TALLINN UNIVERSITY OF TECHNOLOGY
School of Business and Governance
Department of Business Administration

Hanna Liisa Teder

INTERNAL ORGANIZATIONAL STRUCTURES FOR FOSTERING INNOVATION INSIDE THE COMPANIES

Master's thesis
Programme Management and Marketing, specialisation Export Management

Supervisor: Mait Rungi, D.Sc.

Tallinn 2018

I hereby declare that I have compiled the paper independently
and all works, important standpoints and data by other authors
has been properly referenced and the same paper
has not been previously presented for grading.
The document length is 7710 words from the introduction to the end of conclusion.

Hanna Liisa Teder ……
(signature, date)
Student code: 153047TATM
Student e-mail address: hannaliisateder@gmail.com

Supervisor: Visiting Professor Mait Rungi, D.Sc.
The paper conforms to requirements in force

……
(signature, date)

Chairman of the Defence Committee:
Permitted to the defence
……
(name, signature, date)

Following article will be submitted to EURAM (European Academy of Management) conference that takes place on 26.-28.06.2019 in Lisbon. EURAM 2019 is exploring the future of the management within 13 strategic interest groups.

The paper will be submitted to SIG 06: Innovation Management to the track ST06_08: Organising creativity for innovation: Multidisciplinary perspectives, theories, and practices.

This track intends to address research from various disciplines on organisational creativity and innovation. The objective is to discuss the processes, mechanisms, behaviours, tools and methods that promote or hamper creative and innovative efforts of individuals and teams, and how they can be managed. The focus is on: "Organising" which includes (HR) management practices, leadership, organisational elements, and strategic environment; the "Creativity" of individuals and teams in general as well as with a specific creative task; the "Innovation" of products, services, processes, marketing, business models, etc., and on the contribution to firm "performance".

Hanna Liisa Teder lead the research with assistance from professor (D.Sc.) Mait Rungi.

TABLE OF CONTENTS

ABSTRACT

Innovation used to be first internal. Then an external open innovation took it over. Now it is about to move back to internal, yet in a completely new manner. Companies organize hackathons, innovation programs and incubators for the employees to foster new ways of thinking. Sometimes innovation could also be open to outsiders to accelerate problem solving. The best-practices of internal innovation still remain unknown. This research addresses the opportunities and challenges of innovation activities inside the companies. Multiple-case study that included seven companies was used to demonstrate the most preferred methods for internal innovation development. The sample consists of service companies from banking and telecommunication sectors, as well as one production company for comparative purposes. Results highlighted the similarities and differences in internal innovation organization. In most companies, internal innovation activities included regularly organized innovation programs or hackathons and cooperation with start-ups. Cultural change was the main common aspect since innovation programs and internal hackathons were introduced to the companies and there was a positive impact on employer branding after these activities took place. Main challenges that companies faced were related to employees and managers, employees' engagement and various aspects in regard to executives – from their mind-set to expectations. The opportunities came from employers' branding, employees' motivation, product development and financial targets.

Keywords: internal innovation, innovator's dilemma, dynamic capabilities

INTRODUCTION: THE INTERNAL CORPORATE INCUBATORS AND HACKATHONS FOR OPENING UP THE INNOVATION PROCESS

Rapidly changing business environment puts more pressure on companies than ever. Growing digitalization and globalization, increasing individualization of customer demands have brought innovation much closer to the corporate organizational structure to speed up the process of developing new products and services, improving existing ones and offering better customer experience. (Weiblen, Chesbrough, 2015) Innovation activities have shifted from internal to open innovation more than a decade ago (Chesbrough, 2005). Now, for enhancing radical and incremental innovation many large companies are focusing again on innovation activities inside the organization aimed to provide a separate environment or some other approach to make innovation thrive. Radical innovations involve new technologies, products, services, features, even entire business models; incremental innovations improve existing products or used technology. (Schuh *et al*., 2017a) Hackathons and incubators have become part of organizations, they aim to build agility and innovation capability into the companies and into operations proper. While earlier literature focused heavily on external accelerators or corporate venturing (Hochberg, 2016; Kohler 2016; Richter *et al*. 2017), internal organizational endeavours, such as internal incubators and hackathons lack a more thorough research (Selig *et al*., 2018). Some organisations have decided to run internal programs called in-house accelerators, innovation labs or intrapreneurship programs to provide separate environment to accelerate innovation by offering resources, tools and a structured approach (Schuh *et al*. 2017a; Miller, Bound, 2011). Others have established certain departments inside the companies

for strengthening their innovation capacity and discovering new business models (Kanbach, Stubner, 2016).

The purpose of this study is to provide insight into various approaches used by large companies to foster corporate innovation. In particular the focus was on the opportunities and challenges of these organizational structures. The main research question (RQ) to be answered: How companies organize internal innovation? The sub-research questions of this paper to support the main RQ are:

RQ1: How organizational structures focused on innovation inside the companies have contributed to the organization?

RQ2: What are the main opportunities and challenges of innovation focused organizational structures?

RQ3: What changes have appeared after implementing innovation focused organizational structures in the companies?

This study is based on seven interviews from six service companies and a production company operating on the Estonian market with the aim of finding out how different internal organizational structures help open up the innovation process and how these new structures have contributed to the organizations interviewed. Estonia is well known for its innovation-orientation and is therefore appropriate context for innovation related research.

1. THEORETICAL FOUNDATION

1.1. Innovator's dilemma

Innovator's dilemma distinguishes the sustaining and disruptive innovation. The sustaining innovation can prosper only short-term with the possibility of failure, while the disruptive innovation also focuses on future developments and niche markets. The Innovator's dilemma was introduced by Clayton Christensen to show how important it is to identify new opportunities, develop new ideas, reorganize and react to customers' forthcoming needs – not to existing needs that are even more profitable at the moment. The dilemma is represented as a S-curve (predictable pattern that technology cycle follows) – at first the new product or service potentially provides minimal value to the client, but with the growth of the base, effort to development and the factor of time, the value increases exponentially. (Christensen, 1997) Disruption means if smaller company with fewer resources can potentially challenge established incumbent business where latter only focuses on improving the existing products or services for the most demanding customers, not often paying attention to other segments. Entrants can therefore target these left behind segments – usually for lower price and better functionalities. Disruption happens if the incumbent's mainstream customers start to leave for already advanced functionalities. Incumbent needs to follow the same path and be prepared for disruption when S-curve reaches the stage when it is necessary to be ready for an early-adopters niche market (Slater, Mohr, 2006). This leads to a learning ability of a company which is an important part of responding to the external situation by identifying new trends and adapting to changes (O'Reilly, Tushman, 2008; Cheng, Chen, 2013; Fosfuri, Tribo 2008). Therefore, companies have begun to enhance their internal innovation capabilities to stay competitive not to lose their markets. To develop a completely new technology, product or service and at the

same time ensure that current business is running successfully, companies have started to create safe spaces for fostering innovation where the employees can discover, experiment and develop ideas. This safe space is known as an internal corporate incubator. It is often a process of trial, feedback and evaluation (Teece *et al*., 1997, 523) in a reshaped organization.

1.2. Internal innovation

An incubator is defined as an organizational structure that creates new ideas by providing physical resources and support to pursue the growth of new business ventures, which can lead to a new start-up or an internal corporate venture (Hansen *et al*. 2000; Hirte *et al*. 2017; Phan *et al*. 2005). Incubators are specialized corporate units that hatch new businesses by providing physical resources and support (Hansen *et al*. 2000; Colombo, Delmastro 2002; Hirte *et al*. 2017). In this paper the incubator is looked as interorganizational program for the company's employees to develop their ideas in a supportive environment.

Internal hackathon can be described as a focused event where employees are organized into small teams that work on a certain problem intensely in a short time period (usually 1-3 days) and resources are provided by the company (Kayastha, 2017; Lara, Lockwood 2016; Rossell *et al*. 2014). Hackathons have become an increasingly used method for larger companies to generate new ideas requiring collaboration, experimentation, and learning ability (Komssi *et al*., 2015). Corporate entrepreneurship allows companies to explore, while sustaining already running business, although it requires the entrepreneurial behaviour from the employees (Selig *et al*. 2018; Ireland *et al*. 2009).

Systematic literature review about internal innovation was carried out (Table 1), where A-category journals from last 5-10 years were also covered. Yet, only a single study was found

to be fully focused on internal innovation research. The literature about innovation activities inside companies was dominated by outside-in process and external organizations. Estonian data on service companies is not available.

Table 1: Overview of internal organizational innovation forms literature

Authors	**Focus**	**Model/features**	**Main findings**	**Orien-tation***
Selig *et al.* (2018)	Resource based view; dynamic capability-based view	Model	(1) Organizational resources (operational renewal) (2) Human resources (entrepreneurial employees and multiplicators); (3) Relational resources (innovation platforms); (4) Financial resources (startup ecosystem); (5) Physical resources (new business creation); (6) Knowledge resources (knowhow creation)	in.
Hirte *et al.* (2017)	The concept of incubation	Corporate incubator operator model	**Pre-Incubation** (diagnosis of needs; integration into the corporation; origin of ideas; selection of tenants; involvement of corporate employees) **Incubation** (incubator program; resource allocation – coaching, network, business support, financing); involvement of corporate employees. **Exit** -Internal Ideas (spin-off; sale of an idea; integration into the corporation) -External Start-ups (acquisition; purchase of shares; supplier contract)	ex./in.
Richter *et al.* (2017)	Absorptive capacity; open innovation; program theory/program logic	Features	Strategy; resources; procedures; structure; roles; environment; metrics and outcome	ex./in.
Schuh *et al.* (2017a)	Innovator's dilemma	Descriptive model	Design level: Thematic alignment; Cooperation with parent company; Physical design of the incubation environment; Arrangement of the incubation service	ex./in.

			Operational level: Team composition; Senior leadership Involvement; Decision-making authority, Selection of incubation objects; Incentives; External involvement	
Kanbach, Stubner (2016)	Corporate entrepreneurship	Model	4 archetypes: (1) listening post; (2) value chain investor; (3) test laboratory; (4) unicorn hunter	ex./in.
Roessler, Velamuri (2015)	Business model innovation. Cognitive gap between incumbents and start-ups	Hypothesis	To overcome the cognitive barrier between incumbents and startups and to effectively elicit business model innovation, strategic and organizational alignment must be ensured.	ex./in.
Weiblen, Chesbrough (2015)	Start-up support ecosystem	Model	4 models: (1) corporate venturing; (2) start-up program (outside-in); (3) corporate incubation (inside-out); (4) start-up program (platform)	ex./in.
Eshun (2009)	Business incubation as strategy	-	Three interrelated pillars: entrepreneurship, creativity, innovation	ex./in.

*ex. – external; in. – internal
Source: composed by the author

1.3. Dynamic capability: Absorptive capacity

These new organizational approaches can be associated with the **absorptive capacity** – an organization's ability to "recognize the value of new, external information, assimilate it, and apply it to commercial ends" (Cohen, Levinthal 1990, 128). Extremely fast paced competitors are pushing traditional businesses to constant innovation or agile development of new products and services brought by constant progress of digitalization (Selig *et al*. 2018). The absorptive capacity is considered as a crucial aspect for sustaining the competitiveness of a company. Opening up the innovation process internally by using the external information creates the valuable support structure to an organization. Companies favour external information that can

be used for strategic decisions considering competitive situation (Rungi, Stulova 2018, 25). As absorptive capacity is defined through an external lens, then it is paying more and more attention to internal perspective (Ben-Oz, Greve, 2015).

Absorptive capacity is also related to the concept of **dynamic capabilities** defined by "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al. 1997, 516). The theory pursues to the company's fast adaptability to the external changes – dynamic capabilities are trying to develop new abilities to identify the opportunities and react to these changes (Smet *et al*., 2018). The concept of corporate agility leads back to the principles of dynamic capabilities: "the capacity to (1) sense and shape opportunities and threats, (2) seize opportunities, and (3) maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets" (Teece, 2007, 1319).

1.4. Implementational challenges of internal innovation

Maintaining dynamic capabilities requires entrepreneurial mindset from the top management – "sensing and seizing" the opportunities, redirecting resources and taking the next steps. Yet the companies cannot forget the readiness of its own employees if they are willing and ready to adapt to the changes in the organizational culture. The organizational culture is a product of joint learning, which is "a pattern of basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration". (Schein, 1985, 6) Kütt and Rungi described that communal organizational culture is most appropriate for Estonian innovation companies (Kütt, Rungi, 2014). Another challenge that has been addressed was "long-term persistence" (even five to seven years) until corporations can receive tangible or intangible returns. (Hirte *et al*., 2018, 197).

Nowadays mostly start-ups are the strong drivers for innovation that are inventing new business models and disrupting the corporate organizations who are being forced to organize and implement innovation activities to the structure not to lose the market. Therefore, mature companies have started establishing different types of set-ups to deliver something extra instead of maintaining usual business. (Kohler, 2016) The challenge arises with the transfer of technology and fast product development from these set-ups to the corporation. (Schuh *et al*., 2017b).

1.5. Implementational opportunities of internal innovation

Innovation has been validated as a source for companies' success and an important contributor to the economic growth. A radical innovation can transform the whole industry and therefore companies need to be able to adapt to these changes. (Selig *et al*., 2018) Innovation is a prerequisite for organization's long-term continuation. Company's economic success can be earned through disruptive innovation that can be the foundation of a long-term competitive advantage (Schuh *et al*., 2017b). In general, innovation leads to wealth creation and is the important contributor for designing new jobs. (Phan *et al*., 2005).

Some implementational opportunities include "the increase of the profitability, the creation of new knowledge, new resources, new methods and the strategic renewal of competitive advantages to ensure the future viability" (Selig *et al*., 2018, 2). The opportunities might include the change of internal procedures and processes that result being more contemporary and agile. Another angle is the flexibility of formality – in some cases the short-cuts will be preferred and introduced to the company. Moreover, employees learn new methods they can use when solving real work problems, for example design thinking concept. All the internal knowledge can be stored in shared platform where innovation activities are seen, crowd voting options enabled etc. Internal innovation activities can lead to the creation of the entrepreneurial

community where the alumni of the innovation programs can be the mentors or couches. The entrepreneurial employees set the example for the colleagues and could motivate them and share the knowledge.

Internal innovation structures have shown the contribution to the increase of entrepreneurship in the companies and that makes the dynamic capabilities of the company more forceful. (*Ibid*.)

2. METHODOLOGY

Qualitative approach is recommended when there is a plan to describe the phenomenon in great detail with a "how" question, and create the model for said phenomenon in circumstances where not enough prior literature sources are available (Yin, 2003). The authors used qualitative research as there are a few previous studies on internal organizational structures for enhancing innovation as shown in the literature review. The topic is a new phenomenon and the intention was to create a model, to describe the process and to find an answer to the main question: how companies organize internal innovation? For analytical generalizability, multiple-case study was appropriate in the service industry.

Semi-structured interviews were used to allow the interviewees to answer without restrictions and to discover new insights. The general framework was derived from SWOT-analysis to identify the opportunities, challenges and main changes since the internal innovation procedures were introduced in the company. Such aspects help to understand and evaluate what positive impact these activities have brought and what obstacles should be overcome in the future. The elements were categorized into basic five functional dimensions of company's structure and value chain – financial, organizational, operational, marketing and human resources – to have a better overview where most of the changes, challenges and opportunities lie.

The weakness of the qualitative research is the subjectivity of the gathered data (Reichardt and Cook 1979, 7-32), therefore the citations of the interviewees are presented for illustrating the findings. Eisenhardt (1989) recommends narrowing the analysis to within 4-10 case, as with more than ten cases the complexity increases and the scope widens due to volume of data. Number of cases is dependent on data saturation. The author conducted seven interviews

although data collecting did not reach saturation. Heterogeneity of results was deemed sufficient enough not to increase the sample size.

This study compares three different types of internal organizational structures from three banks, three telecommunication companies and a production company. The data sample contains of seven interviews that were held during November-December of 2018. The interviewees, which comprised an innovation manager, program managers, head of business development, employer brand manager, head of digital, and partner relations manager, were all dealing with the innovation activities inside the large company operating on Estonian market (all companies had 250+ employees). The average number of employees stood at 960. The interviews took place on-site or on Skype and were recorded, transcribed with Tallinn University of Technology speech transcription system (Alumäe, 2018) and then coded. The total material is 225 minutes, transcribed on 39 pages.

The transcriptions were analysed with keywords and the results are reflected in the cross-case analysis table for enabling a systematic overview of all the aspects. It facilitates the comparison of the companies and contributes to finding the differences and similarities (Appendix 1), the similarities being compiled separately for better understanding (Table 3). All the discovered aspects are noted in the functional dimensions table to give an overall picture of the main changes, challenges and opportunities (Appendix 2). The content analysis was performed to gather meaning from the collected data, understand the emphasized terms and to make realistic conclusions (Table 2). Content analysis was based on word frequencies, how many times each word existed in interviews, singular and plural forms were counted together and other Estonian language peculiarities were taken into account. These words present vocabulary used by interviewees, and were not changed by researchers.

3. RESULTS AND DISCUSSION

3.1. Cross-case

The conducted interviews focused on the main changes, challenges and opportunities of the new organizational innovation approach, all the companies used some sort of internal organizational setup for innovation – two companies used internal innovation programs; three companies were organizing regular hackathons and two companies had created internal departments for systematic activities identifying new business areas. Three categories were formed after analysis – internal program, internal hackathon and internal department.

The interviews were framed under theoretical concepts of dynamic capabilities (Teece, 1990) and absorptive capacity (Cohen, Levinthal, 1990).

The results of the qualitative study revealed that hackathons and other programs have been used to thieve innovation through cultural change and common underlying opportunity relied on positive impact of employer branding. Internal programs where employees were dealing with specific problems for certain period of time had more common effects than other approaches. Table 3 illustrates the effects of internal programs, hackathons and internal departments.

3.2. Illustrative quotations

Each sub-category (A-internal programs, B-internal hackathons, C-internal departments) is illustrated with the quotes from the interviews.

3.2.1. Main changes

A. Internal programs

1) Cultural change

The highest priority was given to cultural change since the innovation programs were launched in the companies. The starting point is to ask if the corporate culture is ready for the transformation the company is looking for.

Schein has written that if the corporate cultural change has had good results, and was well received by the employees to such an extent that it became a norm, then the company could acknowledge culture change took place (Schein, 1985). The organizational culture must tolerate risk and failures and allow to recover from the mistakes (Steyn, 2007). Corporate programs or incubators have the ability to enhance exploration and foster the entrepreneurial culture. Corporate cultures tend to be very risk averse, which is detrimental for a successful implementation of disruptive innovation. (Schuh, 2017a)

"The base is the culture and mind-set in the company, so that people would have a reason to think differently and would be able to think differently. We are dealing with the culture part a lot and the programs are there to give methods and tools for the people." (emphasizing the importance of mind-set, Company 1)

"The internal culture has changed – we are part of the discovery mindset and we would like to understand in two hours if the solution is solving an important problem for the

client (…), not to wait half a year in the committees." (responsiveness of mind-set has turned quicker, Company 2)

2) Better customer experience

The participants of the innovation programs are asking questions from the clients to understand if the problem is there and they are involving a customer perspective in an early stage. Customer's unmet needs are always in the centre of development. It is closely linked with the sustainable innovation and absorptive capacity where external knowledge flows are being assimilated (Fosfuri, Tribo, 2008). Some researchers have argued that involving customers might be unfavourable or ineffective for radical innovations (Markides, 2006), i.e Henry Ford's famous quote: "If I had asked people what they wanted, they would have said faster horses". However, recent studies have found the opposite – spin-offs are "capable of identifying, capturing and applying external valuable knowledge from both customers and research centers to develop radical innovation" (Scaringella *et al*., 2017, 155).

"(…) the customer's side is also important – all these developments are finally reaching the client. (...) Each case has a specific value that is measurable – the client experience number, the value for the company and the motivation of the employees." (customer focus, Company 1)

"We also teach the fundamentals of service design concept for the employees (...) it is not certainly related to a specific idea, but derived from the question how to increase the communication with the client and grow the value for the client." (service design concept teaching for better customer experience, Company 2)

3) Enhancing entrepreneurship in employees

According to the corporate entrepreneurship concept it has been already proven that entrepreneurship is an essential and vital condition for the success of the company in long-term. (Andriopoulos, Lewis 2009)

"We would like to grow the entrepreneurship in employees, so they would be more willing to understand the client better." (customer focus, Company 2)

"With all my knowledge and skills, I try to make alumni from the program who can think and teach others, it is like scaling myself." (entrepreneurial behaviour increase, Company 2)

B. Hackathons

1) Cultural change

The companies who are mainly organising hackathons for its employees noted the importance of starting innovation activities. Companies who organized hackathons have been using them for a shorter period of time compared with organizations who were running innovation programs. For larger companies, hackathon is the means for accelerating the process of changing the way of delivering products or services. Hackathon is the format where the concrete focus and speed can achieve the same level of a start-up. In previous literature it has been mentioned that what internal hackathons excel at is bringing together employees from different departments who are willing to work dedicatedly in the fast-paced environment outside their daily work responsibilities, which will result in valuable ideas and innovations that otherwise would not have appeared. (Rosell *et al*., 2014)

"From the organization's perspective I can see people have understood without innovation it is not possible (to be competitive); simplification mind-set has started to dominate." (simplification, innovation domination, Company 3)

"(…) to create the innovation culture that will be visible internally as well as externally." (externally seen innovation culture, Company 4)

"If you look at the current organization, it looks like a sleepy person. You have to grab its shoulders and just shake it until it wakes up." (wake-up call for the importance of innovation, Company 3)

2) Positive impact on employer branding

Organizing events is a way to show the employer from a different angle and advertise its working culture to outsiders in an attractive manner. Selig *et al*. (2018, 7) found the internal innovation activities can be used as "an employee-retention strategy to attract talents and entrepreneurial employees". On the other hand, the emphasis seems to be more on external branding than on actual results of the hackathons. The companies were also questioned how they measured success of these events and two companies out of three were measuring the employee engagement and satisfaction, not the actual number of pilot projects or percentage how many problems of presented ideas get solved.

"There is a huge competition for employees – we can also show that the company has such opportunities." (employee self-realization opportunities, Company 5)

"(…) from the branding side it shows to people we are organizing these events and it is not only a corporation where some higher-level executives tell what things we do." (every employee has a voice, Company 4)

C. Internal department

3) Specific unit creation which is responsible for finding new business opportunities.

After ideas have been gathered from the employees, a specific unit will take over the work and analysis of these proposals. These companies said that the past expertise was very important and detailed knowledge of certain field was needed. In-house competence that is already in place, thus the path from idea generator to an analysis might not be the optimal use of resource. One of the companies even tried the incubation format before, but problems arose with the responsibility transfer to another unit after the program (Schuh *et al*., 2017b). Therefore, these companies preferred forming a separate department instead of creating innovation programs in general, and gathering everything in a structured way from all the employees who were willing to contribute. This format still welcomed ideas from other teams but was structured to fit existing corporate hierarchy and culture, keeping control of the process in full.

"(...) before the internal change if an employee had an idea then they told about it to the direct manager, yet seldom it went any further. The manager asked – how is it related to what you are doing at the moment?" (idea generation and systematic way of dealing with the ideas, Company 7)

"(..) the department was formed three years ago with the aim to gather all the improvement and innovative proposals. Before that all of the proposals ended up on different units' tables." (centralization of proposals, Company 7)

"We have decided to involve all the stakeholders from the start. If we would do it in the incubator then we could not include the counterparties. The transfer from the incubator to a certain unit was not working – information gets lost and responsibility fades." (Involving stakeholders, Company 6)

The real change in corporate culture occurred after companies started organizing internal innovation programs or internal hackathons. For enhancing radical innovation, companies should improve their dynamic capabilities that can lead to breakthroughs. In addition, when the dynamic capabilities develop, absorptive capacity increases and that raises the chance for disruptive innovation. (Cheng, Chen, 2013)

The cultural change does not apply for the internal department creation. As hackathons are fast-paced events where creativity is valued, companies noted the impact on the employer's brand for attracting the talent. For companies favouring innovation program approach, the change in branding has not been that noticeable as they already position themselves as innovation champions within Estonian ecosystem. The customer-focused perspective and better customer experience delivery was notable only with longer innovation programs where the work with the idea lasted at least a few months.

3.2.1. Main challenges

A. Internal programs

1) Engaging employees

The participants of these programs maintain their daily jobs and the workload might be challenging if the direct managers are not willing to reorganize the work responsibilities of a participant during innovation program time. Some researchers have found the stimulus can be rotation, part-time solution and the possibility to escape from daily work tasks for agreed period to be engaged in the innovation process (Kuratko *et al*., 2009; Schuh, 2017a).

"(…) from employees' perspective we have seen the attitude – why should I deal with something new that is risky and not so important yet? Or from the management perspective why should we contribute to the project that is not clear where it leads? We

have more important targets to reach, new focus areas each year (...) How to involve people with fixed mind-set?" (daily job priority and involving people, Company 1)

"If the main people have already participated in the program and the growth is not there anymore (…)" (value for former participants, Company 2)

2) Dealing with the right problems that are important to the executives

The strategic development priorities have to be communicated to the participants otherwise the developed idea can be excellent, but there might be problems with later realization and resources if it does not align with the strategic plan. Company's strategic goals and structure overall must be aligned with thematic focus and innovation incentives (Schuh, 2017a).

"We are already doing most of the things that are important to the management, they are priorities of necessity. (…) The biggest challenge is to answer first to the management why we need something and then you basically go to every single person in the organization to explain why we need and why every stakeholder should be interested." (priorities of the management and the success of internal innovation, Company 1)

3) Secure and comfortable zone

Internal innovation programs tend to be slower paced than traditional incubators. Suitable environment is one of the core parts when organizing the innovation program that should correspond to flexible, non-bureaucratic, fast and supportive set-up (Hirte *et al*., 2017). Sometimes these structures can be too safe when looking at the term "incubator" by origin where newborns are growing and developing in a protected environment.

"(…) start-ups usually have fixed time to use the money, the funds are running out on the account, and then you move faster, trying to find speedways. (…) If you are developing something in-house then it is very easy to stay in your comfort zone, although we try to push people and require more." (comparison with the external accelerators, Company 1)

The common challenges are seen only in internal programs category. The results in hackathons and internal departments showed heterogeneity (Appendix 1). The innovation programs faced the engagement trouble, strategic problem setting challenge and the overall environment that is rather safe, protected and tends to be slow inside the company compared to external start-up environment.

3.2.3. Main opportunities

A. Internal programs

1) Career options for participants

As the innovation programs last longer than hackathons it gives to a participant more time to develop new skills and gain knowledge. Selig *et al*. (2017) found the effect about the creation of entrepreneurial community that strengthens the internal network in the company and can bring valuable information exchange.

"Good opportunity to show yourself and jump from one role to another if a person wants to achieve more." (personal development, Company 2)

2) Employer branding

Internal innovation programs are attracting talents and entrepreneurial employees. Also, retaining already experienced, but entrepreneurial employees can be achieved through good public relations and an appealing brand (Kohler, 2016).

"I am a good example: I came to work here because of that program and there are others as well who have come for the same reason." (appealing program to change the workplace, Company 1)

"(…) we hired and engaged interns to the same format. (…) 20-30% of them stayed with us. (...) In some cases we noticed the talent better and it was easier to decide." (talent attraction, Company 2)

3) Customer experience

The companies brought up the practical cases from innovation programs where the customer experience was improved achieving higher customer satisfaction rates. It leads to the fact that the customers will be longer loyal and willing to pay for better experience (O'Reilly, Tushman, 2008), although the improvements remained rather modest. During internal programs the customer insights are collected putting customer needs and market trends first (Selig *et al*., 2018).

B. Hackathons

4) Employer branding

Hackathons create the opportunity to promote the brand, work culture inside the company and show how the new ways of working are benefiting employees (Lara, Lockwood, 2016).

"(…) through all these actions our ability to hire the best people on the market has increased." (attracting the best employees on the market, Company 3)

"(…) we can advertise we have such opportunities even in the job interview, although I feel our competitors are doing the same." (promoting new ways of working, Company 5)

C. Internal department

5) Employees' engagement increase

As innovation programs or hackathons may result in some frustration if strategic focuses have not been communicated well enough to the participants or the idea will not get any support for further analysis, then on the contrary by submitting ideas to the internal department people feel already engaged when their thoughts are considered. "The sensation of the top management for entrepreneurial topics" creates the positive effect to employees' engagement (Selig et. al, 2018, 6).

"Very clearly we can see the impact on employees' motivation and on the brand by how we are seen outside of our company" (motivational impact and employer brand, Company 6)

"People feel more engaged if they have generated an idea, it has been considered, management is involved." (the possibility to speak up and be involved, Company 7)

6) Creation of new products/services or new business areas

The new business areas do not have to be certainly linked to the core business, but are supported through the internal department. The creation of new products and services is reinforced by the support from the internal department. Instead of engaging people from all over the organization to start working on an idea in small teams, some

organizations have preferred to keep the analysis in the certain unit for greater control and higher expertise. Market demands, technology improvement and competition are constantly challenging for new product development (Schuh *et al*., 2017b). One of the companies explained it through the reward system (Selig *et al*., 2018) that is adjusted to the idea presenter whose idea has been led to implementation.

"The revenue is not competing with our main products, although we have developed new products and services." (less revenue from new products/services, Company 6)

"We have entered into whole new business areas through idea generating process. (…) also there is a reward system in place for good ideas that led to something tangible." (new business areas and reward system, Company 7)

3.3. Content analysis

Content analysis showed "people" was dominating quite equally in all the categories (*changes, challenges* and *opportunities*) – surprisingly also in the "challenges" category meaning people or employees are always in the centre of that organizational transformation. Under the challenges the pragmatic aspect has been questioned as well – "why", "resources", "time"; also "management" was emphasised a lot meaning the innovation is considered to be a real "bottom-up" activity. In the "opportunities" category less frequencies and similarities were observed, although "new" and business" are referring to the impact that can transform the companies, create new business areas and take the existing business to the next level. "Innovation" and "idea" were highlighted in the changes category when companies start to deal with the systemic approach to innovation activities and put more effort on idea generation and realization. (Table 2)

Table 2: Frequency of the terms

Changes	Frequency	Challenges	Frequency	Opportunities	Frequency
People	38	People	40	People	29
Innovation	25	Management	18	New	12
Idea	17	Why	16	Business	11
Organization	15	Resources	14	Company	10
Solution	14	Ideas	13	Innovation	8
Clients	13	Work	12	Mind-set	8
Change	13	Managers	12	Open	7
Mind-set	11	Time	9	Development	7

3.4. Summary

The common opportunity of internal innovation programs and hackathons is the brand of employer. Innovation programs tend to enhance customer experience in some cases, although they still do not come to the stage of new products, services or business areas creation. The employees' engagement in the companies with new business areas departments has grown when the idea collection phase takes place in an open round – even if an employee had only a possibility to generate idea, not to work on it. The innovation programs did not show the increase in employees' engagement where the impact seems smaller – employees are fixing or improving existing products/services, finding ways to upgrade them. Therefore, the engagement did not rise considerably, because the overall impact of improving customer experience is rather marginal. Improvement is incremental, and not a real game-changer compared to discovering a new business area or experimenting with disruptive technologies where the aim of the business model is to respond to customers' future needs or to enter into a new business area altogether. The main direction of innovation programs seems to be about sustaining innovation – the company is improving products or services based on feedback from customers that is satisfying customers current needs (Christensen, 1997). Innovation programs happen to broaden the career options inside the company, for example they can potentially bring more opportunities to divert the career path to a completely different field.

Researching internal incubators, Hirte *et al*. (2017) found a significant aspect about the collaboration between the parent company and incubator that resembles innovation program. In the sample of the internal programs, the firms also operate within the confines of their parent corporations, where all final decision-making power is coming from.

Table 3: Summary of the results

	Internal programs	Internal hackathons	Internal departments
Changes	Cultural change (O) Better customer experience (M) Enhancing entrepreneurship in employees (HR)	Cultural change (O) Positive impact on employer branding (M)	Specific unit creation who is responsible for finding new business opportunities (OP)
Challenges	Engaging employees (HR) Dealing with the right problems that are important to the executives (O) Secure and comfortable zone (O) Engagement – maintained work responsibilities (O)	No common challenges	No common challenges
Opportunities	Career options for participants (HR) Employer branding (M) Upgrading customer experience (M)	Employer branding (M)	Employees' engagement increase (HR) Creation of new products and services or new business areas (O)

The results reflect the main similarities appear within the longer internal innovation programs, there are fewer common aspects analysing internal hackathons and internal departments where the aspects vary substantially. The study reveals that internal innovation approaches differ greatly, being relatively new phenomenon and yet not well researched. While the internal programs and hackathons (special corporate events) have a positive impact on employer branding, the internal department is not meant for that reason. Even if employees' engagement has increased due to the internal department open idea gathering phase, it does have some

positive impacts for the company. Internal programs tend to give career options for participants, but on the other hand, the creation of new products or services may be lagging behind. When there is a department in place for the new business areas then it clearly is under stronger attention.

In Appendix 2 the table describes the occurrence of the aspects by functional dimensions where majority of the changes and challenges appear in the organizational and operational dimension; main opportunities are shown in the organizational dimension.

CONCLUSION

Many companies are setting up internal innovation activities to make innovation happen faster than existing corporate structures and procedures are able to deliver it. The main change has been observed within corporate culture in a company that embraces new ways of doing business, directs employees to adapt and connect with the mind-set focusing on innovation and customers. The service or product life cycles have become shorter and the desire to innovate, find new business areas and speed up the product development is rising.

The research has some limitations – data saturation was not achieved by the sample of seven companies and the sample size in each category remained low (three for telecommunication and banking), still it is enough for analytical generalization (Piekkari, Welch, 2008) within individual subcategories and for service sector in general. One must also take into account the possible limits to sample posed by relatively small population and number of large companies in Estonia.

Further research should address the findings of the model in quantitative testing, especially the validity of the model in other countries and across broader industry categories. The success of these setups should be studied likewise to explore the effectiveness of different structures of internal innovation. It would also be valuable to have feedback from executive management of sample companies on various innovation structures, considering their ultimate decision making power.

KOKKUVÕTE

Artikkel keskendus ettevõtete sisemise innovatsiooni uurimisele, et välja selgitada, milliseid viise innovatsiooni edendamiseks kasutatakse ning mis on peamised võimalused, väljakutsed ja muutused organisatsioonis alates innovatsioonitegevuste loomisest. Keskse probleemi toetamiseks püstitati järgnevad uurimisküsimused:

- Kuidas panustavad uued innovatsioonile keskendunud organisatsioonilised vormid organisatsiooni?
- Millised on peamised innovatsioonile keskendunud organisatsiooniliste vormide võimalused ja väljakutsed?
- Millised muutused on toimunud pärast innovatsioonile keskendunud organisatsiooniliste vormide kasutusele võtmist?

Kvalitatiivse uurimuse käigus analüüsiti seitsme ettevõtte sisemise innovatsiooni algatusi ja tegevusi ning seeläbi formuleerusid kolm eraldiseisvat kategooriat sõltuvalt ettevõtte sisemise innovatsiooni läbiviimise korraldusest – ettevõttesisesed innovatsiooniprogrammid, sisemised *hackathon*'id ja osakonnad ettevõttes. Tulemused peegeldasid sarnasusi ja erinevusi innovatsioonitegevuste organiseerimisel. Peamised sarnasused avaldusid innovatsiooniprogrammide puhul. Vähem ühiseid jooni ilmnes *hackathon'ide* ning osakondade korral. Uuring näitas, et sisemise innovatsiooni lähenemised ettevõtetes erinevad üsna suurel määral ning uurimisteema on ka rahvusvahelises akadeemilises kontekstis leidnud vähe ekspluateerimist.

Enamikes ettevõtetes hõlmasid innovatsioonitegevused regulaarset innovatsiooniprogrammide või *hackathon*'ide korraldamist ning koostööd *start-up*'idega. Peamine muudatus on toimunud organisatsiooni kultuuris pärast innovatsioonitegevustega alustamist. *Hackathon*'ide läbiviimine näitas positiivset mõju tööandja turundusele. Eraldi osakonna loomine uute teenuste ja toodete turule toomiseks ning ärisuundade avastamiseks sellist tendentsi ei täheldanud – positiivsena väljendus selliste ettevõtete töötajate tõusnud kaasatus, sest on toodud turule uusi tooteid/teenuseid või sisenetud uutesse ärivaldkondadesse läbi avatud ideekogumise faasi.

Innovatsiooniprogrammide toel on avanenud mitmeid karjäärivõimalusi organisatsioonis, kuid teisalt on tagaplaanile jäänud uute toodete ja teenuste loomine programmi vältel ning töötajate kaasatuses ei ole suuri muudatusi ilmnenud, sest reeglina tegeletakse inkrementaalse innovatsiooniga või kliendikogemuse parendamisega. Juhul kui ettevõte on loonud potentsiaalsete ärisuundade või ideedega tegeleva osakonna, siis on uued tooted ja teenused ning ärisuunad selgelt tugevama tähelepanu all. Radikaalse innovatsiooni edendamiseks peaksid ettevõtted arendama oma dünaamilisi võimekusi. Peamised väljakutsed, millega ettevõtted silmitsi seisavad, olid juhtide ootused ning teisalt nende mõtteviis ja töötajate kaasatus. Lisaks toodi välja innovatsioonitegevuste seotuse olulisust ettevõtte strateegiliste eesmärkidega ja mugavat, tihtipeale aeglasevõitu keskkonda. Võimalused hõlmasid endas tööandja turundust, töötajate motivatsiooni, tootearendust ning finantstulemusi.

Autor tänab töö juhendajat Mait Rungi't operatiivse juhendamise eest.

REFERENCES

Alumäe, T., Tilk, O., Asadullah. Advanced Rich Transcription System for Estonian Speech. Baltic HLT 2018.

Andriopoulos, C. and Lewis, M. W. (2009). Exploitation-Exploration Tensions and Organizational Ambidexterity: Managing Paradoxes of Innovation, Organization Science, Vol. 20, No. 4, pp. 696–717.

Ben-Oz, C. and Greve, H.R. (2015). Short- and long-term performance feedback and absorptive capacity, Journal of Management, Vol. 41 No. 7, pp. 1827–1853.

Cheng, C. C. J. and Chen, J.-S. (2013). Breakthrough innovation: the roles of dynamic innovation capabilities and open innovation activities, Journal of Business & Industrial Marketing, Vol. 28, No. 5, pp. 444-454.

Chesbrough, H. W. (2005). Open Innovation: The New Imperative for Creating and Profiting from Technology, Harvard Business School Press.

Christensen, C. M. (1997). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Boston, MA: Harvard Business School Press.

Cohen, W.M., and Levinthal, D.A. (1990). Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, Vol. 35, No. 2, pp. 128–152.

Colombo, M. G., and Delmastro, M. (2002). How effective are technology incubators? Evidence from Italy, Research Policy, Vol. 31, pp. 1103-1122.

Eisenhardt, K.M. (1989). Building Theories from Case Study Research. Academy of Management Review, Vol 14, No. 4, pp. 532-550.

Eshun, J.P. (2009). Business incubation as strategy, Business Strategy Series, Vol. 10, No. 3, pp. 156–166.

Fosfuri, A. and Tribo J. A. (2008). Exploring the antecedents of potential absorptive capacity

and its impact on innovation performance, The International Journal of Management Science, Vol. 36, pp. 173-187.

Hansen, M. T., Chesbrough, H. W., Nohria, N. and Sull, D. N. (2000). Networked Incubators: hothouse of the new economy, Harvard Business Review, Vol 78, No. 5, pp. 74-84.

Hirte, R., Munch, J., and Drost, L. (2017). Incubators in multinational corporations' development of a corporate incubator operator model, Engineering, technology & innovation management beyond 2020: new challenges, new approaches: 2017 International Conference on Engineering, Technology and Innovation (ICE/ITMC): conference proceedings, R. Jardim-Gonçalves, Ed, IEEE, Piscataway, NJ, pp. 195–202.

Hochberg, Y. V. (2016). Accelerating Entrepreneurs and Ecosystems: The Seed Accelerator Model. NBER/Macroeconomics Annual (University of Chicago Press), pp. 25-51.

Ireland, R. D., Covin, J. G., and Kuratko, D. F. (2009). Conceptualizing Corporate Entrepreneurship Strategy, Entrepreneurship Theory and Practice, Vol. 33, No. 1, pp. 19–46.

Kayastha, C. (2017). Enabling Innovation through Community and Competition, IEEE Women in Engineering (WIE) Forum USA East, Baltrimore, MD, USA 30 Nov-2 Dec 2017.

Kohler, T. (2016). Corporate accelerators: Building bridges between corporations and startups, Business Horizons, Vol. 59, No. 3, pp. 347– 357.

Komssi, M., Pichlis, D., Raatikainen, M., Kindstrom, K. and Jarvinen, J. (2015). What are Hackathons for? IEEE Computer Society, Vol. 32, No. 5, pp. 60-67.

Kuratko, D. F., J. G. Covin, and R. P. Garrett, 2009, "Corporate venturing: Insights from actual performance," Business Horizons, Vol. 52, No. 5, pp. 459–467.

Kütt, M. and Rungi, M. (2014). In Search of Measuring Organizational Culture: ICT Peculiarities, IEEE International Conference on Industrial Engineering and Engineering Management, pp. 1438-1442.

Lara, M. and Lockwood, K. (2016). Hackathons as Community-Based Learning: A Case Study, Association for Educational Communications & Technology, Vol. 60, No. 5, pp. 486-495.

Miller, P. and Bound, K. (2011). The Startup Factories: The rise of accelerator progammes to support new technology ventures, https://www.nesta.org.uk/report/the-startup-factories/ (accessed 15.11.2018).

Markides, C. (2006). Disruptive innovation: in need of better theory. J. Prod. Innovation Management, Vol. 23, No. 1, pp. 19–25.

O'Reilly, C. A. and Tushman, M. L. (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma, Research in Organizational Behavior, Vol. 28, pp. 185-206.

Phan, P. H.; Siegel, D. S. and Wright, M. (2005). Science parks and incubators: observations, synthesis and future research., in Journal of Business Venturing, Vol. 20, No. 1, pp. 165-182.

Piekkari, R. and Welch, C. (2008). Doctoral Course on Case Studies in Management and Business Research, course notes, Helsinki University of Technology, Finland, 2008.

Reichardt, C.S, Cook, T. D. (1979). Beyond qualitative versus quantitative Beverly Hills, CA: Sage, pp. 7-32.

Richter, N., Jackson, P., and Schildhauer, T. (2017). Outsourcing creativity: An abductive study of open innovation using corporate accelerators, Creativity and Innovation Management, Vol. 26, No. 4, pp. 69-78.

Roessler, M. and Velamuri V.K. (2015). Corporate Incubation as a Tool to Foster Business Model Innovation, ISPIM Conference Proceedings. The International Society for Professional Innovation Management (ISPIM).

Rossell, B., Kumar, S. and Shepherd, J. (2014). Unleashing innovation through internal hackathons, IEEE Innovations in Technology Conference, Warwick 14 August.

Rungi, M. and Stulova, V. (2015). How do firms really learn: exploring the elements of absorptive capacity. Euram'15 Conference: Uncertainty is a great opportunity, 17.-20.06.2015 Warsaw, Kozminski University, pp. 1-30.

Scaringella, L, Miles, R. E. and Truong, Y. (2017). Customers involvement and firm absorptive capacity in radical innovation: The case of technological spin-offs, Technological Forecasting & Social Change, Vol. 120, pp. 144-162.

Schein, E. H. (1985). Organizational Culture and Leadership: A dynamic view. San Francisco: Jossey-Bass.

Schuh G., Lau, F., and Zimmermann, R. (2017a). Configuration Options for Corporate Incubators: Development of a Description Model Using the Morphological Analysis Method, PICMET: Portland International Conference on Management and Engineering and Technology, pp. 1–10.

Schuh, G., Vogt, F., Lau, F., and Bickendorf, P. (2017b). Concept of Innovation Transfer from Corporate Incubators, PICMET: Portland International Conference on Management and Engineering and Technology, pp. 1-11.

Selig, C. J., Gasser, T., & Baltes G. H. (2018). How Corporate Accelerators foster Organizational Transformation: An internal Perspective, IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), Stuttgart.

Slater, S. F., & Mohr, J. J. (2006). Successful Development and Commercialization of Technological Innovation: Insights Based on Strategy Type. Journal of Product Innovation Management, 23: 26-33.

Smet, De. A., Lurie, M., and St George, A. (2018). Leading agile transformation: The new capabilities leaders need to build 21st- century organizations, McKinsey&Company.

Steyn, P. D. and Du Toit A.S.A., (2007). Perceptions on the of use of a corporate business incubator to enhance knowledge management at ESKOM, South African Journal of

Economic and Management Sciences, Vol. 10, No. 1, pp. 33–50.

Teece, D. J., Pisano, G., and Shuen, A. (1990). Firm Capabilities, Resources, and the Concept of Strategy, Center for Research in Management. University of California, Berkeley, CCC Working Paper, 90-8.

Teece, D. J., Pisano, G., and Shuen, A. (1997). Dynamic Capabilities and Strategic Management. Strategic Management Journal, Vol. 18, No. 7, pp. 509-533.

Teece, David J. (2007) Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance, Strategic Management Journal, Vol. 28, No. 13, pp 1319-1350.

Weiblen, T. and Chesbrough H. W. (2015). Engaging with Startups to Enhance Corporate Innovation, California Management Review, Vol. 57, No. 2, pp. 66–90.

Yin, R. K. (2003). Case study research: design and methods, 3rd edition, Thousand Oaks: Sage Publications.

APPENDICES

Appendix 1: Cross-case analysis

	C1	C2	C3	C4	C5	C6	C7
Industry	Telecommunication	Banking	Banking	Banking	Telecommunication	Telecommunication	Energy services
Internal structures	Internal innovation program	Internal innovation program	Internal hackathon	Internal hackathon	Internal hackathon	Internal department	Internal department
Innovation activities inside the company	Innovation program twice a year Events for promoting innovation-related culture External accelerators Cooperation with start-ups Seminars with partner university Headquarters coaches and mentorship	Innovation program twice a year Events for promoting innovation-related culture External hackathons Cooperation with start-ups Headquarters coaches and mentorship Service design workshops Cooperation with universities	Internal hackathons twice a year Events for promoting innovation-related culture Cooperation with partners Trainings about service design Innovation content production in internal communication	Internal hackathons once a year Cooperation with start-ups	Internal hackathons twice a year Periodical meet-ups with experts in new technologies Parent's incubation program	Internal idea garages Internal new business areas teams Cooperation with start-ups Lean start-up methods Idea garages with the clients Start-up scouts for communication with start-ups Cooperation with universities	Internal department for evaluating new ideas Cooperation with start-ups Cooperation with universities
Changes with the internal innovation structures	Cultural change (O) Better customer experience (M)	Cultural change (O) Better customer experience (M)	Cultural change (O) Employer branding (M)	Cultural change (O) Employer branding (M)	Cultural change (O) Employer branding (M)	Specific unit creation who is responsible for finding new business opportunities (OP)	Specific unit creation who is responsible for finding new business opportunities (OP)

	Enhancing entrepreneurship in employees (HR) New revenue sources (F) Automation and digitalization of processes (OP) Motivation for employees (HR) Openness of the organization (O)	Enhancing entrepreneurship in employees (HR) Discovery mind-set (HR) Young talent attraction (HR) The service design concept integration (OP)	Radical simplification for delivering products/services (OP) The service design concept integration (OP)	Enhancing entrepreneurship in employees (HR) Increase in the employees' satisfaction (HR) Creation of new products and services (OP)	Automation and digitalization of processes (OP) Motivation for employees (HR) Creation of new products and services (OP)	Faster process from idea to development (OP)	New revenue sources (F) Openness of the organization (O) Positive environmental impact (O) New business areas (O)
Challenges of the internal innovation structures	Engaging employees (HR) Dealing with the right problems that are important to the executives (O) Engagement – maintained work responsibilities (O) Secure and comfortable zone (O) The expectations of the executives (O) Disrupting usual development process (OP)	Engaging employees (HR) Dealing with the right problems that are important to the executives (O) Engagement – maintained work responsibilities (O) Secure and comfortable zone (O) Communication of the case studies of the internal programs (O)	Engaging employees (HR) Conflict between daily maintenance and development (OP) Engaging the intermediate management (O) Changing the mind-set of the executives (O) Developments needed due to regulations that are always higher priority (OP)	Engaging employees (HR) Getting ideas from the business side (OP) Explaining costs to management (F) No responsible person for organizing the hackathons (OP) Integrating the methods to daily work (OP)	No responsible person for organizing the hackathons (OP)	Ideas with no business model and no revenue (F) Dealing with the right problems that are important to the executives (O) Reoccurring ideas that failed in the past (OP)	Engaging employees (HR) Conflict between daily maintenance and development (OP) Engaging the intermediate management (O)

		Metrics of financial value (F) Value for former participants (HR) Communication of the process of learning, failing and fast feedback (O) Limited human resource, focus on smaller number of teams (O) Decreasing the amount committees (OP)	Lack of innovative teams (HR) Integrating the methods to daily work (OP) Engaging employees (HR)				
Opportunities of the internal innovation structures	Improved financial results (F) Positive impact on employer branding (M) Career options for participants (HR) For possible business partners creates positive brand (M) Upgrading customer experience (M)	Career options for participants (HR) Faster product development (OP) Hiring summer interns to the internal program (HR) Positive impact on employer branding (M) Upgrading customer experience (M)	Positive impact on employer branding (M) Upgrading customer experience (M) Fast opportunity to validate ideas (OP)	Positive impact on employer branding (M) Involving employees from different fields (O) Better co-operation between different departments (O) Upgrading customer experience (M) Opening up the hackathons (O)	Positive impact on employer branding (M) Employees' motivation increase (HR) Employees' engagement increase (HR) Creation of new products and services (O) Positive impact on employer branding (M) Better co-operation between different departments (O) Discovering hidden talents in employees (HR)	Employees' motivation increase (HR) Employees' engagement increase (HR) Creation of new products and services (O) Positive impact on employer branding (M)	Improved financial results (F) Openness of the organization (O) Employees' engagement increase (HR) New business areas (O) Positive environmental impact (O)

	Creation of new start-ups (F) Improving existing business model (F) Faster product development (OP)	Specific problem-solving skills improvement (OP) Involving employees from different fields (O) Creation of new products/services (O)			Career options for participants (HR) Fast opportunity to validate ideas (OP)		
Measuring the success of the internal innovation	The number of participants in the program The number of ideas The number of pilot projects The number of clients using the new service/product	The number of participants in the program The number of ideas The number of participants in kick-off day The practical value of the methods learned assessed by employees	The practical value of the methods learned assessed by employees Employee engagement	Employee satisfaction	The number of participants in the hackathon The number of ideas presented ideas The number of pilot projects	Management by objectives	Financial key performance indicators

Appendix 2: Aspects from cross-case analysis by functional dimensions

Dimension	Changes	Challenges	Opportunities
Financial	• (F1) New revenue sources	• (F1) Metrics of financial value • (F2) Explaining costs to management • (F3) Ideas with no business model and no revenue	• (F1) Improved financial results • (F2) Creation of new start-ups • (F3) Improving existing business model
Organizational	• (O1) Cultural change • (O2) Openness of the organization • (O3) Positive environmental impact • (O4) New business areas • (O5) Creation of new products and services	• (O1) Dealing with the right problems that are important to the executives • (O2) Engaging the intermediate management • (O3) Engagement – maintained work responsibilities • (O4) Communication of the case studies of the internal programs • (O5) Communication of the process of learning, failing and fast feedback • (O6) Limited human resource, focus on smaller number of teams • (O7) Secure and comfortable zone • (O8) Changing the mind-set of the executives • (O9) The expectations of the executives	• (O1) Involving employees from different fields • (O2) Better co-operation between different departments • (O3) Creation of new products and services • (O4) Opening up the hackathons • (O5) Openness of the organization • (O6) Positive environmental impact • (O7) New business areas
Operational	• (OP1) The service design concept integration • (OP2) Specific unit creation who is responsible for finding new business opportunities • (OP3) Radical simplification for delivering products/services • (OP4) Automation and digitalization of processes • (OP5) Faster process from idea to development	• (OP1) Integrating the methods to daily work • (OP2) Conflict between daily maintenance and development • (OP3) Decreasing the amount committees • (OP4) Getting ideas from the business side • (OP5) Disrupting usual development process • (OP6) No responsible person for organizing the hackathons • (OP7) Reoccurring ideas that failed in the past • (OP8) Developments needed due to regulations that are always higher priority	• (OP1) Faster product development • (OP2) Fast opportunity to validate ideas (OP3) Specific problem-solving skills improvement
Marketing	• (M1) Better customer experience • (M2) Employer branding	No major challenges	• (M1) Positive impact on employer branding • (M2) Upgrading customer experience

			• (M3) For possible business partners creates positive brand
Human resources	• (HR1) Enhancing entrepreneurship in employees • (HR2) Motivation for employees • (HR3) Young talent attraction • (HR4) Discovery mind-set • (HR5) Increase in the employees' satisfaction	• (HR1) Engaging employees • (HR2) Lack of innovative teams • (HR3) Creating value for those employees who have already participated in the internal program	• (HR1) Employees' engagement increase • (HR2) Employees' motivation increase • (HR3) Career options for participants • (HR4) Hiring summer interns to the internal program • (HR5) Discovering hidden talents in employees