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Strategic renewal and disruptive innovation

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Strategic renewal and disruptive innovation

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1 Introduction

“We didn’t do anything wrong, but somehow, we lost.”

Stephen Elop, CEO of Nokia, 2013

A key question of strategic research is what makes certain companies successful in the long run, and what are the reasons that lead others to failure, bankruptcy or being acquired. The quote mentioned above is from the CEO of Nokia, a company that was the flagship of the mobile phone market in the 90s and as a closure of an unsuccessful period was acquired by Microsoft in 2013 (Drath, 2016).

The sentence the CEO said at the announcement of the acquisition illustrates the complexity of this issue. How can a successful, profitable company with substantial resources, experienced managers, good market reputation that continues to apply the strategy that led them to success end up in failure and acquisition?

The example of Nokia is not an isolated one. Since 2000 more than half of the companies of the Fortune 500 list have ceased to exist. (Nanterme, 2016). Over the past decades iconic companies went bankrupt or were acquired like Kodak or Polaroid (LoPucki and Doherty, 2007), so understanding the survival of a firm is more important than ever before.

Failure of successful companies is often caused by the external environment, where new technologies and business models appear that transform the market. Generally, companies can handle slow changes of the external environment thanks to their innovation activity; however, they often identify fast, radical changes too late and fail to give adequate responses to them. (Christensen, 1997). To handle radical changes, a potential response for companies to survive is a profound strategic renewal, when they change their abilities and strategic goals to break out of the dependency determined by their situation.

Upon realizing the need for strategic renewal, further questions have arisen for researchers. Why can certain companies successfully implement strategic renewal and others can’t (Baden-Fuller and Volberda, 1997; Crossan and Berdrow, 2003)? What is the reason behind the success of IBM and Intel, companies that managed to adapt to changes of the business environment and retain their marketing leading role, while the

previously mentioned Nokia or Kodak failed to do so (Assink, 2006; Vuori and Huy, 2016)? What skills, structures and processes lead to successful strategic renewal (Schmitt et al., 2018; Volberda et al., 2001)?

The high-impact strategic research approaches of the second half of the 20th century, like Research Based View (Barney, 1997) or the Five Forces Theory (Porter, 1979) are suitable for analysing corporate strategy in a given environment, but they do not provide sufficient guidelines for strategic renewal triggered by a changing environment. (Kapás, 1999; Levitas and Ndofor, 2006). However, over the past decades, two approaches have become widely used that help to understand different adaptive behaviours of companies: the theory of Ambidexterity and Dynamic Capabilities (O'Reilly III and Tushman, 2008).

Ambidexterity means performing exploitation and exploration activities simultaneously. Thus, enabling a company to generate profit continuously while developing and changing in the long run and adapt to the changing environment (March, 1991). Dynamic capabilities allow companies to integrate, construct and reconfigure their assets and competencies to remain competitive in a rapidly-changing environment (Teece et al., 1997).

Using the framework of ambidexterity and dynamic capabilities in this dissertation, the author intends to analyse the ability of companies to renew their strategies as a reaction to the effect of disruptive innovation that changes the external environment.

The author's exploratory research focuses on a global IT company, which – having transformed its product portfolio, business strategy, organisational structure and processes – carried out strategic renewal upon experiencing and foreseeing the expansion of disruptive innovation - cloud services. The author is seeking an answer to the question of how this company reacted to the challenge of disruptive innovation and what renewal process it applied to implement strategic renewal. The examination of the successful renewal of the company allows for learning about the good practice which – in whole or part – may be used by other companies as well. Thus the research of the author goes beyond the analysis of a strategic renewal of a given company, and the research results may serve as examples of other companies, too.

In order to explore the strategic renewal of the company examined, the author examines what the dynamic capabilities that made strategic renewal possible in a given environment are and how organisational ambidexterity (i.e. exploitation and exploration at the same

time) was ensured during the process. The research also explores the role of senior management and the lower levels of corporate hierarchy in the renewal process as well as the relationship between the company and the external environment.

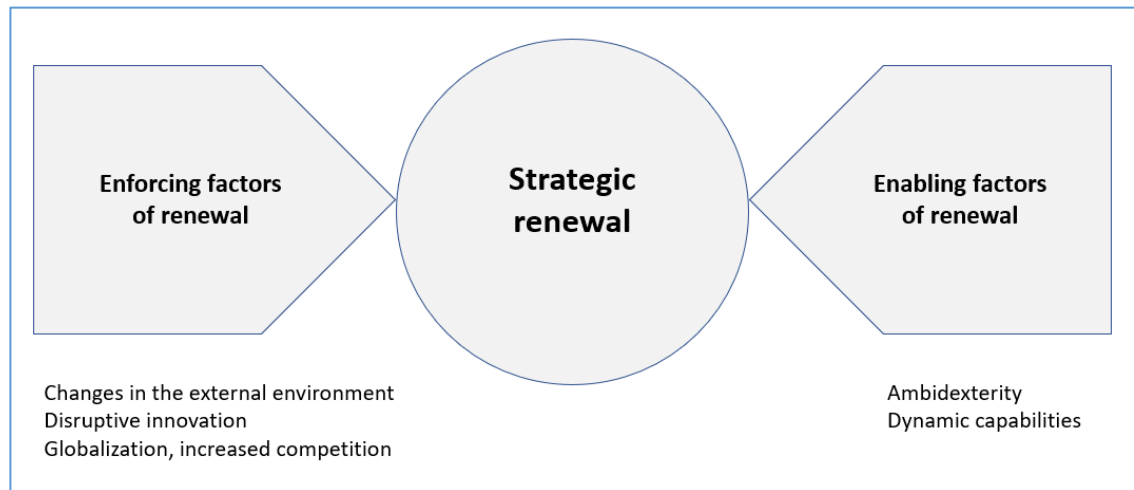


Figure 1 - Enforcing and enabling factors of strategic renewal

Source: personal collection

The topicality and economic importance of the issue is given by the profound change triggered by the fourth industrial revolution, during which revolutionary technological changes alter whole business branches, destroy and create workplaces so this process has an impact on the whole economy. In the digital transformation - which defines the fourth industrial revolution – new technologies have crucial roles, such as the ‘Internet of Things (IoT), Big Data, artificial intelligence, blockchain, 5G and the cloud-based services (Warner and Wäger, 2019). In this environment, it is essential to understand how companies can react to technological changes constituting disruptive innovation and how they can ensure their survival.

As Information Technology has become an indispensable tool for companies to remain on the market in the 21st century, disruptive innovation that transforms information technology is an ideal field to analyse strategic renewal. The effect of cloud services – which has a crucial role in the strategic renewal of the company examined - goes far beyond IT suppliers and the digital economy. This is well illustrated by the fact that when this dissertation is prepared, four of the five largest publicly traded companies (by market capitalization) provide cloud services (CorporateInformation, 2020).

Several studies deal with the technological background, market penetration and legal regulations of cloud services. However, the effect cloud services - as an element of disruptive innovation - have on corporate renewal, strategies and sub-systems are currently under-researched; this fact provides the novelty of this research topic.

In this thesis, the author presents the cloud-based solutions, as well as examines and verify the disruptive innovation nature thereof. However, the research questions are not related to cloud-based services, but the strategic renewal induced by them and affecting the supplier side. Thus the topicality of the research arises from the cloud services, however, through the examination of one strategic renewal executed as a response to cloud solutions, the author presents research results which can be generalised and may be applied in case of other strategic renewals induced by disruptive innovation as well.

The author has worked in an international environment for IT companies over the past 25 years, in the beginning as a technical professional and later on in middle or senior management positions. Over the years spent in the market, the author had the possibility to closely follow and learn about key technological solutions, market trends, corporate strategies and market players, including both suppliers and customers. As an executive, the author has experienced the challenge of adapting to the radical changes in the external environment multiple times and gained experience in the course of successful and less successful strategic renewal attempts. The author's international positions allowed him to observe and compare these trends in countries with various cultures. Over the past years the author has developed the interest to analyse revolutionary changes that transform the market and the strategic responses given to them from a scientific perspective and using scientific methods, and to systemize his knowledge and experience based on this information. This personal interest was the motivation to choose the topic of the dissertation.

During the research an approach characterised by post-positivist scientific psychology was used, according to which you need to endeavour to explore the objective truth although the values and interpretations of the researchers and their interaction with the subject and the persons involved create a particular dimension of the truth (Ryan, 200).

In addition to presenting an example of successful strategic renewal which may be used by other companies as well, the result of the research is the description of a new renewal model, the '*controlled strategic renewal method*'. The novel strategic renewal method

presented through the case study allows for a company-wide comprehensive renewal, controlled by the senior management, in which the middle managers and frontline workers have the executor role. An essential element of the controlled renewal method is the centralised IT system-aided data collection, decision support and execution. If aligned to the corporate culture, then the presented use of the IT systems may ensure special dynamic capabilities to the company. These dynamic capabilities allow the core senior management to control the transformation, in a dynamic, hyper-competitive environment, even in a global enterprise with several hundred thousand people.

The dissertation is structured as follows:

- Review the professional literature on strategic renewal.

- Review of the professional literature on disruptive innovation, addressing the disruptive effect of innovation in the field of cloud services.

- Identification of the research gap and the research questions.

- Introduction of the researched company.

- Description of the research methodology.

- Presentation of research results

- Discussion

- Summary

2 Strategic renewal

Perhaps, strategic renewal of companies has never been more important in history than nowadays. Over the past decades market competition has become more dynamic, global and has also intensified (Schmitt et al., 2018). Along with these changes market competition has also become more complex, and it is often unclear for market players, who their competitors are. 79% of 1541 chief executive officers interviewed in a survey think that the situation is becoming more complex in the near future (Tuncdogan et al., 2019).

In the globalised system of the 21st century, the unexpectedly occurring crisis situations (such as the 2008 financial crisis or the 2020 COVID-19 pandemic) may affect all countries of the world and the companies operating in them, and such situations may also force the fast-changing of the strategy (Wenzel et al., 2020).

In this environment strategic renewal process ensuring the survival of a company - which is not only important for the companies themselves, but it may affect the whole sector and the entire economy (Agarwal and Helfat, 2009) - has become the focus of strategic researchers' attention.

Despite the attention paid to the issue, there is no generally accepted definition of strategic renewal, academic literature provides partially diverging interpretations. In the dissertation the approach of Schmitt and his co-authors is used according to which strategic renewal is based on three major elements: (1) it includes the basic skills of a company that ensure competitive advantage, (2) affects the whole company and has an impact on each organisational level and (3) breaks path dependence, thus guaranteeing long-term survival of the company. Based on these elements and according to their definition, strategic renewal means the process that allows organisations to change path dependency through the transformation of strategic goals and skills (Schmitt et al., 2018, p:85). Their definition examines strategic renewal from the perspective of processes concentrating on activities that finally lead to successful renewal.

In the following chapters the author will review the professional literature related to the growth and renewal of organisations and describe the main areas of strategic renewal research.

Based on the organisational growth model of Greiner (Greiner, 1972) the phases a company goes through during the growing process, the key organisational problems of each phase and the transition between the phases are presented. Greiner's model mainly focuses on internal conflicts, although an organisation may be forced to change not only by internal conflicts but also as a result of the transformation of the external environment. The two possible methods and approaches to handle change are described using the model of change by Beer and Nohria (Beer and Nohria, 2000).

This is followed by an outline of the main research areas of strategic renewal: the approaches related to antecedents, processes and outcomes of strategic renewal (Schmitt et al., 2018). Volberda et al. elaborated their renewal model based on the research results achieved in these areas (Volberda et al., 2001; Volberda, 2017), in which they offer four different idealised renewal models depending on the renewal process and the expected results.

During strategic renewal, the question of how a company can ensure continuous operation and exploration of new areas at the same time is of utmost importance. The theory of organisational ambidexterity deals with the simultaneous implementation of exploitation and exploration activities, which will be presented in detail.

The market circumstances of the operation of any company are determined by the economic, sociocultural, technological, political, legal, natural and the global environment (Baron, 2003). In order to understand the changes of these market circumstances, elaborate and implement appropriate answers, companies need so-called dynamic capabilities different from the ones required for the effective implementation of basic activities. The author will give an outline of the dynamic capabilities approach and will also describe the relationship between organisational ambidexterity and dynamic capabilities.

To perceive the change of the external environment, recognize the need for and implement strategic renewal, it is essential for the management to focus on the specific issue. For this reason, the outline of professional literature dealing with strategic renewal is closed by reviewing the Attention Based View that examines the issue from the perspective of organisational attention.

2.1 Greiner's organisational growth model

According to empiric researches, there are no generally successful corporate strategies. A critical element of a successful strategy is to harmonize the environment, corporate resources and skills, organisational structure and management systems (Grant, 2002).

When a company faces a difficult situation, managers often blame the changes in market circumstances, increased competition and the changing regulatory environment. In his book "Strategy and Structure" Chandler argues that market circumstances determine the strategy of a company (Chandler, 1962). Greiner disputed this approach in a notable article that forms part of the professional literature examining corporate growth (Greiner, 1972). According to Greiner, its own past has a greater impact on the organisation than external forces.

Based on Greiner's model, there are two ways to achieve organisational renewal: evolution and revolution. Evolutionary development means long-term growth during which there are no major changes in the operation of the organisation. Revolution means a revolutionary change that triggers significant transformations in the life of an organisation. Evolutionary change is followed by revolutionary change over time, then the organisation returns to evolutionary change (Greiner, 1972).

In Greiner's model there are five dimensions determining organisational development: age of the organisation, evolutionary phases, revolutionary phases and the growth rate of the industry.

As it is not feasible to use the same operative methods in the long run, the age of the organisation becomes relevant when dealing with the necessity for change. Growing organisations need to use different management methods depending on the size and complexity of the organisation (Bolman and Deal, 2017).

The evolutionary phases of the organisation vary in length. According to Greiner (1972), generally, there is a period between four and eight years of balanced growth before the next revolutionary situation appears. Smooth and balanced growth is not guaranteed in the long run, it is periodically interrupted by revolutionary phases. Evolutionary phases are longer in slow-growing industries while in fast-growing industries they are shorter (Balaton et al., 2010; Szabó, 2010).

Considering the five dimensions, Greiner divided the growth stages of the company into five phases. The company undergoes evolutionary development in each of the five stages then a revolutionary change occurs due to a crisis and this is how it enters the next phase. The five growth stages are as follows:

2.1.1 First stage: Creativity

The birth phase of the organisation in which the founders directly take part in the work using their technical or entrepreneurial knowledge. There is direct communication among the employees that helps teamwork and enhances creativity (Hon and Lui, 2016). A small, flexible organisation can react to customer needs quickly.

After a while, the rapid growth of the company results in management crisis, increased complexity and the number of issues is no longer manageable using manual control.

2.1.2 Second stage: Management

Organisations that survive management crisis by employing managers suitable for handling the increased complexity of the business enter the second stage. In this phase, the fields of focus and the tasks of the employees become clear (Burke, 2018). A functional organisational structure is introduced, positions become specialized. Target figures, pay incentives, workplace standards are introduced. Communication becomes formal, the (new) management becomes responsible for managing the company, while decision-making powers of lower level managers are seriously limited. However, further growth of the company requires decision-making at lower levels as well, and this tension causes the next crisis. Lower-level managers fight for more decision-making power and autonomy and this crisis leads to the third growth stage.

2.1.3 Third stage: Delegation

Middle management receives greater responsibility and senior managers make their decisions based on regular reports and besides strategic decisions they only deal with handling exceptional issues. Delegation and decentralisation allows the middle management to react quickly to the challenges of the local market. If decision making is not only formally delegated to the middle management but also in effect, (Aghion and

Tirole, 1997) as a result of decentralisation, senior management loses control and the possibility of coordination over local decisions (Colombo and Delmastro, 2004). This situation is the next crisis, for which the steps taken by the senior management to regain control mean the solution generating revolutionary change.

2.1.4 Fourth stage – Coordination

This stage is characterised by formal planning, reorganisation of the decentralised units to achieve better coordination and increase of the central staff of the company. Some functions (e.g. IT, HR) are centralised. There are more and more initiatives coming from the centre, that do not always take into account local interests and characteristics (Baliga and Jaeger, 1984; Kunisch et al., 2015). Bureaucracy expands too intensively over time and becomes an obstacle to effective corporate operation. This tendency causes the next crisis the solution of which leads to the fifth stage of organisational growth.

2.1.5 Fifth stage - Cooperation

The size of the corporate centre decreases, focus is shifted to solve problems at cross-group level. Companies simplify their complex systems, some of them introduce a matrix structure (Kuprenas, 2003; Sy and Côté, 2004). At regular meetings senior managers focus on solving key problems. Managers are supported by formal training programmes to improve teamwork and conflict resolution. IT systems providing real-time information are introduced to support decision-making.

The transition between the stages is, of course, not smooth. Companies often stuck in a stage, become unsuccessful or are acquired (Greiner, 1998). According to Greiner, the biggest barrier of development between the phases is the resistance of the senior management. Managers who made the company successful in a previous phase insist on the structures and processes they introduced even when the development of the company has gone beyond (Assink, 2006).

“Ministages” can appear within the stages, the transition to the new phase is not immediately completed. For example, delegation phase generally starts with the decentralisation of an organisational unit (for example a product line) and does not involve the whole organisation (Greiner, 1998).

2.2 Boundaries of the Greiner model and other approaches

In his original article, Greiner did not deal with what happens after the fifth stage. As Szabó draw the attention to the fact, it is not obvious whether a company stays in the stage of “cooperation”, enters into another phase or goes back to a previous one. (Szabó, 2010).

Greiner virtually excluded external circumstances and focused on the internal conflicts of the company. However, the issue of strategic renewal in reality is not isolated from the environment, it appears together with it as companies need to adapt to the external circumstances to survive (Venkatraman and Prescott, 1990). Similarly, Ben-Menahem et al. think that companies need to adapt their internal renewal to the opportunities and challenges triggered by the external environment (Ben-Menahem et al., 2013). It means that it is not enough to focus either on the external circumstances or the internal development phases, the two elements need to be harmonized.

In the approach of Baden-Fuller and Volberda, organisations continuously change, but the pace of the change is too slow, especially in a highly competitive environment (Baden-Fuller and Volberda, 1997). The change necessary to adapt to competition also involve dangers. Failure to change or overreaction may result in serious consequences. To successfully implement change, organisations need to resolve the paradox of stability and change. The reason behind the aspiration to achieve stability is not only the inertia of the organisation but also the ambition to maximize the competencies and skills of the organisation in the short term. Besides ensuring survival, another motive for change is growth and further success. Renewal requires managers to identify and handle the dilemma of stability and change.

2.3 The model of change by Beer and Nohria

The renewal models already discussed do not deal with how changes can be implemented. However, practice shows that 70% of the attempts to achieve change fails (Beer and Nohria, 2000), so apart from identifying the need for change successful implementation is also a key element for the renewal of a company (Kotter, 1995).

Although the exact interpretation of the 70% per cent rate referred to by Beer and Nohria is not entirely clear (for example they do not define precisely the notion of the attempt to make change) and the figure itself was not supported by scientifically accepted empiric

research (Hughes, 2011), their study had a great impact on professional literature dealing with change management.

Beer and Nohria defined two methods for successfully implementing changes: theory “E” and “O” (Beer and Nohria, 2000).

Theory “E” focuses on economic return looking at the issue exclusively from the owners’ point of view. Change is addressed through top-down methods defining and implementing programmes and generally a considerable amount of financial reward is granted if change is successfully implemented. Changes according to theory “E” often involve drastic downsizing and reorganisations. The fact that changes are exclusively guided by the interests of the owners can adversely affect customer relations and the customers themselves.

Theory “O” creates the trust and commitment required for change based on the corporate culture and human resources. In this approach bottom-up initiatives and participation are encouraged. Tests, gaining experience and development are part of the process. Those who participate in change are motivated through their commitment complemented by a realistic amount of financial reward. Managers who apply theory “O” become committed towards the employees, however, this commitment may block them to make decisions that have a negative impact on employees.

According to the recommendation of Beer and Nohria, finding the balance between the two, considerably different theories and integrating the elements of the two theories are vital to successfully implement a change.

Identifying and continuously communicating the strategic goals and optimizing the operative activities that support daily work are equally important during the process of change. The basic corporate processes provide the connection between the new strategic goals and the daily activities, that managers need to be aware of, measure and improve to guarantee successful change (Oakland and Tanner, 2007).

Activities such as making decisions based on data, creating cross-functional teams, disciplined project management, clearly setting out responsibilities and targets, communication, involving employees, and the commitment of the senior management support the success of change. In contrast to this, significant organisational changes, departure of senior manager(s), lack of communication, delays, closed-minded thinking

and lack of participation by the senior management reduce the chance to successfully implement change (Oakland and Tanner, 2007).

The significance of communicating the goals set is strengthened by the fact that managers and employees who understand the goal of the change are less likely to resist. The relationship between the knowledge about the change and the resistance against it can be empirically demonstrated (Washington and Hacker, 2005). The more managers understand change, the greater chance they have to become enthusiastic about it and their expectation that change can fail will be reduced.

2.4 The key areas of strategic renewal

Strategic renewal is a process rather than an immediate change (Volberda et al., 2001). Researches about this process can be categorised in three main areas: (1) antecedents, (2) processes and (3) outcomes of strategic renewal (Schmitt et al., 2018). Research approaches and key questions of these three areas are outlined in the chapters below.

2.4.1 Antecedents of strategic renewal

The antecedents of strategic renewal are examined by academic literature using two different approaches: from the perspective of (1) organisational learning and (2) resources

According to the first approach, organisational learning is the primary way and an essential condition of strategic renewal (Crossan et al., 1999). The fundamental challenge related to organisational learning is, that the knowledge required to maintain continuity and implement change need to be ensured simultaneously (March, 1991). In this respect, companies are required to gain new knowledge for strategic renewal while exploiting what they have already learned (Crossan and Berdrow, 2003). Simultaneous pursuit of the two contradictory learning processes is called organisational ambidexterity (Duncan, 1976). Organisational ambidexterity is explained in detail in chapter 2.6.

The second approach examines the process that leads to renewal from the perspective of resources. Based on the Resource-Based Theory (Barney, 1991), strategic renewal is the result of the attempts made to reconfigure corporate resources. The core capabilities of the company ensure daily operation while the so-called dynamic capabilities facilitate reconfiguration of the resources and thus strategic renewal (Agarwal and Helfat, 2009).

Core skills include for example routine activities, administration and basic corporate processes. Effective development of new products or strategic decision-making are examples of dynamic capabilities (Eisenhardt and Martin, 2000). The theory of dynamic capabilities is explained in detail in chapter 2.7.

The two approaches are connected as organisational learning provides the basis to acquire dynamic capabilities relevant for renewal (Zollo and Winter, 2002).

2.4.2 Processes of strategic renewal

Regarding the process of strategic renewal, the question who initiates and manages the process is a fundamental one: senior management or lower level managers and employees. Both models can be successful, renewal initiated by senior managers (Kwee et al., 2011; Mitchell et al., 2009) or by members working at lower levels of the hierarchy (Pappas and Wooldridge, 2007).

Personal experience, skills and the personality of senior managers determine how a certain situation is perceived and assessed, what decisions are made regarding the strategy and how they are implemented within the organisation. As a result, the composition and processes of senior management have a decisive impact on strategic renewal (Schmitt et al., 2018). Personal changes in the senior management may facilitate the strategic renewal-aiding functioning of the senior management, at the same time, the departure of a crucial manager who knows the organisation and the company in detail could also set the strategic renewal process back (Chen and He, 2020).

Renewal directed with the use of a top-down approach creates an institutionalized environment that determines what actions and processes are acceptable and what are not. It helps create a uniform approach and interpretation within the company, which, by reducing uncertainty, is beneficial during the renewal process. However, middle managers and frontline employees have more direct information about the customers and market conditions than senior managers (Radaelli and Sitton-Kent, 2016). The danger that lies in institutionalization is that important information is not forwarded to the senior management. The established system blocks bottom-up initiatives and creativity which can lead to the failure of the renewal initiated by senior management (Verbeke et al., 2007). For this reason, in course of the top-down renewal the senior management shall ensure that the initiatives of the employees committed to the change are given sufficient

scope, and that the information originating from them reaches the decision (Järvi and Khoreva, 2020). Gaining the support of the middle management is also important because in the absence thereof they may exercise substantial resistance, may slow the transformation down or may make it impossible, such as it happened in case of Kodak (Lucas Jr and Goh, 2009).

On the other hand, during a renewal process based on autonomous, bottom-up initiatives employees who have direct market experience can make recommendations to the senior management to optimize processes (Volberda et al., 2001). This can help senior managers better understand and get to know what happens on the market and within the company, so they can take corrective action.

However, the disadvantage associated with bottom-up renewals is that the process can get out of control and bottom-up initiatives do not reach each level of the company (Floyd and Lane, 2000). Importance of local specialities can be emphasised by lower level managers, so the renewal of the entire company can include elements that are only relevant for a specific area (Floyd and Wooldridge, 1997). Corporate identity can be lost as a result of a large number of bottom-up initiatives that may lead to chaos (Volberda and Lewin, 2003).

2.4.3 Outcomes of strategic renewal

The general purpose of strategic renewal is long-term survival of the company (Agarwal and Helfat, 2009). This requires change in path dependency, and the decrease of the gap between the external environment and the strategic goals and skills of the company.

The gap can be reduced using two approaches: (1) considering the external environment as it is (Gilbert, 2005), or (2) influencing the external environment using the strategic renewal of the company (Crossan and Hurst, 2006).

According to the co-evolutionary approach that accepts the external environment as it is, the external environment changes and the company needs to follow this change by renewal (Eggers and Kaplan, 2009). During co-evolution, adaptation to the environment and the corporate strategy selected are closely connected. Strategic renewal is achieved as a result of the continuous interaction between the environment and the corporate

strategy (Volberda and Lewin, 2003). This continuous interaction displaces the company from its balanced position thus making strategic renewal possible.

In contrast to co-evolution, the approach of “co-creation” means that strategic renewal of the company is not implemented in a vacuum, but it has an impact on the environment (Flier et al., 2003). The company not only follows environmental changes, but it also proactively affects the development of the industry and the market.

There is a substantial difference between the two approaches; adaptation requires different internal processes (market research, product development, marketing) than transformation of the market. The approach is selected depending on the circumstances of the environment and resources of the company (Schmitt et al., 2018). For example, a dynamically changing environment intensifies the effect of product innovation on business performance (Prajogo, 2016), so companies can maximize their results with innovation while adapting to the market (Stienstra et al., 2004). In contrast to this, in a market environment providing ample opportunities for growth potential, it is less important for companies to insist on the existing resources, so they are more courageous to launch new products and proactively form the market environment (Flier et al., 2003).

2.5 Renewal model of Volberda et al.

Considering the management process options (top-down or autonomous) of strategic renewal discussed in the previous chapter and their relations to the environment (co-evolutionary or affect the market environment), Volberda et al. suggested four idealized strategic renewal processes, or “journeys” as they described them (Volberda et al., 2001).

Their model developed for large enterprises comprising several business units makes a distinction between the level of senior managers and frontline managers based on the initiation of processes and the activity shown during renewal. In their article issued in 2017 in relation to their original model, they expanded the level of frontline managers with middle managers (Volberda, 2017), so in the dissertation the term “middle managers” is used.

Volberda et al. recommend four renewal methods: Emergent, Directed, Facilitated and Transformational.

2.5.1 Emergent renewal - following the market

The “emergent” renewal method is based on managers who turn their attention to the market environment and share the information deriving from this environment within the company. The company applies a co-evolutionary method to follow market changes and industrial development. Middle management has an executive role in the process of the strategic renewal. During the renewal process, emphasis is put on the improvement of the exploitation activity. The evolving renewal method is generally recommended to be applied in a stable competitive environment during a slowly changing evolutionary development process.

2.5.2 Directed renewal – directed by the senior management

During the application of the directed renewal method, senior management considers itself capable of influencing the environment in a relatively slowly changing external environment and in the stable competitive environment. Change is controlled by the senior management, and change starts from the senior level by determining the corporate goals and strategies that do take the market environment into consideration, but want to modify it partially. Lower levels of the hierarchy are responsible for implementing the strategy. During renewal, both exploration and exploitation have a key role. This renewal method can be applied well in case of steady corporate growth or decrease, when the advantages of the hierarchy, formal planning and the controlling can be made use of to a large extent.

At the same time – as it had been pointed out by a previous research – this renewal method is not ideal in a turbulent, rapidly-changing environment, since due to the lack of active role of the middle management, the information about the swift changes of the market fails to reach the senior management or does so slowly (Floyd and Lane, 2000). In course of top-down management, those middle managers who are passive in the development of the strategy cannot make those fast, corrective decisions which would be necessary in the dynamic environment. The hyper-competitive dynamic environment requires frontline and middle managers to participate in the renewal actively.

2.5.3 Facilitated renewal - bottom-up initiatives

Facilitated renewal can be used in highly competitive and rapidly changing market environment. Middle management can anticipate expected market changes based on direct market information and initiate changes accordingly. Senior management is responsible for creating an internal environment and structure that enable the organisation to implement strategic change, i.e. consistently with its name, the method facilitates the renewal. In addition, the senior management is also responsible for approving or subsequently accept the decisions made by the middle management, as well as to act as an arbitrator in case of disputes (e.g. in case of two competing investment proposals).

In course of the facilitated renewal, the exploitation activities and the exploration activities are in balance.

The company also strives to influence industrial rules during the renewal process. A major difference compared to the emergent renewal model is the proactivity of the middle management level: they aspire to achieve renewal by anticipating market changes and influencing the market rather than following it. One drawback of the method is that as the bottom-up initiative stems from the business units, it is difficult for the senior management to transform it to a change involving the entire company including other business units as well.

2.5.4 Transformational renewal - a process involving the entire company

In transformational renewal methods senior management considers itself capable of influencing the rapidly changing environment and it is important for them to cooperate with lower hierarchy levels. Active participation of the middle management is important in this process, so that the entire company is transformed and involved in the change. Both the senior and the middle management are responsible for perceiving the expected change of the external environment. The various hierarchy levels and functions of the organisation cooperate closely during the changes. In course of the renewal, corporate entrepreneurial spirit and risk-taking have important roles on all levels of the hierarchy.

The company strives to change industrial rules during the renewal process. There is no balance between exploitation and exploration, focus is shifted from exploitation to exploration. Organisational unlearning (Tsang and Zahra, 2008), appearance of new

concepts and corporate entrepreneurship (Covin and Miles, 1999) have a key role in the process.

This renewal method can be applied well in case of strategic renewals which react to radical market changes (for example, to the appearance of disruptive technology) and which transform the entire company.

2.5.5 Summary of the renewal model of Volberda et al.

Companies may choose various methods among the four renewal methods listed, depending on their development phase and considering the current market conditions and the intrinsic characteristics of the company.

The four idealized renewal methods are summarised in Table 1 according to the relation of the senior management to the environment and the activity of the middle management.

	Top Management is Passive with respect to Environment	Top Management is Active with respect to Environment
Middle management passive (acts as executor in the renewal)	Emergent renewal (<i>applicable in stable competitive environment</i>)	Directed renewal (<i>applicable in stable competitive environment</i>)
Middle management active (act as creator in the renewal)	Facilitated renewal (<i>applicable in rapidly changing competitive environment</i>)	Transformational renewal (<i>applicable in rapidly changing competitive environment</i>)

Table 1 - Summary of renewal model of Volberda et al.

Source: personal collection based on Volberda et al. (2001)

2.6 Organisational ambidexterity

2.6.1 Exploration and exploitation

To ensure profitable operation, a company needs to effectively exploit the opportunities of its existing markets. On the other hand, besides focusing on the existing markets and products, it also needs to seek new markets to ensure its long-term presence. In the absence of this exploration activity, the future success of a company can be jeopardised (March, 1991).

Exploitation and exploration often seems contradictory activities (Lavie et al., 2010), and it can cause difficulties for companies to pursue these two activities in parallel. The activities related to exploration include research, risk-taking, discovery, flexibility and innovation. Activities related to exploitation are effectiveness, implementation, execution and fine-tuning (March, 1991).

Robert Duncan introduced the term “ambidexterity” in professional literature for organisations capable of pursuing both activities (Duncan, 1976). The English term “ambidexterity” derives from the Latin “ambi” (both) and “dexter” (ability, skill) (Chermack et al., 2010).

In his landmark study written in 1991, March examined exploitation and exploration activities within the context of organisational learning. According to March, adaptation processes that support exploitation better than exploration can be effective in the short term, but in the long run, they can have disruptive effects on the future of the organisation (March, 1991). The lack of exploration activity may lead to the failure of the organisation. Several researches have dealt with the apparent or real tension between exploitation and exploration activities since March’s study and also suggested solutions to resolve this tension (Dobák et al., 2013). Despite identifying the importance of ambidexterity, only a small proportion of the companies can renew their fundamental competencies in the long run.

2.6.2 Sequential ambidexterity

According to Duncan, organisations characterised by ambidexterity allocate their resources periodically either to one or the other activity and oscillate between the two situations (Duncan, 1976). Such implementation of organisational ambidexterity is known as sequential ambidexterity (Boumgarden et al., 2012).

Sequential implementation of ambidexterity is useful in certain environments for example for project organisations. However due to the continuous change of priorities, its implementation at corporate level may have a negative impact on the abilities of the organisation (Christensen and Overdorf, 2000).

Longitudinal examination of BMW, a global automotive company showed that by implementing sequential ambidexterity the company was able to adequately react to radical market changes (Birkinshaw et al., 2016).

Sequential ambidexterity can be realised not only on the corporate but on smaller organisational unit level as well, and even on the individual level. In course of realisation on the individual level, the employee may switch to and from exploitation and exploration activities as frequently as every day or even every hour (Pertusa-Ortega et al., 2020).

2.6.3 Structural ambidexterity

Tushman and O'Reilly dealt with ambidexterity from the perspective of innovation and change management (Tushman and O'Reilly, 1996). Going beyond the concept of sequential (periodically changing) ambidexterity elaborated by Duncan the argued that organisations characterised by ambidexterity are able to handle continuous and radical changes parallelly by dividing the organisational structure. For example, by dividing the R&D organisation, two R&D organisations can be established, one dealing with further development of existing products and another focusing on new products. Senior management may have different expectations towards the separate organisations prescribing different rates of return, internal processes and reports. In extreme cases, the organisation dealing with exploration can even become a separate company (spin-off) thus ensuring flexibility for its own internal processes and benefiting from the advantages of the flexibility of start-up companies.

In order to achieve organisational ambidexterity, an advantage of structural separation is that different expectations can be set for separate organisations and the performance of their exploitation and exploration activity can be efficiently measured. Goals are clear within the separate organisational units and the systems can be aligned to their specialization. Specialization decreases uncertainty of the managers and helps share attention and priorities appropriately (Tempelaar and Rosenkranz, 2019).

The advantages of structural separation appear both in small and large organisations, the rate of positive impact does not depend on the size of the organisation. However, when establishing parallel structures, the resources available need to be considered, that may be limited in small companies (Fourné et al., 2019).

The establishment of an autonomous business unit independent from the mother company is a method often used as a response to disruptive innovation (Christensen et al., 2018). According to the study of Charitou and Markides 62% of the companies that applied ambidexterity (developing a new product line while maintaining the traditional products) as a solution for disruptive innovation used structural separation (Charitou and Markides, 2003).

A drawback of separation is however, that it may lead to the isolation and divergence of the organisational unit from the main activity of the company. Limited communication between the separate organisations restricts sharing knowledge and resources and the lack of cooperation may lead to the establishment of parallel structures and different cultures (Mom et al., 2009). Ensuring cooperation between the separate organisations and coordinating various structures and internal systems is a demanding task for senior management. Senior managers carrying this burden may become the congestions of the process causing the implementation of ambidexterity to fail (Chen, 2017).

Experience shows that structural separation has clear advantages in developed technological environments and production, while it is less favourable in service-centred industries (Fourné et al., 2019). Similarly to the research of Fourné et al., Birkinshaw et al. (2016) found that it is worth establishing a separate organisational unit dealing with exploration in industries where and when market changes are fast. In case of a slowly changing environment, it is better to integrate innovation in the existing organisational structure of the company.

2.6.4 Contextual ambidexterity

To eliminate the disadvantage of separated organisational structures, Birkinshaw and Gibson recommended the implementation of contextual ambidexterity within the same organisation (Birkinshaw and Gibson, 2004). In the solution they offer an employee performs both exploration and exploitation activities with a flexible schedule of the worktime (Szabó, 2010; Taródy, 2012; Taródy, 2018). The main advantage of contextual ambidexterity is that it gives flexibility to the employees to make decisions about their own time management regarding the two activities (Dobák et al., 2013).

Contextual ambidexterity does not eliminate the tension between the exploitation and exploration activities it only transfers the tension to a lower organisational level.

Individuals and lower level managers are responsible for making decisions about the proportion of the two activities and it requires specific skills. Employees working in these positions are expected to take initiatives, seek cooperation with their colleagues, perform multiple tasks simultaneously and interpret the goals of the company in a broader context (Birkinshaw and Gibson, 2004).

Google, for example, established an organisational environment in which development engineers spend 20% of their time on ground-breaking developments. As a result, engineers do not have to wait for the managers' approval to develop a new idea. A number of additional projects result in successful products (Schmidt and Rosenberg, 2014).

Contextual ambidexterity is based on the assumption that an organisational unit and/or employee is able to deal with exploitation and exploration parallelly (Taródy, 2018). This is generally feasible in cases where the two activities do not require significantly different skills. However, when exploration requires radically new knowledge, capabilities and processes, implementing the two activities within one organisation or if they are pursued by the same employee can cause difficulties (Chen, 2017).

Table 2 summarizes the characteristics of implementing structural and contextual ambidexterity.

	Structural ambidexterity	Contextual ambidexterity
How ambidexterity is achieved	Exploitation and exploitation activities are allocated in separate organisations	There is no separate organisation, the same employee performs both tasks
Where is the decision made about the performance of the exploitation and exploration activities	In the management of the company	At the level of the individual employees
Role of senior management	Creating a dual structure	Creating an organisational context, where individual employees work
Nature of the roles	Well-defined	Flexible
Capabilities of the employees	Specialists	Generalists

Table 2 - Comparison of structural and contextual ambidexterity
Source: personal collection based on Birkinshaw and Gibson (2004)

2.6.5 Hybrid ambidexterity

According to Ossenbrink and his co-authors (Ossenbrink et al., 2019), companies choose the structural realisation of ambidexterity usually when using the opportunity arising in the market environment requires an organisational structure and skills which are significant different from the existing ones. If numerous uncertain opportunities appear in the market environment, then it is advisable to use the contextual ambidexterity, which provides opportunity to use the split attention and the knowledge of frontline workers.

If numerous uncertain opportunities appear in the market environment the exploitation of which requires innovative organisational culture and skills, then it is advisable to use both the structural and the contextual forms of ambidexterity (Ossenbrink et al., 2019). This realisation may be defined as the hybrid form of ambidexterity (Jöhnk, 2020).

2.6.6 The relationship between ambidexterity and corporate performance

The assumption that organisational ambidexterity has a positive impact on corporate performance has been confirmed by several researches (O'Reilly and Tushman, 2013; Junni et al., 2013). This positive impact can be clearly demonstrated in the increase of revenues (Lee et al., 2003; Venkatraman et al., 2006), innovation (Burgers et al., 2009; Tushman et al., 2010) and the improvement of the company's ability to survive (Kauppila, 2010; Yu and Khessina, 2012).

According to Liu and Leitner, organisations tend to shift from the optimal balance towards exploitation during their operation as they prefer performing routine tasks instead of exploration that involves greater risks and are often most costly (Liu and Leitner, 2012). Based on the research of Uotila et al. 80% per cent of large enterprises perform less exploration activities than the optimal (Uotila et al., 2009).

The proportion of exploration and exploitation activities vary during the life cycles of the company. A substantial part of the companies act as an explorer at the early phases of their life cycles and later exploitation becomes dominant (Hortoványi, 2010; Hortoványi and Ferincz, 2015).

The effect of ambidexterity on corporate performance depends on the environment, the industry and the main resources of the company. In an uncertain and rapidly changing

environment ambidexterity has a greater effect on corporate performance than in a stable and predictable environment (Jansen et al., 2005a).

In dynamically changing industries companies need to focus constantly on innovation and exploration because the duration of their existing competitive advantage is uncertain (Prajogo, 2016; Pertusa-Ortega and Molina-Azorín, 2018). According to Junni et al., exploration is more important in high-tech and service oriented industries, while exploitation is more important in manufacturing (Junni et al., 2013).

When examining the companies included in the list of Standard and Poor's (S&P) comprising 500 companies, Uotila et al. found a reverse *U*-curve relationship between the relative rate of exploration activity and the financial performance of the company (Uotila et al., 2009). This relationship is positively moderated by the R&D intensity of the industry. The result of their research corresponds with the results of the research performed by Junni et al. (Junni et al., 2013); in industries where the intensity of R&D is low, exploration has relatively low impact on corporate performance while in industries where the intensity of R&D is high the impact is also significant.

The size and the resources of the company have a positive relationship with the impact of ambidexterity; for larger enterprises that have major resources the impact is more significant (Tempelaar and Van De Vrande, 2012; Zhiang et al., 2007).

Exploration and exploitation abilities can be extended by acquiring other companies (Christensen et al., 2011). Acquisitions supporting exploitation abilities contribute to the existing main competence and basic activity of the company. As a result of the acquisition the company can acquire critical resources and processes that need to be efficiently integrated to utilize the economies of scale (Chandler et al., 2009). Through acquisitions aiming at extending the exploration activity companies can acquire new knowledge, skills and resources within a short period of time. The acquired company is integrated as a whole or handled as an autonomous organisational unit according to the contextual or structural separation of ambidexterity already discussed (Chen, 2017).

The effect of ambidexterity on corporate performance vary according to the level of research. At lower levels (individual employees) the impact is not significant, while going towards higher organisational levels (work team, business unit) the influence increases (Junni et al., 2013).

Ambidexterity results in better performance not only at corporate level but also in the divisions of companies having more organisational units (Jansen et al., 2012). Large enterprises having divisions characterised by ambidexterity are more innovative than large enterprises consisting of traditional divisions (Chebbi et al., 2015).

2.6.7 The role of managers in the development of ambidexterity

The ambidexterity of the company is also influenced by whether exploitation and exploration appear in the communication, actions and also the decision-making of the senior management (Kortmann, 2015). When the external environment changes, survival of the company depends on whether senior management can find the right balance between exploitation and exploration (O'Reilly III and Tushman, 2008; Kortmann, 2015).

Top managers can support ambidexterity by creating a corporate culture that recognizes both explorative and exploitative activities (Diesel and Scheepers, 2019). Moreover, top manager's communication that supports innovation, criticizes status quo, explains reasons and actions for change, and sets new goals and priorities underpin ambidexterity (Maclean et al., 2020).

The time horizon of the top managers also has an impact on ambidexterity. Managers with short-term time horizon tend to focus on exploitation (Shipp et al., 2009), while those with long-term time horizon focus on exploration (Nadkarni and Chen, 2014). A top management team that compiled of managers with diverse time-horizon can reinforce ambidexterity (Chen et al., 2019).

Besides the role of senior managers increased attention is paid to the importance of the role of middle and frontline managers (Burgelman et al., 2018; Heyden et al., 2017; Radaelli and Sitton-Kent, 2016). In order to successfully implement ambidexterity, besides the organisational structure designed and established by senior managers, their implementation and dynamic alignment performed by middle and frontline managers are also required (Zimmermann et al., 2018).

2.7 Dynamic capabilities

According to the resource based corporate approach, valuable, rare resources determine the market position of a company, ones that are difficult to imitate or replace (Barney,

1991). The strategic use of company skills and resources can become a source of competitive advantage (Somosi, 2017). These resources alone, however, do not ensure the company's ability to renew. Other skills are also required to react to rapid changes in the environment and reconfigure internal and external competences (Teece et al., 1997).

Teece et al. highlighted that corporate capabilities can be categorised into two groups (Teece et al., 1997; Teece, 2017a). Basic capabilities include general skills like routine activities, administration and basic corporate processes that support daily operation in a more or less effective manner (Kosztyán et al., 2018). Perfection of basic corporate processes and the usage of "best practices" form a vital part of corporate operation but competitors can copy them over time so they do not mean long-term competitive advantage (Teece, 2017b).

Dynamic capabilities constitute another level above the basic level that allow reorganisation and renewal of basic capabilities as well as activities supporting renewal projects such as development of new products, opening to new markets and decision making in uncertain situations. Dynamic capabilities allow the company to react to changes in the internal and external environment, respond to new opportunities and challenges rather than supporting the daily operation of the company (Sebrek and Váradi, 2019). Dynamic capabilities enable companies to maintain competitiveness using new and innovative solutions taking into account internal and external circumstances (Teece et al., 1997). Organisations need dynamic capabilities for renewal when they are forced to change market or products and competitiveness rapidly changes within the industry (Hortoványi, 2016).

Companies with strong dynamic capabilities generally have dominant processes and a culture specific only to them. It is difficult for competitors to copy dynamic capabilities as they are built on the characteristics of the leaders, the routines developed within the company and the corporate culture. For this reason, company-specific dynamic capabilities can serve as sources for long-term competitive advantage (Eisenhardt and Martin, 2000; Teece, 2014).

Companies with strong dynamic capabilities are characterised by a greater level of entrepreneurial spirit. They not only adapt to the ecosystem of the business, but also formulate it with innovation and in cooperation with other market players (Teece, 2007).

Dynamic capabilities which facilitate changing the business model in the rapidly changing environment are particularly important for companies in the modern digital economy (Warner and Wäger, 2019).

According to Teece (2007), dynamic capabilities can be categorised in three basic groups: sense and shape and seize and reconfigure.

2.7.1 Sensing and shaping

Sense and shape mean identifying opportunities and threats through activities like continuously monitoring the external environment, learning, understanding and transformation of these to the internal language of the company. The process of sensing generally requires investments in research activities.

When a new opportunity or threat is identified, managers need to assess how to interpret them for the purposes of the company and plan measures to be taken as a response. They have to make decisions about the technologies they intend to use and the market strategy they wish to apply. Competitors may perceive and interpret the situation in another way and develop different reactions.

2.7.2 Seizing

Seizing means the implementation of the reaction to the opportunities and threats perceived. It can mean new products, processes or services. “Seizure” requires investments in nearly all cases in the field of product and process development.

There are generally more investment options or technologies competing with each other in the early phase, so managers need to make decisions about the investment in uncertain situations. It is worth maintaining the option of flexibility in this phase until it becomes clear which technology will be the dominant one. Companies with significant complementary assets have more time to wait and make decisions while those, who do not have such assets have to make decisions faster (Mitchell, 1991).

However, companies often fail to make investments required for seizure. Especially incumbents are characterised by this attitude where decision making is distorted by tendencies against innovation based on standard procedures, basic capabilities, complementary assets, administrative processes, fear from cannibalisation and to avoid

threats (Teece, 2007). For this reason, strategies applied by incumbents based on routines and assets causing path dependency and the development of the existing technology may lead to incorrect answers to the challenge posed by disruptive innovation.

In order to elaborate correct answers, managers need to be aware of the disruptive effects influencing their decisions and be ready to ignore the existing capabilities, processes and complementary assets of the company.

2.7.3 Reconfiguring

Sensing and seizing the opportunities of the market and technologies can bring the company on a profitable growth path. However, success may lead to path dependency over time. Profitable growth can only be sustained in the long run if companies are capable of reacting to the inevitable changes of the external environment, market expectations and the size of the company. To achieve this, they need to be able to transform the assets and the organisational structure.

Organisational structures can normally adapt to slow technological development by applying minor modifications. Radical changes, however, may require profound transformation (Teece, 2000).

2.7.4 Manifestation of dynamic capabilities

Companies can maintain their competitiveness by continuously and simultaneously applying the capabilities (sense and shape, seize, reconfigure) of the three categories listed (Teece, 2007). The introduction of Amazon Kindle in 2006 is a successful example for the usage of these three capabilities. Amazon identified the danger threatening book publication, its traditional market and seized the opportunity to rapidly develop first generation e-books and continuously transformed its internal activities to ensure that Kindle becomes an integral part of its commercial offer (Birkinshaw et al., 2016).

Development of new products or the capability to make strategic decisions constitute dynamic capabilities often referred to in professional literature. The process of acquiring and integrating other companies (Eisenhardt and Martin, 2000), or market orientation (Sett, 2018) are also important dynamic capabilities. Dynamic capabilities required for successful innovation of services include for example (1) organisational ambidexterity

(2) institutionalization of the integration of learning and knowledge, (3) organizing cooperation, (4) renewing value propositions (Tuzovic et al., 2018).

If the Big Data systems – which constitute one of the important technologies of the fourth industrial revolution and which process vast quantities of data – are integrated properly in corporate processes, then these systems may increase competitiveness and therefore may be the sources of dynamic capabilities (Rialti et al., 2019).

Dynamic capabilities companies require are not universal, they rather depend on the given environment, structure and situation (Birkinshaw et al., 2016). Dynamic capabilities cause competitive advantage if the strategic orientation of the company – which takes the external environment into consideration – is facilitated (Fainshmidt et al., 2019).

In a moderately dynamic environment where changes frequently occur but they are predictable, dynamic capabilities built on the existing knowledge are valuable. On the contrary, in a highly dynamic environment it is important to have the ability to develop situation-specific knowledge (Eisenhardt and Martin, 2000). In such situations using the existing knowledge can even be harmful (Argote, 2012).

2.7.5 The relationship between the organisational ambidexterity and dynamic capabilities

According to Teece (2007) the first two categories of dynamic capabilities (sensing and seizing) are connected to but different from the ambidexterity of exploration and exploitation elaborated by March (1991). While exploration and exploitation activities often compete for the same resources, sensing - especially in the early phase - is a low-input activity, so there is no irresolvable conflict between sensing and seizing, which is more resource intensive.

Although, similarly to exploration and exploitation, sensing and seizing requires different mindset and processes (Raisch and Zimmermann, 2017). Therefore, as in case of the structural implementation of ambidexterity, it is also possible to implement sensing and seizing in separate organisational units (Ricciardi et al., 2016).

Ambidexterity is regarded as a dynamic capability by a number of authors (Snehvat et al., 2018; Teece, 2014; O'Reilly III and Tushman, 2008). Unlike this approach, according to Birkinshaw et al. (2016) “sensing” (as a group of dynamic capabilities) corresponds to

exploration and “seizing” corresponds to exploitation. “Reconfiguration” is an ability at higher level, that includes the implementation of the ambidexterity of sensing and seizing at organisational level, in the structural, contextual or sequential form of ambidexterity described by professional literature. “Reconfiguration” makes the process initiated by “sensing” and “seizing” sustainable. The optimal implementation at organisational level that allows ambidexterity to function depends on the circumstances (such as the traditions of the organisation, external environment) and the dynamic capabilities available (Popadiuk et al., 2018).

Therefore, it is not universal dynamic capabilities that determine whether a company can adapt to a radical change in its environment but the organisational implementation of ambidexterity and the combination of the related dynamic capabilities (Zimmermann and Birkinshaw, 2016).

Nestlé, for example, developed the ability of resource-linking along with the implementation of ambidexterity by structural separation. This capability ensured the coordination of the sensing capabilities of the organisation units dealing with exploration and the seizing capabilities of the units dealing with exploitation. GSK established an organisation characterised by ambidexterity and developed context-shaping capabilities that helped managers to simultaneously apply sensing and seizing. The focus-shifting capability of BMW developed to support sequential ambidexterity enabled managers to shift their attention from sensing to seizing and vice versa. All three capabilities listed can be considered as high-level “reconfiguration” dynamic capabilities, that supported the implementation of the ambidexterity model selected (Birkinshaw et al., 2016).

2.8 Attention based view

Attention based view (ABV) addresses strategic renewal from the perspective of organisational attention. Organisational attention has a key role in strategic decision making and strategic implementation (Ocasio, 1997). Initially, senior corporate management was in the focus of ABV researches and later on it was extended to the organisational attention of middle and frontline managers (Vuori and Huy, 2016). Middle and frontline managers have an increasingly important role in strategic changes as organisations are becoming more complex and geographically fragmented (Balogun and Johnson, 2004).

ABV considers a company as the system of structurally divided attentions. Decision makers have limited attention due to their cognitive limits and their decisions are affected by limited rationality (Barnett, 2008). Activities of decision makers depend on what is in the focus of their attention. The focus of their attention depends on the environment or situation in which they pursue their activities (Ocasio, 1997). The context in which decision makers pursue their activities changes according to how the organisation divides and handles problems, responses and decisions makers in the specific corporate activities, communication and processes (Ocasio, 1997, p188).

Regarding attention, new information can be processed using a top-down (directed by schemes) or bottom-up (directed by external stimuli) approach (Shepherd et al., 2007). When information is processed using the top-down approach, decision makers select relevant topics that need special attention based on already known schemes and their existing knowledge system. Conversely, during bottom-up information processing the attention of decision makers focuses on signs coming from the environment. They use the signs of the external environment as a stimulus during the decision-making process (Joseph and Wilson, 2018). Top-down information processing is a useful tool when changes are incremental, where the change of the environment can be projected and the time and place of the change is predictable. In such situations decision makers can perceive and react to changes using their existing knowledge system (Shepherd et al., 2017). However, the exclusive usage of the already known schemes and the existing knowledge system can lead to strategic short-sightedness; using top-down information processing, managers may not recognise environmental signs that warn them to radical changes.

When bottom-up information processing is applied, decision makers consider various stimuli coming from the environment that help them recognize changes beyond their knowledge system (Shepherd et al., 2007).

For example, top-down knowledge processing determined by already known schemes impeded the leaders of Polaroid to shift their attention the signs of change that resulted in the expansion of digital photography (Eggers and Kaplan, 2009). As a result, Polaroid failed to react in time to environmental changes, lost its market leading role and became subject to bankruptcy proceeding (LoPucki and Doherty, 2007).

Managers' attention is captured more intensively if radical market changes are positioned as threats rather than opportunities (Gilbert, 2005).

When an industry is stirred up by radical changes it is not enough for the senior management to identify the phenomenon itself, they also need to react. One option to react is strategic renewal that includes modifying the existing corporate strategy and implementing a new strategy as well (Charitou and Markides, 2003). The two processes, creating and implementing a strategy are closely connected. According to the dynamic approach of strategy, elaboration is not a one-time process followed by implementation; the process of creating and implementing a strategy is formed and developed together over time (McGuinness and Morgan, 2005).

During strategic renewal, senior managers need to take into account that employees at lower levels of the hierarchy may perceive the environment and the need for change differently (Balogun and Johnson, 2004). Besides rational viewpoints, when accepting change, employees are also affected by emotions. Intensive emotions of the employees can have a key role during the renewal process and may affect their actions and the success of change (Huy, 2011). During strategic changes, attention of middle and frontline managers may be shifted to different aspects than those of senior managers. While senior managers generally focus on external parties (competitors, owners), lower level managers mainly concentrate on internal groups (superiors and employees). Therefore, regarding renewal the mindset and emotional approach of lower level managers can be different from the perceptions and intentions of senior managers (Vuori and Huy, 2016). In order to overcome resistance against the new strategic direction, senior managers need to strive to create an environment where the attention of employees working at lower levels is directed to activities that support the new strategic direction of the company (Ocasio et al., 2018).

3 Disruptive innovation

A common feature of the theories and approaches outlined in the previous chapter is that they try to find the appropriate corporate answers to market changes affecting companies. Several reasons may lie behind market changes like political (embargo, war, commercial agreements, changes in taxation), natural (climate change, natural disasters, inaccessibility of certain resources) or sociological (fashion, trends).

Over the past decades, in developed economies (including Hungary) innovation was the main reason and driving force of market transformations (Angyal, 2015). Innovation is a critically important activity, which should be closely aligned with the company strategy (Hoffer and Iványi, 2008). According to McKinsey's study, dealing with innovation is considered as an important problem by 70% of senior managers (Barsh et al., 2008).

Innovation that appears in new technologies, processes and business models - especially if its effect is radical and causes profound changes - often forces companies to renew their strategies. Regarding researches dealing with strategic renewal, it is important to understand the concept of disruptive innovation so in this chapter the author outlines the main elements of the literature dealing with disruptive innovation.

3.1 Sustaining and disruptive technologies

Since innovation is of key importance for economic development it has been a main subject of research for decades. Economic development and innovation are closely connected as the notion of innovation was basically created in relation to economic processes (Angyal, 2015). Through the interpretation of 60 different notions of innovation, Baregheh et al. defined innovation as follows: 'Innovation is a multi-stage process whereby organisations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace' (Baregheh et al., 2009, p. 1334)

Schumpeter was one of the authors who examined the effect of new technologies on economic growth and development (Schumpeter, 1942). According to Schumpeter, entrepreneurs creatively disrupt the old system through innovation and this process results in continuous restructuring of markets. New companies appear with new technological solutions that endangers some of the existing companies.

Some decades later Christensen created a further interpretation for the effect of disruptive technologies. His book “*The Innovator’s dilemma*” published in 1997 (Christensen, 1997) is a standard work of the most recent innovation research. The innovation dilemma of company executives stems from the fact that logical and competent decisions the management makes to ensure that the company continues to be successful finally lead to losing the market position of the company. To resolve this dilemma Christensen made a distinction between sustaining and disruptive technological developments.

Sustaining technological developments are the ones that gradually improve the performance and quality of products. Development can be continuous or even ground-breaking, but a common feature of upgraded products is that improvement is made in areas that are important for mainstream customers. Most developments in various industries are sustaining (Christensen et al., 2018).

Nokia devices are good examples for sustaining developments defined by Christensen in the mobile phone market. Nokia launched new models one after the other from the mid-90s providing better and more extended services thus ensuring the position of Nokia as one of the leading mobile phone manufacturers.

According to Christensen, as a result of continuous development sustaining technologies “overshoot” customer demands regarding quality and service parameters, they offer more than customers need.

Besides the term “disruptive”, authors often use other adjectives to describe high-impact innovation involving significant new elements. Such adjectives can be radical, discontinuous or breakthrough. Professional literature practically use these terms as synonyms. Reviewing 2081 scientific publications, Kovács et al. have not found significant differences or diverging interpretations among the innovation types described with the terms listed above (Kovács et al., 2019). In fact, it happens on several occasions that the same author uses different terms to describe the same innovation process in various studies. The author uses the term “disruptive” in this study as an adjective for high-impact innovation involving significant new elements.

3.2 The Christensen model

In contrast to sustaining technologies, according to Christensen, a distinctive characteristic of disruptive technological developments is that they generally fall short of in a number of areas the quality and service of the products developed based on the current market leading technology. However, products based on disruptive technologies provide services or have features that appear as new values for new users or a certain group of existing users. Developments continue with increasing demand and over time even less-performing parameters of the new technology can come close to or exceed the leading solutions (Christensen et al., 2015).

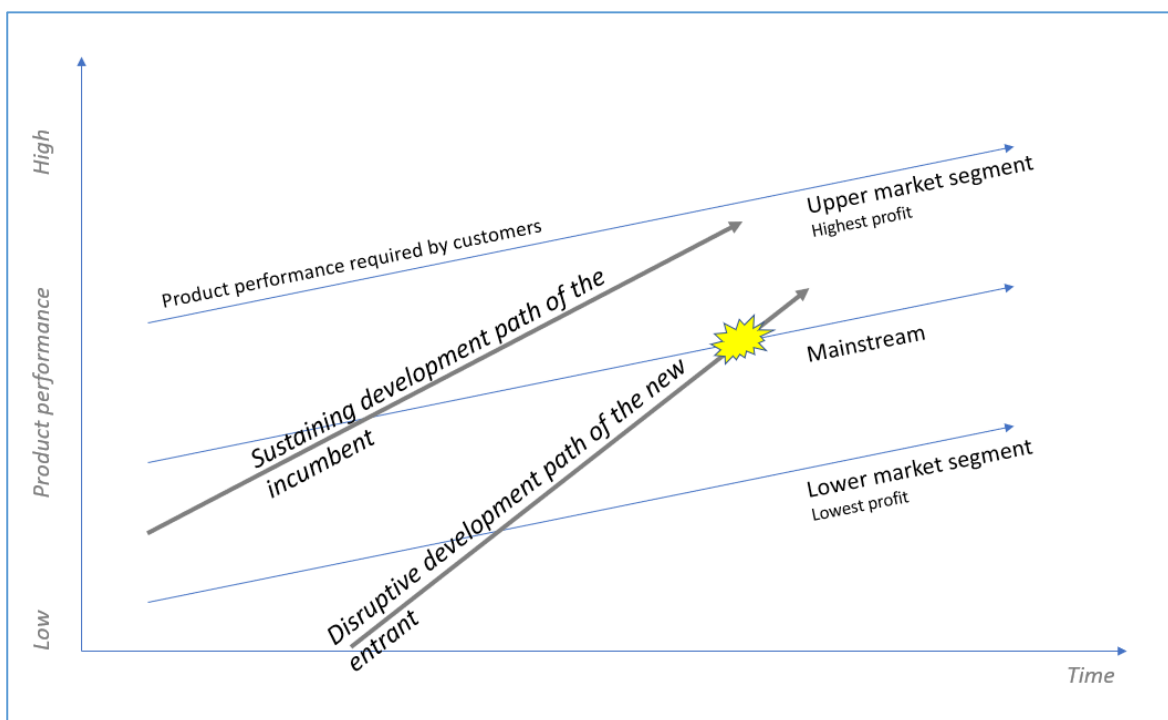


Figure 2 - Performance of sustaining and disruptive technologies

Source: personal collection based on Christensen (2015)

Among others, in his book Christensen mentions transistors as an example of disruptive technology against vacuum tubes. When the usage of transistors began in radios and other electronic devices instead of vacuum tubes, voice quality - one of the key parameters - was lower than that of the devices using vacuum tubes. However, the considerably smaller size and the significantly lower energy consumption made it possible to produce portable devices, thus creating the portable radio that transformed listening habits. Due to further

developments the voice quality of portable radios surpassed the quality of vacuum tube devices over time.

There are significant differences in the pace of the development in various industries (Christensen et al., 2015). In hotel industry for example new entrants did not manage to win the upper segment of the market from chains like Four Seasons (Raynor, 2011), which means, that the hotel industry remained resilient to radical changes for a long time.

However, certain quality parameters of products based on disruptive technologies often fail to reach the quality of traditional products. Nokia mobile phones already mentioned were forced out of the market by smart phones despite the fact that considering battery life (an important parameter for the users, as it determines how often they need to charge the phone), the quality of smart phones remained below traditional mobile phones still today.

Products based on disruptive technologies however offer new services and have different parameters that makes users accept deterioration of certain parameters. Besides making phone calls, smart phones also provide internet access and e-mail services that convince users to accept that they need to charge the devices more often.

Despite the fact that – taking into consideration of the client needs as well – incumbent companies are constantly developing their products, the appearance of disruptive new technology often takes them by surprise. An important reason behind this is that incumbents react to the needs communicated by their clients with their developments, which do not take into consideration those solutions which do not exist on the market yet. Henry Ford's famous saying about the spread of cars refers to this: 'If I had asked people what they wanted, they would have said faster horses' (Vlaskovits, 2011). The needs communicated by the clients often motivate market operators to carry out the incremental development of traditional solutions, instead of drastically new, disruptive innovation (Si and Chen, 2020).

In his book "The Innovator's Solution" published a few years after the book "The Innovator's dilemma", Christensen extended the notion of disruptive technologies to products and business models thus introducing the concept of disruptive innovation (Christensen and Raynor, 2003). According to his definition, disruptive innovation first appears in a lower or new segment of the market with products characterised by lower prices and weaker functionalities - while offering something radically new regarding

other parameters or business models. Mainstream customers however do not change only because of the price, they continue to use the traditional product based on their expectations regarding quality and service. Disruptive innovation can become widespread in the main market segment when quality reaches the expectations of mainstream customers. If this happens, these customers are also willing to switch to the new product and take advantage of the lower price. As a consequence of this process, disruptive innovation has a depression effect on the market.

3.3 Bounders of the Christensen model

Christensen's disruptive innovation theory was built on four key elements: (1) incumbents improving their products with sustaining innovation, (2) incumbent products overshooting customer needs, (3) incumbents possessing the capability to respond to disruptive innovation, and (4) as the result of the disruptive process, incumbents face serious consequences (King and Baatartogtokh, 2015). However, King and Baatartogtokh (2015) find that in most disruptive cases, not all four elements of the disruptive innovation theory are present. Only 9% of the cases they surveyed and identified as disruptive contained all four elements. Based on this result, they questioned the assumptions of Christensen's disruptive theory and suggested that disruptive theory can give guidance to managers in understanding what is happening but does not substitute for critical thinking and detailed analysis.

According to Christensen's model, disruptive innovation is initiated in the lower segment of the market with low prices. However, a number of considerable innovations have appeared since the publication of Christensen's standard work, that do not meet this definition.

For example, as stated in Christensen's model, the quality of mobile phones was lower when they appeared than that of the landline phones (worse voice quality, frequent unsuccessful calls) but it was not the lower market segment where the new technology appeared and prices were not low either (Govindarajan and Kopalle, 2006).

Uber, the company revolutionizing passenger transport is another example that does not fit in Christensen's model. When applying his definition in practice for the passenger transport model of Uber, Christensen found that Uber's business model does meet the definition of disruptive innovation, as when it was launched, it targeted mainstream

customers rather than the lower segment, the same group also targeted by traditional taxi companies (Christensen et al., 2015).

On the other hand, if we examine the effect Uber had on the market irrespective of Christensen's model, then it had a real disruptive effect and significantly transformed the market of passenger transport (Kavadias et al., 2016; Smith, 2016) in the countries where its operation was not impeded by administrative means. The example of Uber points out that Christensen's disruptive innovation model is not suitable for handling all types of cases. It was also acknowledged by Christensen himself and he calls Uber as an "outlier" in relation to his model (Christensen et al., 2015).

Disruption appears to be a broad definition for many researchers and practitioners (Gobble, 2016). Most definitions focus on market impact, not the distinctive characteristics of the disruption process (Nagy et al., 2016). To reduce confusion, Markides differentiates between disruptions via technological innovation, business model innovation, and product innovation (Markides, 2006). These three different disruptions each represent a fundamentally different phenomenon; however, they may have a similar impact on incumbents. Still, the debate as to whether Uber is disruptive or not demonstrates the existing uncertainty around the definition of disruption (Kavadias et al., 2016; Smith, 2016; Christensen et al., 2015). In terms of their impact, the disruptive innovations which fit Christensen's definition do not necessarily have a disruptive effect on the market, at the same time, innovations with characteristics different from that of the definition may have disruptive effect (Reinhardt and Gurtner, 2015). Citing the complexity and diversified character of disruptive innovations, some authors think it would be necessary to make the definition more flexible (Kamolsook et al., 2019).

Based on the detailed review of the literature of disruptive innovation, Si and Chen recommended the following definition:

"An innovation process in which technologies, products or services are initially inferior than those provided by incumbents in the attributes that mainstream consumers value, but these technologies, products or services can attract and satisfy the consumers in low-end or new markets with advantages in performance attributes (such as being cheap, simple, or convenient) that these consumers value but which at the same time are neglected by mainstream markets. Over time, through incremental improvement of technology or process, a disruptive innovation gradually satisfies the needs of mainstream consumers,

so as to attain certain market share from or even replace incumbents in mainstream markets” (Si and Chen, 2020, p6.).

3.4 Prediction of disruptive innovation

Scientific models are not only expected to subsequently model and explain events but also to predict them. Christensen’s model can be used for prediction however, it is not perfect. In retrospect, in four of the six industries where prediction was made about the potentially disruptive effect of innovation was successful (Christensen et al., 2004).

In his interview made in 2007 in Business Week, Christensen said about the newly launched iPhone that *“The prediction of the theory would be that Apple won’t succeed with the iPhone. History speaks pretty loudly on that.”* (Lepore, 2014). Failure of the prediction is indicated by the fact that over the 10 years since then, iPhone has become one of the most successful products of Apple and it made Apple one of the most valuable companies in the world.

Regarding the difficulties in making predictions, Tellis pointed out that it is difficult to decide whether a new technology the performance of which falls short of the dominant technology in the market, becomes disruptive or it simply provides a lower quality (Tellis, 2006).

Teller machines or internet banking were new, disruptive technologies when they appeared, and many expected them to transform the market. Their widespread usage however did not transform the structure of the bank system; incumbent banks strengthened their positions using the new technologies (Birkinshaw et al., 2018).

When criticising the ability of disruptive innovation models to make predictions, Barney highlighted that *“it may simply be the case that some firms are lucky in their technology choices”* (Barney, 1997).

3.5 Expansion of the Christensen model

In Christensen’s model and also in the professional literature dealing with innovation the term “disruptive innovation” is often used categorically; a certain type of innovation belongs to either one or the other category. Thomond and Lettice on the other hand, are of the opinion that there is a continuous transition between the two extremes (sustaining

and disruptive innovation) and innovations can be placed on this continuous scale (Thomond and Lettice, 2002).

The disruptive effect of innovation is relative, it is not an absolute value; it depends on the perspective of the examination (Christensen et al., 2018). The same innovation can be disruptive for certain companies and sustaining for others. For example, the appearance of online purchase was considered as a sustaining innovation for companies selling their products from catalogues and delivering via postal services, as they could continue to apply the existing business model with a more modern technology. However, online purchase had a disruptive effect on department stores operating traditional store chains, who lost some of their customers when the new technology appeared (Christensen and Raynor, 2003).

Based on the above, none of the innovations necessarily involve disruption. Whether the companies use a certain innovation as a disruptive one by often targeting new markets and customers is up to the strategic decision of companies. Incumbent companies often use innovation positioned as disruptive, they incorporate it in their products thus transforming the disruptive potential into sustaining innovation (Ahlstrom, 2015). For example, in the 1950s incumbent companies - like RCA - used transistor as a sustaining innovation to further develop products with vacuum tubes. Using the same technology as a disruptive innovation, Sony created portable radio targeting a new customer group, teenagers (Christensen et al., 2018).

The disruptive effect of innovation needs to be examined within the context of the corporate business model to interpret the effect of a potentially disruptive innovation on the specific company (Kapoor and Klueter, 2015).

3.5.1 Markides' approach

Markides categorised disruptive innovation differently compared to Christensen's model: business model and product innovation (Markides, 2006). The two different types of disruptive innovation appear differently, have varying impact on market competition and require diverse responses from incumbent companies.

Business model innovation does not generate new products or services it only changes the model used to deliver the product to the end user. In support of this statement

Markides Amazon in the 1990s as an example, when Amazon started to sell books on the internet. Through this Amazon did not explore book selling, it only altered the model used to deliver the book to the customers.

Disruptive product innovation brings products to the market that did not exist before. Markides mentions mobile phones, among others, as an example. According to his argument, disruptive product innovation is different from technological innovation as mobile phone is a new product and not a new technology (Markides, 2006).

3.5.2 Innovation expansion model or Schmidt and Druehl

In Christensen's model disruptive innovation appears in lower market segments and expands towards the upper segments. Schmidt and Druehl examined this expansion and identified the following three methods for market expansion: fringe market encroachment, detached market encroachment and low-end market encroachment (Schmidt and Druehl, 2008).

Fringe market encroachment first appears in a market segment where user needs are partially different from those of other users in the lower market segment. Later on, it becomes widespread across the lower and then also in the main market segments (Schmidt and Druehl, 2008). The difference between disruptive innovation defined by Christensen and fringe encroachment innovation is that in the first case innovation targets the lower market segment as a whole while the second one targets users belonging to the lower market segment but having partially different needs. According to Schmidt and Druehl an example for fringe encroachment innovation is the appearance of 5.25" hard drives after 8" hard drives. 5.25" hard drives allowed desktops to become widely used for tasks previously performed by minicomputers.

Detached market innovation first appears in a market segment where user needs are fundamentally different from those of other users in the lower market segment. The difference between disruptive innovation defined by Christensen and detached market innovation is that in the first case innovation targets the lower market segment as a whole while the second one targets users belonging to the lower market segment but having fundamentally different needs. An example for detached market innovation is mobile telephony that opened a new market besides the market of traditional landline phones. The price of mobile phones (both the devices and the services) were higher than those of

landline phones but the appearance of the new technology created a new market. When the new technology started to steal customers from the traditional telephone market, it mainly targeted the lower segments. Users generating low revenues unsubscribed from landline phone service while business users generating high revenues kept the traditional phone lines (Schmidt and Druehl, 2008).

While disruptive innovation appearing in the lower market segment mainly targets the least profitable customers, innovation that appears with fringe or detached market encroachment also creates new markets and targets non-consumers (Yu and Hang, 2010).

Innovation targeting lower market segments has an immediate impact on this segment. The difference between Christensen's disruptive innovation and the innovation targeting lower market segments is that in the first case innovation also penetrates into the other segments later while in the second it does not. An example for this type of information is the appearance of discount store chains in the United States that do not intend to compete with traditional, elegant stores either in choice or in service. Disruptive innovation targeting lower market segments may be ignored by incumbent companies - as it does not directly endanger their market - although it can steal significant customer groups in the long run thus becoming a threat to incumbents (Hopp et al., 2018).

The types of innovation described based on the categorisation of Schmidt and Druehl are summarized in Table 3.

Type of innovation	Place of appearance	Description
Sustaining	High-end	The product appears in the upper market segment first and expands towards the lower ones
Disruptive	Low-end	The product appears in the lower market segment first and expands towards the upper ones
New-Market Disruption	Fringe-market low-end	The product targets customers belonging to the lower market segment but having partially different needs
New-Market Disruption	Detached market low-end	The product targets customers belonging to the lower market segments but having <i>fundamentally different needs</i>
Low-End Disruption	Immediate low-end encroachment	The product appears in the lower market segment and <i>does not expand towards other segments</i>

Table 3 - Forms of innovation

Source: personal collection based on Schmidt and Druehl (2008)

3.5.3 Satell's innovation model

Schmidt and Druehl's approach categorised innovation based on user needs and market expansion. According to another approach, Satell determined the types of innovation based on how well or how poorly the problem for which solution is sought is defined and based on the expertise required for the solution. In the 2*2 matrix suggested by Satell, he defined four innovation types: sustaining, disruptive and breakthrough innovation and basic research (Satell, 2017a).

The sustaining innovation can be used for well-defined problems, when the required expertise can be defined accurately. For example, a repair of the suspension of a car requires engineering expertise the most. In contrast, in case of poorly defined problems and in a less defined area the basic research may be appropriate. For example, during the research of the beginnings of the theory of relativity or quantum mechanics, neither the problem to be solved, nor the expertise required for the research was accurately defined.

According to Satell's approach, in case well-defined areas of expertise and poorly defined problem, the disruptive innovation may be the solution. For example, in case of the smartphones the author mentioned as disruptive innovation in a previous chapter of his thesis, the expertise required for the development could be defined (communication engineers, microprocessor developers, software developers, etc.), however, the problem was less defined. More than one decade after the introduction of the first iPhone, the services for which the users buy smartphones already obvious, but this was not obvious in 2007. Namely, the problem for which the iPhone gave a solution later was not well-defined.

The breakthrough innovation gives a solution for a well-defined problem with expertise that cannot be described precisely. Satell describes the development of a water pollution sensing sensor as an example. The engineers started a 1 million dollar development for the development of the extremely sensitive sensor. The task was difficult and the development was progressing slowly when a marine biologist pointed out that certain mussels react to even very small amounts of pollution by opening their shells. Using this knowledge, it was not necessary to develop the expensive sensor, but only to monitor the reaction of the mussels living in the water (Satell, 2017b).

Based on Satell's innovation model, the types of innovation are summarised by Table 4.

How is the domain defined?		
How is the problem defined?		
	Poorly	Not well
	Well	Not well
	Breakthrough innovation Example: water pollution sensor	Sustaining innovation Example: improvement of car suspension
	Basic research Example: theory of relativity, Quantum mechanics	Disruptive innovation Example: smartphones

Table 4 - Types of innovation

Source: personal collection based on Satell (2017a)

The speciality of Satell's approach is that he included basic research in his model and specified it as a separate category. Christensen's approach and the approach of the majority of the authors building on his theory examine the innovation which has direct effect on the market in the short term, and these approaches do not extend to the basic research which brings long-term results.

3.6 Digital innovation

The period of extraordinarily fast technological development of the past decades – which included numerous disruptive innovations as well – are often defined by researchers, businessmen and politicians as a period of a new industrial revolution, which is still ongoing today. After the last three industrial revolutions, this current period is characterised by widespread digital technologies, and it is called the Fourth Industrial Revolution or Industry 4.0 in the specific literature (Rojko, 2017; Xu et al., 2018).

The innovation which has a key role in the Fourth Industrial Revolution and which is built on digital technology can be considered as digital innovation (Hinings et al., 2018). Digital technology may appear in the process of digital innovation or also in the result thereof. In course of digital innovation the boundaries of innovation are less unambiguous than in course of non-digital innovation (Nambisan et al., 2017). Traditionally, in course of the development or further development of a new product phases can be distinguished, such as the elaboration of the idea, the development, testing and marketing of the product. For example, the leading car manufacturers introduce significantly new models every 2 to 4 years, and they carry out smaller developments on the model concerned in every

‘model year’. The phases of the 2 to 4-year larger developments and the smaller yearly developments can be determined clearly. In contrast, in course of digital innovation the development phases – for example, during the continuous development of a smartphone application – may merge into one another. The applications running on smartphones are often updated weekly, and the new version – in addition to corrections – usually contains numerous tiny modifications and new services. Digital innovation is more dynamic than traditional innovations, in terms of both the innovative process and the result (Boland Jr et al., 2007).

3.7 Social innovation

Significant technological and business process innovations affect the entirety of society as well. For example, Industry 4.0 terminates jobs and creates new jobs through digitalisation and robotisation. Currently, there is a debate in literature regarding the social impacts of the spread of artificial intelligence in business will have (Ernst et al., 2019). Innovation may result in both favourable and unfavourable socioeconomic processes.

Social innovation is an important dimension when examining innovation. Social innovation can be examined not necessarily in connection with a technological or business innovation but in itself as well. Social innovation may be defined as an innovation ‘providing new or novel responses to a community's problems with the aim of enhancing community well-being’ (Kocziszky et al., 2017, p16). Social innovation may mean development in areas such as increasing the life expectancy, decreasing inequalities, happiness or the increasing diversity (Mulgan et al., 2007).

Since digital innovation is embedded in society extensively, its social innovative effect is also an important aspect (Brynjolfsson and McAfee, 2014). By now, the results of digital innovation – such as the news and community networks which are available globally through the internet – are used by billions of people in the world. Partially as a result of digital innovations – as Thomas Friedman phrased it the world ‘became flat’ (Friedman, 2005), the traditional distances between different cultures and nations decreased. Millions of people living in the least developed regions think that their livelihood would be easier and their lives would be happier in another country of the global world. Therefore, digital

innovation indirectly affects global migration (Rubinstein and Orgad, 2018), i.e. it induces significant social changes.

Another example for the social impact of digital innovation is the dispute about the freedom of speech. Freedom of speech is a fundamental value of the western democracies. However, making use of the widespread access to the internet, some people share racist, violence-encouraging ideas or misleading lies. The societal debate is about the limits of free expression and the entity who or which is entitled to decide on the limits (Bambrough, 2020; Twitter, 2020). Is it right that certain companies (e.g. Google, Twitter, Facebook) censor certain contents according to their own set of values? Is it acceptable that this is carried out not by a court with constitutional authorisation but by the organisation of a profit-oriented company? How does freedom of speech change as a result of digital innovation in the world where the leading digital companies often have greater power than the governments of certain nations?

The relationship between digital innovation and social innovation is not the primary topic of the author's doctoral thesis, however, in the later chapters the author briefly examines the social innovation effect of the disruptive innovation examined by the author.

3.8 Disruptive innovation in corporate information technology

3.8.1 Innovation of corporate IT systems

The innovation of information technology (IT) systems used by companies and organisations can be defined as an innovative usage of computer and communication systems (Swanson, 1994; Lyytinen and Rose, 2003a). Since this innovation is built on digital technology, it can be considered as digital innovation.

The basis of IT innovation is the exponential expansion of calculation and data storage capacities of computers - Moore's Law (Waldrop, 2016) - and as a result, the reduction of the unit cost of calculation capacity.

In simple terms, each IT innovation is a technological development providing new services, better quality, faster operation or lower costs either in the field of hardware or software. However, IT innovation also allows organisational innovation such as transformation of business processes, or changing the organisational structure (Lyytinen

and Rose, 2003b). Remote access to corporate IT systems (through modems in the 90s and later on via high-speed internet access) is only a technical innovation, but it made it possible to perform work from home in a number of positions thus affecting business processes and the structure of the workforce. We can consider electronic mail services as a technical innovation as a result of which traditional correspondence is performed without paper, however, its effect goes beyond the reduction of paper usage: e-mails transformed corporate communication.

3.8.2 Types of IT innovation

Similarly to non-IT innovations, most IT innovations are sustainable ones (Lyytinen and Rose, 2003b).

Swanson (1994) elaborated the first model to categorise the innovation of corporate IT systems, in which three categories are differentiated as set out in Table 5.

	Type of innovation
Type I	Innovation related to IT development
Type II	Innovation related to administrative, supportive business process (e.g. payroll, stock records)
Type III	Innovation related to primary business functions (e.g. electronic purchase, ERP, keeping contact with suppliers)

Table 5 - Types of IT system innovations

Source: personal collection based on Swanson (Swanson, 1994, p. 1076)

Lyytinen and Rose (2003) further developed Swanson's three-level model arguing that it does not provide opportunity to identify disruptive innovation that modifies fundamental technology (Lyytinen and Rose, 2003a). Besides, in modern systems type II and III are not clearly distinct from each other, for example stock records and electronic procurement form an integral system.

The authors recommended a new model (Lyytinen and Rose, 2003b) adding a new innovation type to the model: innovation that transforms a fundamental IT technology (Base innovation). This type of innovation also has an influence on other types.

Apart from creating this new type of innovation, they contracted the two types of innovation defined by Swanson, type II and III thus creating one type that they defined as service innovation.

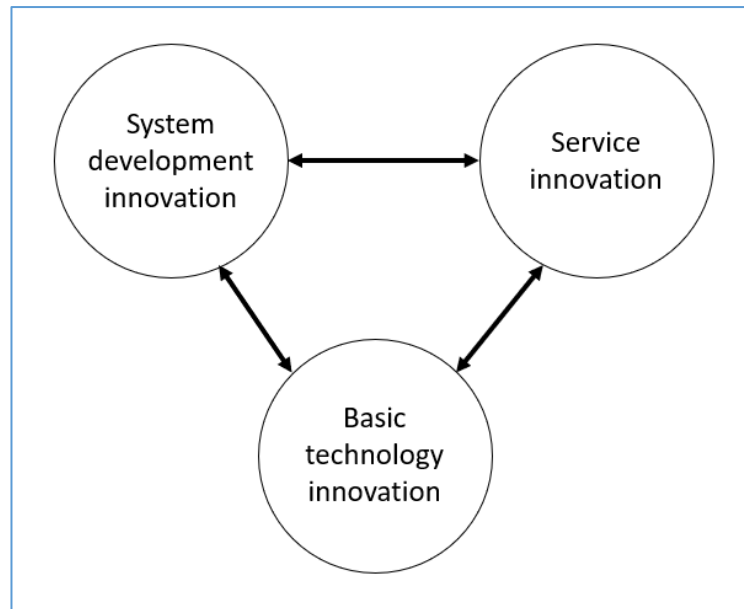


Figure 3 - Types of IT innovation

Source: personal collection based on Lyytinen and Rose (Lyytinen and Rose, 2003b)

IT innovation category	Areas affected
Basic technological innovation	Architecture, basic technology
System development innovation	System development processes, programming language, data processing
Service innovation	Administrative and business processes, production, customer service

Table 6 – Three types of IT innovation

Source: personal collection based on Lyytinen and Rose (2003)

By differentiating three types of innovation, according to their definition, disruptive IT innovation means an innovation created at the basic technological level that alters the architecture and has radical and widespread effect on system development processes and services (Lyytinen and Rose, 2003a; Lyytinen and Rose, 2003b).

The combined radical and widespread effect of innovation results in quality changes both in system development processes and services.

Based on the model of Lyytinen and Rose, Carlo and his co-authors examined the relationship between the three types of innovation and how they affect one another. In their research, they defined innovation related to system development processes generally as process innovation, so in their article they use the categories of basic technological, process and service innovation. (Carlo et al., 2011). After examining 121 software companies they found that basic technology innovation has a direct and positive impact on process and service innovation. Furthermore, the radical nature of basic technological innovation directly and positively affects the radicality of service innovation.

For example, if the basic technological development results in a tenfold increase in the rate of calculation speed/cost, it has an impact on the processes used by developers as well as the services provided by the systems. The speed of the hardware used in mobile phones available in the 90s did not allow to play videos. 15-20 years later the much faster hardware of advanced smart phones offered this service leading to the appearance of video applications using this option. In this case basic technology development generated the occurrence of service innovation.

According to Carlo and his co-authors, disruptive technological innovation generally stems from basic technology followed by service innovation and finally process innovation appears. (Carlo et al., 2014). Types of IT innovation and the modified model of their interaction are demonstrated by Figure 4.

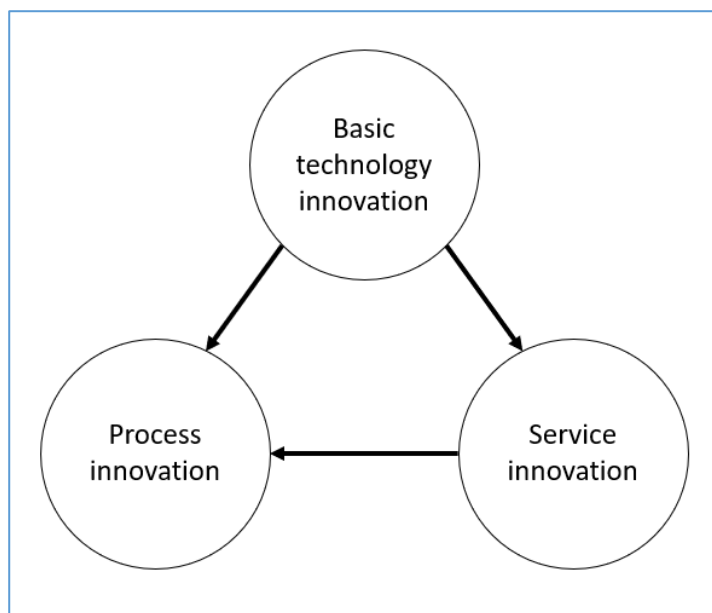


Figure 4 – Interlink between types of IT innovation

Source: personal collection based on Carlo et al. (2014)

3.9 IT cloud services as disruptive innovation

During the past decades, Information Technologies (IT) become widely used tools for effectively operating companies (Drótos and Móricz, 2012). IT-based digital transformation, however, it not only important for companies, but for the governmental institutions as well (Nemeslaki, 2018).

Cloud services, a radically new technology that appeared on the IT market at the beginning of the 21st century, have a significant effect on market players, suppliers and users as well (Caldarelli et al., 2017; DaSilva et al., 2013).

Apart from cloud services, other new IT technologies have also emerged in the last decade, which also have significant effect on the market. Such technologies include the IoT (Internet of Things), Big Data, artificial intelligence, block-chain or the 5G (Chen et al., 2017; French et al., 2019). However, it is the cloud services that have especially great impact on the strategy of the company to be analysed in the thesis of the author, therefore from among the technologies listed the author explains the cloud services in detail.

The following chapters deal with cloud services and an analysis whether cloud services fulfil the conditions of disruptive innovation in the IT sector.

3.9.1 Traditional way of IT usage

The traditional way of using information technology (IT) systems at companies was characterised by the principle of “buy and build it for yourself”. Companies purchased the required hardware (servers, storage devices) and software (operation systems, security solutions, database management devices) elements to run business applications that support corporate operation. Hardware was mainly installed on the premises of the company in the server room(s) and the required infrastructure was provided by the companies themselves: electricity, air conditioning, access control etc. The IT organisation of the company is responsible for installing and maintaining the hardware and software packages as well as making repairs and updates.

IT organisations of corporate customers have a key role in purchasing, implementing and maintaining IT solutions. They usually have a significant budget in order to appropriately fulfil this role.

As traditionally built IT systems generally operate on the premises of the company that uses them, this is the “on-premise” (on-prem) model of IT usage.

A drawback of the on-premise model is that the company has to bear the burdens related to the construction and operation of the IT system. It requires substantial financial investment, personnel capacity and management focus that may take resources from the main competencies of the company.

The success of traditional software companies, like Microsoft, SAP, IBM or Oracle was based on their on-premise services.

3.9.2 A new direction of IT usage

The development of high-speed networks and software solutions at the beginning of the 21st century enabled companies to use IT solutions in a new model. It is no longer necessary for companies to set up complex IT systems on their own premises, they can use IT solutions through remote access. In the new model data are not stored and business applications are not run on their own systems, data are accessed as a service provided via the Internet (Bögel, 2015). As the exact location of the servers that provide the services is generally not known and is not relevant for the user, the servers are somewhere in the “cloud” - this is where the term “cloud-based” comes from (Furht and Escalante, 2010; Mell and Grance, 2011; Füzes et al., 2018). According to the resources, the term “cloud computing” was first used by Eric Schmidt, CEO of Google in a presentation made at a conference in 2006 (Sultan and van de Bunt-Kokhuis, 2012).

A popular analogy for cloud-based IT services is electricity usage. Most companies do not produce electricity themselves, they purchase it from the electricity service providers. Users are not interested in where electricity is produced and how it is transported to their premises. Electricity is used as a type of goods, for which monthly fee is paid based on consumption. Cloud based IT services use the same model for information technology solutions.

In the cloud model, users become subscribers of a service instead of investing in their own systems.

Cloud service providers build their own data centres that involves substantial investment costs and they provide the services to the users from the data centre.

Cloud-based computer science includes various services that can be generally categorised into three groups (Zissis and Lekkas, 2011; Sultan, 2014):

- Infrastructure as a service (IaaS) – cloud service providers provide fundamental infrastructural services to consumers such as servers, storage devices or computing capacity. Consumers have the option to run operation systems, database and other software on the infrastructure provided by the service provider.
- Platform as a Service (PaaS) – cloud service providers provide basic software modules (operation systems, database management software, middleware software) as services to consumers who can run their own business applications with the help of these devices.
- Software as a service (SaaS) – cloud service providers provide business applications to users as a service (for example ERP, HR, recruitment, customer service, procurement).

Advantages of cloud-based services in comparison to the on-premise model (Marston et al., 2011; Chang et al., 2013):

- The subscription model does not require significant investments from the user.
- Service is flexible, it can be increased or decreased quickly based on the computing capacity served and the demands of the user.
- Most tasks related to IT systems are transferred to the service provider, so users can concentrate better on the main activity of the company.
- Greater flexibility compared to on-premise systems allows faster innovation.

Besides the advantages, cloud-based services also involve partly perceived and partly real threats. The threats most frequently mentioned by users are the followings (Caldarelli et al., 2017):

- Data security is reduced - the greatest threat according to users is that the data are not as safe in the cloud as on their own servers. Studies show that this is only a perceived threat, in fact, the systems of professional cloud

service providers provide better data security that corporate IT service can ensure (IDC, 2016b).

- Losing control over corporate data and systems - the control over corporate data and systems of key importance is transferred to an external service provider.
- Legal barriers - the legislative environment varying from country to country may forbid storing and processing certain data outside the country. The European Union strives to standardize the relevant legal requirements. An important step of this effort is the General Data Provision Regulation, known as GDPR according to the generally used abbreviated form, that came into force in May 2018 (European Union, 2018).
- Response time becomes longer - access to the data and systems stored in the cloud is provided through the internet. Low internet speed may slow down access to data and system response time, and if the internet connection is interrupted, access can be lost. The problem of slow access can be eliminated by generally available high-speed broadband internet connection. The risk of losing connection can be handled with duplicated internet access (from two different service providers).

Cloud-based services have become widespread over the past years significantly transforming service provider and user markets (Sultan and van de Bunt-Kokhuis, 2012; DaSilva et al., 2013). Global revenues deriving from cloud services have increased exponentially since 2009 (Gartner, 2018). New service providers appeared and established significant businesses on the market. Some leading cloud service providers: Amazon Web Services, Microsoft, Alibaba Cloud, Google, Oracle, IBM (Gartner, 2020).

In the dissertation, the term “cloud services” refers to public services available for a wide range of users. There are also private cloud service providers accessible only for a specific user group (Armbrust et al., 2010). Government cloud is a good example for private cloud services established by the government in a specific country to serve its own institutions.

As this research examines the strategy change of a traditionally on-premise company towards publicly available cloud services, private clouds - from the perspective of publicly available cloud services - are considered as on-premise solutions.

3.10 Is cloud computing a disruptive innovation?

As for the dissertation, research is done in the area of strategic renewal triggered by disruptive innovation, it is important to examine whether cloud services can be considered as disruptive.

According to market data of the previous years, cloud-based computer science has a significant impact on the market of IT services and further growth is expected (Gartner, 2018). Several articles in professional literature consider cloud service as a type of disruptive innovation because of its significant impact on the market (Sultan and van de Bunt-Kokhuis, 2012; Susanto et al., 2012; DaSilva et al., 2013; Surya et al., 2014), however, these studies do not analyse the disruptive effect of cloud services based on scientific models.

To answer this question, a test method elaborated to predict disruptive innovation and accepted by the professional literature is used. The test is performed using the three-stage general - not IT specific - test method elaborated by Nagy et al. (Nagy et al., 2016).

3.10.1 Test method of Nagy et al.

Thomond and Lettice recommend three innovation characteristics to identify disruptive innovation in information technology: radically new functionality, new technical standards and the property rights of the innovation (Thomond and Lettice, 2002). Based on the innovation characteristics of Thomond and Lettice, Nagy et al. created a three-step model to predict disruptive innovation (Nagy et al., 2016).

The first step is to examine whether innovation constitutes a change regarding radical functionality, new technical standards and the property rights of the innovation. According to their model, if an innovation deviates in one or more characteristics from the innovation currently used by the organisations, then it can be potentially disruptive.

The second step is to analyse where innovation is used within the value chain of the organisation. Understanding this is important to decide whether innovation has a considerable impact on the operation of the organisation.

The third step is to compare potentially disruptive innovation with the technology currently used on the same place within the value chain. Does innovation mean a significant positive change?

If a positive response can be given to all three questions, the specific innovation can be potentially disruptive.

3.10.2 Test method of Nagy et al. - step one

The first step of the model is to examine whether innovation constitutes a change regarding radical functionality, new technical standards and the property rights of the innovation.

3.10.2.1 Functionality

Using cloud-based computer science, users can access similar functions as services that on-premise systems provide, but cloud systems are capable of providing further, radically new services.

For example, traditional ERP providers (SAP, Oracle, Sage, Microsoft) relocated their systems into the cloud providing similar or extended ERP services (Chen et al., 2015; Elragal and Haddara, 2012). Using cloud-based ERP systems alone instead of on-premise service do not involve radical extension of functions.

However, cloud-based ERP systems have functions not provided by on-premise systems. For example, users receive messages on their mobile devices (table, smart phone) from the ERP system and by accessing its functions, they can use the system whenever and wherever they wish to (Szabó et al., 2013; Oracle, 2018c; SAP, 2018a), which means a radically new functionality for them. On-premise systems also provide options for limited remote access but regarding functionality and the variety of the devices, services are not nearly as wide as the ones provided by ERP systems.

Similarly, using office applications (e.g. Word, Excel) from the cloud is not a new functionality for the end user, it only provides a simpler and more flexible access to functions normally used in on-premise systems. However, cloud services allow teamwork using office applications (for example several employees can work on the same document) that was not possible in on-premise systems (Skendzic and Kovacic, 2012).

Storing data in the cloud also brings about radically new functionality. Accessing data stored on Google Docs, for example, is rapid and simple (PC at the workplace or at home, phone, tablet) and you can also share them with colleagues or edit them together (Nakayama et al., 2017). On-premise data storage provides only limited options for this.

When assessing the functionality that supports teamwork in the internal corporate operation of Google, Sun et al. found that as a result of the Google Docs cloud service, the culture of corporate cooperation became more open (Sun et al., 2014).

Based on the examples described, it can be stated that cloud-based computer science can provide radically new functionalities.

3.10.2.2 New technical standards

Technical solutions of cloud services differ significantly from those of on-premise services as remote service provision requires architectural and safety solutions different from on-premise systems. Standards related to web services, virtualisation, handling identity, safety, end user access and mobile device access have been developed for cloud services (Rittinghouse and Ransome, 2016).

Cloud service providers serve several users using the same infrastructure (multitenancy) so that they can flexibly increase or decrease the service for specific customers at favourable prices. This also requires new technical standards (Tsai et al., 2010).

Data protection of cloud services is a high priority, it is specified by standard ISO/IEC 27001:2013 (the standard specifying the requirements of information security management systems, the basis of certifications) (Orbán, 2015).

Various cloud service providers may define their own standards. Different standards cause difficulties in the cooperation of cloud service, combined usage and interoperability. A number of initiatives have been launched to uniform cloud service standards (Lewis, 2013). Thanks to the development of technological solutions, standards related to cloud services are continually extended and improved (Parasher et al., 2018).

In summary, it can be stated that compared to on-premise solutions, cloud-based computer science uses new technical standards.

3.10.2.3 Property rights of innovation

Cloud service is not a specific innovation the property rights of which could be held by anyone. Based on the previous chapters, cloud services are described by a number of constantly evolving technical standards. (Parasher et al., 2018). Using these publicly available standards any company can provide cloud services.

For example, the Hungarian NISZ National Infocommunications Services Company Limited by Shares (short name NISZ Ltd.) provides cloud services for government clients based on publicly available standards (NISZ, 2018).

Besides publicly available standards accepted by several cloud service providers, they can also define and use their own solutions, the innovation property rights of which belongs to them. Using their own, different standards makes interoperability more difficult and can bind users to a specific service provider against their will. This is called 'vendor lock-in', that refers to a situation when users are unable or need to incur significant costs to transfer their system and data from one cloud service provider to another (Lewis, 2013).

For example, the already mentioned SAP and Oracle ERP cloud service or using Word or Excel from a cloud are based on specific developments the property rights of which belong to the relevant company.

The usage of partially public and partially own, non-public standards in cloud services is similar to on-premise systems. On-premise systems also have open standards (e.g. Java), moreover, open source systems as well as solutions based on their own, non-public standards.

On the basis of the above, there is no significant difference between the property rights of innovation in cloud services and on-premise solutions.

Based on the first step of model developed by Nagy et al., cloud services mean new technical standards and new functionality, while there is no significant change compared to on-premise systems regarding the property rights of innovation. According to the model, if an innovation deviates in one or more characteristics from the innovation currently used, then it can be potentially disruptive. Based on this it can be stated that according to the first step, cloud service can be a potentially disruptive innovation.

3.10.3 Test method of Nagy et al. - step two

The second step is to analyse where innovation is used within the value chain of the organisation, namely, whether innovation has a considerable impact on corporate operation.

According to Porter, the steps of corporate value creation can be divided into two groups: primary activities (incoming logistics, product manufacturing, outgoing logistics, marketing and sales, services) and supporting activities (human resource management, technological development, procurement, ensuring corporate infrastructure) (Porter and Millar, 1985). Other authors categorise activities in a partially different way but create similar categories (Brown, 2008).

Using Porter's model, we examine whether primary and supporting activities of corporate value creation are affected by cloud services.

Incoming and outgoing logistics – To provide IT support for logistics and the supply chain – that can be considered as subsystems of the corporate governance system (ERP) - significant IT suppliers have been operating cloud-based SaaS solutions for years and they are becoming increasingly common (Kasemsap, 2015; Wu et al., 2013; Jun and Wei, 2011; Hompel et al., 2015). Philips and Shell for example, use cloud-based logistic solutions (SAP, 2018c), Orange or the Bank of America use cloud-based ERP services (Oracle, 2018b).

Product manufacturing – Cloud services supporting manufacturing activities are becoming increasingly widespread. Over the past years, a number of articles have highlighted the increasing importance of cloud services in this value creating activity (Valilai and Houshmand, 2013; Yu et al., 2015; Liu et al., 2017).

Marketing and sales – cloud services also cover marketing and sales activities, several cloud service providers offer SaaS services for this area. In the survey of Pat Research, 13 leading marketing cloud services were identified and listed with Adobe, Salesforce, Oracle and HP as leaders of the list. For example, T-mobile and Adidas use cloud-based sales solutions (Salesforce, 2018), Piaggio and FC Bayern München use cloud-based marketing solutions (SAP, 2018d).

Services (maintenance, customer service) – SAP, Oracle and also Salesforce.com offer SaaS cloud services for maintenance and customer service tasks (SAP, 2018e; Oracle,

2018a; Salesforce, 2018). Besides the leading service providers, a number of small companies also offer SaaS solutions for this area.

Similarly to primary value creating activities, cloud services are also expanding in activities providing corporate support. SaaS-based human resource management solutions are becoming increasingly common, for example BMW and American Airlines use such solutions (SAP, 2018f). The growing use of cloud-based IT solutions supporting procurement is also visible. SAP, Oracle and IBM are the market leaders of SaaS services in this area (Tasevska, 2017).

Corporate infrastructure – part of the hardware elements (e.g. servers) of the corporate IT infrastructure and a substantial part of the software infrastructure can be replaced by various cloud services. IaaS services include data storage, computing capacity, backup, platform services and service management. PaaS services cover databases, business intelligence, integration tasks, testing and development environment, and the preparation of installing applications. SaaS services ensure – besides the functions mentions in the paragraphs above – corporate content and document management, teamwork, correspondence and other office tasks (Liu et al., 2011).

In summary, IT is connected to the whole value chain, not only to a specific element. Modern companies use IT support for logistics, manufacturing, marketing, sales, customer relations, finance and human resource management as well. Today, IT is an indispensable tool for companies to remain in competition (Drótos, 2001; Carr, 2003).

Based on what is described above, replacing on-premise systems with cloud services has a direct impact on the primary and supportive activities of corporate value creation specified by Porter (Porter and Millar, 1985), thus it has a material effect on the entire operation of the company. Based on this finding, the second step of the method of Nagy et al. is also fulfilled.

3.10.4 Test method of Nagy et al. - step three

The third step is to compare potentially disruptive innovation with the technology currently used on the same place within the value chain. Does innovation mean a significant positive change?

According to chapter 3.9.2 **Error! Reference source not found.**, cloud-based solutions have major advantages for users (more favourable cash-flow, greater flexibility, faster innovation, reduced complexity for users). Rapid expansion of cloud services (Gartner, 2018) show that for most users the advantages of the services are more important than potential threats.

Only few scientific articles deal with the assessment and quantification of the advantages listed. Market researchers and consulting firms, on the other hand, publish surveys where they quantify the advantages of cloud services:

According to IDC 60% of the companies using cloud, experienced reduction in IT costs, while compliance with safety requirements was increased in 53% of the companies. Productivity of the employees improved in 50% of the companies surveyed. Also, half of the companies achieved greater flexibility in business and improved the quality of customer relations (IDC, 2017).

According to the IDC study, the teamwork solution of Dropbox generates a business value amounting to \$648,600 in 5 years and considering 100 users, while time commitment of the IT organisation supporting teamwork is reduced by 31% (IDC, 2016a).

The survey performed by McAfee shows that there was an average improvement of 18.8% in process efficiency, a reduction of 15.07% in IT costs and 19.63% corporate growth in companies using cloud services (McAfee, 2018).

The analysis of the specific value creating activities according to Porter's model (Porter and Millar, 1985) shows the positive effect of cloud services compared to on-premise technology.

Incoming and outgoing logistics – According to Niharika and Ritu cloud services help make the operation of global supply chains simpler and more effective. Information related to suppliers, transporters, shipments and end users can be accessed faster through cloud services (Niharika and Ritu, 2015)

Product manufacturing – According to Xu, cloud services transform product manufacturing. The usage of dynamic scalability and virtualized resources creates new opportunities for manufacturing companies (Xu, 2012).

Marketing and sales – The survey performed by Forrester, a market research company, found a return on investment (ROI) of 306% in a client using SAP Marketing Cloud (SAP, 2018b). Based on a study performed at a company using 295 cloud services for sales, international consulting firm, Capgemini found that effectiveness of sales increased by 41% while revenues increased by 39% (Capgemini, 2016).

Services (maintenance, customer service) – according to cloud service provider and consulting firm, CloudRunner, there are five key areas where cloud services can improve the work of the customer service department: (1) they allow customers to contact the company from any device and at any time, (2) ensure the provision of an entire, integrated service, (3) provide tailor-made services, (4) enhance customer trust with rapid and adequate customer care, and (5) provide full control for customers regarding the management of the issues related to the company. Based on its own study, Salesforce found that customer satisfaction at companies using cloud services for customer service was 32% higher than the market average (Salesforce, 2018). Capgemini found an increase of 45% in customer satisfaction among customers using cloud-based maintenance services (Capgemini, 2016).

Similarly to primary value creating activities, cloud services have a positive impact on corporate supporting activities. A study performed by Deloitte showed that SaaS based human resource management solutions have a positive impact on recruitment, performance management and workforce management (Deloitte, 2018).

3.10.5 Nagy et al. model - summary

In summary, it can be stated that cloud services generate significant positive changes compared to on-premise based systems.

As all steps of the three-step examination of the innovation model developed by Nagy et. al. gave positives responses, it can be stated that cloud services meet the requirements of disruptive innovation (Füzes, 2019).

As Christensen (2018) highlighted, the disruptive effect of innovation is relative, it is not an absolute value; it depends on the perspective of the examination. The same innovation can be disruptive for certain companies and sustaining for others. According to Kapoor

and Klueter (2015), the disruptive effect of innovation needs to be examined within the context of the corporate business model.

This dissertation focuses on a company dealing with IT solutions (and presented in details in chapter **Error! Reference source not found.**) with a business model based on bringing on-premise software and cloud services to the market. The appearance of cloud services had a significant impact on the business model and operation of the company. For this reason, based on the model of Nagy et al. (2016) comparing the result of the analysis performed and the business model of the company examined it can be stated that cloud services can be considered to have disruptive innovation effect from the perspective of the company examined.

3.10.6 Cloud services and innovation models

According to Christensen, disruptive technologies generally fall short of in a number of areas the quality and service of the products based on traditional technologies, but they provide services or have features that appear as new values for new users or a certain group of existing users (Christensen, 1997). Slow response time, loss of control over the data, and the legal issues arising listed as potential negative factors of cloud services (Caldarelli et al., 2017) can be considered as “lower quality or reduced service” as described by Christensen. New features creating values compared to the traditional technology: lower investment needs, flexible service, faster innovation capability and the opportunity to concentrate on the main activity of the company (Marston et al., 2011; Chang et al., 2013).

According to the original model of Christensen, disruptive innovation first appears in the lower segment of the market and becomes acceptable by mainstream customers later. There is no unambiguous data available regarding this about cloud services. A number of studies deal with the expansion of cloud services in the SME sector (Gupta et al., 2013; Assante et al., 2016), but T-mobile, Adidas, Piaggio, BMW, and American Airlines listed as examples for cloud service users do not belong to the lower market segment, they are mainstream players. Based on this, it is not obvious whether the expansion of cloud services meets the criteria of Christensen’s original model (going from the lower market segment towards the mainstream), or the other expansion model described by Schmidt and Druehl (Schmidt and Druehl, 2008) (fringe market encroachment, detached market

encroachment, low-end market encroachment), or it follows a new path. This issue can be examined in another research using further empiric data.

According to Carol and his co-authors, disruptive innovation generally stems from basic technology followed by service innovation and finally process innovation appears. (Carlo et al., 2014). Cloud services as an innovation meet the requirements of this process: basic technology development (virtualisation, remote access) enabled various cloud services (IaaS, PaaS, SaaS) to be created, and companies use them to develop their own IT usage processes. Radicality of basic technology innovation had a positive impact on the radicality of service innovation related to cloud services that is in line with the process described by Carlo et al. (Carlo et al., 2011).

3.10.7 The social innovation effect of cloud services

The positive characteristics of cloud services listed above (do not require significant investment from the user, are flexibly scalable, do not draw away attention from the main activity of the company, enable faster innovation) are especially advantageous for SMEs. By using cloud services, SMEs may become more competitive and may use IT systems which used to be operated only by large enterprises. Therefore cloud services may help SMEs in the competition against larger companies, i.e. they may democratise the market (Sultan, 2013). This democratising process may be considered as the social innovation effect of cloud services.

In this thesis the author analyses the cloud services primarily in the corporate environment. The wider, beyond the corporate environmental use of cloud services (e.g. Facebook) has further significant innovative effect. However, the analysis of such effects goes beyond the limit of this thesis.

3.11 Barriers of identifying and reacting to disruptive innovation

The importance of disruptive innovation has been part of professional literature for over two decades – mainly based on Christensen's work (Weeks, 2015; Paap and Katz, 2004; Markides, 2012; Govindarajan and Kopalle, 2006), still, a number of leading companies continue to react too slowly to disruptive innovation (Deloitte_Research, 2004; Christensen and Raynor, 2003; Assink, 2006).

What factors prevent managers, competent leaders of companies from identifying a problem in time and take the necessary steps? Assink (2006) categorised the factors that adversely affect companies in identifying disruptive innovation and developing the appropriate response into the following five categories: (1) adaptation barriers, (2) mindset barriers, (3) risk-taking barriers, (4) barriers of novelties, and (5) infrastructural barriers

3.11.1 Group one - adaptation barriers

3.11.1.1 Dominant and successful products

The majority of the companies insist on dominant and successful products for too long that they continuously develop and perfect. Swiss watch making is a perfect example for insisting on a successful product. In 1970, Swiss watch industry consisted of 1,600 companies employing 90,000 people. The Swiss watch industry failed to react in time to quartz technology acting as a disruptive innovation and over 10 years half of the watchmaking companies disappeared from the market causing the loss of 50,000 workplaces. In 1990 a new Swiss company, Swatch appeared on the market with its quartz watches and became the leading watchmaker of the world within a short period of time (Tushman, 1997; Paap and Katz, 2004).

3.11.1.2 Organisational ambidexterity

Hierarchical organisational structure supports efficient operation and continuous innovation, but it has a negative effect on accepting disruptive innovation. Some researchers think that companies shouldn't deal with continuous and disruptive innovation within one organisation, they should organise divisions dealing with disruptive innovation into a separate, flexible and experimenting organisations (Chao and Kavadias, 2008; Hogan, 2005).

In addition to Assink's proposal, establishing a separate organisational unit is not the only solution to eliminate this inhibitory effect. Besides implementing ambidexterity with structural separation there is an option for a contextual implementation within the same organisation (Birkinshaw and Gibson, 2004).

3.11.1.3 Excessive bureaucracy

Processes of large enterprises support continuous operation, maintenance of the status-quo and avoidance of threats; they are not suitable for appropriately handling rapid movements of the market. Following a “This is how we do it” mentality and the internal rules adversely affect acceptance of disruptive novelties.

Often middle managers are the ones who can lose the most as a result of fundamental changes so - using bureaucratic limits – they tend to allocate their resources to sustaining innovation instead of the disruptive one to maintain the status quo. (Denning, 2005).

3.11.2 Group two – mindset barriers

3.11.2.1 Lack of the ability of organisational unlearning.

The lack of the ability of organisational unlearning is one of the most important barriers of renewing out-of-date thinking, unbiased mindset and accepting disruptive innovation. The reaction “it was not invented here”, and rejecting ideas and novelties coming from outside may impede realistic evaluation of the expected effect of innovation. (Hopp et al., 2018)

3.11.2.2 Lack of appropriate competence

Basic competences that made the company successful in the past are no longer appropriate to accept disruptive innovation (Yu and Hang, 2010). The management of most large enterprises do not have competences required for disruptive renewal. In theory, acquiring small, progressive companies or setting up joint ventures can solve this problem, but in most cases this results only in launching a new product rather than acquiring the competence related to disruptive innovation.

3.11.2.3 Outdated theoretical concepts and theories

Individual and organisational thinking changes slowly and with difficulties even when the external environment justifies change. The pitfall of previous successes does not allow to accept radical, new things. This is the reason why disruptive innovation generally comes from outsiders, like Apple iTunes in music industry (Amit and Zott, 2012).

3.11.3 Group three – risk-taking barriers

3.11.3.1 Excessive exceptions regarding revenues and return

Corporate investments include high expectations regarding revenues and return that products and business models based on disruptive innovation cannot or can only meet at high risk in short term. Therefore, managers tend to support investment plans involving lower risks and related to existing products.

The fact that incumbents insist on already proven methods and calculable profits has a dissuasive effect on radical renewals and in the long run they can be harmful for the company (Christensen et al., 2008).

3.11.3.2 Risk-averse organisational culture

Most large enterprises are characterised by risk-averse organisational culture. The financial result of disruptive innovation (revenue, profit) is not predictable with traditional market research methods and this further increases insecurity and resistance (Govindarajan and Kopalle, 2006).

3.11.3.3 Fear of cannibalisation

Disruptive innovation can bring competitors of a company's own product to the market thus endangering revenues. Most companies refuse to destroy their own products and market with an innovation the effect of which is not predictable. This is particularly true for highly profitable products. For example, the management of Kodak resisted to the technology of digital photography for too long to protect their revenues coming from the analogue market. When they finally tried to shift to digital technology, it was too late; years later Kodak was subject to bankruptcy proceeding (Prenatt et al., 2015).

3.11.4 Group four - barrier of novelties

3.11.4.1 Lack of creativity

Unlike start-ups, large enterprises are not characterised by "break the rules" thinking. Lack of creativity of the employees is an obstacle to radical novelties and it may undermine their recognition and acceptance (Hon and Lui, 2016).

3.11.4.2 Lack of market perception

The effect of disruptive innovation is not predictable with traditional methods. Previous market researches about the future of video recorder, telefax, micro-wave oven, mobile phone and the Walkman were all negative. It is impossible to survey a market that does

not exist. Disruptive innovation often comes from entrepreneurs who develop their product or business model based on their own vision rather than using market research.

Incumbents rely on the opinions of key customers who generally express sustaining renewal demands in relation to a product; this way a new technology appearing on the market does not seem important (Christensen et al., 2018).

3.11.4.3 Management changes

Innovation projects related to basic products often have results after 10-15 years. During this period company directors can be replaced even several times that may result in loss of corporate commitment towards innovation.

3.11.4.4 Mismanagement of the innovation process

According to Stringer's research (Stringer, 2000) the largest barrier for innovation to succeed is mismanagement of the innovation process.

3.11.5 Group five - infrastructural barrier

Decades can pass between the appearance of a ground-breaking innovation and the establishment of the infrastructure to use and exploit the innovation. For example, the technology of data transfer between computers already existed in the 70s, but it became widespread only after the expansion of high-speed networks.

Paradoxically, widespread introduction of disruptive innovation often requires supporting opposing incumbents who provide the infrastructure necessary for spreading the innovation (Markman and Waldron, 2014). For example, for the widespread usage of Set Top Boxes using online data transfer and providing extra services compared to traditional televisions, it was necessary to cooperate with the incumbent cable TV companies that owned the network infrastructure (Altgeld and John, 2006; Ansari et al., 2016).

3.11.6 Prediction difficulties

According to the above, Assink (2006) split the problems of identifying disruptive innovation and developing the appropriate response into five categories. These are the adaptation barriers, the mindset barriers, the risk-taking barriers, the barriers of novelties, and the infrastructural barriers.

It is advisable to amend this list with the thought that in the early stages it is extremely difficult to decide whether the disruptive innovation concerned will be successful or will lead to a dead-end. The lesser quality of a product, the product being cheaper than the market leading products and it containing radically new functions – i.e. if it fits Christensen's definition of disruptive innovation – do not guarantee that the product will also be successful (Tellis, 2006).

For example, in the early 2010s, TV manufacturers introduced three dimensional (3D) television sets one after the other. Several analysts saw the beginning of the new era of television in the new technology which provided a realistic image. In spite of this, by 2020 3D televisions have essentially disappeared from the selection. In hindsight, the reasons behind it are obvious (for example, it was uncomfortable for viewers to watch films in special glasses at home), however, this was not evident in 2010.

In addition to the identification problems listed by Assink (2006), the conscious – but wrong – decision of the company may also be a reason why a company fails to react to innovation (Yu and Hang, 2011; Bergek et al., 2013).

The story of the web browser Alta Vista is a good example for this. In 1998, when Alta Vista was one of the market-leading web browser, Larry Page and Sergei Brinn, two Stanford students offered their startup company which used a revolutionary new search engine (Varian, 2006) for sale to Alta Vista for one million dollars (Derrick, 2016). Alta Vista rejected the offer since they thought that the new search engine would not have a significant effect on the market. After the unsuccessful sale attempt Page and Brinn patented the new search engine as their own intellectual property, which became the main product of their company called Google. A few years later the market role of Alta Vista decreased significantly, and in 2003 it was acquired by Yahoo, while the product of Google became the most commonly used web browser of the world (Robison, 2008).

3.12 Potential responses of incumbent companies to disruptive innovation

If an incumbent company can overcome difficulties described in chapter 3.11, that undermine the ability to identify disruptive innovation and recognise the need for an adequate response, it needs to elaborate an appropriate reaction. However, elaborating and implementing the appropriate response strategy is a complex task. The fast reaction

skills, high level of innovative and risk-taking capabilities are important to develop the adequate response (Mészáros, 2017).

Incumbent companies are generally aware of the threats imposed by disruptive innovation (Utterback, 1994), but they often do not take specific threats seriously until mainstream customers are affected. On the other hand, according to Christensen companies that successfully operate on the market do not need to give up their profitable business to soon to transfer to a new technology (Christensen et al., 2015).

Practice shows that disruptive innovation do not necessarily squeeze incumbent companies out of the market (Osiyevskyy and Dewald, 2015; Christensen et al., 2016). If the financial and management resources required are available, incumbent companies can be capable of adapting the new technological solutions (Christensen and Bower, 1996). For example, the appearance of the Internet can be considered as a disruptive innovation, but market leader companies like Microsoft or IBM managed to integrate the new technology into their portfolio and keep the leading role in the market (Rothaermel, 2001).

Incumbents must react to the challenge posed by disruptive innovation but not necessarily by applying it. (Markides, 2006). Simply copying the business model of a competitor based on disruptive innovation results nearly always in failure (Markides and Oyon, 2010).

Charitou and Markides identified the following five methods incumbent companies use to react to disruptive innovation (Charitou and Markides, 2003). These methods are as follows: (1) Focusing on and investing in the traditional business, (2) Ignoring innovation, (3) Counterattack – disrupting disruption (4) Adapting innovation while keeping the traditional solutions, and (5) Adoption of the entire innovation.

3.12.1 Focusing on and investing in traditional business

In most cases, disruptive innovation cannot conquer the entire market, only a part of it (Christensen et al., 2016). For this reason, additional investments and further development of the products based on market positions in the traditional business areas and using existing resources is a potential response. Incumbents can apply sustaining innovation more successfully than new entrants, so this response involves a vantage point for them (Christensen, 1997). Development of traditional products may slow down and

delay the expansion and the effect of disruptive innovation in the market (Adner and Kapoor, 2016).

The example of Charitou and Markides (2003) shows that low-cost airlines could conquer 20% of the market between 1995 and 2002, the rest is still dominated by traditional airlines. (It should be noted that in the meantime traditional airlines substantially transformed their business models just like low-cost ones, and as a result, there is convergence between their value proposition (Azadian and Vasigh, 2019).)

Besides focusing on the traditional business, incumbents can also take active steps to block the expansion of disruptive innovation. For example, traditional transporters took legal action and applied work stoppage against the expansion of Uber passenger transport in many countries (Elbanna and Newman, 2016). With this action, traditional taxi companies rendered impossible the expansion of Uber in many countries - for example in Hungary (Tóth, 2016).

3.12.2 Ignoring innovation

A common cause of ignoring innovation is that it is or seems to be outside the company's business area (O'Reilly III and Tushman, 2016). Innovation that affects a specific industry where a company operates does not necessarily affect its market. Disruptive innovation can create a new market that does not always overlap with the existing market of the company. Therefore, not entering a new market and remaining in the traditional business area can be an appropriate strategy for a company.

Hartford Life for example, an insurance company focusing on the upper 5% per cent of the American population decided not to sell their products online and via telephone because their customers require personal contact and are willing to pay extra prices for this (Charitou and Markides, 2003).

3.12.3 Counterattack – disrupting disruption

Instead of resisting to innovation or copying the innovation incumbents can present their own innovation. Therefore, the question is not about selecting the old or the new, there is third option, their own solution.

Apple's response to the threat of cheap products is a good example for this. In its response strategy Apple did not decrease its prices, and it emphasised the advantages of not only its existing products but focused on the renewed, unique design as well (Ferriss, 2018). Through this Apple managed to increase the number of committed customers, who were willing to pay premium price from the products.

3.12.4 Adopting innovation while keeping the traditional solutions

Adapting innovation while parallelly keeping the traditional solutions is a potential response. Using innovation, the company can develop new solutions while continuing the traditional business (Rothaermel, 2001). This response can be characterised by the expression "playing both games at once" (as described by Charitou and Markides) (Charitou and Markides, 2003, p.60). 68 of the 98 companies examined by the authors above used this parallel business solution.

A number of personal transport companies provide a good example for this, by offering booking and payment options similar to the application of Uber, while they kept the traditional options for ordering and paying for a taxi. Among others, Főtaxi and 6x6 Taxi offer such service in Hungary (Főtaxi, 2019; 6x6Taxi, 2019).

Another example of this, when Nestlé established its Nespresso division offering the possibility to consume high-quality coffee at home in a simple way, while keeping its traditional businesses, to react to the appearance of the Starbucks coffee shop network. Similarly, British Airways and Continental Airlines established new low-cost airlines, Go Fly and Continental Lite to react to the disruptive innovation generated by the appearance of low-cost competitors (Markides and Oyon, 2010).

However, the adaptation of innovation with keeping the traditional solutions is not a well-functioning option in all cases. The different business model and organisational structure of incumbents may hinder the implementation of the invention. For example, the business model of Airbnb had a disruptive effect on the hotel industry when it appeared in the market with the renting of private residences built not specifically for the purpose of accommodation. As a response, some traditional hotel chains started to provide a similar service. However, from the four hotel chains analysed by a research, only one was able to operate the new business model successfully (Zach et al., 2020).

Innovation may be adapted successfully while keeping the traditional business if the senior management is willing and able to protect and continuously support the uncertain new initiative which has low profits in the initial period. For example, both Nokia and Kodak attempted to adapt disruptive innovation which jeopardised the survival of the company, however, the traditional business branches eventually made such initiative impossible and forced them out (O'Reilly and Binns, 2019). The failure to adapt the disruptive innovation proved to be fatal for both companies in the end; most of Nokia was acquired (Drath, 2016), while Kodak filed for protection against bankruptcy (Lucas Jr and Goh, 2009).

Adapting innovation while keeping the traditional solutions means the implementation of ambidexterity, that ensures maintaining profit making capability in the traditional business area and at the same time a reaction to innovation (Alpkan and Gemici, 2016). In the examples listed above, Nestlé, British Airways and Continental Airlines applied structural separation to create ambidexterity by establishing a new division or company.

3.12.5 Complete adoption of the innovation, and upscaling it

The company may give up its traditional branch of business, adopt the innovation as a whole and bring it to the market successfully (Christensen et al., 2018). Two components are required for successful innovation: (1) a new technological, strategic or product idea and (2) bringing it to the market. These two abilities are not necessarily present within the same company. As incumbents have the experience and the conditions to launch products in the market (“scale-up”), they can become leaders of a market trend based on disruptive innovation and shape it to their own success.

Complementary assets like a well-established commercial and maintenance organisation or reseller network help launch the new innovative product on the market (Pisano, 2015; Suarez et al., 2018).

In the 90s, when internet browsers as disruptive innovation appeared, Netscape achieved a market leading role endangering the traditional business of Microsoft. Microsoft adopted the innovation, fought back by developing Internet Explorer and squeezed Netscape out of the market within a few years (Ansari et al., 2016).

3.12.6 Potential responses of incumbent companies to disruptive innovation – summary

The responses to be given to disruptive innovation are summarised in Table 7.

Response	Focus of the activity	Example
Focusing on and investing in the traditional business	Sustainable innovation, hindering the spread of disruptive innovation	Traditional airlines against budget airlines, Action against Uber in several countries
Ignoring the innovation	Ignoring the innovations falling outside of the business area, Focus is on the existing own market	Hartford Life, the insurance company focusing on the top 5% of Americans
Countertack – disrupting the disruption	Own disruptive innovation, Not old or new but a third alternative	Apple – focus is on the design
Adopting the innovation while keeping the traditional solutions	„playing both games at once“ Marketing traditional and innovative products simultaneously	British Airways and Go Fly Uber type taxi , ordering Főtaxi, 6x6 Taxi
Complete adoption of the innovation, and scaling it up	Exploiting the experience related to supplementary devices and marketing	Netscape and Microsoft Internet Explorer

Table 7 - Potential responses to disruptive innovation

Source: personal collection based on Charitou and Markides (2003)

Among others, the position and competence of the company and the nature and maturity of the disruptive innovation determine which of the five reactions is the optimal for a specific company (Charitou and Markides, 2003). Senior executives of the company have a key role in selecting and implementing the potential response (Danneels, 2004; Henderson, 2006; Kaplan and Tripsas, 2008). Management awareness (Osiyevskyy and Dewald, 2015) and motivation (Eggers and Kaul, 2018) have an important role in developing the reaction of the company. It may lead to incorrect responses if the market environment and customer needs are misperceived by senior executives (Vecchiato, 2017).

Based on a systematic interpretation of professional literature Eggers and Park identified ten factors that influence the correct response. These factors are the followings: (1) size and (2) experience of a company, (3) complementary assets of the company, (4) commitment and inclination to cannibalisation, (5) awareness and corporate identity, (6) character of senior management, (7) organisational structure, (8) structure of the ownership and significant outsider stakeholders, (9) ecosystem and environment (10)

mobility of the employees (Eggers and Park, 2018). Corporate management can elaborate the correct response based on a complex analysis of these factors.

Birkinshaw et al. underline that reacting appropriately to disruptive innovation is not only about perception and elaboration of the response; awareness and commitment during the implementation of the response strategy developed are also required in order to be successful (Birkinshaw et al., 2016).

The realisation of the response strategy developed is facilitated by corporate ambidexterity and the dynamic capabilities (O'Reilly III and Tushman, 2008), the literature of which was presented in Chapters 2.6 and 2.7. If the realisation of the response strategy requires strategic renewal, then several models may be used for that purpose (Volberda et al., 2001), as it was presented by the author in Chapter 2.5. The analysis of all these through practical examples is part of my research; the research gap and the research questions are detailed in Chapters 4 and 5.

3.13 The hybrid approach

Adopting disruptive innovation in some way for an established firm – fully embracing it, playing both games at once, or disrupting the disruption – requires significant investment. Investment can happen in several ways: it can be financial investment into R&D, the establishment of a new organizational unit or reorganization of the company, additional training and marketing costs, acquisitions, etc. Either way, it requires reallocation of the firm's resources, which can be a difficult and high-risk decision. Due to the disruptive nature of the innovation, it is usually difficult to forecast the future revenue that will be generated by the new products. The lack of revenue forecast makes the decision even more difficult and increases the risk.

To lower the risk of moving to an unknown territory while utilizing existing knowledge and assets, firms can use “bridges” during the technology transition (Cohen and Tripsas, 2018). Cohen and Tripsas identify three types of integrational bridges at different levels of analysis: (1) inventor bridge, where inventors of the old technology work on development of the new technology, (2) technology bridge, where inventions are built by using knowledge from the old technology, and (3) hybrid product bridge, where the firm develops a product using both old and new technology. The ‘inventor bridge’ uses professionals as a link between the old and the new technology, while the ‘technology

bridge’ uses the corporate knowledge, and the ‘hybrid product bridge’ uses the products of the company.

Cohen and Tripsas’ (2018) research shows that due to inertia, inventor and technology bridges on average lead to a lower performance for the new generation product. However, for incumbents with strong R&D capability, technology and hybrid bridges were associated with higher inventive performance. Other research results suggest that creating a high-performing hybrid product helps incumbents to produce better-performing next-generation products (Furr and Snow, 2014).

As Furr and Snow defined, “Hybrids combine elements from a potentially disruptive technology with the current technology to create a new product, service, or business model that sits between competing innovation generations.” (Furr and Snow, 2015, , p:104) Edison’s electric lightbulb is a good example of bridging hybrid product concepts. When Edison introduced his invention to the market, incumbent gas lighting firms borrowed his filament technology to improve their traditional products. Edison and his electric bulb prevailed in the end, but the introduction of the hybrid product by the incumbents nearly led Edison’s venture to bankruptcy.

A more recent example of a bridging hybrid product is the Toyota Prius. Toyota introduced the Prius in 1977 as the world’s first mass-produced petrol-electric hybrid vehicle, when the future of electric cars was more uncertain than it is today. Instead of developing a full electric vehicle (EV), the Prius, which uses both an electric and combustion engine (Høyer, 2008), was a lower risk step towards the new disruptive technology (Furr and Snow, 2015).

Hybrid products can be considered as an implementation of Markides’ “playing both games at once” response strategy. Inter-generational hybrids can be viewed as sophisticated learning mechanisms that allow companies to test the new market and gain more time to learn the new reality and adjust to it.

On the other hand, hybrid products can lead to a trap as well. By producing a hybrid product, incumbents may get the false illusion that they are responding to a disruptive threat, while in reality, they are not. Hybrid products can tie incumbents to old technology, which may become a liability (Suarez et al., 2018). Moreover, while incumbents are focusing on the hybrid solution, new entrants can use this time to grow and expand. For example, while Toyota and other traditional car manufacturers were

testing the EV car market with hybrid solutions, Tesla built its quick-charging network across the USA. As a result, despite the fact that Toyota was the first company to mass-produce a petrol-electric hybrid vehicle, in the first three months of 2019, Tesla had 50.7% market share in newly-sold EV cars in the US, while Toyota Prius only had 6.7% (insideevs.com, 2019).

4 Summary – Strategic renewal and disruptive innovation

Phases of evolution and revolution follow each other during the progress of companies. Evolution and revolution can be triggered by internal tensions arising from the growth of the company or changes in the external environment (economic, sociocultural, technological, political, legal, natural, global). The dissertation examines the changes triggered by the external environment – and within that, by the disruptive innovation development of technology – and the possible strategic renewal responses to them.

The professional literature on strategic renewal was outlined in the previous chapter. Researches about strategic renewal can be categorised in three main areas: (1) prerequisites of renewal (the framework of ambidexterity and dynamic capabilities), (2) process of renewal (initiated and managed by senior management or employees working at lower levels) and (3) the result of renewal (adapting to or transforming the external environment) (Schmitt et al., 2018).

The approach of ambidexterity is especially useful to understand responses given to radical changes as it deals with the question “how”: how the company organised its responses to the new opportunities while it continued to exploit its existing markets? It complements well the perspective of dynamic capabilities as it illustrates the advantages and disadvantages of various organisational solutions during perception, seize and reconfiguration (Birkinshaw et al., 2016).

What often lies behind strategic renewal is a rapid and profound change of the external environment. In the past decades one of the main driving force behind this change was the technological development with disruptive effect, such as the cloud services described.

While companies are generally able to react to slow market changes with their own innovative processes, radical environmental changes may endanger their existence and operation. The outline of the professional literature included the presentation of Christensen’s high-impact theory (Christensen, 1997) including its expansion, the barriers of identifying radical changes of the external environment (Assink, 2006), and potential responses to disruptive innovation (Charitou and Markides, 2003).

Disruptive innovation may force organisations to respond. Charitou and Markides (2003) identified five possible corporate responses, which are summarised in Table 7. Two these

responses (Focus on and Invest in the Traditional Business and Ignore the Innovation) do not require strategic renewal, since these responses focus on the continuation of the traditional activity. The three other responses (Attack Back, Adopt the Innovation by Playing Both Games at Once and Embrace the Innovation Completely) may be require transformations so significant for which strategic renewal will be necessary. Such significant transformation may be the renewal of the product portfolio, the reorganisation of the R+D activity, looking for new market or the organisational transformation affecting the entire company.

Strategic renewal and organisational ambidexterity mutually affect each other. During strategic renewal the company has to continue its exploitation activity in order to sustain the short-term and the medium-term operation, while in the interest of medium-term and long-term success the company shall put the emphasis on exploration (O'Reilly and Binns, 2019). That is, realisation of organisational ambidexterity is necessary in course of the strategic renewal.

Strategic renewal concerns the entire company and affects all organisational levels (Schmitt et al., 2018). During strategic renewal the organisational units carry out changed activities and use changed processes, i.e. the exploration becomes more prevalent than exploitation. Therefore, in course of the strategic renewal the balance of the two activities of organisational ambidexterity shifts to the side of exploration.

Volberda et al. (2001) defined four idealised renewal models for the realisation of strategic renewal. These are the following: emergent, directed, facilitated and transformational renewal.

4.1 Volberda's renewal model and responses to disruptive innovation

Charitou and Markides (2003) recommend the five potential responses described in chapter 3.12 for incumbents to handle disruptive innovation, but they do not deal with *how* implementation and the renewal of the company is achieved. The model does not deal with key issues of researches related to strategic renewal: where does the initiative come from, what is the role of senior and middle management, what is the relationship of the company with environmental changes, what is the proportion of exploitation and exploration during the change?

The strategic renewal model of Volberda et al. (2001) described in chapter 2.5 focuses on these issues. Combining the models of Charitou and Markides and that of Volberda, the renewal method that fits best can be connected to the response given to disruptive innovation. The recommended combined model is presented in Figure 5.

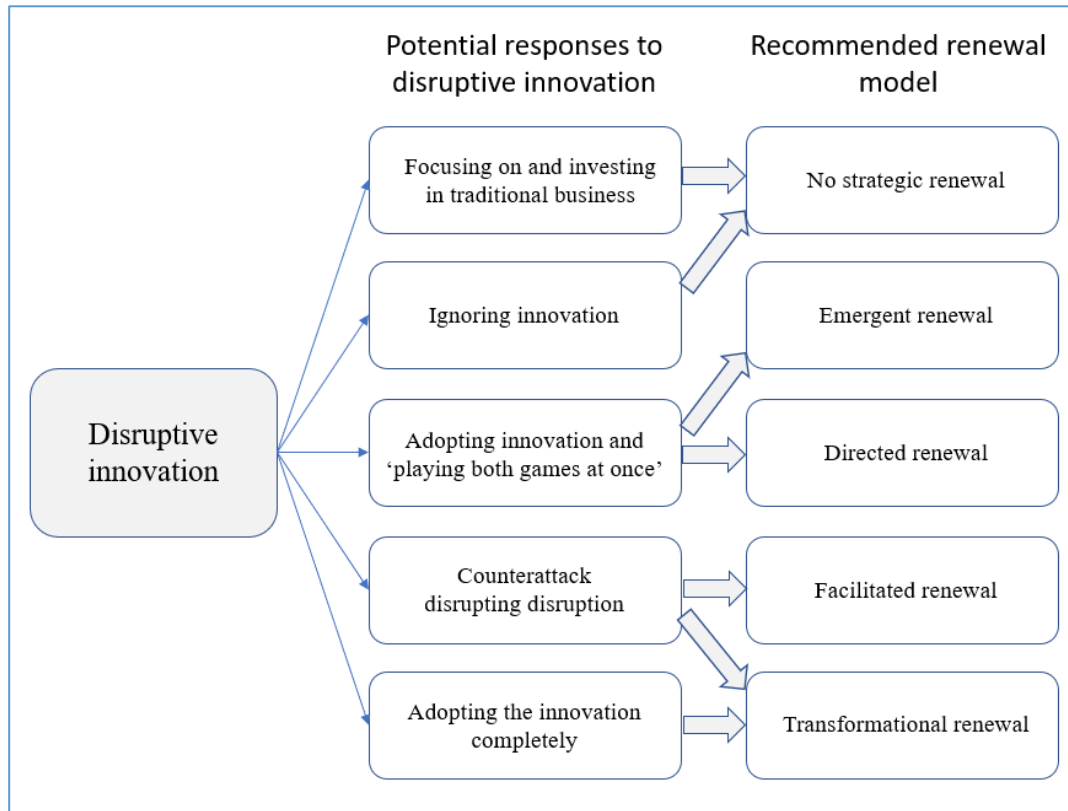


Figure 5 - Relationship between responses to disruptive innovation and strategic renewal – Proposition

Source: personal collection

Considering the potential responses to disruptive innovation, “focusing on traditional business and investment” and “ignoring the innovation” do not require strategic renewal as the company continues its activities concentrating on its traditional business.

When “adapting innovation”, the company does not try to influence market trends it rather adopts innovation in parallel with the traditional business. According to the model of Volberda et al., in such cases renewal can stem from the lower level of the hierarchy by following the market (“emergent” renewal) or based on the vision of the senior management, hierarchically, using a top-down approach (“directed” renewal). In case the market changes that had already happened are followed, there are less uncertainty than during the transformation of the market. At the same time, following the market changes too late may harm the competition position of the company.

When “Counterattack – disrupting disruption” is chosen as a response, “facilitated” or “transformational” renewals are recommended. The company not only reacts to market changes but also tries to influence it actively with a counterattack. According to the definition of the model, ‘facilitated’ renewal and ‘transformational’ renewal are suitable in that case. The significant difference between the two renewal method lies in the role of senior management: during the facilitated renewal, the senior management acts as a facilitator and not as an initiator. Middle management has a key role in both renewal journeys.

When choosing “adoption of the entire innovation” as a response the company gives up its traditional business and is entirely transformed to take advantage of disruptive innovation. The entire corporate structure is affected by this transformation and accordingly, transformational renewal is the recommended method. Both senior and middle management takes part in the transformational process actively.

4.2 The research gap

When reviewing the professional literature of strategic renewal and disruptive innovation, the author has found that there is only a limited overlap and connection between the results of the two research areas. Researches dealing with disruptive innovation examine innovation as a phenomenon (Danneels, 2004; Yu and Hang, 2010; Gobble, 2016; Christensen et al., 2018), its appearance and expansion (Paap and Katz, 2004; Markides, 2006; Schmidt and Druehl, 2008; Markides, 2012), develop prediction models to the expected effects of innovation (Schmidt and Druehl, 2008; Nagy et al., 2016) and make recommendations to companies how to respond (Charitou and Markides, 2003; Govindarajan and Kopalle, 2006). On the other hand, professional literature dealing with disruptive innovation does not deal with issues regarding actions, processes, capabilities and structures that allow successful renewal once the need for a response is recognised.

Researches dealing with strategic renewal seek answers to the questions listed based on the frameworks of ambidexterity and dynamic capabilities as well as the attention based view (ABV) (March, 1991; Teece et al., 1997; Ocasio, 1997; Birkinshaw and Gibson, 2004; Jansen et al., 2005b; Raisch and Birkinshaw, 2008; Junni et al., 2013; O'Reilly and Tushman, 2013; Teece, 2014; Vuori and Huy, 2016; Volberda, 2017; Teece, 2017a; Joseph and Wilson, 2018). However, in these researches the need for strategic renewal as

a response to disruptive innovation is a fundamental requirement, they do not examine the potential responses and their conditions.

In view of this, based on a systematic review of the professional literature, the author drew the conclusion that the research results available provide limited guidance for the issues arising in the intersection of the research areas dealing with strategic renewal and disruptive innovation.

Issues such as what specific dynamic capabilities are required for the successful implementation of the responses listed by Charitou and Markides (2003) are not covered by professional literature. As dynamic capabilities are not universal, they rather depend on the given environment, structure and situation (Birkinshaw et al., 2016), different dynamic capabilities may be required if the response is “adapting innovation while keeping traditional solutions” or “counterattack – disrupting disruption”. Similarly, the professional literature available does not provide an overall framework regarding how various implementation forms of ambidexterity (sequential, structural, contextual) fit in various forms of disruptive innovation and what responses can be given to them. Further questions arise: where does the initiative come from within the organisation, what is the role of senior and middle management, is it a co-evolutionary change or one that co-creates the environment, and how ambidexterity is implemented during the execution of the specific responses?

The questions listed above point out that there is a research gap in the intersection of strategic renewal and disruptive innovation.

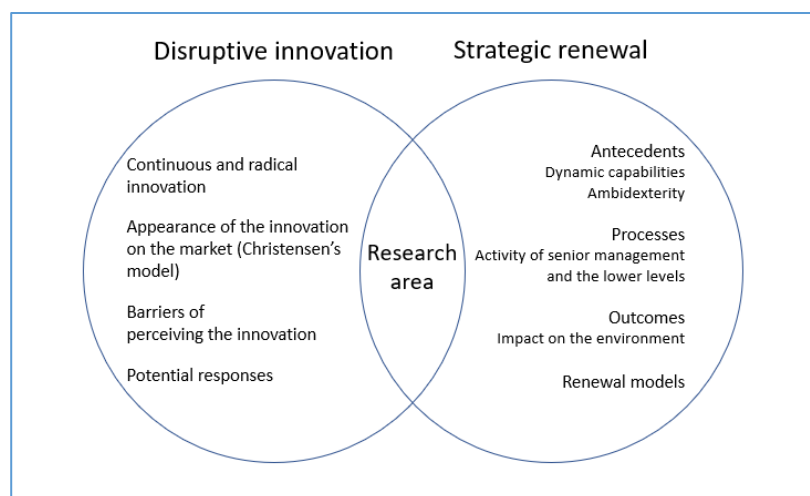


Figure 6 – Definition of the research area

Source: personal collection

5 Research questions

The dissertation is drawn up in the intersection of the two research areas, strategic renewal and disruptive innovation with the aim of reducing the research gap described in chapter 4. During the exploratory research, the author seeks answer to the question what the relationship between the process of strategic renewal and various responses to disruptive innovation is.

According to Schmitt and his research partners (Schmitt et al., 2018), the process of strategic renewal should be examined in three main areas: from the antecedents (ambidexterity, dynamic capabilities), the processes and the outcomes. (This was explained in detail in chapter 2.4.)

Charitou and Markides identified five different methods with which incumbent companies may react to disruptive innovation (Charitou and Markides, 2003). These are the following: focusing on and investing in the traditional business, ignoring the innovation, counterattack – disruption of the disruption, adoption of the innovation while keeping the traditional solutions, and the complete adoption of the innovation. (The methods were presented in chapter 3.1.2.) From among the five possible methods the author concentrates on the ‘*complete adoption of the innovation*’ response strategy in his thesis.

Within the topic of the connection between strategic renewal and the responses to be given to disruptive innovation the author researches specifically that process of the strategic renewal which can ensure the realisation of the response strategy that constitutes the ‘*complete adoption of innovation*’.

The author examines this process through the three main areas of strategic renewal (antecedents, processes, outcomes).

Based on the above the following three research questions are raised:

RQ1: Which combination of organisational ambidexterity and dynamic capabilities allows the implementation of the response strategy “*complete adoption of innovation*” during a strategic renewal process triggered by disruptive innovation?

RQ2: What is the attitude of the company towards the external environment during a successful renewal?

RQ2: What is the role of senior management and lower levels of the hierarchy?

5.1 Propositions

The author forms the following three propositions with regard to the research questions:

H1 – In course of the realisation of the response strategy that constitutes the ‘complete adoption of the innovation’, a combination of the key characteristics of the strategic renewal can be identified, which combination can ensure the success of the response strategy.

The three research questions formed analyse the realisation of the response strategy that constitutes the complete adoption of the innovation in the three key areas of research of strategic renewal. According to the first proposition, such a combination of antecedents, processes, and outcomes can be identified with which the response strategy can be successful.

H2 – A company can not only follow the technological development and the market changes induced by the disruptive innovation but can also actively shape the external environment

The second research question is aimed at the relationship between the company and the external environment. According to the renewal model of Volberda et al. (2001), during the strategic renewal the senior management may follow the market changes passively (emergent and facilitated renewal), but it may also strive to actively influence those (directed and transformational renewal). The second proposition is that the complete adoption of the innovation response strategy may mean not only the adaptation to the external environment but the company may also actively shape the external environment when it adopts the innovation.

H3 – In a rapidly changing competition environment success requires the active role of both the senior management and the lower levels of the hierarchy, since in this way the identification of the fast changes of the external environment can be ensured.

According to the renewal model of Volberda et al. (2001), the facilitated and the transformational renewal methods can be used in a rapidly changing competition

environment. Both renewal methods assume the active role of the middle management. According to my third proposition, in a rapidly changing competition environment the realisation of the response method of *complete adoption of the innovation* – in line with the model of Volberda et al. – requires the active, strategy-forming role of the middle management.

6 Research methodology

The author attempts to answer the research questions above by performing a longitudinal examination of a global IT company. The company at the heart of the research performed a strategic renewal between 2010 and 2018 as a result of a disruptive innovation that changed the external environment.

The research questions are answered by exploring the strategic renewal of the company, using a single case study based research that provides an understanding of how strategic changes are performed and what specific actions affected them (Johnson et al., 2003; Jarzabkowski et al., 2007).

As the goal is a profound exploration of strategic renewal, the research relies on qualitative methodology. In the first phase of the author explores the history and strategic renewal of the company, based on publicly available articles, statements and press releases between 2002 and 2018. The strategic renewal took place between 2010 and 2018, however, knowing the preceding period is also necessary to understand the renewal. For this reason the author starts the processing of the sources in 2002, in the post-‘dotcom’ crisis period, which was relatively calm for the company.

In this phase he discovers *what* happened during the researched time interval. In the second phase, he explores *how* the strategic renewal happened within the firm, based on personal interviews.

The objective of the author is to – through answering the research questions - present the example of the company analysed as a progressive leadership practice, which example may be followed by other companies, regardless of the industry.

6.1 The researched company

The researched company was founded in the 1970s in the United States. The key product of the portfolio was a database management software developed for companies and institutions. Thanks to its dynamic growth the company went public in the 80s and its shares were included in the index of Standard&Poor’s comprising 500 companies. During the 90s, besides the database management software, the portfolio was extended with business applications, like ERP, human resource management (HR), and customer relationship management (CRM). Product development was supported by innovative

solutions with the aim of creating complete, easy-to-use tools for users. The growth in the American market was followed by an international expansion and by the end of the 90s the company became a global multinational firm. Large enterprises provide the key market for the company: banks, telecommunication, manufacturing and commercial enterprises as well as the education, health and public sector. Small and medium-sized enterprises (Sme) also belong to the target market of the company, but a substantial part of its revenues is generated by large corporations.

During its more than forty-year history, the company underwent several transformations. One of the most significant one took place in second half of the first decade of the 2000s, when the company reacted to the disruptive innovation generated by cloud services with strategic renewal.

6.2 Data collection

6.2.1 First phase – exploration of the history of strategic renewal

In the first phase of the data collection process, systematic data collection was performed using the following resources:

- EBSCO research databases: Business Source Complete, Academic Search Complete, Regional Business News, Newswires
- Corporate websites: press releases, financial results, product catalogues

The EBSCO research databases (EBSCO, 2020) were selected instead of other research databases (e.g. SCOPUS, Web of Science) because the EBSCO contains a wider range of business and corporate news, articles and data, which were necessary in the first phase of the data collection.

Searching for the name of the company in EBSCO databases between 2002 and 2018, an exceptional number of hits, that is 36,548, were found. This list was narrowed to English entries for which the entire article (full-text) was available. During the search other filters (Publication Type, Document Type, Number of Pages etc.) were untouched, the basic settings of EBSCO were used. In order to find relevant articles for the research, another expression referring to strategic renewal was added to the company name for the search. Two search fields were used on the host website of EBSCO with an 'AND' option in a

Boolean/Phrase search mode (EBSCOhost, 2019). This way search results listed only articles containing both expressions.

The company name was inserted in one of the search fields, while the other contained one of the followings:

- “strategy”, “cloud”, “acquisition” – expressions relevant for corporate strategy, cloud services and acquisitions.
- The product name of the new integrated business application (about which further details are provided in the following chapters) – is a key element of transforming and renewing the product portfolio.
- The surname of the chief executive officers and presidents of the company during the research period between 2002 and 2018, four names altogether. Presentation, conference lectures and interviews made with the top executives are good sources to understand the strategy of the company (Thro, 2009).

Combined search (using the company name in one field and one of the eight expressions listed in the other) resulted in 9,666 hits for the research period; 569 hits per year.

The next step was to review the hits and exclude the ones that are irrelevant from the perspective of strategic renewal. Such hits include detailed technical product descriptions, or articles dealing the private life or other business activities of senior executives not relating to the company. (It cannot be excluded that the private life of the senior executives and their economic activity not affecting the company had indirect influence on some of the senior management decisions concerning the company analysed. However, since the objective of the author’s research is not the analysis of the senior management decision-making mechanisms but the exploration of the history of the strategic renewal of the company, the activity of the senior executives outside of the company was not a relevant information with regards to the research.)

There was a considerable overlap between the remaining relevant hits. For example, a number articles dealt with the speech of the chief executive officer held at annual conferences of the company. Similarly, dozens of articles were published about the acquisition of relevant companies using the same content. The articles with the highest priority at the EBSCO list were selected from the articles with similar content.

As a result of this systematic process, 320 articles were selected, read in details and research notes were made. The results found were compared and complemented with the information published on the website of the company to create an overview of the history of the company's strategic transformation.

6.2.2 Second phase – exploration of the internal implementation of renewal

In the first phase of the data collection, the author revealed the history of the company's strategic renewal, in other words "*what* happened". However, in order to answer the research questions, it needs to be examined "*how* all this happened". This required further data collection.

This chapter deals with data collection and data processing and according to the GT method, this was performed during the research in an iterative and cyclical manner rather than sequentially and separated from each other (Glaser and Strauss, 2017). GP method is characterised by theoretical sampling during which sampling is continuously changing and transforming along with the progress of the theory. Data collection was concluded according to the above guaranteeing the required flexibility to understand and describe the theory evolving during the research process.

GT is suitable for identifying various phenomena and processes by systematically processing the research data, thus developing a theory (Charmaz and Belgrave, 2015; Cho and Lee, 2014) and establishing a practicable business concept (Gligor et al., 2016). GT is an appropriate tool to analyse unstructured and semi-structured interview data (Turner, 1981) and data coming from secondary data sources (Andrews et al., 2012; Whiteside et al., 2012).

General data collection methods of case studies are processing interviews, questionnaires, observations and archives (Eisenhardt, 1989). Based on this, the primary sources of data collection were personal interviews while the secondary sources were presentations of top executives and the official written communication of the company (e.g. annual reports, press releases). These resources ensure that relevant data was collected from each level of the hierarchy to understand the renewal of the company.

The interviews made with the employees provide an opportunity to understand how internal observers and active participants at different management levels of the company experienced and implemented the renewal process.

As it was not possible to make interviews with the top executives (president, chief executive officer), data was collected about this level from secondary sources. Analysing the presentations of top executives available in the form of videos and the official written communication expressing their viewpoints present the opinion of the company management about strategic questions, their background and the key elements of change that top executives considered important to communicate to the outside world.

In course of the data collection the author took into consideration that the senior management statements not necessarily reflect the personal opinion of the executive concerned, and in addition to (or instead of) the communication of the facts, shaping the external reputation of the company or influencing the market may also be the purposes of an announcement. For instance, upon the presentation of the plans of the company a senior executive may emphasise the expected positive effects for marketing reasons, while he/she will share less of his/her possible doubts or the dangers. The danger of such distortion is reduced by that the shares of the company examined are traded in the stock exchange. The senior executives of listed companies are criminally responsible for informing the investors about the plans, the assumptions and the expected advantages and dangers honestly and transparently.

The author compared the senior management statements with the formal communication of the company (e.g. annual financial reports) in order to decrease the possible distortion even further.

6.2.2.1 Interviews

The main source of data collection for the research was provided by personal interviews. The aim of the interviews was to collect the data required to answer the research questions. The data received are interpreted by the Grounded Theory research method to draw conclusions based on which research questions can be answered.

Interviewees were selected from the East and Central Europe, Middle East and Africa (ECEMEA) region of the company. This region comprises 103 countries where the company has more than 30,000 employees and thousands of customers. This region is

large enough to give an insight into the strategic change of the company and ensure that the research is not distorted by certain features of specific countries (for example a political crisis in a country). The company uses standardised sub-systems (e.g. marketing planning and implementation, financial incentives, internal communication, organisational structures) in this region that partly differ from the methods used in other regions. The change of these sub-systems during the renewal process can be tracked and understood focusing on the ECEMEA region.

Countries of the region differ widely regarding IT advancement: Central and Eastern European countries (e.g. Poland, Hungary, Czech Republic) and Middle East countries (e.g. United Arab Emirates, Saudi Arabia, Qatar) are the developed countries of the region while the level of development in African countries is lower. This diversity is an advantage regarding the answers given to the questions, as global companies typically operate in markets where the stages of development are diversified.

6.2.2.2 Selecting interviewees

Interviewees are selected based on purposive sampling (Seidman, 2013). When selecting interviewees, the aim is to reflect the heterogeneous nature of the organisation regarding opinions and experiences and find typical and atypical (or even extreme) views. Another aspect for selection is that employees should have relevant knowledge to answer the questions, to collect high quality and intensive data.

I selected the interviewees from multiple branches of business, from the following areas: sales, business development, industry experts, finance and consulting. All of them have frequent interaction with the clients, business partners, their colleagues and the management of their own areas of operation.

As corporate renewal is perceived differently at various levels of the corporate hierarchy, interviews are conducted in several hierarchical levels. According to the code of ethics and business conduct, in addition to the chairman of the board of directors and the general directors (with whom the author was unable to conduct interviews), the author categorised senior vice president as senior executives. The author categorised the vice presidents, the directors, the managers and the frontline sales account managers as middle management executives.

The number of interviews conducted in the various levels for the data collection is shown in Table 8.

Position	Number of Informants
Senior Vice President	2
Vice President	4
Sales Director and Manager	3
Sales Account Manager	4
Sales Development Manager and Expert	4
Consulting Director	1
CFO	1

Table 8 - Number of interviews conducted

The interviews were semi-structured and lasted 90 minutes on average. We conducted one interview with each informant. All interviews were recorded (Seidman, 2013). The collected data was coded and analysed with Grounded Theory (GT) method, continuously with the progress of interviewing (Glaser, 1978). GT analysis was supported by NVivo12 computer-aided text-analysis software.

6.2.2.3 Semi-structured interview method

Semi-structured interview method was used to explore the renewal process that gave opportunity to get a detailed insight and understanding of the specific topics (Harrell and Bradley, 2009). This research method helped interviewees to express their opinion about all the relevant topics of the research within the time interval allocated to the interview.

The average length of the interviews was one hour, and that usually was not exceeded due to the tight time schedule of the interviewees (businessmen). Due to its informal nature, the unstructured interview method would have not ensured that the interviewees expressed their opinion about all the relevant topics within the time interval allocated to

the interview. On the other hand, the limitations of the structured interview method would have not allowed exploration of correlations.

During the semi-structured interviews conducted with the interviewees of the company, the author asked questions that provided a basis to reveal environmental changes and the reaction of the company given to them as well as details about the company's renewal. A question list with open questions (included in Annex 1) was prepared for the interviews, and were complemented based on the information received during the interview (DiCicco-Bloom and Crabtree, 2006) and as a result of the theory evolving with the GT method. Audio recording was made during the interviews and later the content was transcribed.

6.2.2.4 Conducting interviews in an international environment

As the researched company is a multinational organisation, it is common and necessary in daily operation that colleagues working in different countries - or continents - communicate with each other via phone or e-mail. Employees of the company often participate in phone or video conferences so using these techniques comfortably. Data collection for the research was partly made via personal meetings and also with phone and video conference interviews. Personal meetings were preferred during data collection as there were more opportunities to observe body language and gestures during these meetings, although interviewees are comfortable with using remote communication devices (Deakin and Wakefield, 2014).

English is the language of corporate communication although the native language of majority of the employees in the researched region is not English. Interviewees and the author himself speak English fluently but not at the level of a native speaker, that needed to be considered in communication especially during remote communication. In order to avoid misunderstandings, special emphasis was placed on asking clear questions and if the answer was not entirely understandable, further questions were asked for clarification.

6.2.2.5 Secondary resources

The secondary resources were the articles, statements and financial reports that were reviewed to learn about the history of the company. (see chapter **Error! Reference source not found.**) These resources were used to validate the responses received at the interviews using the method of triangulation.

6.2.3 Data processing, analysis

In the second phase of data collection, as interviews progressed, the collected data was continuously coded and analysed with the Grounded theory (GT) method. NVivo v12 software was used to support GT analysis.

Three coding methods were used during the GT analysis: open, axial and selective (Mitev, 2012). The data collected during open coding was broken down and categorised with the identification of the key words and expressions. A large number of codes were created during open coding, which was reduced in the second coding stage, using the axial coding method. During axial coding, categories created with open coding were grouped and higher-level codes were generated. The third step was the creation of basic categories with selective coding serving as a basis for the evolving theory.

It was important to understand the connection between the codes during the coding process. In order to achieve this, comparison was made continuously to identify patterns and topics and the relationship between them.

Data recording, analysis and coding was continued until relevant, new information was found. The process was completed when the codes created did not add new aspects to the research, which means that the theoretical saturation level was reached (Bowen, 2008; O'Reilly et al., 2012).

The aim of using the GT method was to reveal deeper connection and processes within the case study by raising the data to a conceptual level and avoid stopping at trivial results.

This was followed by the comparison of processes revealed from the case study with the GT method with the theoretical models described in the dissertation to examine to what extent the company examined in the case study followed or deviated from them.

6.3 Validity

The author paid particular attention to authenticity and validity and to avoid validity threats. Aspects relevant for authenticity and validity and the steps taken to avoid validity threats are listed below.

6.3.1 Objectivity

Objectivity is guaranteed by neutrality and the detection of non-conscious researcher distortions.

Over the years spent at the company the author has developed his own opinion regarding the topics about which information is collected from the interviewees. To ensure objectivity of the research, it was important to avoid the possibility of influencing the opinion of the interviewees with the author's viewpoint and record the content of the interview objectively without the potentially biased screening of the author.

During the interviews the author strived to act as a non-participant to avoid his opinion becoming predominant. Colleagues were not observed during their daily work (that the author can potentially be part of), they were interviewed outside daily work. Semi-structured interview method was more suitable to minimize the impact of the author's own opinion than an unstructured interview. Due to the informal nature of unstructured interview, it would have been more difficult to exclude the author's subjectivity and his questions may have been directed the interviewee to answers that the author considered correct.

6.3.1.1 Research log

To exclude the possibility of researcher bias, the author used a research log. Before starting data collection, the author recorded his own answers to the interview questions, and during the process of data collection the author's own answers were compared with the answers received. On one hand, with this method areas that needed more attention during the interviews could be identified (e.g. by including new questions), on the other hand, it also helped the author critically analyse his own viewpoint looking for contractions and deviations systematically or even reactions that may disprove his own opinion.

6.3.1.2 Leakage of confidential corporate data

During the interviews, interviewees shared internal information that may not have been disclosed to external parties in line with the corporate policy (for example a quarterly revenue forecast for a country), but they thought that it is acceptable to share such information with the author. In such cases the author drew the interviewee's attention that the responses may be published so if he or she wished, the confidential information could

be deleted. Such corrections did not substantially affect the content and the authenticity of the research.

6.3.1.3 Advantages of personal involvement

Access to corporate information – during his work the author had access to information that was relevant for the research. Part of this information was publicly available but for an outsider researcher would have been more difficult to find in the official communication of the company. The other part of the information was not publicly available (internal information) which was only used in the research with extreme caution.

Selecting interviewees - being familiar with the organisational structure of the company helped to identify the interviewees that had relevant information for the research.

Getting in touch with the interviewees – contacting employees was more efficient using the corporate communication channels (company e-mail list, telephone directory) than for an outsider researcher.

Accepting the invitation for the interview – the fact that the interviewees knew the author improved willingness to take part in the interview.

Being familiar with the company jargon – during communication organisations generally use abbreviations or expressions not obvious for outsiders. An interview about the strategy of the company can often include such expressions. In such cases the questions often asked by the interviewer can interrupt or slow down the interviews. Knowing the company jargon helped me interpret the expressions used thus supporting precise understanding of the content without interrupting the interview.

6.3.2 Reliability

From the perspective of the research, results are considered reliable if the research conducted with the use of the same circumstances leads to the same result.

Considering the transformation of the company, the timing of data collection is an important factor to ensure reliability. Longitudinal examination was the best method to understand the renewal process by collecting data from 2010 (start of the renewal), however, this was only partly feasible subsequently. Written documents or videos were useful as they have not changed and present the original state. However, it must be

considered during the interviews that answers to the questions are provided retrospectively several years later. Certain interviewees may have changed their opinion during the process and they look at the events differently later than earlier.

The effect of hindsight bias also needs to be considered. Interviewees may remember an event (in our case the expansion of cloud services) that it was predictable (Arkes et al., 1988). Subsequent distortion was partly eliminated by interpreting the recorded statements of senior executives and the official communication available in the form of videos or written documents. The large number of interviewees (the risk of distortion is reduced if there are more interviewees) was another tool to minimize such distortion.

In qualitative research, data processing is part of the requirement for reliability, whether another researcher would receive the same results using the data and the same method (GT method). For this reason, the author prepared reminders (as part of the research log) during the GT coding process that made the process transparent and allowed subsequent verification. During the coding process of the data recording performed according to the GT method, the author continuously evaluated the codes created with the help of the reminder and compared them with the previously generated codes to ensure reliability.

6.3.3 Internal generalisation

Internal generalisation means the possibility to extend the research results within the organisation examined in the case study. An important requirement regarding the research result is that it needs to be extended to and valid for the entire organisation specified in the research, despite the fact that not all the employees are involved in the interviews and not all the documents available are processed. Sample selection has a key role in guaranteeing internal generalisation.

Extensive data collection was performed to ensure internal generalisation based on purposive sampling. The author strived to present potentially extreme opinions as well. Interviewees were selected from various countries of the region, different hierarchical levels and past experience at the company to present diverse opinions.

6.3.4 External generalisation

External generalisation means the possibility to extend the research results to other organisations outside the organisation examined in the case study. Due to the nature of the single case study, the issue of external generalisation is even more relevant compared to the case when several, similar cases are interpreted (Yin, 2013).

The limit of generalisation of research based on one case lies in that the results of the research may be influenced by numerous particularities which are characteristic to the situation concerned and which do not appear in other situations. However, a strength of a theory developed based on the processing of one case may be the novelty and the ability to test it, since the formation of the theory and the empirical analysis are interconnected (Eisenhardt, 1989).

Just as learning about one drop of water may contribute to knowing the sea, the theory developed based on the detailed analysis of one case may provide opportunity to learn about the wider environment. ‘As one moves closer to the unique characteristics of a person or a place, one discovers the universal.’ (Lawrence-Lightfoot, 2005, p.12). However, generalisation does not mean an abstraction independent from the context and the situation. Upon the generalisation of the morals of case the particularity and context related to the case shall be taken into consideration. Paradoxically, the more we learn about and understand the particularity and the context characteristic for the case analysed, the more we may be able to generalise (Simons, 2015).

Regarding external generalisation the aim of the study was to present *one* potential response to the research questions. Based on the analysis of the company examined the author presented (1) the combination of dynamic capabilities and ambidexterity that the company applied, (2) involvement of the senior management and the lower hierarchical levels in the renewal process, (3) the outcomes of strategic renewal on the environment and (4) the renewal model applied. By presenting the history, culture and the internal functioning of the company and the industry environment the author identified those particularities and context which shall be taken into consideration according to Simons’ (2015) suggestion. The method used by the company is an option rather than an exclusive solution that other companies – with similar company culture - can also use to successfully manage renewal in a similar market environment characterised by disruptive innovation - regardless of the industry segment. Furthermore, companies with different

corporate cultures may use the case as a template and may strive for developing a similar internal functioning, which makes them capable of strategic renewal as described in the case.

The result of this exploratory research may serve as a basis for a research conducted with a wider sample that can test and refine the research results and can lead to defining new renewal methods.

7 Research findings

7.1 Strategic renewal of the researched company

Based on the literature used in the first phase of data collection, it can be stated that the source of company development was organic growth based on the company's own software for decades. During the period between the foundation of the company and 2003, the value of the biggest external acquisition was less than USD 150 million. To complement organic growth, in 2003 the company announced an acquisition amounting to five billion dollars in the field of business applications that represented an order of a magnitude in value. It was followed by 24 further acquisitions between 2004 and 2006 and the total amount of acquisitions exceeded 50 billion dollars during this period. The chief executive officer drew a parallel between the company and General Electric comparing their role in consolidating the industry.

Most of the acquisitions increased revenues deriving from business applications and had a significant impact on them. While the increase of organic revenues deriving from business applications was 23,4% and 11,8% in the financial years 2006 and 2007, along with the acquisitions revenues increased by 66% and 31,7% per cent during the period.

However, there was an overlap between the functionalities of business applications deriving from the acquired companies. For example, the functionality provided by ERP was included in 2 other software besides the company's own business application. Similarly, there were three solutions for human resources management (HR), and two overlapping solutions for customer relationship management (CRM) in the company. This situation caused uncertainty among the customers, it was not obvious for them which solutions remain in the portfolio and what are the ones that would be removed from the market.

This presented a new challenge for the company. The chief executive officer argued earlier that the best option for users is to purchase an integrated system from one supplier thus reducing problems arising out of the cooperation between various software developed by different companies. The solutions that became part of the portfolio as a result of the acquisitions were not integrated as they were developed by the development departments of various companies. In the new situation, the chief executive officer

emphasised that he considers integrated solutions as the optimal ones, but - as he said - it needs to be accepted that we live in a heterogeneous world.

7.1.1 Development of a new integrated business application

The long-term solution, however, was to develop a new business application combining the best functions of the company's own and acquired products. The integration project was announced in 2005. Developing a completely new, complex and integrated business application package was a huge task. The pressure on the company was increased by the fact that in parallel with the development of the new software package, the company further developed the existing products in the portfolio having parallel functions as maintaining product continuity was important to keep customers and acquire new ones. The chief executive officer acknowledged that it was a complex task but he argued that the company would be capable of completing the job thanks to its more than 50 thousand employees and an annual R&D budget of 2 billion dollars.

Some customers were concerned that the company would force them to change to the new software package. Nevertheless, company executives highlighted that customers would have a freedom to decide, and if they wish to use the existing software they would receive support, moreover, new versions of them would also be launched. During their communication they alleged that the new software would be complete and integrated based on a state-of-the-art technology, with open market standards and they would combine the best elements of the products included in the portfolio so customers would request transition to the new system themselves.

The new products were planned to be presented in 2007 but development was more complex and time-consuming than expected. During the time-consuming development process, in their public presentations, company executives often expressed their commitment to perform a successful development. After several postponements the new integrated business application appeared on the market and became generally available to customers in 2011. The appearance of the product was an important milestone for the company as it provided a more advanced solution for customers than competitors did.

However, during the period between the announcement of the new product development (2005) and the appearance of the product on the market (2011) there were significant transformations in the market as a result of the appearance of cloud services. Attention

was shifted from traditional on-premise solutions to cloud-based solutions as a new and modern option.

7.1.2 Reaction of the company to cloud services

At first the reaction of the company to cloud services was not clear. The product portfolio of the company included elements already in the 90s that provided an option for customers to access remote and shared systems without using their own servers. The chief executive officers argued several years before the appearance of cloud services that there is a need for IT solutions where the physical location of the servers is irrelevant, similarly to cloud services. In addition, instead of a one-time investment, the company also offered a software leasing solution to its customers, as in case of constructions used in cloud services.

When cloud services became popular and began to spread in the early 2000s, the chief executive officer pointed out that they do not have significant novelties as they are based on elements already applied by the company for years. He declared that “cloud services only represent a trend and it’s crazy to think that we should sell something else than so far” What we have launched on the market, is the cloud itself.”

However, from 2009 the company placed increased emphasis on highlighting cloud services and the related communication also changed. In 2011, widespread PaaS and SaaS public cloud services were announced, then in 2012 the chief executive officer positioned the company at a conference “as the one that offers the most exhaustive cloud services available on the planet”. From 2012, cloud services became the central message of the company, senior executives pointed out several times that the strategic goal for the company is to become a global market leader in the SaaS segment, and achieve a dominant market position in the field of IaaS and PaaS services. According to a press release, in 2015 95% of the company’s products was available as a cloud service. One of the senior executives anticipated that all the customers would shift to cloud service from the traditional applications. “It's not a question of if, but a question of when” as he said. In accordance with this, the company launched promotion programmes allowing customers to replace their on-premise software licenses to cloud services at discounted prices.

The growing importance of cloud products was visible on the annual report. In the ‘Form 10-K’ annual report, the weighted percentage of the word ‘cloud(s)’ grew from 0% (0 mentions) in FY10 to 0.2% (112 mentions) in FY11. After FY11, it grew continuously year-on-year, except in FY15, to 0.93% (505 mentions) in FY17 (see Figure 1). In FY17, the word ‘cloud(s)’ was mentioned nearly as many times in the annual report as ‘software’, which was the broader core business of the company.

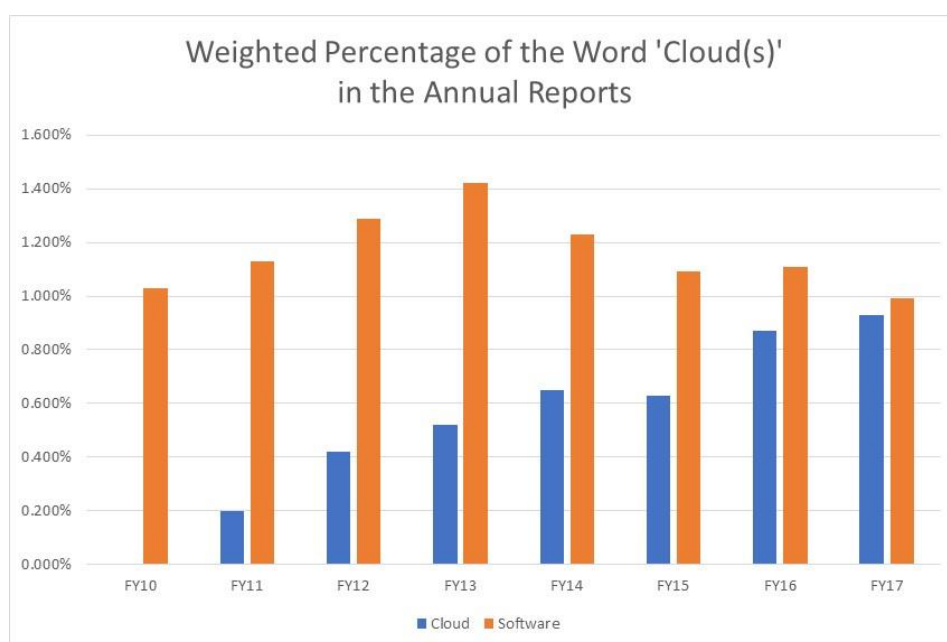


Figure 7 - Weighted Percentage of the Word 'Cloud(s)' in the Annual Reports

Source: personal collection based on the annual reports

The top management of the company also communicated in the annual report, that they are aware on the risk associated with the strategy shift. Before the strategy change, the annual report referred to potential risk factors, such as global recession, change of exchange rates to negative direction, changes in currency exchange rates, strikes, embargoes and wars. With the strategy change, cloud-related risks appeared on the annual report. For example, the risk associated with the transition into cloud business was in 26th position of the 29 ‘risk’ items in the company’s FY11 annual report, as: “Our Cloud Services offerings ... may not be successful”. In the FY12 Annual Report, this risk had moved up to 18th place (out of 29) and year-on-year became more important, requiring greater consideration. In the FY16 annual report, it was the number one threat, and remained so in FY17. At that point, the risk was defined in the annual report as “our cloud strategy ... may adversely affect our revenues and profitability”.

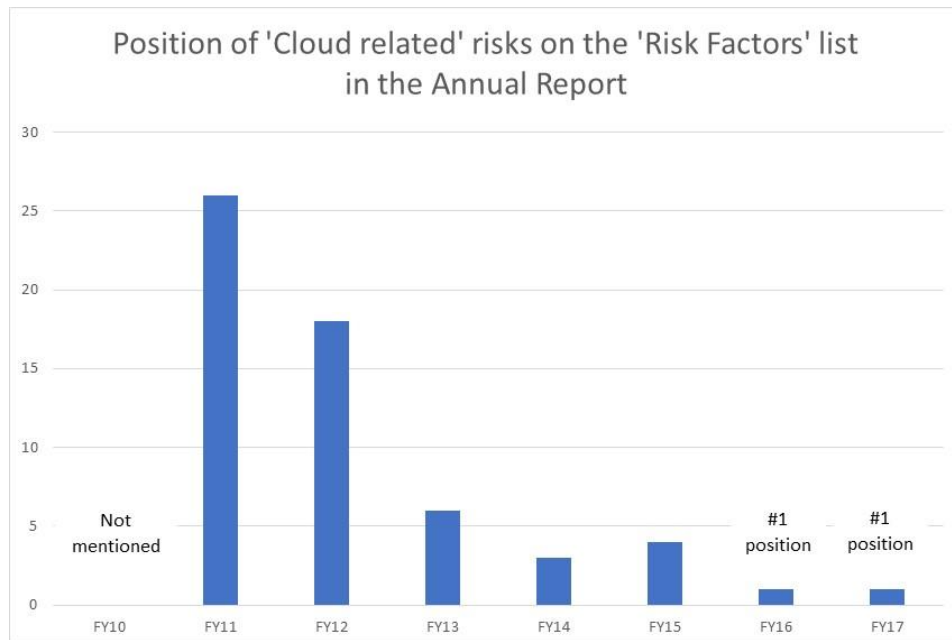


Figure 8 - Position of 'Cloud related' risks on the 'Risk Factors' list in the Annual Report

Source: personal collection based on the annual reports

The company no longer considered traditional on-premise software companies (e.g. SAP, IBM) as its competitors, the new rivals were cloud service providers (e.g. Salesforce.com, Amazon Web Services, Microsoft Azure).

The company accelerated its expansion in the cloud service market with acquisitions. It announced the acquisition of a cloud service provider amounting to 1.5 billion dollars in 2011, and during the coming years it was followed by a number of similar acquisitions of considerable value.

As the company's strategy shifted towards the cloud, the acquisition become cloud focused as well. While in 2010, the company concluded ten acquisitions, none of which was cloud related, this changed to eight out of the nine acquisitions in 2012. That trend continued, and on-premises acquisition investments gradually stopped.

Acquired companies	2010	2011	2012	2013	2014	2015	2016	2017
On premise focus	10	6	1	5	2	0	0	0
Cloud focus	0	1	8	5	5	3	9	3

Table 9 - The company's acquisitions between 2010 and 2017

Source: personal collection based on the annual reports and press releases

7.1.3 Financial results

From financial year 2002, partly supported by acquisitions, revenues of the company deriving from on-premise software licenses increased considerably, by 150% until 2011. After 2011, company revenues deriving from cloud services continuously increased. In 2011 (when the company first published its revenues deriving from cloud services separately) revenues from cloud services were only 2% of the revenues deriving from on-premise services. This rate increased to 71% to 2017. After 2017 the company changed its financial reporting policy and since then it has not published separate reports for cloud service and on-premises license revenues.

However, there was no significant increase in combined revenues deriving from on-premise license sales and cloud services between 2012 and 2017. In relation to this, the chief executive officer of the company pointed out that cloud service revenues are more favourable in the long run, than on-premise revenues. In his example, he stated that while the company collects USD 3 million software support fee after a software license order of 1 million dollars over the years, a cloud service order of the same amount (USD 1 million) is accompanied by a similar amount of renewals for an expected period of ten years, so the total revenue of the company amounts to 10 million dollars. “This is much better for us” – as the chief executive officer summarised.

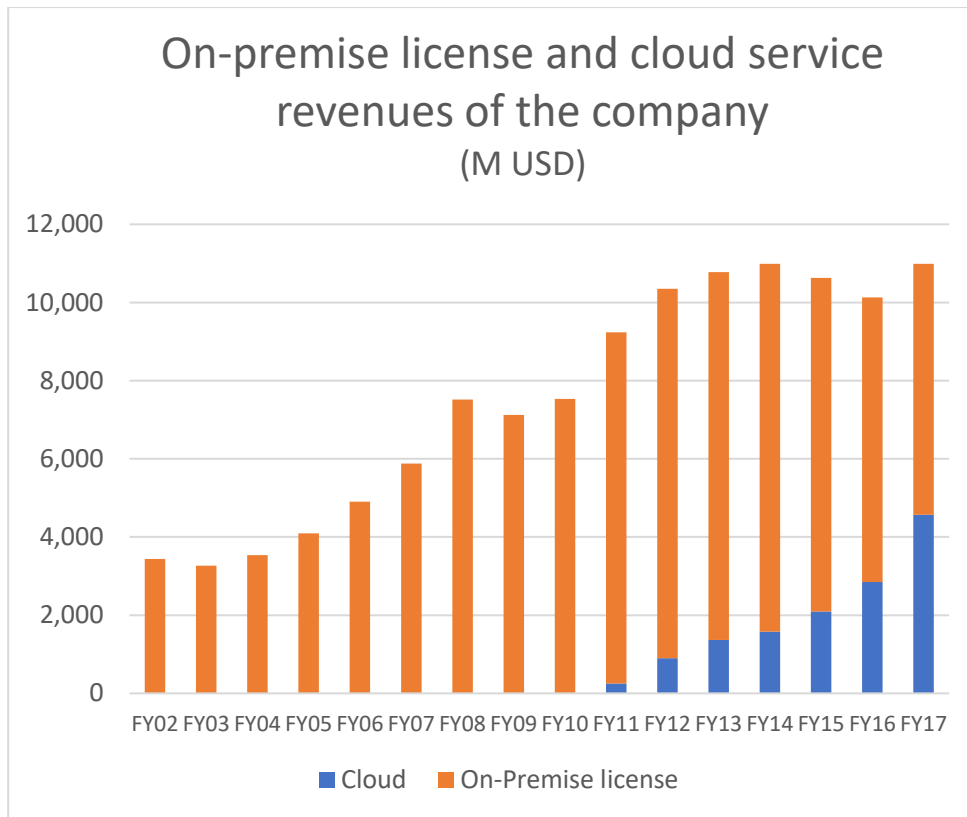


Figure 9 - Financial results of the company between 2002 and 2017

Source: personal collection based on the annual reports

7.1.4 Effect of cloud services - hybrid products

The strategic renewal of the company by shifting from on-premise systems to cloud services had a significant influence on the new, integrated business application package. The product, the development of which was started during the on-premise period, became the key element of the cloud portfolio after the strategic renewal. During the first years of the development, advantages, like the integrated and complete solution, open standards and widespread functionality were emphasised in the new product. When the product development was announced, cloud services were not included in product features and options (Yin, 2013).

The advantage that the product is optionally available in SaaS (cloud) model, appeared in the communication after 2009. This option was enabled by the facts that (1) the company used open standards and the most advanced technological solutions during the development of the application package and (2) the elements of the cloud solution were traditionally part of the products offered by the company. Later on, the SaaS option

became more and more dominant in positioning the product. In 2012, one of the senior executives of the company described the product as the SaaS solution providing the widest range of services available on the market. In 2015, the chief executive officer pointed out that cloud services had always been a key element of the new product development. By 2017, more than 5000 customers of the company used the new SaaS product including leading global financial and telecommunication companies.

During its strategic renewal between 2009 and 2012, the company placed increasing emphasis on cloud services while keeping the traditional on-premise products in its portfolio. This solution – adapting innovation in parallel with keeping the traditional solutions - is one of the responses recommended by Charitou and Markides to disruptive innovation (Charitou and Markides, 2003).

The integrated application package had a key role in strategic renewal. When the product was launched, it was available to customers both as an on-premise license and a cloud-service, or using the term of Cohen and Tripsas (Cohen and Tripsas, 2018), it was a hybrid product. This hybrid product enabled the company to be present both in the traditional on-premise market and in the cloud service market, that is, “play both games at once” by using the results of a product development already in progress.

According to Suarez et al., the threat of hybrid products is that they create an illusion of response, while they conserve the usage of the existing technology (Suarez et al., 2018). This pitfall was avoided by changing the positioning of the hybrid product that completely shifted the focus to the new, innovative technology. The company continuously allocated considerable resources to the development of the new cloud service product. It could rely on its robust R&D organisation having innovative traditions that had a key role in the transition to the new technology (Cohen and Tripsas, 2018). The R&D organisation using innovative and modern technology enabled the company to react to disruptive innovation by incorporating new options into an ongoing product development.

Besides developing a hybrid product and launching other cloud services on the market, strategic renewal was complemented with acquisitions after 2011, that can help respond to disruptive innovation (Sandström et al., 2009). Based on the experience of the acquisition period between 2003 and 2007, the company could choose a method already known, using well-practiced routines during acquisition and integration.

After 2012 corporate strategy was characterised by the adoption of the entire innovation (Charitou and Markides, 2003). As a result of inertia, revenues deriving from on-premise systems continued to come, but they started to decrease considerably. Cloud strategy was obviously the dominating element in corporate communication, R&D investments and company acquisitions.

7.1.5 Summary of the strategic renewal of the company

In the first phase of the data collection the author carried out systematic data collection from the EBSCO research databases and from the external communication of the company in order to explore the process of strategic renewal. Based on the sources processed, the company reacted to the challenge of disruptive innovation with strategic renewal, and a profound transformation of the product portfolio.

In the first phase of the strategic renewal, it focused on the traditional line of business and concentrated its resources on this area, questioning the disruptive nature of innovation (cloud computing) that can transform the market. The second phase was about adapting the innovation, in parallel with continuing the traditional lines of business. One of the most important responses of the company to disruptive innovation was the development of a hybrid product that could fulfil the market needs for the traditional and the new technology as well. During the third phase the company adopted innovation entirely with strategic product development, acquisitions and communication that supported the new technology.

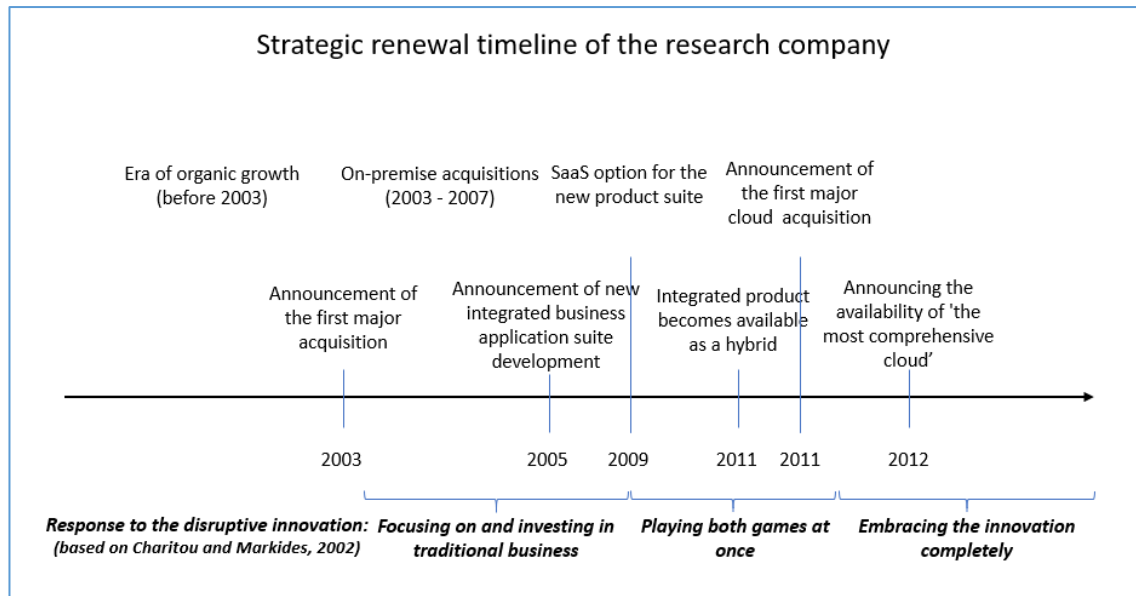


Figure 10 - Strategic renewal timeline of the researched company

Source: personal collection

7.2 Exploration of the company's strategic renewal

In addition to the review of the history of strategic renewal, answering the research questions also required the exploration of the internal details of the renewal. Information for this was provided by the interviews conducted in the second phase of the data collection and processed with the Grounded Theory method.

Taking into account the interviews processed, in the next chapters the author analyses and present the strategic renewal of the company based on the aspects necessary to answer the research questions.

7.2.1 The shift of the organizational attention towards exploration

The revenue from the explorative cloud sales started from a very low level in 2012, and the goal of the top management was to increase the cloud revenue as fast as possible. To achieve this goal, the focus of attention of the salesforce had to be shifted to cloud sales from the on-premise products which were well known by the sales people and the customers.

The top management's goal was to significantly increase the cloud revenues, but the employees were not well equipped to sell the unproven technology which they did not know well.

The strategic renewal from on-premise to cloud was a major change within the company. As one interviewee remembered the *“almost every function had been impacted. All the governance around it, processes, financial results of the company, etc. It turned the company upside down”*. Internally it was difficult to follow the top-down changes: *“The guy on the ground took a few months to understand what on earth is happening.”*

The management did not communicate what is the desired balance between the exploitative on-premise and explorative cloud sales. The communicated goal was to grow cloud sales as fast as possible.

The interviews revealed that the company used several tools to focus the attention of sales managers and sales account managers to the explorative (cloud) direction. Based on GT analysis of the interviews, the key tools used by the company were the following:

- Providing personal benefits for explorative activity
- Strong and coherent managerial communication towards the new strategic direction
- Training
- Modified internal processes and support systems

7.2.1.1 Personal benefits

Personal benefits appeared as an important tool to gain the attention of the employees. Amongst personal benefits, financial motivation was the most frequently mentioned tool. The company changed the compensation plan for sales managers, sales account managers and for sales support functions to make it more attractive to sell cloud solutions than on-premise. As one of the interviewees remembered: *“The new schema (for compensation payment) helped to understand the priorities and the advantage of cloud”*. On-premise sales were still compensated but at a lower rate than cloud sales. This change had a major impact and moved the attention to cloud sales. One interviewee said: *“I often realize, hard to find a better motivation tool than money”*. However, despite the financial benefits, some employees find that it takes more effort to position cloud – mainly because the market was not ready for the new solution – so they kept focusing on-premise solutions.

As one of the account managers said: *“If you sell cloud because you get more bonus and not because the customer needs it, you’re compromising your long-term success and relationship for short-term financial benefit”*. Another interviewee’s opinion was that *“I don’t believe compensation should be the key driver. If you don’t concur the mind and the heart of the people, they become mercenaries.”*

The use of financial benefits was in-line with the ‘conventional wisdom’ of salesforce motivation (Khusainova et al., 2018). However, while B2B firms usually implement a long-term reward system for radically new products to lower the financial risk for salespeople (Wei and Atuahene-Gima, 2009), the study company installed a short-term reward system.

There were other personal benefits than financial compensation. The new strategy provided a carrier path for employees who become role models and champions of the new direction. Enthusiastic support of the cloud business become a path to promotion to higher positions. As one interviewee put it: *“If you want to be rich and famous, cloud is the way to go. No lip-service only, no playing game. ‘Believe’ is a tool to have a carrier”*. The carrier opportunity gained the attention of agile employees with high carrier aspirations, and they become internal change agents of the new strategy.

Higher job satisfaction by doing interesting and innovative tasks and working with new technology was also a factor which gained attention. The company being a leading IT firm, a large part of the employees was ‘tech-savvy’, new technologies were an area of interest for them. As one of them said *“Innovative, dynamic people want excitement. Nobody wants to sell the old stuff”*.

‘Change’ itself was a factor which gained the attention of employees. The company has a dynamic culture, it went through several organizational changes during the past years. *“The only constant in our company is change”* as one of the interviewees said. Many employees focused their attention to the cloud because they find it interesting and motivating to be part of the changes. The company’s change gave new challenges for employees and provided an opportunity for learning. The interviews confirmed the importance of those factors: *“I’m like the quicksand: if I don’t have pressure I’m not motivated”*, *“I actually like learning. The intellectual aspect of learning cloud and selling something different is brilliant. Zero problems with that.”*

As an opposite to gain personal benefits, fear of losing existing benefits - including the job – had an impact on employee’s attention as well. Not every employee agreed with the direction of the changes and not everyone could cope with the changes. Some of them left voluntarily; some were asked to leave. They were “*casualties of the change*”. Employees realized that there are and will be casualties, and that helped to focus their attention to the new strategy.

To replace the employees who left the company (“*casualties of the change*”) and for the new incremental positions, the company preferred hiring young people with an open mindset, or experienced people with cloud background. During the selection and hiring process, it was clear for the new candidates that the company’s focus is the cloud market, and on-premise is secondary. When those new employees joined the company, their focus of attention was on the new cloud products.

7.2.1.2 Managerial communication

Managerial communication, including top and middle managers, was an important tool to focus employees’ attention on the new strategy. The company extensively focused on communicating the new strategic directions externally and internally. Cloud became the key topic of external communication, the content of interviews, conference speeches, written communication (website, newsletter, magazines), marketing events, paid advertisements were focused on the cloud.

The company’s 10-K Annual Report showed an imbalance of explorative (cloud) and exploitative (on-premise) communication. In FY17, the word ‘cloud’ (exploration related) was mentioned in the annual report 505 times, while ‘on-premise’ (exploitation related) only 155 times. The 77%-23% balance between ‘cloud’ and ‘on-premise’ words is not proportional to the balance of the actual revenue, which was 15%-85% in favor of the exploitative on-premise business.

The external communication had an impact on the employee’s attention; it helped them to realize the importance of the new strategy.

Similarly to the external communication, the company’s internal communication’s focus became the cloud as well. Internal newsletters, blogs, product updates, competitive information sharing were concentrated on the cloud message. Employee awards were given based almost only for cloud achievements. Even the physical appearance of the

company's offices has changed; meeting rooms were decorated with large cloud posters. The posters showed pictures of 'real' clouds in the sky, but the association was obvious with the company's cloud strategy. The clear communication of the new direction from the top management down the hierarchy was an important tool to gain the attention of the employees.

7.2.1.3 Training

Extensive training was mandatory for employees to learn the cloud strategy and products. Some of the training were in-person, some on-line. The company significantly invested in the training; sales account managers were traveling to centralized locations to attend those multi-day training. Usually, the training was opened by an executive, who delivered the key messages in his opening speech. The on-line training was professionally organized, and the employees were required to make an exam at the end and record and upload a video how they would present the company's cloud strategy to customers.

7.2.1.4 Internal processes and support systems

Besides personal benefits and clearly communicated messages, strong and coherent execution of the new strategy was an important factor which convinced the employees that they should focus their attention on the cloud. New processes were introduced to support the new business. New business development and sales support positions were created to support the sales team, with a dedicated focus on cloud. Administrative measures were introduced to support the new strategy. For example, the sale of a specific on-premise product was highly discouraged, it required special approval to sell it. As one of the interviewees remembered *"To get approval to sell that (on-premise) product for a small project, I had to send an approval request to one level below the CEO. I started to feel that I'm doing something punishable. This process had a message: 'haven't you realized that this is not what you should do?'"* KPIs were changed, normative expectations were set for the salesforce to promote cloud sales. The internal reporting systems modified to show cloud figures first; it required an extra step to see the on-premise figures. A sales account manager said that they were mandated to run five live product demonstrations per week for customers, and they had to report back to the management the name of the customers and the outcome of the meeting. Newly generated sales pipeline for cloud was closely monitored, while on-premise was not. *"The sales VP doesn't ask what on-premise deals we have in the pipeline. He doesn't ask what is*

happening with a \$3m on-premise deal for customer XYZ, instead, he wants to know the status of the \$20-\$40k cloud deals. That means something. If he is not interested in large on-premise deals, but in a large number of smaller cloud deals, this is what we're going to focus on."

The execution was well-coordinated from the top, and it was convincing for the employees that it has strategic importance. *"There were no mistakes made, no surprises. All it was planned. The company's management was able to go through major change rapidly and not falling into chaos. There was strong governance."*

7.2.2 Impact of the external environment on the organizational attention

The strategic renewal process of the company was driven by the top management team, anticipating the changes in the market. The aim was to mobilize the company's resources to develop and sell radically new products before the company falls into the exploitation trap, as for example, Nokia did (Vuori and Huy, 2016). The revenue from the explorative activity (traditional on-premise software sales) was still growing when the strategic renewal began, the company has not experienced decreasing sales or profit.

At the company analysed the salespersons had decision-making positions, since they were the ones who decided on the products they traded and the suggestions they would make to the clients. According to the ABV, the activity of decision-makers depends on where the focus of their attention is: and the focus of their attention depends on the context or situation they find themselves in (Ocasio, 1997).

However, when the senior management already foresaw the changes to be expected on the market, the salesforce did not sense the major shift in customer demands for radically new cloud products; the supply of these demand had not met with market demand yet. When the strategic renewal of the company started, the market and the customers were not fully ready for the general use of cloud services. In this situation the focus of the attention of the salespersons – who had the decision-making roles – did not turn to the new products.

Bottom-up information processing enables individuals to recognize market changes outside of their knowledge structure, therefore suitable to sense radical market changes (Shepherd et al., 2017; Joseph and Wilson, 2018). However, sensemaking of those

changes can be different at level levels of the hierarchy. At lower levels of the hierarchy, the managers and frontline employees (in this case: the salesforce) are focused on daily activities: therefore they often do not sense the signs that imply future changes in the market (Vuori and Huy, 2016; Huy et al., 2014). In the sales organisation of the company analysed, this ‘short-sightedness’ put the sale of the traditional products in the forefront, instead of the radically new products.

Since at the time the company renews its strategy the demand for the radically new product was not (yet) strong on the market, therefore bottom-up information processing was not suitable to drive the focus of attention of the salesforce to the explorative activity. The top management realized the situation and introduced several tools to make the salesforce understand the importance of focusing on the new product portfolio by making use of the existing knowledge system of the salespersons and through top-down information processing. In the absence of unambiguous signals arriving from the external environment, they achieved through internal incentives (change of the personal benefits, the coherent managerial communication, training, and the modified internal processes and support systems) that the attention of the salesforce turned to the new products. In the absence of external stimuli, the senior management had to create the context and the situation in which the attention of the salespersons was concentrated on the radically new products.

There are cases when the salesforce abandons the sale of traditional products and focuses entirely on the sale of the radically new products. Van der Borgh et al. mentions cases at companies similar to the study company (High-tech, B2B sales) where the focus of the salesforce and the customers shifted to the explorative products quickly (van der Borgh et al., 2017). The main difference is the articulated customer demand. If the customers demand radically new products, the salesforce will move their focus of attention on selling the radically new products.

However – as it was pointed out by Christensen – the need for radically new products usually appears in the lower segment of the market and it reaches the mainstream customer only later (Christensen, 1997). Those companies which do not sense the disruptive market changes in time may risk even their survival. (See the examples of Nokia and Polraoid already mentioned.) If the senior management senses the expected change, but the lower levels of hierarchy do not sense it yet, then the means used by the

company analysed in the author's thesis may enable the turning the dynamic of the corporate organisation towards the new strategy.

7.2.3 Exploring and exploiting new target segment: SME customers

The company traditionally was dominating the high-end of the market, focusing on large customers. With the growth of the cloud business, the mid and small size customers also become large potential segment for the company. Cloud solutions bring several benefits for SMEs, such as reduced opportunity cost, reduction of in-house ITC sunk cost, and scalability which improves business agility. Due to lack of their own IT staff and free cash available for CAPEX investment, SME customers have a large demand for cloud solutions (Ross and Blumenstein, 2015).

The company made a decision to build a large sales team, focusing only on SME customers across Europe, Middle East, and African territory. It announced to hire 1400 new sales representatives to address the SME segment.

According to Christensen, disruptive technologies start penetrating the market at the low-end (Christensen, 2013). Therefore, the company's decision to focus on the low-end of the market with the new cloud product was in-line with the theory.

The traditional sales force – working mainly with high-end large customers – was a field-based sales force: sales representatives were located across the territory to be able to regularly meet customers and interact with them. The field sales model is effective for large customers and large deals, but expensive. This model won't work effectively for SMEs.

The company decided to adopt a different model for the sales unit targeting SMEs: created a couple of telesales centers across EMEA. In each of those centers, there are several hundred sales representatives working with SME customers using modern ways of remote communication (telephone, email, chat, video calls, social media), supported by the latest technology. The sales reps in those centers are able to deliver live demos to customers and present proposals from thousand kilometers away.

The profile of the sales reps in the telesales centers is different to that of field sales. In field sales, reps have several years of experience (sometimes 10+ years); in the telesales centers, many of the reps are new graduates from university. Young and dynamic telesales

reps don't have a problem with mindset change from on-premise to the cloud – most of them started to work in the cloud world.

As the 14th interviewee said, *“we build a new-generation sales organization with hiring young freshly graduated people, who can act as digital marketing campaign agents”*, and the 15th interviewee confirm the trend of the changing ways of communication: *“in 2014, only 30% of communication with customers took place by phone, in 2016 it's 80% and in the future it could be 100%”*.

7.2.4 The development of organisational ambidexterity

During the period preceding the strategic renewal (phase 0), the organisational units examined concentrated on the exploitation of the traditional business branch, therefore the organisation was not ambidextrous. This does not mean that the company did not carry out any innovative activity at all, since it had been constantly developing its on-premise products and it expanded its portfolio through acquisitions. However, the purposes of these development were the increasing of the efficiency, the realisation and implementation of the known strategy, as well as the fine-tuning of the organisation, which activities are characteristic for exploitation (March, 1991).

The characteristics of the activities necessary for the development and marketing of cloud products were radical innovation, risk-taking and flexibility, which are key elements of the exploration (March, 1991). In the first phase of strategic renewal the senior management made it the task of the existing commercial organisation to expand the sales portfolio with the sale of the newly developed and purchased cloud products, in addition to the traditional products. Through this, a contextually ambidextrous organisation was created.

The danger that lies in the contextual realisation of ambidexterity is that when the exploration requires radically new knowledge, skills or processes, then the realisation of those within one organisation may face difficulties (Chen, 2017). This problem occurred in case of the company analysed as well. There were employees who did not want or were unable to learn the new knowledge and processes, and left the company.

The management of the company recognised that in order to make the strategic renewal successful, it has to achieve in the contextually ambidextrous organisation that

attention is turned to the exploration activity despite the inertia. Several means were deployed to this end, as the author explained in detail in chapter 7.2.1.

The senior management aimed at further rapid growth in the market of cloud services, and it targeted a market segment (SMEs) which had not been in the focus of the company before. Therefore, in the second phase of the transformation, the company created a separate commercial organisation which dealt exclusively with the sale of the cloud services – i.e. with exploration – in order to cover the SME area. Thus, the structural realisation of ambidexterity also appeared within the company.

It should be noted that the contextually ambidextrous organisation which was established in the first phase and which covers the large clients and the structurally separated SME branch which was established in the second phase both functioned continuously throughout the period analysed. Namely, the company used the contextual and the structural solution simultaneously for the realisation of ambidexterity. This corresponds with the approach suggested by Ossenbrink et al., according to which whenever seizing the numerous uncertain opportunities which appear in the market environment requires novel organisational culture and skills, then it is advisable to realise both forms of ambidexterity, i.e. hybrid ambidexterity (Ossenbrink et al., 2019).

7.2.5 The role of middle managers in the renewal

The company's renewal journey from the focused business towards the ambidextrous organisation was a wilful, top-down initiative. One the member of the senior management said that:

“It is a choice of a model of transformation. No consensus, top-down. And it can work”

The role of employees who had direct contact with the client and of the middle managers was limited in course of the implementation of the strategy. One middle manager responder said that:

“...it started as a violent mandate. People didn't have a choice. We were told 'this is your number for the cloud, just do it'. All sayings 'let me talk to my customer, let me see what is in my pipeline' were completely ignored, and people were told 'just do it'. That was harsh, because it removed any discussion on whether this is correct to do or not.”

It was obvious that the middle managers did not participate actively in the development of the strategy and they had a passive role only. One of the middle managers commented that there was no attempt made to decentralise the decision-making:

“The strategy is defined at headquarter and rolled out to be executed. This is clear...There are certain decisions that are really made only at the CEO level and maybe one level down. I don’t think that there was a lot of debate below that level in the company. We may or may not like it, but that’s the way it is. And on balance, it works pretty well.”

Despite the limited information and the lack of discussion, the employees working at lower levels – including the middle managers – accepted their passive role and that they had little effect on the development of the direction of the strategy. The opinion of the senior executives was dominant, and the majority agreed that *“we should go with the flow”*. The employees concentrated on the fulfilment of their own tasks and on achieving the objectives applicable to them. The middle manager responders noted that when they faced any obstacle (e.g. the risk of not reaching the objective), they felt that they had to solve the problem on their own.

Other responders confirmed that while the strategy was developed from the top, the middle managers had freedom in the implementation thereof:

“There is a whole range of different strategic activities ... that do go down all levels. Nobody is telling me precisely how to go to the market in my territory. Nobody is telling me how to inspire my team and how to take the solutions to the market..... There is a lot of empowerment in the company regarding the execution of the strategy, but at the same time it is very clear that some fundamental decisions are not taken democratically.”

The centralised controlling and the executive information systems helped the senior management with accurate information regarding all important events that happened at the company. This way the senior management was able to implement the new strategy with minimal organisational inertia and resistance. The modern corporate IT system allowed the senior management to bypass the middle managers. For instance, in order to enhance the motivation related to the sale of the cloud, the senior management – without active middle management participation – changed the compensation system of the sales employees. The global execution of this change took place very fast, and after the senior management decision, the calculation of the commission changed in a matter of days for all (several tens of thousands) sales employees. As one of the middle managers explained:

“This is not the company that values shared responsibility or very widespread participation. We all have unambiguous objectives and very unambiguous tasks, and we have a very unambiguous evaluation system. The good thing is that the entire thing is very unambiguous.”

The senior management team could follow the effect the new compensation system had on the sales channels even in the short term. Whenever intervention was necessary, the senior management introduced financial incentives. The implementation of the changes was fast and smooth again, and it took place without organisation-wide discussion or without involving the middle managers in the decision-making.

When – in the interest of boosting the cloud sales – a decision was made to hire large numbers of salespersons with new profiles, through the HR system the senior management was able to follow the development of the entire workforce hiring process and the start of working of the employees. The objective was to hire new employees fast, therefore the senior management set monthly objectives for the development of the number of new hires in the various geographical areas. The senior management were able to follow the number of applicant in the different stages of the hiring process, and thereby the senior management was able to keep the middle managers of the organisation under pressure in order to achieve the hiring objective.

Another example of the top-down approach is the introduction of changes in the area of product marketing. Both the cloud-based product and the new target audience – the SMEs – required messages and communication different from the traditional. The new marketing messages and activities were determined at the highest levels and were kept under close monitoring. The local organisation had very little influence on these messages. The impact of the new marketing messages was measured based on the new business opportunities generated in the sales channel, which appeared in the internal ‘Sales Intelligence’ system. This real-time intelligence allowed the senior management to intervene whenever necessary. For example, the senior managers were able to monitor the reception the new marketing messages received from the clients, and if necessary, they could modify the messages based on the results shown by the system.

The cloud was a new market for the company; therefore the pricing of the new cloud-based products was a novelty. The senior manager followed the ratio of businesses gained and lost in the various regions, as well as the reason behind them through the sales

intelligence system. Based on the data provided by the system, the senior managers modified the prices of the cloud services in a flexible manner. Whenever they deemed it necessary, they granted extra discounts for limited period in order to make the products more competitive in the market. The modified prices and the extra discounts appeared in the global price list immediately, and this did not require the active contribution of the middle managers.

7.2.6 The role of dynamic capabilities in the renewal of the company

As elaborated in chapter 2.7, dynamic capabilities can be categorised in three fundamental groups: sensing, seizing and shaping (Teece, 2007). Through the continuous and simultaneous use of the capabilities belonging to the three groups the company may sustain its competitiveness, for which the company analysed was a good example.

Dynamic capabilities are not universal but depend on the situation (Zimmermann and Birkinshaw, 2016). The same as in the case of exploration and exploitation, sensing and seizing require different capabilities, thinking and processes as well (Raisch and Zimmermann, 2017).

The senior management of the company analysed sensed the market change brought about by the appearance of cloud services in the early stages thereof, and then it deployed the resources of the company in order to seize the opportunity and it launched a significant transformation. The seizing of the opportunity manifested in the announcement of the new strategy which constituted of the complete adoption of the disruptive innovation. In the concept of ambidexterity this process may be considered as the company put the emphasis on the exploration activity instead of exploitation, and for this it used its specific dynamic capabilities available.

However, the information necessary for sensing the change in the external environment was given to the senior management primarily not by the impulses arriving from the lower levels of the company. None of the interviewees said that significant pressure for strategy changes had arrived from the lower levels of the hierarchy. At the time of the strategy change, the traditional on-premise branch revenues had not decreased yet, moreover, such revenues had been constantly increasing according to the plans. The products of the company complied with the expectations of the important customers. The sources processed did not give information on the precise process that led to the sensing

and thereby to the strategy change decision of the senior management, as there was no bottom-up pressure (e.g. involvement of external consultants, the visionary foresight of some senior managers).

Based on the sources processed there is also no information on how and in course of what process the decision on seizing following the sensing was made. It was not explored whether there were disputes about this in the senior management and which were the important points of the decision process. However, it can be established that the company was capable of deliberate strategic decision-making, which is a dynamic capability (Eisenhardt and Martin, 2000) that was important in the situation concerned (Birkinshaw et al., 2016).

According to Tecee (2007), companies often get the seizing wrong, since they are afraid of cannibalising their revenues. The senior management of the company analysed was willing to cannibalise the revenues of the traditional product line and to offer cloud services to the existing clients to the detriment of the on-premise sales, despite the fact that this resulted in revenue loss in the short-term. (On-premise products are purchased by the clients in their full value, usually in one sum, while client pay for the cloud services continuously.)

The interviews highlighted that the realisation of the seizing and the transformation was enabled and facilitated by the internal culture of the company in which employees got used to changes. The process of the transformation was facilitated by the dynamic capabilities of the company, such as the institutionalisation of the integration of learning and knowledge, the organising of cooperation and the renewal of the value offer (Tuzovic et al., 2018). The ability to develop radically new products which are necessary for the adoption of the disruptive innovation was an especially important dynamic capability in course of the transformation.

The company complemented the organic growth of the cloud services with acquisitions, in order to expedite the market expansion. The company had already carried out significant company acquisitions previously, therefore it had substantial experience in acquisitions and integration. This specific experience can be considered as a dynamic capability (Eisenhardt and Martin, 2000) which facilitated the exploration activity.

7.2.6.1 IT-aided data collection, decision-making support and implementation as dynamic capabilities

Previous studies had already pointed out that the ‘Big Data’ systems integrated properly in corporate processes may be sourced of dynamic capabilities (Rialti et al., 2019). It corresponds with this approach that the centralised systems of the company analysed (e.g. centralised decision on the developments, marketing product pricing, salesforce incentive system) facilitated the realisation of the strategy change within the company, thereby minimising the resistance against the change. Therefore special attention should be given to that ability of the company through which the internal business intelligence systems provide the senior managers with up-to-date market information arriving automatically from the lower levels, and thereby the senior managers become able to make fast and well-founded decisions. This ability couples with that through the centralised systems, the senior management decision can be implemented in the entirety of the organisation with minimal organisational resistance and unambiguously.

Business intelligence systems represent value not in themselves but if aligned to the corporate processes and integrated into those (Mikalef et al., 2019). This took place in case of the company analysed; the business IT system became an integral part of the day-to-day operation of the company, the decision-making preparations, the decision-making and the execution of the decision.

According to the author’s suggestion, the information collection, decision-making and execution support aided by IT systems can be considered as dynamic capabilities. These dynamic capabilities – if used in the appropriate corporate culture – may ensure competitive advantage. These specific dynamic capabilities had a crucial role in the success of the renewal of the company.

In summation, in course of the strategic renewal the company made use of its specific dynamic capabilities available in order to establish an ambidextrous operation in which exploration is dominant. The specific dynamic capabilities played a role in the process: the information collection, decision-making and execution support aided by IT systems.

7.2.7 The strategic renewal model chosen

The renewal model of Volberda et al. (2001) presented in chapter 2.5. recommends four possible renewal ‘journeys’ based on the role of the senior and the middle managers, the competition environment and the relationship of the company with the market environment. These are the following: (1) emergent, (2) directed, (3) facilitated and (4) transformational renewal.

Volberda et al. (2001) recommend the *emergent renewal* in case of steady competition environment and predictable market changes. The middle management supplies information to the senior managers about the relatively slow changes of the external environment, and then the senior managers decide on the development directions based on such information. In this was the company develops together with the market in a co-evolutionary manner. However, the company analysed did not operate in a steady competition environment but in a turbulent and hyper-competitive market, where changes happen extremely fast. In addition, the senior management did not aim at co-evolutionary development with the external environment, but it strived for influencing the market trend and the dominant technologies by making use of the size and the resources of the company. Consequently, the renewal of the company does not fit the ‘emergent renewal’ category of Volberda et al.

During the *directed renewal* the senior management strives for influencing the industry in a steady and predictable external environment. The slow changes allow for the centralised collection of the environmental information, the sensing and interpreting of the changes, as well as the development of the corresponding responses at the senior management level. The middle management has a role only in the implementation and in the development of the strategy so defined.

According to Volberda et al. (2001), the directed renewal method is not suitable for rapidly changing environments, since the senior managers are unable to sense the rapid environmental changes and follow those with centralised decision-making, at the same time, the middle managers are not authorised to do so. However – as it was elaborated in the previous paragraph in connection with the emergent renewal – the company analysed carried out the strategic renewal not in a steady and predictable environment but in rapidly changing, hyper-competitive market. For this reason, the renewal of the company cannot be considered as a method of directed renewal described by Volberda et al.

According to the model, during the third renewal method, during the *facilitated renewal* the senior managers authorise the middle managers who have direct market information to actively develop the strategy and to make the decisions altering the strategy. In course of the renewal the senior managers act as coordinators and facilitators. This method can be used well in rapidly changing environments, since it is able to react in a flexible manner to the changes of the market with direct, local decisions and to develop the strategy. However, in case of the company analysed the middle managers were evidently not authorised to alter the strategy and their decisions powers were strongly limited. For this reason, the renewal of the company analysed cannot be considered as facilitated renewal.

Transformational renewal – which is the fourth renewal method defined by Volberda et al. (2001) – is recommended in case of profound transformation which affects the entire company, often as a response to a disruptive innovation, with the intention to alter the market environment and the industry. These correspond with the transformation circumstances of the company analysed. However, a characteristic of transformational renewal is that the entire company participates on the development of the transformation, and the strategy is developed actively by both the senior and the middle managements. In the case analysed this did not take place in this way, in addition to the passive role of the middle management, the senior manager had the control.

In summation, the renewal of the company was directed by the senior management, with the intention to influence the rapidly changing, turbulent and hyper-competitive external environment, while the middle management was given a passive, executor role in the development of the strategy. It was not the intention of the senior management to involve the employees who are in direct contact with the clients and the middle managers in the development of the response to be given to the disruptive innovation. The middle managers did not participate actively in the development of the new strategic line of the company. This solution also differs from the trend of involving the employees (Bácsi, 2017). For this reason, the transformation of the organisation does not fit into the series of idealised renewal processes defined by Volberda et al. (2001).

7.3 Summary of the research results

In order to summarise the research results, the author forms the answers given to the research questions and verifies whether the propositions were proven or not.

7.3.1 Answers given to the research questions

The author formulated three research questions for his research:

RQ1: What combination of organisational ambidexterity and dynamic capabilities allows the realisation of the response strategy constituting the '*complete adoption of innovation*' in the course of strategic renewal carried out as a response to disruptive innovation?

RQ2: What relationship does the company have with the external renewal during the successful renewal?

RQ3: What roles do the senior management and the lower levels of the hierarchy have in the process?

Having summarised the research results presented, the following answers can be given to the research questions:

RQ1 – The transformation of the corporate strategy started during a period when the market transformation caused by disruptive innovation had not had its effect on the corporate results yet. In this situation, the senior management was able to sense the danger, seize the opportunity and transform the strategy and the operation of the company. This process was enabled by dynamic capabilities - which were especially important in the given situation – such as strategic decision-making, the development and marketing of radically new products and the integration of acquired companies. In addition to these, the corporate culture built on frequent changes created dynamic capabilities such as the institutionalisation of the integration of learning and knowledge, the fast organisation of the cooperation, and the renewal of the value offer within a short period of time.

The company chose a novel renewal model, in which the centralised IT systems of the company replaced the active participation of the middle managers in the development of the strategy. This was facilitated by special dynamic capabilities: IT-aided data collection, decision-making and implementation, which aligned with the corporate culture. These dynamic capabilities were especially important in the given situation because the majority of the middle management did not sense the impending market changes; therefore they did not consider it necessary to realise the response strategy which constituted the complete adoption of the innovation. Without the dynamic capabilities of IT-aided data collection, decision-making and implementation, the senior manager would have had to

rely on the active support of the middle management, and without those dynamic capabilities, the strategic transformation could have become unsuccessful.

Having made use of the dynamic capabilities, the company aimed at realising ambidexterity, with special emphasis on exploration. To this end, the company first established a contextually ambidextrous organisation, and then it used structural separation as well simultaneously.

In summation, the realisation of the response strategy constituting the complete adoption of the innovation was made possible by the combination of the dynamic capabilities listed above and the two kinds of realisation (contextual and structural) of ambidexterity.

RQ2 – during the strategic renewal, the company definitively strived for influencing the external environment.

The renewal was triggered by a disruptive innovation appearing in the external environment, the appearance of cloud services. However, the disruptive innovation had not had a significant effect on the market yet when the senior management of the company foresaw the future and started the renewal of the company. By making a determined stand for cloud services and the often forced marketing of the cloud services, the company not only followed the changes but also expedited them itself. Therefore, the company evolved together with the environment not in a co-evolutionary manner but affected the development of the industry and the market proactively through ‘co-creation’.

RQ3 – The strategic renewal process was initiated, managed and controlled by the senior management. The middle management was given the executor role in the implementation of the changes. This was allowed by the special dynamic capabilities and the corporate culture of the company.

Taking into consideration that the company carried out the strategic renewal in a rapidly changing and hyper-competitive environment, due to the passive role of the middle management the renewal model chosen does not fit into the series of idealised renewal processes defined by Volberda et al. (2001).

7.3.2 Verification of the propositions

The author formulated three propositions at the start of his research:

H1 – In the course of the realisation of the response strategy that constitutes the ‘complete adoption of the innovation’, a combination of the key characteristics of the strategic renewal can be identified, which combination can ensure the success of the response strategy

H2 – A company can not only follow the technological development and the market changes induced by disruptive innovation but can also actively shape the external environment

H3 - In a rapidly changing competitive environment success requires the active role of both the senior management and the lower levels of the hierarchy, since in this way the identification of the fast changes of the external environment can be ensured

H1 – this proposition was successfully verified by answering the three research questions.

The three research questions covered the three main areas of strategic renewal (antecedents, processes and outcomes). All three research questions could be answered based on the research data collection, therefore the combination of antecedents, processes and desired outcomes which ensured the success of the response strategy in case of the company analysed could be identified.

However, in accordance with the statements of chapter 6.3.4, the results of research built on one case do not mean unlimited and automatic external generalisation. The combination of the main characteristics of strategic renewal can enable the successful renewal of other companies as well, but only if the particularities characteristic for the company concerned are taken into consideration.

H2 – the answer given to research question RQ2 verified this proposition.

During the strategic renewal, the company not only followed innovation but proactively facilitated the spread thereof, thereby altering the external environment.

H3 – the author was unable to verify this proposition, the case study proves the opposite of this.

As it was pointed out by the answer given to research questions RQ3, in addition to the active strategy creating role of the senior management, the lower levels of the hierarchy were given passive, executor roles.

7.3.3 The controlled renewal method

The most important novelty of the research is the answer given to research question RQ3 and in accordance therewith, the rebuttal of proposition H3.

The renewal of the company was directed by the senior management, with the intention to influence the rapidly changing, turbulent and hyper-competitive external environment, while the middle management was given a passive, executor role in the development of the strategy. It was not the intention of the senior management to involve the employees who are in direct contact with the clients and the middle managers in the development of the new strategic lines of the company.

Based on this, the company analysed does not fit any of the four renewal methods described by Volberda et al. (2001), but it can be defined as a new approach.

The renewal method used by the company combines the elements of the directed and the transformational renewal methods described by Volberda et al. (2001). The senior management which intends to actively influence the environment and which makes centralised decisions, as well as the middle management passive in the development of the strategy are characteristics of the directed renewal. The transformation affecting the entire company as a response to a radical market change, with the ability to react fast to the changes of the external environment is characteristic for the transformational renewal.

The method used by the company analysed, the combination of the directed and the transformational renewals can also be defined as a novel, '*controlled*' renewal method.

During the *controlled renewal*, the objective of the senior management is the fast and deliberate transformation of the corporate strategy, for example, as a response to a disruptive innovation. The senior managers intend to influence the industry and the market environment actively. The development and direction of the strategy are managed by the senior management, while the middle managers are given a passive, executor role in them. The renewal affects the entire company, and it is carried out by the senior management through the harmonisation of internal processes and the transformation of

the sub-systems so that they facilitate the new strategy. The focus is on the exploration activity. This renewal method can be used well in rapidly changing, turbulent, hyper-competitive environments, since during the transformation closely commanded by the senior management, the company is able to react and make adjustments fast.

In the case of *controlled renewal*, the change in direction is commanded by a small strategic core, even in case of a company consisting of multiple units and having several tens of thousands of employees. The main advantage of this type of renewal is that the organisation leverages the highly centralised planning and direction completely, while it remains flexible. This could mean a new competitive advantage for the company.

The controlled renewal method recommended can be added to the model of Volberda et al. (2001). The extended model is presented in Table 10.

	Company is Passive with respect to Environment	Company is Active with respect to Environment
Middle management passive (stable competitive environment)	Emergent renewal	Directed renewal
<i>Middle management passive (rapidly changing competitive environment)</i>		<i>Controlled renewal</i>
Middle management active (rapidly changing competitive environment)	Facilitated renewal	Transformational renewal

Table 10 - The extension of the renewal model of Volberda et al.

Source: own edition, based on Volberda et al. (2001)

(the extension is marked in Italics)

With regard to the controlled renewal model it is an important question how the senior management which keeps a firm hand on the transformation can sense the rapidly changing, turbulent environment, and in the absence of decision-making powers vested in the middle management, how can the company react and make adjustments fast.

The research showed that the widespread use of the modern and sophisticated business intelligence systems, which cover the entire company had an essential role in this. The data-centred and automated IT systems rendered the senior management able to learn fast from the feedbacks, so that it required less effort to coordinate the activities and execute the modifications. The business intelligence systems provided accurate, real-time

information to the decision-makers, while the other centralised internal systems of the company (financial, human resources, individual compensation systems, marketing planning) enabled the fast execution of the decisions made. Therefore, the IT systems and the centralised processes facilitated by them gave specific dynamic capabilities to the company, thereby replacing the necessity of active middle management participation in the transformation process.

Simultaneously with the use of the business intelligence system, a carefully planned organisational communication took place, which identified as driving force of the strategic renewal as an external constraint. The senior management used the external coercion situation for reducing the participation and for increasing the importance of centralised decision-making.

The corporate internal support and incentive systems were also transformed, in line with the strategy. As a result of these steps, as a collective reaction to the changes the middle management accepted the direction by the senior management, and it did not challenge the legitimacy of the new strategy.

In summation, during the *controlled strategic renewal method* the middle managers not only accept but also facilitate the implementation of the new strategy in course of their day-to-day work, and it is advisable to have the middle management have financial incentive in the success of the new strategy. The active use of the corporate internal business intelligence system constantly provides detailed market data to the senior managers. Once the senior managers have up-to-date information, they will be able to fine-tune the new strategy and to realise the modifications through the centralised systems, with low levels of organisational resistance. This process allows for the success of the *controlled strategic renewal method*.

8 Summary

In the author's thesis, he analysed why certain companies are able and why other companies are unable to survive and develop further in a changing external environment. Numerous previously successful, well-managed companies go bankrupt or are acquired, while other companies are capable of renewal.

Companies are usually able to follow the slow, constant change of the external environment through their innovation activity; however, they are able to do so less in case of rapid, radical environmental changes. The radical change of the environment is often caused by sharp technological development or disruptive innovation. Disruptive innovation usually results in new products or services which are inferior in terms of quality and the key parameters of the currently market-leading products, but which provide radically new functions to the users.

Incumbent companies often fail to sense the challenge posed by disruptive innovation in time, since the disruptive innovation does not constitute a direct threat in their markets initially, due to the lower quality and the weaker key parameter. However, over time the products created with disruptive innovation become acceptable to the mainstream users as well, and they threaten the market of the incumbent companies. Forecasting the expected market success of disruptive innovation is not ambiguous, the failure of the necessary reaction may also be caused by underestimating the expected market impact.

If a company senses the disruptive innovation, it may choose from several possible responses. According to Charitou and Markides (2003), these responses may be the following: focusing on and investing in the traditional business, ignoring innovation, counterattack – disrupting disruption, adoption of the innovation while keeping the traditional solutions, and the adoption of the entire innovation.

The company usually required significant transformation and strategic renewal in order to execute the appropriate response successfully. The strategic renewal may affect and renew the organisational structure of the company, its internal processes and systems, as well as the portfolio, suppliers, markets and the partner relationship of the company.

Volberda et al. (2001) recommended four idealised strategic renewal methods, depending on who has the reins during the renewal process (senior or middle management), the market environment (steady or rapidly changing) and how the company reacts to

environmental changes (adapts or tries to change it). The renewal methods defined by them are the emergent, the directed, the facilitated and the transformational renewals.

During the strategic renewal, the company requires capabilities which enable the transformation, the development, the learning and the acceptance of the new knowledge. These capabilities may be examined with two complementary approaches.

According to one of the approaches, in addition to the exploitation of the existing processes and activities, the exploration of new areas is also necessary. The possibility of pursuing exploitation and exploration activities simultaneously is analysed by the theory of ambidexterity (March, 1991).

According to the other approach - the theory of dynamic capabilities – in addition to its basic capabilities (which more or less facilitate the day-to-day routine operation), the company shall also have capabilities which enable reorganisation and the renewal of the company. These are the dynamic capabilities (Teece et al., 1997).

In his thesis, through a corporate case study the author researched the process of strategic renewal, which can ensure the realisation of the response which constitutes the ‘complete adoption of innovation’.

The company analysed was a global IT company with its headquarters in the USA, the market of which was radically transformed by the cloud services representing disruptive innovation. When sensing the disruptive innovation and foreseeing the impact thereof, the management of the company initiated and executed strategic renewal in order to adopt the innovation completely.

The topicality of the author’s research was provided by the widespread appearance of cloud services. Although cloud services may have a significant effect on the digital business strategies of the users (Bharadwaj et al., 2013), the analysis of that was not the purpose of the author’s thesis. The author’s research area was the strategic renewal executed as a response to disruptive innovation (in this case, the cloud services), within which the author examined that process of the strategic renewal which can ensure the realisation of the response strategy constituting the ‘complete adoption of innovation’. In order to understand this, the author formulated three research questions, through which the author sought the answer to the following issues: (1) What combination of organisational ambidexterity and dynamic capabilities enabled the realisation of the

response strategy constituting the ‘complete adoption of innovation’ in case of the company analysed? (2) What relationship did the company have with the external renewal during the renewal? and (3) What roles did the senior management and the lower levels of the hierarchy have in the process?

During the author’s research, in the first phase of the data collection, based on the publicly available sources (newspaper articles, executive statements and conference lectures, financial reports, corporate website) the author explored the history of the strategic renewal of the company, i.e. *what* had happened. In the second phase of the data collection, through personal interviews, the author collected data in order to understand *how* the renewal had happened. The author processed the data collected in the interviews with the Grounded Theory research method.

The author’s research results showed that in the course of its strategic renewal, the company used the structural and the contextual realisations of ambidexterity simultaneously. The strategic renewal was facilitated by dynamic capabilities such as strategic decision-making, the ability to develop radically new products and introduce them to the market, the integration of the companies acquired, the institutionalisation of the integration of learning and knowledge, and the fast organising of cooperation.

As a novelty of the author’s research, he identified specific dynamic capabilities which facilitated the strategic renewal: information collection, decision-making and execution support aided by IT systems. If used in the appropriate corporate culture, these two dynamic capabilities could be sources of long-term competitive advantage.

During the renewal, the company had an impact on its external environment. The company not only adopted the innovation but facilitated the fast spread of the innovation by emphasising the advantages of cloud services, convincing the clients and motivating the corporate organisation.

During the strategic renewal, the initiative and the direction were concentrated exclusively at the senior management. The middle managers had only passive, executor roles in the process.

This surprising research result suggests the necessity to extend the model of Volberda et al. 2001). During the strategic renewal which was striving for the alteration of the environment and took place in a rapidly changing environment, the passive role of the

middle managers does not fit any of the four renewal models described by them. The author's suggestion is extending their model by a fifth, '*controlled renewal*' method.

The '*controlled renewal*' is commanded by a small circle of the senior managers, who try to influence the industry and the market environment actively in a rapidly changing, hyper-competitive environment. The middle managers are given passive, executor roles in the transformation. The renewal affects the entire company, which is achieved by the senior management through consistent communication, the harmonisation of internal processes and the transformation of the sub-systems so that they facilitate the new strategy. The controlled renewal method is enabled by sophisticated business IT systems which align with the corporate structure and facilitate the company-wide information collection, decision-making and implementation.

The main limitation of the present research is that it is built on one case study, therefore the external generalisation of the results is limited. Further research is required to generally understand the market, organisational, cultural and environmental conditions subject to which the '*controlled*' renewal method used by the company can ensure the strategic renewal which constitutes the complete adoption of the innovation. A possible direction of continuing the research is the analysis of whether other companies have already implemented '*controlled*' renewal with a similar method. In addition, once the strategic renewals using similar methods are analysed, the description of the method can be refined even more, and the conditions of applicability can be understood better.

The author trusts that based on the success of the case described, the *controlled renewal method* – which was recommended as a novelty – can serve as a model for other companies as well in the future, therefore through his research, the author will contribute to the success of strategic renewal of companies.

9 Annexes

Annex 1 - Questions of the interviews made with corporate employees

What do you think of cloud services, the new trends of IT usage?

How has the external environment changed over the past years?

What are the main economic, social and technological trends?

What are the main characteristics of market competition?

How did the company react to the appearance of cloud services?

What are the main strategic guidelines at the company?

How did you perceive the strategic change and renewal of the company?

How have organisational structure and subsystems changed?

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