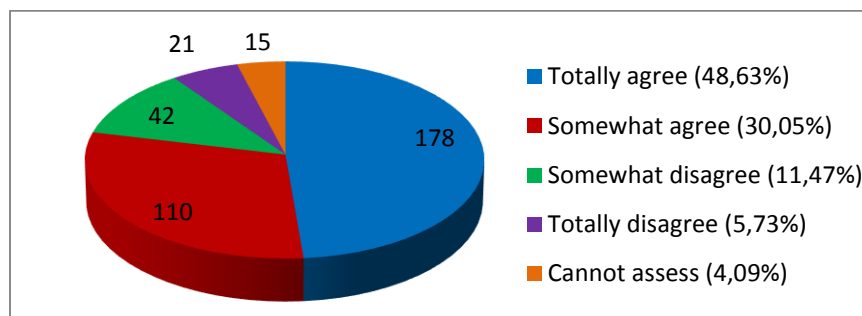


Chart 19 Statement 4: Enterprise where I am employed provides to its employees at least one of these forms of the educational development: briefing, coaching, mentoring, assistance, solving of case studies, brainstorming, workshops, e-learning, various presentations and courses.

Source: Own elaboration

As it is shown in the Chart 19, majority of the SMEs offers at least one kind of the forms of the educational development to their employees. It means that Slovak SMEs are educational oriented and their employees mainly have an opportunity to use some of these forms in their workplace.

The next statement which we choose from the questionnaire is the one which is oriented to the learning organizations. Statement says that enterprise where I am employed, I consider to be the learning organization. Results can be seen in the Chart 20.

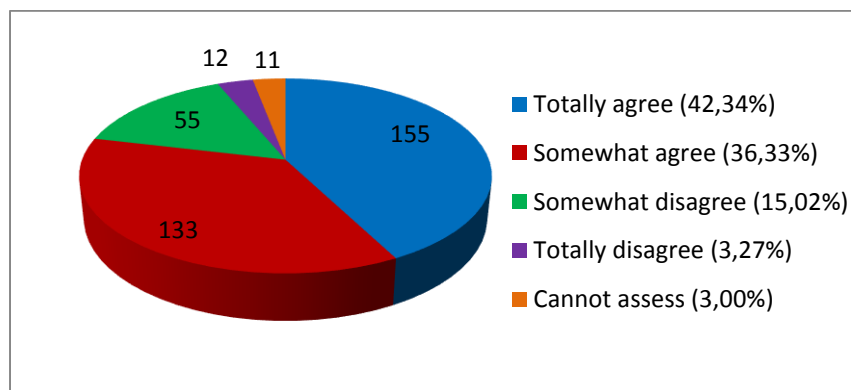


Chart 20 Statement 5: Enterprise where I am employed, I consider to be the learning organization.

Source: Own elaboration

Chart 20 shows the proportion of the answers of respondents. Again, the majority of them totally agree (42,34%) or somewhat agree (36,33%) with this statement. It means that majority of them considers their enterprise to be the learning organization so they probably used some educational opportunities in the past or they know about the research which is done in the enterprise where they work.

The last statement of this section about the theory of knowledge identifies the approach of the SMEs towards the feedback. Statement says that employees are receiving the feedback from the managers in order to improve their performance. Results are reflected in the Chart 21.

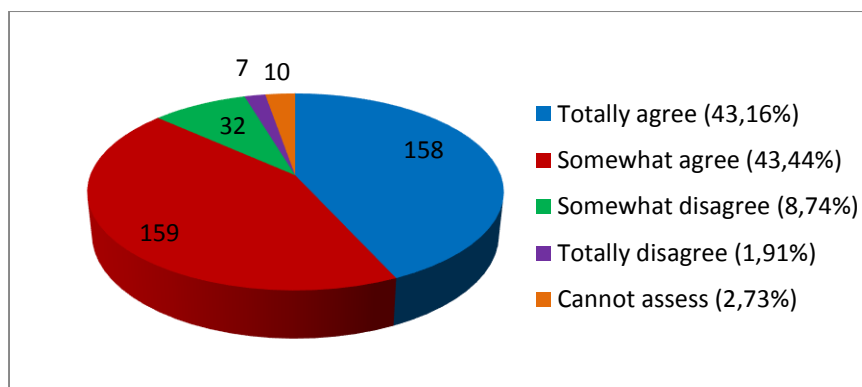


Chart 21 Statement 6: Employees are receiving the feedback from the managers in order to improve their performance.

Source: Own elaboration

As we can see in the Chart 21, the vast majority of the respondents answered that their employees receive feedback from the managers in the enterprise. It probably means that employees know what are their strengths and weaknesses so they can work on themselves.

The section about the theory of knowledge show us that employers or the SMEs where are our respondents employed really take care about their employees and also take the knowledge as a necessary part of their business. Majority of the respondents totally agree or somewhat agree with our selected statements which means that Slovak SMEs are becoming the real learning organizations which create, spread and apply the particular knowledge necessary for their businesses. Naturally, we created a multiple evaluation of the statements in this section of the system of profound knowledge. It is reflected in the Chart 22.

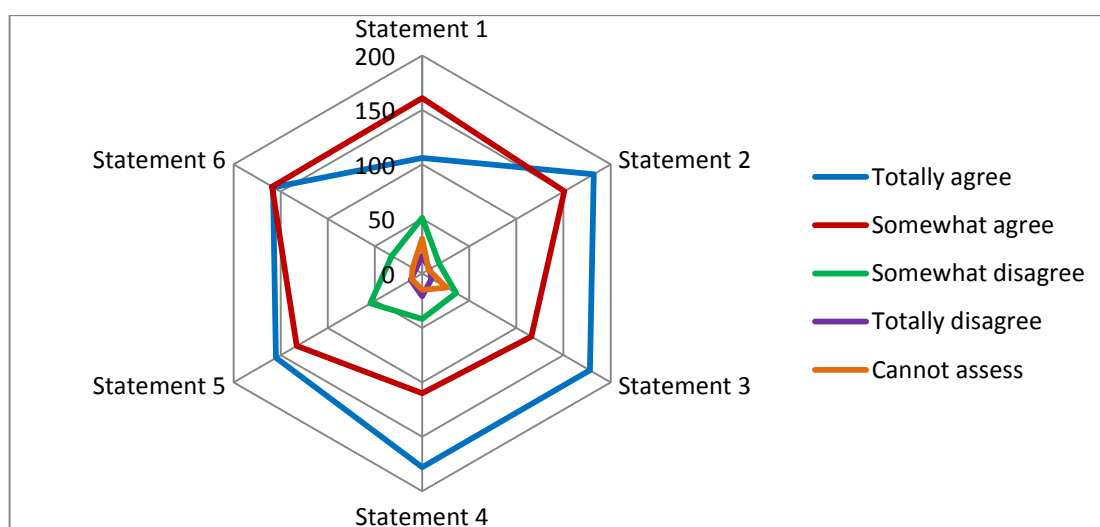


Chart 22 Theory of knowledge- multiple evaluation of the statements

Source: Own elaboration

As the Chart 22 shows, proportions of the totally agreeing and somewhat agreeing respondents are approximately the same. We can say that all statements in this section were agreed by the majority of the respondents.

### 2.2.5. Understanding of psychology

The last section of the system of profound knowledge which was reflected in the questionnaire is called understanding of psychology. By the statements in this section, we will find out opinions of our respondents related to the employees of the company where they are employed. Our statements will consider employee's emotions, strengths and weaknesses and understanding of the company culture. The last statement will talk about managers and their motivation of employees. We are trying to find out if employees of the Slovak SMEs are emotionally intelligent.

Statement number 1 starts with the assessment of the employees. Statement says that employees know how to express their emotions. Results of this statement are shown in the Chart 23.

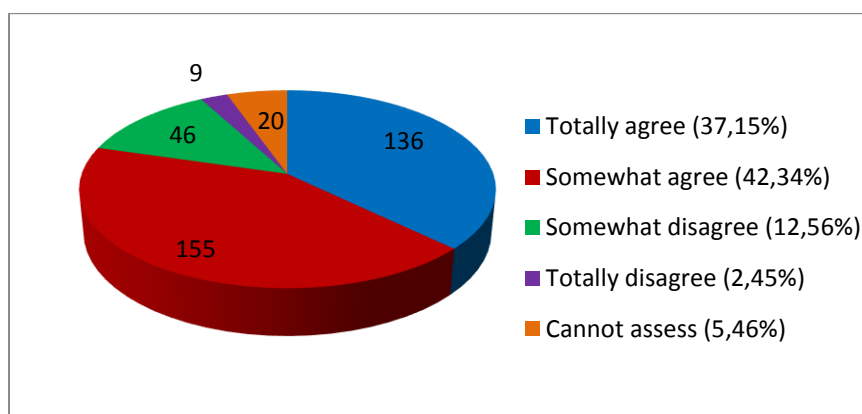


Chart 23 Statement 1: Employees know how to express their emotions.

Source: Own elaboration

We can see in the Chart 23 that majority of the respondents totally agree (37,15%) or somewhat agree (42,34%). Proportion of totally agreeing respondents is lower than in the previous section but still majority agrees with this statement. It means that employees in Slovak SMEs know how to express themselves in the particular situations.

Second statement is focused on the strong and weak points of the employees in the Slovak SMEs. Statement states that employees know their strengths and weaknesses. Chart 24 expresses the results.

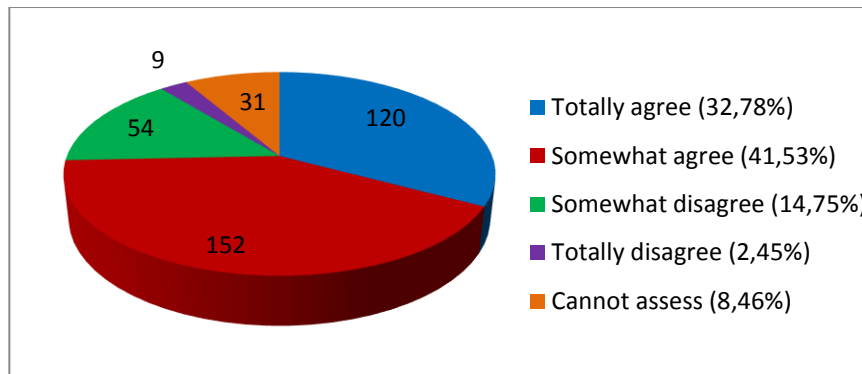


Chart 24 Statement 2: Employees know their strengths and weaknesses.

Source: Own elaboration

Chart 24 shows that majority of the respondents again totally agree (32,78%) or somewhat agree (41,53%) with this statement. Number of the totally agreeing respondents is smaller like in the previous statement. We can also notice slightly greater amount of somewhat disagreeing respondents (14,75%). Nevertheless, we can conclude that employees of the respondent's enterprises know what they are good and bad for.

The third statement is oriented on the possible change in the SMEs. It says that employees are willing to accept the change. Results are reflected in the Chart 25.

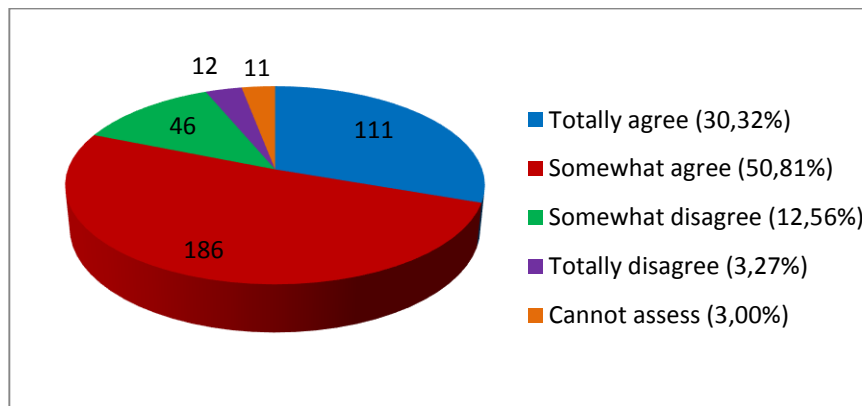


Chart 25 Statement 3: Employees are willing to accept the change.

Source: Own elaboration

As we can see in the Chart 25, majority of the respondents agree with this statement. There is a high proportion of the respondents who somewhat agree- more than a half (50,81%). But we can say that majority of the employees are willing to accept the change in the enterprise.

Another statement will show us how many respondents agree or disagree that their employees flexibly meet the standards. It means they easily fulfil it. Results are given in the Chart 26.



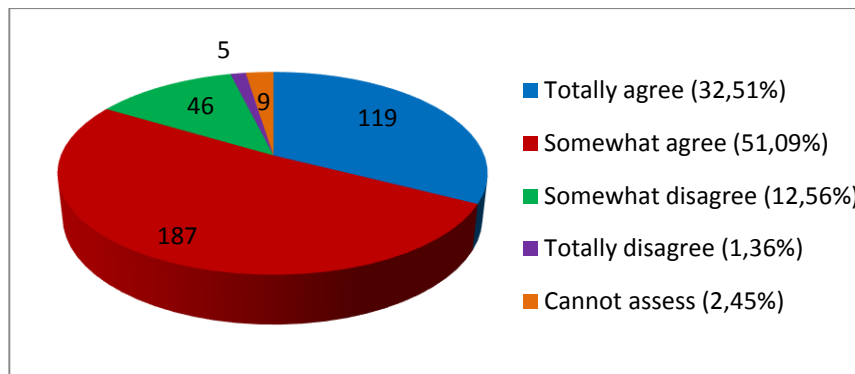


Chart 26 Statement 4: Employees flexibly meet the standards.

Source: Own elaboration

As it is shown in the Chart 26, majority of the respondents totally (32,51%) or somewhat agree (51,09%) with this statement. Number of somewhat agreeing respondents is quite high. It means that majority of the respondents have employees who meet the standard in the enterprise.

The fifth selected statement of the section about the understanding of psychology considers the company culture. Statement says that employees understand and accept the values and culture of the enterprise. Results can be seen in the Chart 27.

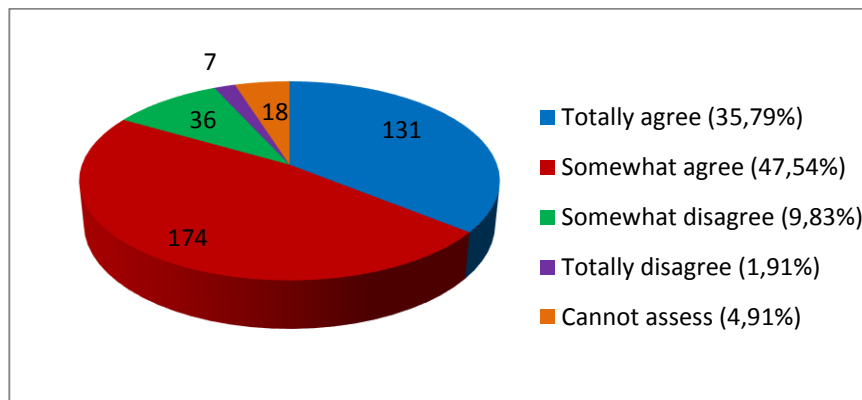


Chart 27 Statement 5: Employees understand and accept the values and culture of the enterprise.

Source: Own elaboration

Chart 27 is quite similar to the previous charts in this section. Majority of the respondents totally agree (35,79%) or somewhat agree (47,54%) with this statement. Again there is a high proportion of the respondents who somewhat agree. These results signify that majority of the employees behaves according the company rules and habits.

The last statement of this section is focused more on the managers of the enterprise. Statement says that managers encourage the employees for the higher performance and they also make the work more interesting. We can see the results in the Chart 28.

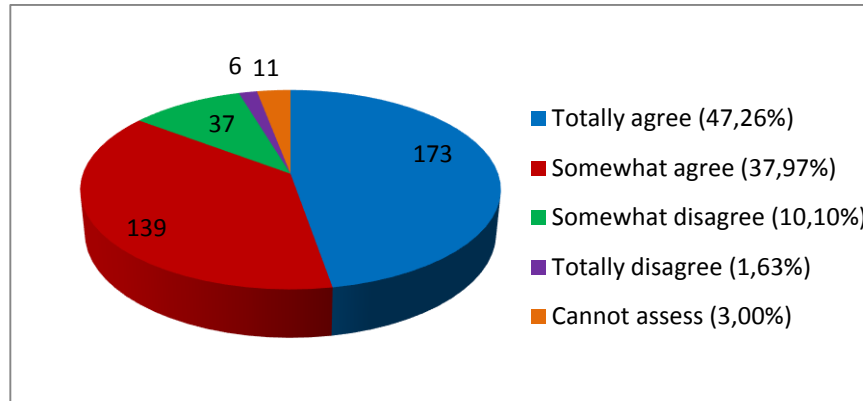


Chart 28 Statement 6: Managers encourage the employees for the higher performance and they also make the work more interesting.

Source: Own elaboration

All we can see in the Chart 28, again the majority of the respondents totally agree (47,26%) or somewhat agree (37,87%) with this statement. It means that managers in the SMEs are trying to encourage and motivate the employees for the better performance on their workplace.

This section of our questionnaire show that majority of the respondents agree with our selected statements. The highest number of respondents only somewhat agrees with these statements. Only small number of respondents totally disagrees with our statements so in order to conclude we can say that majority of the Slovak SMEs disposes with employees who are emotional intelligent. We also prepared a multiple evaluation which is shown in the Chart 29.

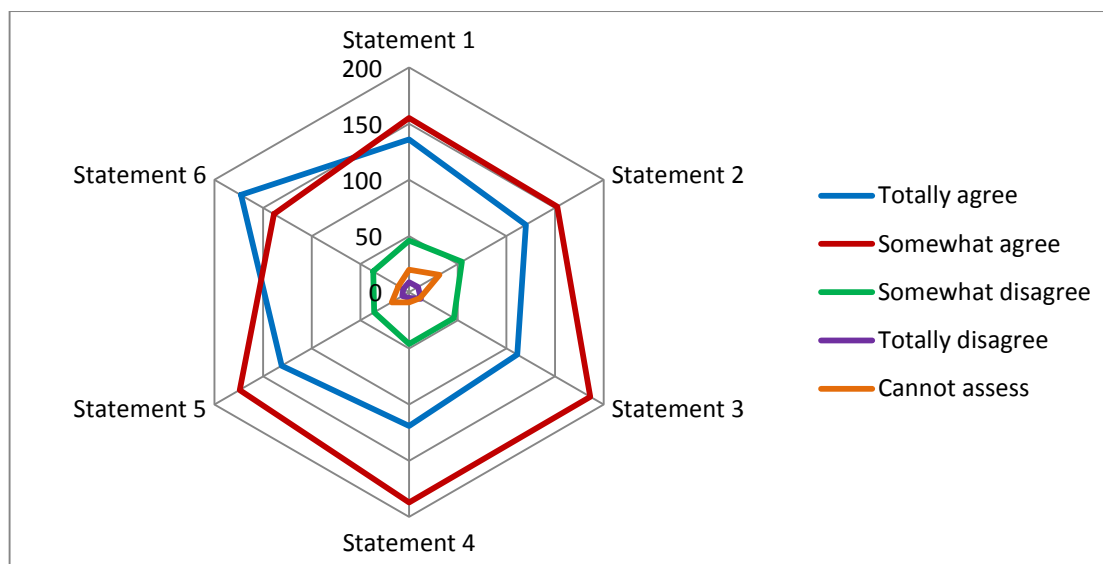


Chart 29 Understanding of psychology- multiple evaluation of the statements

Source: Own elaboration

As we can see in the Chart 29, except the sixth statement, the highest amount of respondents somewhat agree with the remaining statements. But the number of totally agreeing respondents is also quite high.

### 2.3. Summary of the analytical part

In the analytical part, we used questionnaire as a tool for the research. Respondents were managers of different levels from the Slovak SMEs. They expressed their opinion related to our statement. As we mentioned before, the last question of our questionnaire included 72 statements so we have to choose fixed number of statements from each section which we will analyze in this paper. As we can see in the analytical part, results were different in each section. We decided to create the simple chart according the average of each from four sections. Every answer has its own number in order to be statistically expressed: totally agree- 4, somewhat agree- 3, somewhat disagree- 2, totally disagree- 1, cannot assess- 0. In the Chart 30, you can see the average of each section created from the average answers of the selected statements which we analyzed.

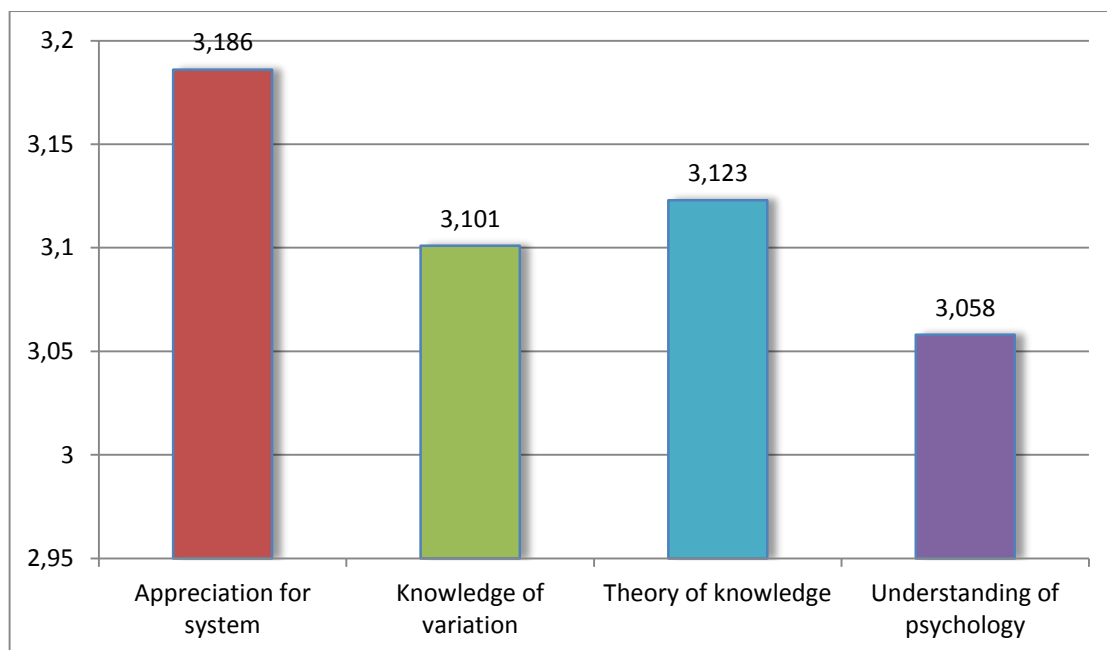


Chart 30 Average answer of our respondents in each section of the system of profound knowledge

Source: Own elaboration

As it is shown in the Chart 30, the differences between answers in the four sections of the system of profound knowledge are insignificant. All of the sections have the average higher than 3 which means that majority of our respondents answered in every section that they totally agree or somewhat agree. We can say that they are more or less applying the principles of the system of profound knowledge together with its current utilizations. Respondents probably do not know the theory behind this system or the name of this system but they are applying the majority of the principles, so we can summarize that vast majority of the Slovak SMEs are using Mr. Deming's system of profound knowledge in order to be prosperous.

### **3. SUGGESTIONS AND RECOMMENDATIONS**

In the last part of the diploma thesis, we will focus on the suggestions for improvement of the situation of the Slovak SMEs. Our suggestions will be divided into sections which correspond with the sections of the analytical part of the thesis. The main tool which will help us in the process of creation of the suggestions is the questionnaire analyzed in the previous chapter.

Suggestions and recommendations will be very simple, probably inexpensive and real in order to be easily applicable in the SMEs. Situations in which enterprises occurred are unequal so probably not all recommendations are suitable for all SMEs.

#### **3.1. Suggestions related to the initial questions of the questionnaire**

Initial questions of the questionnaire were related more to the identification of the enterprise where is our respondent employed. So the only question from which we can formulate the suggestion is the question one and the statement related to the employees or department dedicated to the quality. More than one third of the respondents answered that the enterprise where they are employed does not have any department or employees dedicated to the quality of the products or services of the enterprise. Probably, the main reason would be the lack of the financial resources in the enterprise. Finances may lack in the resources for the workforce or workplace.

We suggest allocating at least the one employee who will be responsible for the quality measurements and observation in the enterprise. If the enterprise cannot afford to hire at least the one employee for these actions, they can divide the scope of these actions between more employees who will be responsible for it. Of course, this change will demand some financial resources in the form of bonuses for these employees but this change is worth. If the company does not measure the quality of its products or services, they cannot know what they are really offering to the customer. We think that majority of the current customers are searching for the quality products and mostly they have no problems with the adequate price if it is the high-quality product or service. If the enterprise observes increasing number of the claims, they should focus on it and make arrangements in order to prevent the decrease of the sales. Prevention is the most powerful tool which can forego later claims. Management should search for the problems and try to get rid of them as soon as

possible. Dividing of the quality measurements and observation between the various employees is a step which should SMEs ensure only in the case if the prevention failed. Of course, if management wants to observe results of processes and the quality of the product, they should have identified all parameters of quality of each product or service. Only then it can be compared with actual results and made preventive or reparative actions.

SMEs can also do more actions related to the quality of their products or services. Management of the enterprise can assure that all current employees care about the quality. Really significant is the self-control of employees, they should be skilled enough to not release a product or service of a low quality. Employees should be also motivated to this self-control. It can be done in the form of the quality course lead by the external quality manager from the other enterprise or organization of their field or the course led by the internal employee who is highly-skilled in the field of quality. Enterprise can also train one or more employees who will lead these courses or workshops for their colleagues. These measures are not very costly and it can pay off in the form of skilled employees and satisfied customers.

### **3.2. Suggestions related to the appreciation for systems**

Concerning the statement 5, we will suggest the actions related to the monitoring and measurements of the processes in the enterprise. Together more than 80 respondents in the statement 5 totally disagree or somewhat disagree that processes in their enterprise are monitored and measured. In means, they do not record and observe the outcomes of the processes. Measurements and monitoring of the processes is really essential for the future development. We suggest implementing a system which includes standards and indicators for every process in the enterprise. This system would be suggested based on the various kinds of resources which are available in the enterprise. SMEs should know if their processes are more effective than in the past. SMEs cannot know if they perform better without the relevant recordings from the past which will be organized into the graph which will show a development trend. That is why we recommend to measure and monitor processes in the enterprise.

In the first section of the system of profound knowledge- appreciation for systems, occurred statement with interesting answers of our respondents. Statement 6

in this section was talking about the imperfections of the product or service which are rarely the mistake of the regular employee. Together 184 (50,27%) respondents totally disagree or somewhat disagree and 113 (30,87%) respondents only somewhat agree with this statement. As we mentioned before, it can be caused by the fact that our respondents are managers of the different levels and they may feel offended. According the portal Areavoices.com, System of the profound knowledge assumes that mistakes actually are the fault of the management and not the regular employee.

We can recommend to Slovak SMEs to pay more attention to the production process of the product or service or other processes. Imperfections may occur at the different stage of the production process. It can be caused by lack of information, responsibility, education, skills and so on. Managers need to observe the whole production process and evaluate where the imperfections occurred. The best would be to take an external audit of the production process by the specialized external auditor. Auditor would evaluate the process and find out the levels of the process where the mistakes are occurring. Managers may overlook it but the external auditor should find the mistakes more properly. Of course, the external audit is recommended for enterprises which have recurrent problems with some imperfection of the product or service and they have enough financial resources. By the external audit will SMEs maybe find out that regular employees are sometimes making mistakes but these mistakes can be caused by the lack of information and many other factors from the side of managers which we stated before. External audit can bring relevant results. If the enterprise cannot afford to take an external audit, they should control processes by themselves. Of course, the indicators for the processes should be established and later controlled by managers. SMEs should have established a process cards which include inputs, outputs, resources, risks and prevention for the given process. We also suggest introducing the risk management training for managers so they will be able to recognize various risks.

### **3.3. Suggestions related to the knowledge of variation**

The first statement according which we will give suggestions will be statement number 2 about the problems in the workplace which are clearly communicated and solved with subordinate employees. Together 38 (10,38%) respondents totally disagree or somewhat disagree and 112 (31,42%) respondents only somewhat agree

with this statement. Of course, this number is not very high but according the theory of the system of profound knowledge, problems should be always clearly communicated with particular employees in order to prevent variations. Variations are undesirable because enterprises want to create suitable and successful product or service of high quality. We suggest establishing weekly briefings which would help with the cooperation of the employees. Managers can give them professional advices and instructions so all employees would have the same information and knowledge about the production process. Other problems in the workplace can be solved by the one-to-one dialogues with particular employee. But the main recommendation is the regular meeting with employees in order to give them the same information.

Another recommendation is related to the the statement 4. Statement says that enterprise has at least the standard insurance against the risks which can negatively influence the running of the enterprise. Together 56 (15,30%) respondents totally disagree or somewhat disagree and 112 (30,60%) respondents only somewhat agree. Risk management is a current utilization of the knowledge of variation and insurance definitely belongs to the risk management. As we mentioned in the theoretical basis of this paper, according to Agrawal (2009), risk management involves reviewing operations of the organisation, identifying potential threats to the organisation and the likelihood of their occurrence, and then taking appropriate actions to address the most likely threats. Traditionally, risk management was thought of as mostly a matter of getting the right insurance.

The main problem which can these enterprises have is probably the problem with financial resources. But we think that if the enterprise cannot afford to pay for insurance, it should not operate. Business involves various negative risks which can definitely bring down the enterprise without relevant insurance. Enterprises can choose to cut their expenditures somewhere else, for instance they can try to decrease the energy expenses by saving electricity or water. Maybe they can decrease expenditures in the field of delivery of the product or service. If it is possible, enterprise would not use one company car so they could save some resources on the fuel. Every enterprise is different but they can try to manage their resources more effectively and save some amount of financial resources for at least the standard insurance which is necessary when we talk about the system of profound knowledge. We also need to notice that the prevention is more important and less expensive than



the possible reparation which can be needed later. By prevention, enterprise can decrease the amount of the claims and the volume of their guarantee and after-guarantee service. SMEs should have stated the potential risks, how these risks can be reflected in the enterprise and the reparation of the possible situations.

The last statement of this section which results differed from others was statement 6 about the allocated resources for innovations. Together 115 (31,42%) respondents answered that they totally disagree or somewhat disagree and 134 (36,61%) respondents only somewhat agree that the enterprise where are they employed has allocated resources for innovations. The number is quite high and it means that almost three quarters of the Slovak SMEs does not have special resources for innovations in the enterprise. We suggest establishing specialized fund for future innovations and changes in the enterprise. Every time when enterprise is in the surplus, they can allocate particular amount of financial resources and put it on the specialized account intended for this purpose. After a certain time, they can use it in order to introduce needed changes or innovations. If the enterprise is in loss, they can allocate financial resources in a period when they earn more than usually. In these situations, changes are probably needed so they will also use this fund more often. Another suggestion is to ask employees for their ideas. Enterprise can establish a box where employees can leave their ideas for changes and innovations. By this, management can motivate them to be more active and creative.

### **3.4. Suggestions related to the theory of knowledge**

The first suggestion related to the theory of knowledge will be connected with the statement 3 from this section. Statement says that enterprise recognizes their knowledge or know-how like a part of the non-current assets of the enterprise. Together 46 (12,56%) respondents answered that they totally disagree or somewhat disagree and 116 (31,69%) respondent only somewhat agree. The number represents almost one half of the Slovak SMEs.

As we mentioned before in the theoretical basis of this paper, according the Emerald Insight Staff (2005) at the centre of every successful organization is the knowledge of key managers and their ability to apply it. In a globally competitive world, it is becoming increasingly important to capture knowledge, develop people and establish lifelong learning to continue to compete at the leading edge of business.

It means that SMEs should be competitive with the help of their know-how. We recommend developing it continuously. Management should allocate appropriate suggestions, thoughts and strategies which were successful in the past and which differ from the strategies of the competition. They can use it repeatedly and build a strong base for the know-how which can be later included in their non-current assets. They can also learn from their unsuccessful actions and try to build on their negative experiences. We mean that SMEs need to use the fourth phase from the Plan-Do-Check-Act Cycle- to act. This process can last a long time but at the end company can gain the competitive position on the market. Accordingly, SMEs can establish a productive team in order to summarize and process all of these strategies and suggestions. Later, they will perform and behave according it and their position can be completely changed.

Another suggestion is connected with the statement 4 of this section. Statement was saying that enterprise where I am employed provides to its employees at least one of these forms of the educational development: briefing, coaching, mentoring, assistance, solving of case studies, brainstorming, workshops, e-learning, various presentations and courses. Together 63 (17,21%) respondents answered that they totally disagree or somewhat disagree and 110 (30,05%) respondents only somewhat agree. It means that their enterprises are not offering any form or a sufficient amount of the forms of educational development. According th system of profound knowledge, if the enterprise wants to employ skilled employees, they should offer them an opportunity to participate on some professional courses, presentations, workshops and so on. SMEs can cooperate with various educational institutions and programs which exist in Slovakia, they can ask for a state support or various grants for education of employees. In these days, state and private institutions are offering many training and retraining courses. Managers of the enterprise can organize professional presentations where employees can learn new skills. Of course, managers need to express what is expected from their employees after completion of the course and what results will it bring. There are many opportunities so Slovak SMEs should allocate some amount of financial resources for these activities and educate their employees.

Statement 4 is closely related with statement 5 about the learning organizations. Together 67 (18,30%) respondents answered that they totally disagree

or somewhat disagree and 133 (36,33%) respondents only somewhat agree with the statement which says that I consider enterprise where I am employed to be a learning organization. It means that more than a half of Slovak SMEs are not behaving like a perfect learning organization. It is probably because they are not offering any forms or sufficient amount of forms of educational development. Managers of the SMEs should ensure the sharing of the knowledge and also feedback and results of the trainings. Changes which we suggested in the previous paragraph can lead to the decrease of disagreeing answers in the statement 5.

### **3.5. Suggestions related to understanding of psychology**

Suggestions in this section will be connected with almost all statements which we explained in the analytical part. The first will be the statement 1. This statement says that employees know how to express their emotions. Together 55 (15,02%) respondents stated that they totally disagree or somewhat disagree with this statement and 155 (42,34%) respondents only somewhat agree. It means that their employees probably do not know how to adequately express themselves.

According McNary (1997), knowledge of psychology is fundamental to optimization of a system, optimization is not possible without understanding the people involved in the system of processes. It means that employees should have been able to express their emotions and thoughts in order to be understood by their supervisors. We recommend focusing on the candidate's empathy right at the interview because some employees will never be able to learn how to express emotions. Of course, nowadays exist many courses focused on the emotions or emotional intelligence. Managers can offer it to their employees as a form of individual development. Managers can also establish a system of questioning. They will ask their employees what they think about various problems, strategies or situations so they will be used to speak about their emotions and thoughts and managers will be able to understand them more. System of profound knowledge involves mutual understanding between employee and supervisor so both sides should be skilled in communication and expressing of their thoughts and emotions.

Other suggestions will be related to the statement 2 from the section understanding of psychology. Statement says that employees know their strengths and weaknesses. Together 63 (17,21%) respondents answered that they totally disagree or

somewhat disagree and 152 (41,53%) respondents only somewhat agree with this statement. This number is quite high and this statement is closely related with the previous statement 1. We suggest organizing of the individual meetings of employees and managers of the human resources or managers who know employees and they will discuss together the strengths and weaknesses. Employees should know how to express their emotions just like they have to know their strengths and weaknesses. If they know their positives and negatives, probably they will be more willing to be involved in the educational development which the enterprise offers. Employees would probably know what are they competent for and the number of imperfections can be decreased. Employee should feel that he or she is important for the enterprise so the managers should be able to be empathetic and give them a feedback about various situations which happen.

Statement 3 is the next statement which we will analyze. This statement says that employees are willing to accept the change. Together 58 (15,84%) respondents answered that they totally or somewhat disagree and 186 (50,81%) respondents only somewhat agree with this statement. According the Emerald Insight Staff (2005), self-regulation is the part of the concept about the emotional intelligence. Self-regulation means managing of our responses. Responses are also our attitudes towards the change in the enterprise. It means that we should positively respond on the changes in the workplace. In order to manage this, we suggest doing the small and frequent changes. If the management needs to introduce some bigger changes, they should conduct it step by step. Employees will be used to see these small changes and change their performance on the basis of it. Of course, they need to know what these changes mean and what results it can bring. Another suggestion is asking the employees on the regular basis what they would change in the enterprise. By this approach, they will be driven to the change and maybe they would see the results of their own suggestions.

The next suggestions are connected with the statements 4 and 5 from the section about the understanding of psychology. Statement 4 says that employees of the enterprise flexibly meet the standards. Together 51 (13,93%) respondents totally disagree or somewhat disagree and 187 (51,09%) respondents only somewhat agree with this statement. We assume that meeting of the standards results from the educational options of the employee, his or her ability to accept the changes in the enterprise and the level of the ability to understand the company culture. First two of

these factors were already analyzed so we will focus on the third one. Understanding of the company culture was included in the statement 5 so we can say that statement 4 partially depends on the statement 5. Statement 5 says that employees understand and accept the values and culture of the enterprise. Together 43 (11,74%) respondents totally disagree or somewhat disagree with this statement and 174 (47,54%) respondents only somewhat agree. The company culture is different in every enterprise. We suggest hiring employees who understand and suit into the particular company culture. During the interview, managers should try to estimate if the employee would fit into the company culture. If not, employee can feel unsatisfied and this can reflect in the failure of meeting the standards. But we should state that standards have to be set realistically according the available resources and skills of the workforce. Once they do not understand and apply its values, it is hard to incorporate these employees into the given enterprise so the enterprise should offer them an adaptation process which can help the employee to adapt in the enterprise. Results can be seen only after some period of time.

The last statement which we will focus on will be the statement 6 from the section about understanding of psychology. Statement says that managers encourage the employees for the higher performance and they also make the work more interesting. Together 43 (11,74%) respondents totally disagree or somewhat disagree and 139 (37,97%) respondents only somewhat agree with it. Firstly, we recommend rewarding managers who will achieve some progress or positive results with their subordinate employees by extra days off. It can motivate them to properly encourage the employees for higher performance. Managers can organize weekly meetings where they will give a feedback, evaluation and clarify future plans for his or her subordinate employees. Managers should be more like a mentor or leader. He or she should lead and teach subordinate employees to be more successful. Employees should hear about manager's failures and learn from it. Manager needs to work together with his or her employees and share with them the positive or negative results. Of course, subordinate employees can be motivated by various intrinsic and extrinsic motivators which were explained in the theoretical basis of this paper. All of these suggestions can lead to the maximal understanding of the psychology of the employee in the Slovak SMEs.

As a conclusion of the third chapter, we will summarize all recommendations and suggestions which we stated in order to improve the situation of the Slovak SMEs:

- allocating at least the one employee who will be responsible for the quality measurements and observation in the enterprise or divide the scope of these actions between more employees who will be responsible for it,
- if the enterprise observes increasing number of the claims, they should focus on it and make arrangements in order to prevent the decrease of the sales,
- if management wants to observe results of processes and the quality of the product, they should have identified all parameters of quality of each product or service,
- management of the enterprise should assure that all current employees care about the quality, really significant is the self-control of employees, they should be skilled enough to not release a product or service of a low quality,
- employees should be also motivated to the self-control, it can be done in the form of the quality course lead by the external or internal quality manager,
- implementing a system which includes standards and indicators for every process in the enterprise, this system would be suggested based on the various kinds of resources which are available in the enterprise,
- to pay more attention to the production process of the product or service or other processes,
- to take an external audit of the production process by the specialized external auditor,
- if the enterprise cannot afford to take an external audit, they should control processes by themselves and of course, the indicators for the processes should be established and later controlled by managers,
- SMEs should have established a process cards which include described inputs, outputs, resources, risks and prevention for the given process,
- we also suggest introducing the risk management training for managers so they will be able to recognize various risks,
- we suggest establishing weekly briefings which would help with the cooperation of the employees, managers can give them professional advices and instructions,

- SMEs can try to manage their resources more effectively and save some amount of financial resources for at least the standard insurance,
- SMEs should have stated the potential risks, how these risks can be reflected in the enterprise and the reparation of the possible situations,
- we suggest establishing specialized fund for future innovations and changes in the enterprise, every time when enterprise is in the surplus, they can allocate particular amount of financial resources and put it on the specialized account intended for this purpose,
- enterprise can establish a box where employees can leave their ideas for changes and innovations,
- management should allocate appropriate suggestions, thoughts and strategies which were successful in the past and which differ from the strategies of the competition, they can use it repeatedly and build a strong base for the know-how which can be later included in their non-current assets,
- SMEs can cooperate with various educational institutions and programs which exist in Slovakia, they can ask for a state support or various grants for education of employees,
- managers of the enterprise can organize professional presentations where employees can learn new skills,
- managers of the SMEs should ensure the sharing of the knowledge and also feedback and results of the trainings,
- we recommend focusing on the candidate's empathy right at the interview,
- nowadays exist many courses focused on the emotions or emotional intelligence so managers can offer it to their employees as a form of individual development,
- enterprise should offer them an adaptation process which can help the employee to adapt in the enterprise,
- managers can also establish a system of questioning, they will ask their employees what they think about various problems, strategies or situations,
- we suggest organizing of the individual meetings of employees and managers of the human resources or managers who know employees and they will discuss together the strengths and weaknesses of the employee,

- we suggest doing the small and frequent changes, if the management needs to introduce some bigger changes, they should conduct it step by step,
- we recommend rewarding managers who will achieve some progress or positive results with their subordinate employees by extra days off,
- manager needs to work together with his or her employees and share with them the positive or negative results.

The summarization of all suggestions and recommendations from all parts of the system of profound knowledge shows that we suggested many measures which are not so expensive and demanding and it means that these suggestions should be easily applicable. SMEs and their resources differ so they should choose from our suggestions those which can help them to improve the wanted process or department.



## CONCLUSION

Nowadays, SMEs cannot rely on the ordinary tactics and strategies. They should look for various foreign systems which would improve their entrepreneurship and satisfy their employees and customers. System of the profound knowledge is one of the systems which can deliver it. But not every SME can utilize the full system of the profound knowledge. It depends on the abilities and possibilities of the given enterprise. Slovak SMEs are sometimes too small to fully apply this system but the most important parts of the system are possible to apply in every enterprise. Management should choose the right way how to apply it and the system can improve many significant processes in the enterprise.

The aim of this master thesis was to introduce and clarify the known system of the profound knowledge together with its four basic sections and to show through the analysis of the business environment that Slovak SMEs can use this system in order to have satisfied employees and customers so they can operate more effectively.

In the first chapter, we defined and described the theory connected with the quality management, systems of the Dr. Edwards Deming and the system of the profound knowledge as the main theory of this master thesis. In the second chapter, we subsequently reflected the theory into the questionnaire which was distributed among the Slovak SMEs. Results shown that the majority of the SMEs is using the system of the profound knowledge because majority of the respondents totally agreed or somewhat agreed with our statements. However, we cannot overlook the considerable number of respondents who somewhat disagreed or totally disagreed.

We identified different problems in the SMEs so in the third chapter, we offered them various suggestions and recommendations aimed at the improvement of the situation of the Slovak SMEs. Respondents who just somewhat agreed have probably some problems with our statements too so we included them into the recommendations which are easily applicable and financially undemanding. Suggestions are focused mainly on the changes in the communication between management and employees and various changes in the field of evaluation, motivation and self-regulation of the employees.

## SUMMARY (IN SLOVAK)

V súčasnosti sa malé a stredné podniky nemôžu spoliehať len na bežné taktiky a stratégie. Mali by hľadať rôzne zahraničné systémy, ktoré by značne ovplyvnili ich podnikanie and uspokojilo ich zamestnancov a zákazníkov. Systém zdieľaných vedomostí je jeden zo systémov, ktoré môžu priniesť tieto výsledky. Avšak nie každý malý alebo stredný podnik môže využívať tento obsiahly systém zdieľaných vedomostí. Záleží to na schopnostiach a možnostiach daného podniku. Malé a stredné podniky na Slovensku sú niekedy príliš malé na to, aby mohli plne aplikovať tento systém, avšak najdôležitejšie časti tohto systému sú aplikovateľné v každom podniku. Manažment podniku by si mal nájsť tu správnu cestu, ako ho aplikovať, aby tento systém ovplyvnil veľa dôležitých procesov v podniku.

Cieľom tejto diplomovej práce bolo priblížiť a objasniť tento už známy systém zdieľaných vedomostí a jeho štyri základné časti a cez analýzu podnikateľského prostredia ukázať, že slovenské malé a stredné podniky môžu využívať tento systém na dosiahnutie vyššej spokojnosti u zamestnancov a zákazníkov, aby mohli spolupracovať efektívnejšie.

V prvej kapitole sme definovali a opísali teóriu spojenú s manažmentom kvality, systémami Dr. Edwardsa Deminga a systémom zdieľaných vedomostí, ktorý je hlavným objektom tejto diplomovej práce. V druhej kapitole sme následne odzrkadlili teóriu v dotazníku, ktorý bol rozposlaný malým a stredným podnikom na Slovensku. Výsledky ukázali, že väčšina respondentov úplne súhlasila alebo skôr súhlasila s našimi tvrdeniami. Avšak nemôžeme prehliadnuť ani značné množstvo respondentov, ktorý skôr nesúhlasili alebo úplne nesúhlasili.

Objavili sme rôzne problémy v malých a stredných podnikoch, takže sme im v tretej kapitole ponúkli rôzne návrhy a odporúčania cielené na zlepšenie situácie slovenských malých a stredných podnikov. Respondenti, ktorí len skôr súhlasili majú pravdepodobne tiež nejaké problémy s našimi tvrdeniami, takže sme ich zahrnuli do odporúčaní, ktoré sú ľahko aplikovateľné a finančne nenáročné. Návrhy sú zamerané hlavne na zmeny v komunikácii medzi manažmentom a zamestnancami a rôzne zmeny v oblasti hodnotenia, motivácie a sebakontroly zamestnancov.

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## APPENDICES

### Appendix 1 Questionnaire about the quality management

Dear respondents,

the purpose of the following questionnaire is to find out if the small and medium enterprises in the Slovakia have implemented the system of profound knowledge for the purpose of their improvement. The research is organized by the Economic faculty of the Matej Bel University in Banská Bystrica. Thank you in advance for your time and willingness.

1. Do you agree or disagree with these statements?
  - a. Enterprise where I am employed has a department for quality or at least some employees dedicated to the quality of the enterprise.
  - b. Enterprise where I am employed has a clearly formed vision.
  - c. Enterprise where I am employed has clearly specified goals.
2. Enterprise where I am employed belongs to the:
  - a. Small enterprises (0 - 24 employees)
  - b. Medium enterprises (25 - 249 employees)
3. Enterprise where I am employed belongs to the sector of:
  - a. Trade
  - b. Agriculture
  - c. Construction industry
  - d. Manufacturing industry
  - e. Services
4. Please indicate to what extent you agree with following statements in connection with the enterprise where you are employed. (Totally agree, somewhat agree, somewhat disagree, totally disagree, cannot assess)
  - a. The quality is an inseparable component of all products and services.
  - b. The enterprise identifies needed sources for every process which they are running.

- c. Every process in the enterprise has given goals which should be achieved.
- d. System is a network of the independent components which work on the fulfilment of the common goal.
- e. Every process in the enterprise is regularly monitored and measured.
- f. Imperfections of the product or service are rarely a mistake of the regular employee (more often it is the fault of the management).
- g. Every employee of the enterprise knows his/her own competences and responsibilities.
- h. Problems in the workplace are clearly communicated and solved with subordinate employees.
- i. Management of the enterprise identifies the risks which can negatively influence the running of the enterprise and they are trying to get rid of it.
- j. The enterprise where I am employed has at least the standard insurance against the risks which can negatively influence the running of the enterprise.
- k. I think that ISO certification serves also as the preventive measure for the potential risks in the enterprise (regardless of the fact that enterprise where I am employed has this certification or not).
- l. The enterprise has allocated resources for the innovations in the enterprise.
- m. Knowledge itself is relative and it is based on the measurements and observations of the environment.
- n. Knowledge of the key managers and their ability to apply it is the centre of every successful enterprise.
- o. The enterprise recognizes their knowledge (know-how) like a part of the non-current assets.
- p. The enterprise where I am employed provides to its employees at least one of these forms of the educational development: briefing, coaching, mentoring, assistance, solving of case studies, brainstorming, workshops, e-learning, various presentations and courses.
- q. The enterprise where I am employed, I consider to be the learning organization.
- r. Employees are receiving the feedback from the managers in order to improve their performance.



- s. Employees know how to express their emotions.
- t. Employees know their strengths and weaknesses.
- u. Employees are willing to accept the change.
- v. Employees flexibly meet the standards.
- w. Employees understand and accept the values and culture of the enterprise.
- x. Managers encourage the employees for the higher performance and they also make the work more interesting.