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**ENTREPRENEURSHIP AND OPEN INNOVATION IN  
CORPORATIONS AND START-UPS IN SLOVENIA**

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## INTRODUCTION

Large established companies are changing their day to day business operations to address modern challenges presented by globalization, short product life cycles and faster micro-competition from start-ups (OECD, 2008, p. 24). In order to remain competitive it is of their greatest concern to keep adequate levels of innovation to either make small improvements of their existing operations (incremental innovation) or introduce novel solutions on completely new markets (radical innovation) (PwC, 2012). Successful radical innovation generates much larger returns compared to small, gradual improvements (Marsili & Salter, 2005). However there is a downside to the process since radical innovation requires large resource investments – both human and capital, where ultimate success on the market is not guaranteed at all (Laursen & Salter, 2006).

Entrepreneurial individuals can be found in many kinds of organizations ranging from start-ups to corporations (Ries, 2011) and an appropriate creative environment with adequate levels of funding and suitable organizational structure can support such individuals to be creative and innovate better. If start-ups are by structure small, dynamic teams with evolving business models, corporations on the other hand are (often) bureaucratic, structured giants where methods such as lean start-up cannot be implemented without initial process adaptations (Weiblen & Chesbrough, 2015). A corporation can either redesign its entire organization to be less hierarchical, or build separate innovative departments (internal ventures) (Edison, Smørsgård, Wang, & Abrahamsson, 2018) with their own organizational environment dynamics whereas remaining in close contact with top corporate management.

Apart from internal organizational dynamics to generate ideas, knowledge as such is a valuable asset. Because of digitalization a lot of knowledge is available online and hints on who might possess expertise to produce the required solution can be obtained much more easily than in the past (OECD, 2008). The concept of open innovation, coined by Chesbrough (2003a), is calling upon firms to embrace various opportunities that present themselves by scanning the environment for useful complementary knowledge. Firms can utilize external knowledge to either build it into their own internal innovation on one hand, or activate unused knowledge developed in-house to be further explored on somewhere else, away from the parent company (Chesbrough, 2003a). Whereas utilizing open innovation became a necessity for corporations just recently with faster global innovation dynamics, smaller firms such as start-ups on the other hand, are depending on open innovation to a much larger extent. Because of their smallness and newness constrains, which result in lack of resources, finding solutions to complement their innovation process outside their own organizations is of crucial importance (Minshall, Mortara, Valli, & Probert, 2010).

In this thesis we will look at how corporations can innovate radically by exploring (1) how redesigning internal dynamics can foster creativity with the objective to improve the chances of success (Antončič & Hisrich, 2003; Edison et al., 2018; Ford, Garnsey, & Probert, 2010; Kuratko, Covin, & Garrett, 2009), and (2) how knowledge can be obtained not only from companies' own research and development (hereinafter: R&D) efforts but also through opening up to catching information from other innovative stakeholders (Chesbrough, 2003a) with the focus on start-ups.

The fascinating dynamics of open innovation and entrepreneurship will be analysed on the example of corporate-start-up collaboration, a complementary duo of organizations possessing completely different structures, capabilities and operation processes (Weiblen & Chesbrough, 2015), however, striving towards the same objective – sustainable growth. Corporations on one hand wish to be more similar to start-ups through practicing intrapreneurship (Antončič & Hisrich, 2003); an alternative is to bring in knowledge from external start-ups, to exploit their disruptive ideas, however, many firms engage in both simultaneously. Special attention will be given to successful models of collaboration between start-ups and corporations; identification of best practices and possible points of conflict or mismanagement of the partnership since start-ups and corporations, due to their obvious differences, form very asymmetric partnerships (Minshall et al., 2010). Most of attention will be put on the perspective of corporations, however, start-ups' perspective will not be ignored and we will elaborate on it on several points of discussion.

The aim of this thesis is reviewing the topics of corporate entrepreneurship and open innovation with the purpose of understanding their dynamics and exploring connections between them. We will elaborate on the concepts and their implementation in practice, as identified by other researchers. The topics are fairly new, however, many articles have been published on either one or the other subject, whereas there is a clear indication that both concepts – entrepreneurship and open innovation, should be in the future explored together (Usman & Vanhaverbeke, 2017).

We will perform an exploratory research method, where we will first review existing literature and second identify larger Slovenian firms that collaborate with start-ups to invite their representatives to finally sit with us for in-depth semi-structured interviews. Our target will be senior staff, coordinators of start-up collaboration initiatives. Exploratory method with case studies, qualitative data coding, and interpretation is in our case the only suitable research method. Namely, no appropriate extensive statistical database has been composed yet and it would also be impossible to construct a sample large enough for a survey due to the fact that corporate-start-up collaboration in Slovenia is not an omnipresent phenomena. Moreover, large Slovenian firms are in general rather small compared to the global scale of multinational corporations, which reduces the (possible) sample size even further.

At the interviews we will explore the extent of corporate involvement in cooperation with start-ups – how many employees are actively engaged with the start-ups and how. One of the core questions will be the role of top management in this relationship; whether they were the initiators, and how much they are actively engaged. We will explore how the corporation and start-up found each other (search strategy), the model of cooperation, and how the partners agreed on operative details. Furthermore, we will explore if and how corporations that collaborate with start-ups redesign their own internal operations, and how this can contribute to the partnership.

In structure, the thesis begins with basic definitions of concepts, and continues to elaborate first on corporate entrepreneurship and second on open innovation. Models of corporate-start-up collaboration from secondary literature that follow are finally elaborated on through case studies constructed mainly from interviews with representatives of Slovenian large firms.

## **1 BASIC CONCEPTS**

In order to better understand the context of our discussion, we first have to elaborate on basic concepts, which will be utilized throughout the thesis. First, we are limiting our discussion to corporations and start-ups. Second, we turn our attention to innovation, the most frequently used concept of our discussion.

### **1.1 Subjects of Interest: Corporations and Start-ups**

Corporations and start-ups are very different and the most evident difference between them is their age and the size of their workforce. Corporations are old and large, whereas start-ups are not by default *all* recently established companies. A start-up according to Freeman and Engel (2007, p. 94) can only be a company that is young and simultaneously technology-based, founded with the purpose to exploit changes in technology and disrupt the market.<sup>1</sup> With technological solutions and disruptive potential, start-ups can rapidly deliver new products, new business models and new business value (Edison et al., 2018, p. 69). Start-ups and corporations are also very different when considering some other aspects collected in Table 1 on the next page.

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<sup>1</sup> Some other authors as for example Backes-Gellner and Werner (2007) make a distinction between *innovative* and *traditional* start-ups. For the purpose of this thesis and also since we focus on innovation, we will consider all start-ups we refer to as innovative start-ups, as described in the definition of Freeman and Engel (2007).

Table 1: Start-up and Corporation – general distinctions

<b>Start-up</b>	<b>Corporation</b>
historical performance, reputation and benchmarks for their innovations are often non-existent	analysis of past performance tells a story for the future; reputation
lack of in house resources	greater in house resources (human and capital); economies of scale
has little access to (traditional) capital such as bank loans, due to high risk premium	has access to capital – bank loans extended based on past performance
dynamic distribution of work; division of work is less clear	fixed capital and human resources; established organization structure
at any given time they have fewer projects underway, which allows for less formal innovation management	many complex often long term projects managed simultaneously – complexity
agility	power
low brand presence	brand is stronger
customers unknown	customers known
evolving business model; changing value proposition	established business process and value network
creating market while developing novel, disruptive products	keeping a close eye on market share statistics; eternal struggle to increase it (at the expense of the competition)

Adapted by J. Andrew, E. S. DeRocco, & A. Taylor, *Innovation imperative in manufacturing: How the US can restore its edge*, 2009; U. Backes-Gellner & A. Werner, *Entrepreneurial Signaling via Education: A Success Factor in Innovative Start-Ups*, 2007; S. Blank, *Why the Lean Start-Up Changes Everything*, 2013; T. Minshall, L. Mortara, R. Valli, & D. Probert, *Making 'Asymmetric' Partnerships Work*, 2010; T. Weiblen & H. W. Chesbrough, *Engaging with Startups to Enhance Corporate Innovation*, 2015.

## 1.2 Definitions of Innovation

OECD/Eurostat (2005, p. 47) defines **innovation** as “the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.” To remain competitive, firms are engaged in **innovation activities**, which include R&D and are intended to implement innovations.

Innovation is characterized by:

(1) The degree of novelty



Innovation classified as **new to the firm** is a something that has already been implemented by other firms. **New to the market** is when the innovation is new in a geographic region or product line. **New to the world** is when the innovation is new to all markets and industries. (OECD/Eurostat, 2005, p. 58)

## (2) The type of innovation

We distinguish between product and process innovation. **Product** innovations are goods and services which are either new or significantly improved with respect to their fundamental characteristics (OECD/Eurostat, 2005, p. 49). Product innovation is *exploration* – the replacement of obsolete products; improvement of product quality; expansion of the product range; and extension of the product market range (Lokshin, Hagedoorn, & Letterie, 2011, p. 298). **Process** innovation is the implementation of a new or improved production or delivery method (OECD/Eurostat, 2005, p. 60). Process innovation is *exploitation* – increasing efficiency in production processes; reducing cost of resources such as labour, materials and energy; and reducing impact on the environment (Lokshin et al., 2011, p. 298). Product innovation aims at enhancing demand, is uncertain and often high-technology intensive, whereas process innovation aims at cost savings and remains low-technology intensive (Lokshin et al., 2011, p. 298; Santamaria, Niento, & Barge-Gil, 2010, p. 109).

## (3) The impact

Impact of innovation differs among radical and incremental innovation. **Radical or disruptive innovation** has large impact and creates a new market that will not necessarily *immediately* but *eventually* in the future disrupt an already existing market and replace existing product(s) (OECD/Eurostat, 2005, p. 59). A radical innovation is initially a simpler and cheaper solution, which is often lower performing; it is first commercialized on small emerging markets and is not valuable to the firms' most profitable customers, which consequently does not earn the firm large margins (Christensen, 2003). When innovating to disrupt, the problem and the solution often remain unknown, which makes it hard to estimate the value of the innovation to the also unknown customer (Ries, 2011). Therefore, radical innovation requires considerable R&D investments, is risky because of lack of historical trajectory, however, if successful, the rewards are high (Laursen & Salter, 2006, p. 136; Bicen & Johnson, 2015, p. 290). If radical innovation is a new product for a new market, **incremental** innovation on the other hand is a new product on an existing market or a new market for an existing product (Edison et al., 2018, p. 72). Incremental innovation is small continuous improvement to protect market share and margins of existing products, it is less risky but rewards are smaller (Laursen & Salter, 2006, p. 136). The share of radical versus incremental innovation in a company depends on the company's growth objectives. The faster the company wants to grow, the more radical innovation it has to employ (PwC, 2012, p. 8) because it can potentially deliver

dramatically higher product performance, reduce production costs or even both (Utterbach, 1995 in Ford et al., 2010, p. 82).

(4) the source of innovation

**Technological** innovations are product or process whereas **non-technological** are marketing or organizational innovations (IPP, 2017). Many firms nowadays introduce different types of innovation simultaneously – using **mixed models** of innovation (OECD, 2015, p. 39).

## 2 CREATIVITY AND INNOVATION

Schumpeters' (1942) “essence of capitalism” with the concept of “creative destruction” is fundamentally how progress and change brought upon the society by innovation have continuously resulted in other, old ways of doing business becoming obsolete. Besides ensuring survival, the ability to keep innovating is a source of companies' competitive advantage (Kuratko, 2009, p. 421). Firm executives nowadays know that innovation is going to help them change their organisations according to demands from the environment they operate in (Kuratko, 2009, p. 422). With innovation, companies hope to improve customer satisfaction, increase profitability, and earn higher revenues and greater market share (PwC, 2012, pp. 2–5). According to a PwC survey from 2011, 75 % of private-company chief executives say that innovation is becoming their priority (PwC, 2012, p. 1). Data shows that these companies' revenues growth rates are expected to be from 8 % to 10 %, compared with 5 % for non-innovators (PwC, 2012, pp. 2–5). Similar was found for large companies as well, where until 2020, 80 % of corporations expect the share of revenue attributed to innovation to increase or significantly increase (Engel, Andrade, Peterson, Zuazua, & Ruppert, 2016, p. 118). Companies innovating are growing in two ways, because they are (1) introducing new or improved solutions to existing markets and creating additional value for themselves as well as users, or (2) increasing productivity in the process of creating new solutions (WEF, 2015, p. 6).

Incremental (minor) innovation, such as small improvements of business models, on average make up 85 % to 90 % of companies' innovation portfolios, however, they rarely generate rapid growth (Day, 2007; WEF, 2015, p. 7). Small amount of radical innovation, on the other hand, yields the majority of profits (Marsili & Salter, 2005, p. 100) and this is also why the majority of large corporations nowadays expect their efforts to shift towards radical innovation projects (WEF, 2015, p. 7). The more radical or fundamental the innovation is, the more creativity it requires in the early stages of its development (Freeman & Engel, 2007, p. 96), and to foster creativity, a certain type of organisation is required.

Martin Prosperity Institute<sup>2</sup> (MPI, 2015) ranked *countries* on the Global Creativity Index, which is comprised of talent, technology and tolerance measures, considered as the basic measures of creative competitiveness and prosperity. The index shows that high scoring countries also perform better in economic output, entrepreneurship, economic competitiveness, and overall human development (MPI, 2015, p. 35). **High levels of talent, technology and tolerance** are thus the formula for an environment that enables creative outputs – on a company level as well. Talent are educated, entrepreneurial employees with appropriately advanced skills; technology is adequate investment in R&D and production of patents; and tolerance is acceptance of diversity, which creates a pleasant environment for idea-generating, creative employees (MPI, 2015).

## 2.1 Enabler of Creativity: Technology

As stated above, creativity first requires adequate investments. In larger businesses, it is possible to innovate **top down or bottom (middle) up** whereas both cases require support of the managers to reallocate or acquire the necessary resources (Freeman & Engel, 2007, p. 99). In the first case resources (investments) are allocated more easily since the support of senior managers is already there, however, the innovation teams might be less creative since they work on someone else's agenda. In the second case, long term funding is harder to obtain since first the commitment of senior management needs to be secured (Freeman & Engel, 2007, p. 99). When **incentives** of the management (i.e. those who provide funding) and innovation teams are **aligned**; and there *is* a possibility to shift resources (**mobility of resources**), the innovation can proceed (Freeman & Engel, 2007, p. 95).

Partially as a consequence of general corporate resistance to change, corporations often find it complicated to ensure mobile resources since the budget of one innovation process can often only be increased by cutting previously defined budgets of other departments (Ford et al., 2010, p. 83). Start-ups, on the other hand when seeking additional funding from external sources, have one common incentive – secure funding for their project. This aligned incentive brings more harmony between different parts of the business (Freeman & Engel, 2007, p. 98). However, the problem for start-ups is that they have no historic performance, their innovation is hard to benchmark, and they do not generate much revenue thus remaining unprofitable; which in turn makes them ineligible for bank loans. Because traditional investors (such as banks) are reluctant to extend loans to start-ups with products meant for non-existing markets, start-ups turn to angel investors and **venture capital** (hereinafter: VC) **investors** – they sell preferred stock. Venture capitalists are individuals or professional VC firms and their “main objective when investing in start-ups is to tenfold their investment” (Freeman & Engel, 2007, p. 106; Goldman, 2017). Entrepreneurs' control over start-up diminishes every time they receive a VC investment

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<sup>2</sup> Rotman School of Management, University of Toronto.

and by the close of the second round of VC financing, the investors own the majority of voting shares (Freeman & Engel, 2007, p. 98). This means that at some point start-ups can also face misaligned incentives between funders (the management) and founders (the innovators). However, some would argue that the point of misaligned incentives for start-ups comes even earlier, right after the external none *family, friends and fools*-originating, funds become available for spending (Matz, 2018).

## 2.2 Enabler of Creativity: Talent

To capitalize on skilled and educated talent, which is already part of the firm, the management needs to ensure that individuals working on innovation projects: (1) have a mutual agreement on objectives with the management; (2) receive feedback; (3) are confident, trusting, however, held accountable; (4) are rewarded for (productive) risk taking, and (5) do not get punished for failing since the biggest value added for innovation comes from learning experience (Kuratko, 2009, p. 426). Such talent management implemented in the highly uncertain process of radical innovation enables or allows for **entrepreneurial and causal decision making**, which is likely to encourage the exploitation of existing individuals' creative skills – the individuals' ability to perceive and exploit creative opportunities (Blauth, Mauer, & Brettel, 2014, p. 497)<sup>3</sup>. Namely Blauth et al. (2014) found evidence that entrepreneurial decision making (i.e. effectuation) has positive effect on the application of creativity especially when the management is encouraging use of existing means; stressing the importance of partnering with others; and encouraging the culture of embracing the alternatives not known in advance (Blauth et al., 2014, p. 506).

As we will see in the next section both start-ups as well as corporations can employ entrepreneurial decision making and strategy which in turn encourage creativity of talent, but first let us briefly mention some distinctions between talent in corporations and start-ups. Contrary to corporations', start-ups' team members or employees (i.e. talent) represent a very large share of its value. If a key person leaves the start-up, this start-up very likely might stop existing, whereas in corporations innovation teams are usually larger and thus losing an innovator that would disrupt the entire process is less likely. Even investors sometimes, when deciding whether or not they will fund a start-up, take the final decision considering the start-ups' employees' university degrees and length of studies (Backes-Gellner & Werner, 2007). They somehow take it as a value to compensate for the missing traditional information.

If the start-up can often only be as good as its team, what is crucial for *corporate* innovation is hiring because, as argued by Kuratko (2009, p. 423), corporate innovation

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<sup>3</sup> They performed an analysis of new product or service development firms in Germany with 219 valid answers of the survey.

results from creative talents from within firms. It can be beneficial to have a demanding recruiting process where only top performers, the brightest and most ambitious people transpire being invited to join the firm. At Google, they have such a system in order to avoid complex management since the founders believe that high quality employees do not need to be managed (Finkle, 2012, p. 881).

There is also a difference in how the innovators are compensated in corporations and in start-ups. Since start-ups are small teams, if successful, each member of the team feels the direct financial reward that follows. Corporations, on the other hand, have a structure in which when successful, the managers represent the companies' success, leaving the individual inventors aside. Moreover, since the compensation is often standardized and pre-defined, the inventors will never be as compensated as they would have been if working for a smaller company. Since no extraordinary compensation is expected, the personal risks innovators in corporations undertake are much smaller (Freeman & Engel, 2007, p. 115).

### **2.3 Enabler of Creativity: Tolerance**

Organisational structure of a firm can either hinder or support innovation (Edison et al., 2018, p. 74). To maximize creativity the organization should be less hierarchical and bureaucratic, with fewer fixed job responsibilities and formalized communication flows. Emphasis should be given to teamwork, feedback and democratic decision making, shifting job responsibilities and rapid response to unique challenges that are presented on a daily basis (Freeman & Engel, 2007). It is the leadership, which was found a differentiating factor in US top innovating companies, which has to design disciplined, well-structured innovation procedures, hold management accountable for results, and create a culture of embracing innovative thinking (Andrew et al., 2009). Firm strategy should preferably be implemented **bottom-up**, and employees have to be empowered to comment and question processes and developments (Finkle, 2012, p. 881). Highly creative people will contribute to innovation when the organization in which they work supports their unpredictability (Freeman & Engel, 2007, p. 96). Organisations wishing to mobilise their creative human resources should encourage flow of information among their employees, where they can maintain constant contact with each other, sharing ideas, projects and starting movements of innovative change (Finkle, 2012).

59 % of US private companies that prioritize innovation have already established such co-working practices (PwC, 2012, p. 3). Start-ups usually do not have issues in fostering creative thinking of their employees, largely due to their organisational structure, which corresponds to the description above. In start-ups, rules of communication and other processes are not set, and therefore creativity is present in every interaction. Problems there cannot be solved routinely, because many challenges such organisations face are unique and unanticipated (Freeman & Engel, 2007, p. 114).

Creativity in a start-up is at the maximum level before the first VC investment because resources are scarce and it has to exploit means the firm already possesses – experience and contacts (Blauth et al., 2014, p. 498) where effort has to be put into merging knowledge from different sources. After the first VC investment, new rules of business management are set by the investor, and the processes between creative people slow down (Freeman & Engel, 2007, p. 104). This implies that as soon as a larger company dares to redesign the work environment of the start-up according to its own standards, the start-ups' innovation is stifled. It seems as if corporate environment by its nature imposes constraints on entrepreneurship (Kuratko, 2009, p. 422).

This goes in line also with Christensen (2003), who argues that successful corporations at the end fail because of the very management practices that made them successful in the first place. Listening to customers, fulfilling their demands, seeking higher margins and targeting large instead of small markets, prevent them from looking beyond their existing businesses – exploring **new markets or new products**, i.e. being truly innovative. Such corporations are reluctant to pursue disruptive innovation because simpler, more convenient and more affordable disruptive solutions require serving smaller markets, which initially bring lower profits, and prevent the corporation from maintaining its growth rate. When disruptive innovation, developed by smaller competitors improves in terms of functionality to eventually become appealing to the corporations' more demanding customers, the once successful corporation becomes directly affected by disruptive innovation (Ireland, Hitt, & Sirmon, 2003, p. 982). If the corporation continues to innovate on the incremental level, they are incapable of reinventing their products, and the competition steals away their market, which leads to their ultimate failure.

This chain of events as described by Christensen (2003) can be attributed to the corporate structure that impedes creativity, exploration, experimentation and risk taking (Edison et al., 2018, p. 74); where, specifically, risk is the inherent characteristic of innovativeness and proactivity (Antončič & Hisrich, 2003, p. 17). However, not all corporations necessarily face such problems.

Tatikonda and Rosenthal (2000, p. 418)<sup>4</sup> found that successful execution of projects requires a balance of **firmness** and **flexibility**. Firmness should be assured through the project management **formalities** in terms of control systems, quality and costs monitoring and meeting timelines, whereas flexibility should be assured by project management **autonomy** and **resource mobility** to empower innovation teams. Corporations, as defined in the Table 1 above, are firm (*firmness*) and stable and can thus successfully contribute to project execution. However, to allow for faster growth, they are increasingly moving away from strict firmness to introduce flexibility, which is necessary for radical innovation.

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<sup>4</sup> They performed a cross-sectional survey on a sample of 120 product assembly development projects.

Size of the business does not determine the extent of organisational capability in entrepreneurship and innovation, whereas structural and cultural elements do (Zhao, 2005, p. 37). Entrepreneurs are not merely individuals founding their own start-ups, but also visionary employees in companies of all sizes, determined to innovate and create new ventures (Ries, 2011, p. 25). Entrepreneurship and innovation are complementary because entrepreneurship stimulates the generation of innovations, where a combination of the two is vital to organisational success and sustainability (Zhao, 2005, p. 39) and thus also larger firms would want to use corporate entrepreneurship strategy and engage individual entrepreneurs to innovate faster. Corporations are redesigning their organisational strategy due to the competitive pressure, rapid technological change and evolving markets, which all encourage firms to involve in continuous innovation to remain competitive (Ireland, Covin, & Kuratko, 2009, p. 28). They are moving towards **corporate entrepreneurship**, which is recognised by Ireland et al. (2009, p. 41) as a unique, identifiable organisation strategy. If innovation requires creativity and the latter is encouraged via entrepreneurial decision making (Blauth et al., 2014), a shift towards corporate entrepreneurial strategy is a logical step to be taken by corporations wishing to strike a “balance between discipline and free willing creativity” (Andrew et al., 2009). The core activity of entrepreneurship is recognizing opportunities and exploiting them (Ireland et al., 2009, p. 40).

However, redesigning *all* departments of large firms to introduce flexibility and increase innovation potential is sometimes challenging, especially since managing large numbers of employees when giving them space to be creative is very demanding (Schaeffer, 2015). People start shifting teams, and specific tasks of individuals participating in creative teamwork are impossible to predict and define (Freeman & Engel, 2007, p. 97). Moreover, a corporation often has predetermined award systems, however, if the teams and tasks are shifting, this system collapses (Freeman & Engel, 2007, p. 97). To avoid initial problems it is not necessary to redesign entire departments all at once. A corporation can start the transformation with more flexible work obligations of individual employees. 3M Company for example was the first that introduced **organisational slack**, which meant in practice that they encouraged their engineers to spend 15 % of their work hours on projects of their own will and the result was the omnipresent Post-it note (Finkle, 2012, p. 879).

## 2.4 Internal Corporate Ventures

Another option how a large firm can introduce flexibility is to create separate departments – **internal corporate ventures**, defined by Kuratko et al. (2009, p. 460) as internal entrepreneurial initiatives, intended to become separate ventures; stuck somewhere between an R&D department and a spin-off<sup>5</sup> (Edison et al., 2018, p. 74). Internal corporate ventures do not have to necessarily deal with strategic fit with the rest of the corporation’s

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<sup>5</sup> We discuss more about spin-offs below.

core business, but focus on contributing to the emergence of diversity – produce innovations (Antončič & Hisrich, 2003, p. 12). These ventures are the centre of **intrapreneurship** – entrepreneurship within existing organisations to introduce behaviour different from customary (Antončič & Hisrich, 2003, p. 9), exempt from many corporate rules and following only basic guidelines on compliance and values (Weiblen & Chesbrough, 2015, p. 72).

Main reasons why such internal corporate ventures, **lean internal start-ups** (Edison et al., 2018) or **corporate incubators** (Ford et al., 2010, p. 83), are valuable to their parent companies are (1) exploitation – the realisation of corporate existing resources (capital or knowledge), and (2) exploration – willingness to develop new capabilities (Ford et al., 2010, p. 83; Kuratko et al., 2009, p. 463). Such autonomous or semi-autonomous units are in pursuit of entering into new businesses, with innovative products or services, utilising process innovations, internal reorganisation (distinct from sometimes rigid core), taking risk, acting proactively and being competitively aggressive – which are according to Antončič and Hisrich (2003) the so-called eight dimensions of intrapreneurship. In a study of 145 internal ventures from 72 firms, Kuratko et al. (2009, p. 463-5) found that 36.6 % of corporations rated their experience with internal corporate ventures as successful, and that the success is more likely when corporate objectives and value propositions from creating such ventures are clear in advance.

Considering the distinct internal organisation, the internal corporate ventures should remain small enough to get excited by small gains; take investments in disruptive innovation as learning opportunities, thus investing small amounts, gradually; and understand that the attributes that make disruptive technologies unattractive to mainstream markets are those same attributes on which the new markets will emerge (Christensen, 2003, p. 234). In these internal ventures, the corporation should settle cross-functional teams, consisting of entrepreneurial individuals of different backgrounds and expertise, which can contribute to better decision making and improved collaboration (Edison et al., 2018, p. 83). The innovation projects should be team-driven and thus not much external management of such teams should be present, with the important exception of strong support of top management, since this is one of key preconditions for ventures' success (Kuratko et al., 2009, p. 464). The success rates of internal ventures were found to be better when the venture has its own planning autonomy for selecting objectives, formulating strategy and performance criteria establishment, which can be attributed to the fact that the venture management responsible for their own success behaves more strategically (Kuratko et al., 2009, p. 465). It can also help if the team members feel they have a personal stake in the outcome of their experimentations and receive financial rewards or credit, when successful (Ries, 2011).

Internal ventures should avoid too much planning. When innovating in the environment of high uncertainty, the leaders should embrace alternatives not known in advance, and



discourage strict goal orientation to influence more creativity application and entrepreneurial decision making (Blauth et al., 2014, p. 502). Leaders are responsible for developing entrepreneurial culture, which is “an environment where new ideas and creativity are expected, risk taking is encouraged, failure is tolerated, learning is promoted, product, process and administrative innovations are championed and continuous change is viewed as a conveyor of opportunities” (Ireland et al., 2003, p. 970). Moreover, a scarce enough budget, mimicking the situation start-ups are in should be provided, however, at the same time large enough to allow for experimentation (Ries, 2011). Resource limitations faced by start-ups were found to be beneficial because such situation forces them to behave differently than they would have if adequate resources (relational, legal, human, informational) were available (Bicen & Johnson, 2015).

Internal ventures, however, will most likely have more resources as standalone start-ups. Namely, when deemed necessary, they can access inputs from other departments in the corporation (Kuratko et al., 2009, p. 464) such as legal, finance and procurement. Such internal ventures have higher success rates (Weiblen & Chesbrough, 2015, p. 71). Moreover, the teams in corporate internal ventures are often better than usual start-up teams because before accepting individuals into the innovative department, the management can seek immediate feedback from their (soon to be former) superiors (Ford et al., 2010, p. 87). On the other hand, when corporation creates an internal venture, it is often more tolerant to its failures than a typical VC investor seeking immediate returns (Ford et al., 2010, p. 88). This creates the possibility of overprotecting the venture even after it becomes evident it might not succeed (Weiblen & Chesbrough, 2015, p. 71). One other issue is that incorporated internal ventures might have difficulties finding customers and partners outside the parent corporations’ own network, because corporations’ competitors would be reluctant to do business with such a venture. They might believe that purchasing goods or services from it is enabling profits for their competitor.

Once corporation manages to establish a separate internal corporate venture, the implementation of **lean start-up** (Ries, 2011)<sup>6</sup> or **lean innovation capability**<sup>7</sup> (Bicen & Johnson, 2015) can begin. Bicen and Johnson (2015, p. 287) define lean innovation capability as “a distinct capability that reflects a firm’s ability to experiment with ideas that meet core customer needs by constantly iterating the initial offering with the purpose of validating the learning through continuous market feedback to achieve sustainable business performance”. Tools such as testing ideas with customers and users, experimenting to minimise R&D expenditure and changing (pivoting) the offered solution according to the feedback collected in the testing phase, is how disruptive innovations in larger companies can too be efficiently brought to market (Ries, 2011).

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<sup>6</sup> Even if Ries’s (2011) *The Lean Start-up* is considered a “business book” Lyth Frederiksen and Brem (2017) discussed how the described concepts and methods such as user feedback, build-measure-learn and continuous improvement rest upon empirically tested theories.

<sup>7</sup> That is giving up certainty for speed (Bicen & Johnson, 2015, p. 288).

That is, ventures operating in high-turbulent markets follow a non-traditional logic of approaching the problems, starting small and moving to market without much planning; revising the offered solution as they go, according to customer or stakeholder feedback which are all characteristics of **design thinking** or deep user understanding (Bicen & Johnson, 2015, p. 286). Such approach is **validity-driven**, where innovators are predicting the future using subjectivity, judgement and intuition as opposed to the reliability-driven approach, where they would be analysing the past data to try predict the future (Bicen & Johnson, 2015, p. 287). As seen above, internal ventures should be managed differently from corporations' core business, especially due to the fact that they do not yet have a known business model (Blank, 2015). If internal corporate ventures are operated according to lean innovation, many risky projects can run in parallel because lean innovation is bound to be less costly (Blank, 2015). This is due to the fact that lean innovation principles allow the organisation to spend fewer resources in the design phase of the product or process, because they enable failure to occur sooner, which results in less costly modifications (Bicen & Johnson, 2015, p. 290; Ries, 2011).

Complementary to internal process of organisation adjustments a corporation can also look for innovation outside their own company – utilising the benefits of open innovation.

### 3 OPEN INNOVATION

The term **open innovation** (hereinafter: OI) was coined by Henry W. Chesbrough. For the most of the 20<sup>th</sup> century, many leading firms believed that innovation requires control and thus they developed, manufactured, marketed, distributed and serviced their products themselves – the innovation model was closed (Chesbrough, 2003b). OI on the contrary means that valuable ideas can come from inside or outside the company, and can go to market from inside or outside the company as well (Chesbrough, 2003a, p. 43). Ideas are flowing outside of their originating organisations (**outbound OI**) to those environments where they can be combined with external knowledge and utilized most efficiently (Chesbrough, 2003a). Firms implementing OI strategy take external ideas and knowledge (**inbound OI**), and merge them with internal R&D since it does not pay to reinvent everything in-house (Chesbrough, 2003a, p. 179). The aim at OI is thus either insourcing entrepreneurial creativity or outsourcing own innovation (Weiblen & Chesbrough, 2015, p. 81). Monitoring and acquiring external knowledge and then funding R&D only to the necessary minimum is economically and timely more efficient (Chesbrough, 2003a, p. 53). Large firms on one hand and more innovative, R&D intensive firms on the other are more likely to engage in cooperation with external partners (Lokshin et al., 2011, p. 303)<sup>8</sup>. Traditionally heavy R&D investors were confronted with efficient competition from other firms whose business model was relying on employing OI (Chesbrough, 2003b). Such

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<sup>8</sup> Lokshin et al. (2011) analysed the data of Dutch firms from different sectors and of different sizes. Data was obtained from the European Union Community Innovation Surveys of years 1996, 1998 and 2000.

examples were Cisco, which was challenged by Lucent; IBM was confronted with Intel and Microsoft; and Merck and Pfizer, which were faced with Genentech, Amgen and Genzyme (Chesbrough, 2003b).

Striving for growth in revenues and in new products is the primary driver leading to the implementation of OI practices (Chesbrough & Kardon Crowther, 2006, p. 253). According to a 2006 survey<sup>9</sup> by the Economist Intelligence Unit (2007, p. 10), 59 % executives responded that they already partner with external organisations to develop new inventions. However, only three years earlier in 2003, merely 20 % of EU **patents**, which are often used as a proxy measure for knowledge flows (e.g. Cantwell & Zhang, 2012, p. 94), were co-developed by two or more organisations (Gambardella, Giuri, & Mariani, 2005, p. 4). Corporations that do not seek for external knowledge are missing opportunities and are unable to reach beyond their business-as-usual, because doing so requires external technologies before the already existing ideas within the corporation can be implemented efficiently, to finally generate revenues (Chesbrough, 2003b). Increasing internal R&D expenditure might not bring increasing gains, and thus the most innovative firms are spending less on R&D but successfully source external knowledge (Chesbrough, 2003b).

According to Freeman & Engel (2007, p. 99) the **corporate innovation model** has three destinations: to the market, to spin-off, or to innovation termination (that is, to death). To avoid innovation death, the implementation of OI principles can be utilized via licensing and selling intellectual property for others to acquire and further develop and perfect (OECD, 2008, p. 20). However, OI also calls into question the need to claim ownership over value-creating resources such as patents and the reality where technology is treated as a tradable good to be bought and sold on the market (Chesbrough & Appleyard, 2007, p. 61; Henkel, 2006). Manifestations of OI in this sense are decisions such as Teslas' that in 2014 opened up its patent portfolio for others to use without having to pay for litigation, when building environmentally friendly vehicles (Harding, 2016, p. 199). This is **open source innovation**, where external actors are given at disposal a technology to modify and improve freely, without paying for patents and then claiming ownership to intellectual property on further improvements (OECD, 2008, p. 22). Open source business models foster collective creativity because innovation is not blocked by control of the patent holders (Chesbrough & Appleyard, 2007, p. 60). It was popularized by software developers in 1980s and 1990s (Harding, 2016, p. 210) and an example of such software is Linux, which emerged from parts of individual contributions and was published on a public domain (Appleyard & Chesbrough, 2017, p. 311). There are two characteristics of open source innovation models, which make them the most *open* OI approach possible: one cannot control the spillovers, so third parties can benefit just as much as the developers do;

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<sup>9</sup> Online survey among 300 senior executives conducted in 2006; cross industry with the majority coming from information technology and technology (20 %), followed by healthcare, pharmaceuticals and biotechnology (18 %).

and it tends to involve not only researchers from other companies (as in the case of B2B<sup>10</sup> R&D collaboration) but also others such as users, academics and individual hobbyists (West & Gallagher, 2006, p. 324). OI however is not always open source and the exchange of knowledge is not necessarily free. Firm's main objective is not the *protection of innovations* per se, but *appropriation of profits* from innovation, meaning that if open source is the right path to this objective, the exchange of knowledge can be free as well (Henkel, 2006, p. 966).

However, the success of examples such as Linux raises the question of how to sustain the inflow of ideas and keep institutions such as manufacturers and suppliers of goods containing the open source software engaged in the first place. The system has to be made sustainable, or the innovation could become obsolete and stop having a significant impact on the society (Chesbrough & Appleyard, 2007, p. 67). Namely, once an innovation which was developed on the premises of open source concept becomes successful, the process of its further, continuous improvement may become threatened. The OI principles might become endangered if or when:

- the **meritocratic** working process among contributors, who provide their inputs for the good of the project, becomes endangered by few corporate contributors, taking leading positions (Chesbrough & Appleyard, 2007, p. 69);
- the corporation taking the lead role in OI of the product or process starts giving the original contributors of the idea the feeling of hijacking their agenda, which can in the worst case destroy the entire process, when the contributors decide to leave the organisation and the remaining “corporate shell” might not be capable to replace them (Chesbrough & Appleyard, 2007, p. 68);
- “If companies cannot find ways to profit from their innovation activities in open initiatives – through deployment, hybridization, complements, or self-service, they cannot sustain their participation in those initiatives over time” and finally decide to walk away (Chesbrough & Appleyard, 2007, p. 69).

With this in mind, internal innovation strategy has to be balanced against the promise of OI (Chesbrough & Appleyard, 2007, p. 73). Firms should access freely available open source innovations in combination with innovations co-created in close cooperation with other actors, or purchased knowledge or machines on the market. OECD/Eurostat (2005, p. 78) calls these three dimensions the “three types of linkages or flows of knowledge and technology to enterprises”.

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<sup>10</sup> B2B stands for business to business, i.e. collaboration between firms.

### 3.1 Reasons for Current Popularity of Open Innovation

In times of globalisation, shorter product life cycles, competitive push for faster innovation and extensively interdisciplinary technologies, OI has become an integral part of corporate innovation and business model development, where accessing and sourcing of external innovation is increasingly equally balanced against internal innovation processes (OECD, 2008, p. 24). OI presents the opportunity to explore the market, include customers in the creation phase of the product or process and encourage innovation of firms' own employees. Until 1960s R&D collaboration (which we understand as one possible way of implementing OI) between different firms was a rare occasion, but the trend accelerated in 1980s in high-tech sectors such as pharmaceuticals, information technology, aerospace and defence (Hagedoorn in Belderbos, Duysters, & Sabidussi, 2012, p. 162). In 2015, the collaboration rate of large innovative firms reached beyond 70 % in countries such as the United Kingdom, Austria, Denmark, Belgium, Finland and Slovenia (OECD, 2015, p. 40).

To more in detail elaborate on factors impacting the growth of OI implementation, let us first address **globalisation**. Globalization is a very important factor, where nowadays information is instantly available across the globe. There is increased mobility of researchers and innovators, which enables faster transfer of knowledge, making it difficult for firms to control and keep their human resources and innovation details for themselves (Chesbrough, 2003b). Digitalisation enabled firms to find and contact small start-ups from remote geographic locations, which can contribute valuable disruptive ideas (Engel et al., 2016, p. 118). Social media enabled firms to reach out to global users on an individual basis who can co-create their products (Engel et al., 2016, p. 118). 20 years ago, having 100 innovation partners was an exception; in 2016 however General Electric for example built an online community of approximately 60,000 innovators located in 90 countries across the globe, from which they were at one point able to source 5,000 ideas (Engel et al., 2016, p. 121). The phenomenon of user-generated innovation was extensively elaborated on by von Hippel (2005), who introduced the concept of **democratization** of innovation. Users contribute innovations if they need something that is not on the market – want direct utility; when they want to gain new skills; or reach personal fulfilment (von Hippel, 2005). In recent years, corporations have been increasingly setting up incentives for users to submit their ideas and encourage their involvement. If these users submit ideas that appeal to other users, corporations have an incentive to implement their ideas and capitalize on them. Von Hippel (2005, p. 139) compared sales generated by user-incentivised projects versus those coming from traditional sources and found that the first group generated substantially more sales.

Next to globalisation is **the increased availability of capital**. In the last years VC investments, which are the source of capital for many individual innovators, increased

significantly. Overall VC investments reached their peak in second quarter of 2015 with \$20.9 billion. In the first quarter of 2017, investors<sup>11</sup> deployed \$13.9 billion to United States VC-backed start-up companies across 1,104 deals. These figures are up 15 % in dollars and 2 % in number of deals from the last quarter in 2016 (PwC, 2017, p. 6). Increased availability of capital made it possible for the innovators to pursue their own projects in spin-offs, separately from their employer if the latter does not want or is not able to commercialise the innovators' idea. Spin-offs are firms founded by innovators in the same industry they came from (Klepper, 2001, p. 639) which is outbound OI. Klepper (2001, p. 641) elaborated on the theoretical explanations of spin-off emergence which are: organisational limitations of the parent firm; agency costs that prevent the innovator from bringing forward the discovery; and willingness to exploit the knowledge to compete against innovators' previous employer. Through spin-offs the innovations that have somehow failed the corporate idea-screening test are still implemented which Chesbrough (2003b) calls "saving the false negatives" – that is ideas that initially look *less* promising but turn out to be the opposite.

And how are spin-offs connected to the OI proliferation? When innovation is not brought to market by the firm which has initially funded the development and is instead commercialised by a newly established company (a spin-off), the latter rips the benefits of sales, however not necessarily reinvesting the profits in new innovation projects (Chesbrough, 2003b). Contrary to the closed model of innovation, where the investor reinvested the profits, here the initial investor has no revenues to reinvest and the innovation circle is broken (Chesbrough, 2003b). In this way, availability of capital is forcing traditionally closed innovators to open up since they are unable to fully control the outflow of knowledge. Exclusively internal R&D is becoming too expensive and firms have to scan their external environment for supplementing innovation.

Furthermore, **short** digitalisation driven **product life cycles** (OECD, 2008, pp. 27–29) and similarly shorter **technology life cycles** demand that firms introduce new solutions since current are becoming obsolete faster than ever (Belderbos et al., 2012, p. 162). Firms have limited time to innovate and succeed since the more growth potential there is in the field in which the enterprise is working in, the more competitors it will attract and thus the time to innovate before others join, shrinks (Freeman & Engel, 2007, p. 101). If firms want to benefit from the **first-mover advantages** to ensure brand loyalty of customers, earlier returns on investment, and longer time-span before the technology life cycle ends (Belderbos et al., 2012, p. 165; OECD, 2008, pp. 27–29), they need to be faster and in sum this generates more innovation supply. Large supply brings shorter technology life cycles and less time to reap the benefits from selling the innovations on the market. The entire process results in increased cost of innovation in general because ever-larger investments in R&D are required as was for example found by Di Masi, Hansen and Grabowsky (2003)

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<sup>11</sup> VC firms, corporate venture groups or angel investors.

who have analysed the increasing costs of new drug development. This results in the incentive for firms to look for cheaper options – to collaborate and share costs (Belderbos et al., 2012, p. 162). In 2016, A. T. Kearny surveyed approximately 100 executives of geographically dispersed corporations on the topic of the impact of disruptive technologies, and by 2021 60 % of them expect to lose 20 % of their revenues if they do not adjust their operations to innovate faster and more openly (Engel et al., 2016, p. 117).

One other reason for OI proliferation is the fact that many markets are tough to enter since the competitors already divided their market shares. If a firm cannot enter the market, it can try to create its own market. OI enables **market creation** for radical innovations when a firm decides to share their knowledge, as for example Tesla has, it encourages creation of completely new markets. Firms in the same industry (such as electric cars) complement each other with market creation (so called co-opetition) and after the market is created, they become direct competitors in winning market shares (West & Gallagher, 2006, p. 322).

Lastly, we will mention **increased complexity of technologies**, which is one of the major motives for firms to access external knowledge, since their clients demand complete and multi-functioning solutions with integrated technologies (Belderbos et al., 2012, p. 162; Cantwell & Zhang, 2012). Various partners have to combine their technologies when designing new solutions, and such collaboration enables sharing risks and costs of radical innovation (Fernandes, Cesario, & Barata, 2017, p. 161).

### **3.2 Effect of Open Innovation Collaboration on Firm's Performance**

Firms that form partnerships outperform those firms that do not collaborate externally (Lokshin et al., 2011, p. 305). Santamaria et al. (2010, p. 109)<sup>12</sup> found that organisations from both high- and low-technology sectors which are utilizing OI are more successful in their R&D efforts. Cheng and Huizingh's (2014, p. 1247) study<sup>13</sup> suggests that managers should open up their firms' innovation processes since OI impacts the broadest range of performance measures. Belderbos et al. (2012) conducted an analysis of previous studies which have tested the results of collaboration in R&D on the general (innovative) performance of firms under observation. They found that the majority (50 %) of studies have shown positive results on firms' performance when collaborating in R&D, whereas 33 % found no significant impact, 14 % negative impact and 3 % other (Belderbos et al., 2012, p. 169). Even if collaboration did not prove to be successful in *all* studies examined by Belderbos et al. (2012, p. 173), the statistics show that it rarely has a negative effect on the firms' performance, which in turn explains why collaboration remains popular. In a large majority of cases, a firm will either profit or remain in the same position.

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<sup>12</sup> Empirical analysis based on a large sample of Spanish manufacturing firms from 1998 to 2002.

<sup>13</sup> They interviewed 223 Taiwanese service firms.

Different empirical studies measured firm *performance* with different indicators such as economic-performance measures (profits, productivity and market valuation), patents, product/process innovations and sales from new products and process innovations (Belderbos et al., 2012, p. 171) as well as customer satisfaction and loyalty (Cheng & Huizingh, 2014, p. 1239). Most positive effects on firm's performance as a result of R&D collaboration were observed when the studies applied measures such as product innovation, sales of new products or number of patents (Belderbos et al., 2012, p. 173). Note here that patents, however, might not be the best performance indicator. Von Hippel (2005, p. 84) argues how many innovators do not see patents as something valuable and that firms (and individuals, such as users) are becoming proactive in *sharing* their innovation ideas because this increases their reputation, results in positive network(-ing) effects and even pre-empts competitors. Even though numbers of patent registrations have rapidly increased in the past 30 years, other empirical measures of innovation remain stagnant, which is the so called **patent puzzle** (Harding, 2016, p. 204). Harding (2016, p. 205) attributes a large share of this to patent trolls – firms which do not hold a genuine manufacturing capability however accumulate patents only to pursue infringement suits and earn revenue. Alternatively, to measure collaboration success, interview data can be employed, where managers are asked to assess the performance of the partnership (Lokshin et al., 2011, p. 298). Such surveys can also provide information on how collaboration changed the firm as such – impacted its internal culture and business model.

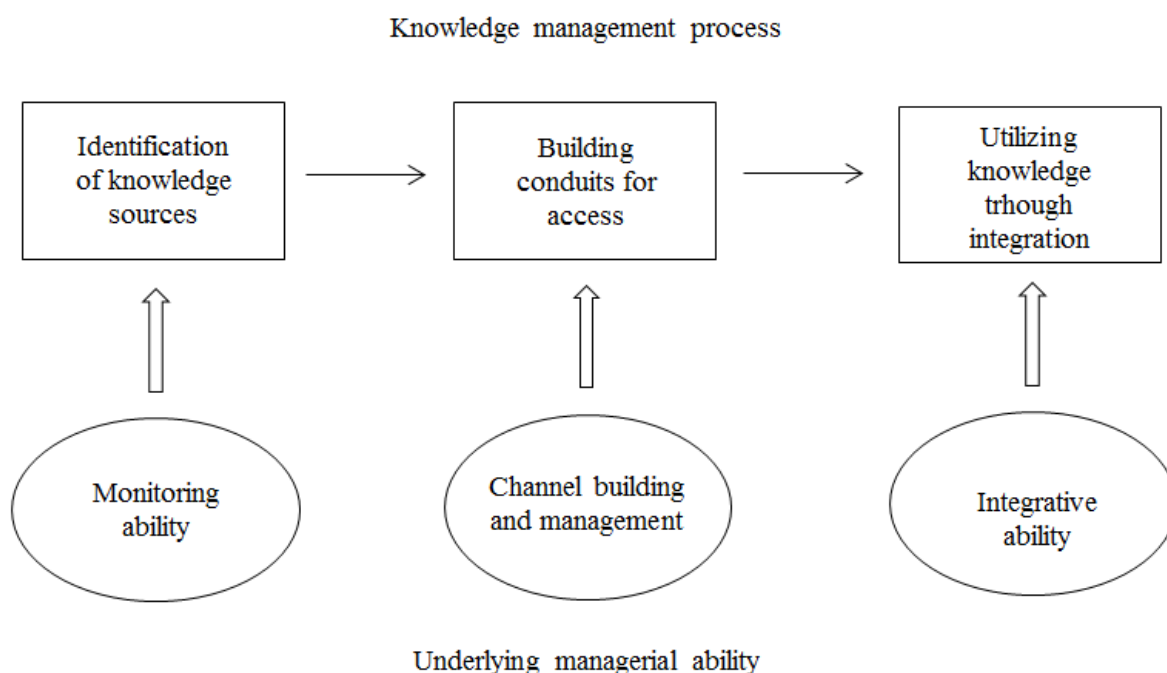
### **3.3 Towards Open Innovation Collaboration**

Knowledge is the basis of a firm's sustainable advantage since it cannot be easily copied and thus those capable of successfully developing, transferring and exploiting knowledge are most likely to succeed (Kogut in Almeida & Phene, 2012, p. 21). Besides developing internal knowledge, a firm can also find it from external sources since, as suggested by OI, not all knowledge can be most efficiently produced in-house. Employing OI enables a firm to systematically explore a wide range of internal and external sources for innovation opportunities and integrate external findings with firm capabilities and resources (West & Gallagher, 2006). Searching for external knowledge is not a substitute, but a complement to internal innovation (Chesbrough & Kardon Crowther, 2006, p. 253) that enables the firm to focus on a smaller fraction of the "whole product" (West & Gallagher, 2006, p. 329).

Figure 1 on the next page displays the **knowledge management process** adapted from Almeida and Phene (2012, p. 33) with underlined importance of managerial ability. They explained the process on the example of corporate-subsidary interaction, whereas we could argue that the same process takes place in all external knowledge search activities. The three process phases are: firstly, the management needs to monitor the environment to identify knowledge; secondly, set channels for knowledge transfer; and finally, integrate (absorb) it in the corporate structure.



Figure 1: Knowledge management process



Applied from P. Almeida & A. Phene, *Managing Knowledge Within and Outside the Multinational Corporation*. In M. Andersson, B. Johansson, C. Karlsson, & H. Loof (Eds.), *Innovation and Growth: From R&D Strategies of Innovating Firms to Economy-wide Technological Change* (pp. 21–38), 2012, p. 33.

Searching as well as utilizing external knowledge can be very complex. In this section we will elaborate on the firms' activities when utilizing OI, more specifically, when collaborating with external partners or drawing from external sources of knowledge. In sum, the phases of cooperation are (WEF, 2015, p. 11):

- **Preparation phase:** define objectives, search for right partners, give attention to corporate culture to ensure that the employees support collaboration;
- **Partnering phase:** negotiate and define projects with partners; define benefits, risks and governance structure; and
- **Pioneering phase:** continually adapt the partnership to ensure mutual and sustained benefits for all partners involved.

### 3.3.1 Identification of Suitable Sources of Knowledge

Firms need to put effort into searching for external knowledge. The process of searching is easier when they are part of formal or informal networks such as industry clusters, associations and research communities (WEF, 2015, p. 14). Firms that foster links to other stakeholders are also less likely to encounter difficulties in the collaboration process itself

(Lokshin et al., 2011, p. 305). Spender, Corvello, Grimaldi and Rippa (2017, p. 12)<sup>14</sup> looked more closely at the specific group of smaller and younger firms – start-ups and found, that the majority of them perform better when they (1) have a large (broad) network from which they can draw knowledge; (2) hold a balanced portfolio of long and short-term relationships with partners; and (3) occupy a central position in the network, which means that they have an easy and quick access to other firms. Larger, more prominent firms, such as corporations can search for partners through specialised advisers or intermediaries, for example by taking part in specific Meet & Match events (WEF, 2015, p. 14). Because of their already existing brands, they are also publishing and advertising their innovation needs in order to attract potential partners' attention. Examples of these are the Heinekens' webpage dedicated to innovation and submission of ideas by external actors; Siemens's *Technology to Business* platform, where they explicitly specify what their corporation can bring to the table; a Slovenian example is Iskratel's *Startup program*.

Corporations are equipped with characteristics that make knowledge search and integration easier. Through interviewing design managers and inventors of seven ICT corporations Almeida and Phene (2012, p. 33) found that “knowledge-managing advantages of a corporation lie in its ability to use rules to standardized procedures and formats, directives to administer coordination between units, inter-personal relationships between employees, and a common culture to facilitate communication and cooperation.” They also found that the knowledge-management process depends on the type of knowledge being transferred and integrated (Almeida & Phene, 2012, p. 33). For example ICT companies often operate with highly technical information, which can be codified (standardized) rather easily. This in turn means that transferring and integrating such knowledge does not require much coordination and communication, whereas some other type of information might.

Management which is utilizing OI is challenged by the external environment changes, to adapt corporate search strategy to shifts in the availability of technological opportunities, the degree of turbulence and the search of activities of other firms in the industry (Laursen & Salter, 2006, p. 147). A major advantage of corporations against exclusively domestic firms is that they work in several geographically and culturally distinct environments simultaneously, and knowledge flows between different subsidiaries and headquarters (Almeida & Phene, 2012, p. 28). The corporations' capability for locating valuable knowledge in subsidiaries is somehow training for OI management with other stakeholders. To benefit, managers of corporations thus need to establish a range of formal and informal linking mechanisms to coordinate fruitful relationships between all parts of the firm in order to identify and access valuable (semi-) external knowledge from different environments (Almeida & Phene, 2012, p. 23). Cantwell and Zhang (2012, p. 96)<sup>15</sup> have

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<sup>14</sup> They have analysed the results of 41 studies.

<sup>15</sup> They analysed world's 66 largest firms in the electrical equipment industry and the criteria were patent data, collected by the United States Patent and Trademark Office (in short USPTO) from 2001 to 2003.

found that although the corporation's home country remains the single most important source of knowledge generation, almost 10 % of knowledge in electrical engineering sector originates from the subsidiary's host countries and this share is increasing. If managers succeed in integrating dispersed knowledge, the innovative performance of the corporation as a whole improves (Cantwell & Zhang, 2012, p. 107).

Besides subsidiaries, contributors or sources of external knowledge are also fellow industry firms or competitors, customers, consumers or users, suppliers, start-ups, universities, research organisations, the government, non-governmental organisations, etc. The co-location of knowledge matters because exchange of industry specific knowledge thrives in geographically proximate environments and similar technology bases (Almeida & Phene, 2012, p. 27; Nooteboom et al. in Belderbos et al., 2012, p. 169). Most large companies have 8 to 12 different external shareholder groups, however, collaboration is fruitful only with two or three (Lindegaard, 2017). This means firms have to prioritize and nowadays **users, suppliers** and **start-ups** are at the top of the list (Lindegaard, 2017). A survey conducted in UK found that suppliers and users are the most important source of external knowledge for manufacturing firms (Laursen & Salter, 2006, p. 138). Collaboration with these stakeholders is non-competitive or vertical and helps improve efficiency and reduce production costs (Fernandes et al., 2017, p. 155). A. T. Karney survey found that 40 % of corporations look for external ideas in large suppliers and 60 % in users, with the tendency to increase the reliance on the input from both even more in the future (Engel et al., 2016, p. 117). On top of that, 67 % of corporations surveyed also expect to increase the role of start-ups and small suppliers (Engel et al., 2016, p. 117). Suppliers historically innovated on a **technology push** basis, which meant improving the properties of their existing products or developing new ones, which would in ideal case be of use to someone out there (Economist Intelligence Unit, 2007, p. 11). Today there is much more **market pull** and suppliers closely observe their clients' needs and even actively cooperate to try predict the client's future, to be able to service their needs accordingly (Economist Intelligence Unit, 2007, p. 11). This too can be understood as an OI manifestation.

Every corporation willingly or spontaneously employs a search strategy to find external sources of knowledge. The strategy is determined by the companies' previous experience and managers' future expectations (Levinthal and March in Laursen & Salter, 2006, p. 143). To measure firm's openness of search for external knowledge Laursen and Salter (2006, p. 143) introduced two concepts: **external search breadth** and **depth**. Breadth is "the number of external sources or search channels that firms rely upon in their innovative activities". External search depth on the other hand is "the extent to which firms draw deeply from the different external sources or search channels". Together they are the **openness of firms' external search process**.

On average UK manufacturing firms for example draw knowledge from maximum seven sources however only from one source deeply (this is advanced levels of cooperation with

frequent interaction) (Laursen & Salter, 2006, p. 138)<sup>16</sup>. In industries with medium- to high-technological activity, such as for example chemicals, electrical and machinery, firms search for external knowledge across many different groups of sources – they search widely. On the other hand, low-technology firms consider fewer sources (Laursen & Salter, 2006, p. 138). More innovative and R&D intensive firms are more likely to collaborate externally through forming partnerships (Lokshin et al., 2011, p. 303) and with some exceptions have the highest rates of external search openness – draw *deeper* and from several sources (*broader*) (Laursen & Salter, 2006, p. 138). Examples of highest rates of openness provided by Laursen and Salter (2006, p.138) are the chemical and electrical industries, which exhibit the greatest share of radical innovators and the largest R&D intensity among all manufacturing industries. Laursen and Salter (2006) also found that the depth and width of search depends on the expected radical or incremental impact of innovation. The more radical the innovation, the less effective it is to employ broad search for external knowledge (Laursen & Salter, 2006, p. 144). In radical innovation, ideas come from a narrow range of sources such as users, suppliers and universities and drawing of knowledge from those few sources is deeper (Laursen & Salter, 2006, p. 145). In incremental innovation, ideas come from a broad range of sources but draw less intensively – do not go deep (Laursen & Salter, 2006, p. 137). In sum, the depth and breadth of search depends on the R&D intensity of the firm, employment of high- or low-technology and the expected impact of innovation (radical or incremental).

Search for knowledge outside the organisation has to be smart and well-thought through. Over half of corporations were found to be critical of their formal external collaboration search strategies, rating them very poor, poor or fair (Engel et al., 2016, p. 121). Laursen and Salter (2006, p. 135, 142) found that companies might over-search and consider too many sources which can have a negative impact on their innovation performance with decreasing returns. The tipping point when the returns from utilizing external sources start decreasing was found to be at 11 sources of external knowledge and drawing from maximum three sources intensively (deeply) (Laursen & Salter, 2006, p. 143). Similar was found by Cantwell and Zhang (2012, p. 90) for the case when a corporation tries to access too many geographically dispersed sources and technologically diversified knowledge from its own subsidiaries. Large networks were found to be beneficial also to the performance of start-ups, however they, too, can be negatively impacted when the networks become too strong and complex (Spender et al., 2017, p. 12). Too many resources – either people or funding, are used up to filter and analyse among the sources. If there are too many ideas a firm has to give the required attention to, and on top of that the timing of when the ideas are presented is off (either too soon or too late to exploit them fully), the firm becomes inefficient (Koput in Laursen & Salter, 2006, p. 135).

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<sup>16</sup> Laursen and Salter (2006) analysed the data from the UK innovation survey, implemented in 2001, by posing questions to managers of 2707 manufacturing firms directly.

### 3.3.2 Forming the Relationship to Collaborate Externally

A firm will only compete successfully, gain profitability and grow if the external knowledge is finally channelled and integrated in its internal processes (Almeida & Phene, 2012, p. 22). Several different collaborative practices – different ways to utilize OI, can be employed where the firm can **access** new knowledge, **share** its own knowledge with external entities or do both simultaneously (Almeida & Phene, 2012, p. 27; EIRMA in OECD, 2008 pp. 37–40; Santamaria et al., 2010, p. 96). Below we list different practices, which we classified in three groups: access external knowledge, share and both.

**Access – inbound OI** where an organisation acquires knowledge from various stakeholders to enrich its own knowledge base (Chesbrough & Kardon Crowther, 2006):

1. mobility of people – hiring technology consultants; hiring new employees who can transport knowledge from other companies and fields of work;
2. purchase technology or acquire a patent – a firm can do this quickly, however, it remains dependent on the company holding the patent rights;
3. Merger & Acquisition – M&As refer to economic transactions where one entity acquires control over another; usually require large investments and are the beginning of a long-term relationship between entities. This strategy is often employed for corporations' core business areas (Belderbos et al., 2012, p. 173);
4. hiring an external organisation to perform R&D – outsourcing the entire R&D.

#### **Access and share:**

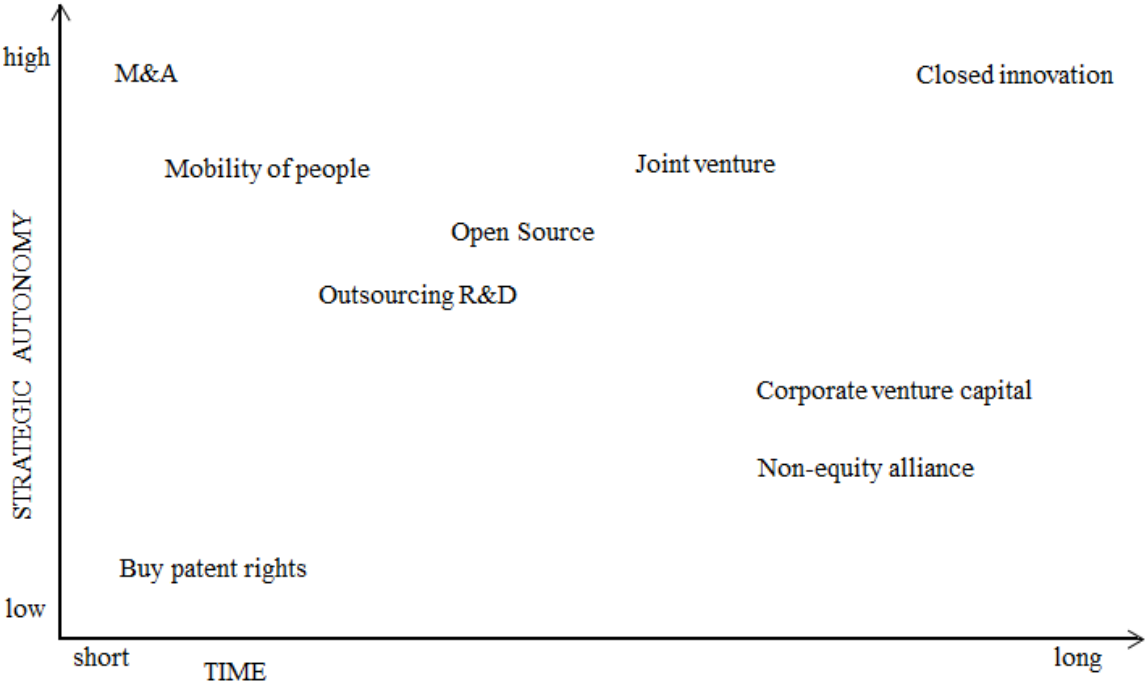
5. non-equity alliances as informal knowledge sharing, or organising scientific exchange of employees; most often utilized in partnerships between companies and research institutions. Bayer AG for example has an exchange program with United States Universities Massachusetts Institute of Technology and Harvard in the field of oncology (WEF, 2015, p. 14). In this alliance both partners bring in different perspectives and utilize complementary skills;
6. corporate venture capital (hereinafter: CVC) – internal corporate VC fund from which resources are passed over to a risky but promising young company; equity stake;
7. joint ventures – where both partners contribute resources to a new legal entity to pursue joint development;
8. open source – access external knowledge for free or make technology freely available to external parties to form informal development partnerships without contracting (Henkel, 2006, p. 954).

**Share – outbound OI**, where an organisation explores external ways to market for a particular technology they have developed (Chesbrough & Kardon Crowther, 2006, p. 229):

- 9. patent licensing – where a licensor transfers technology to someone outside the company, granting them the right to exploit it in the long term in exchange for agreed fees or royalties (Hossain & Simula, 2017, p. 12);
- 10. spin-off – not in terms of losing innovative staff but selling parts of the business (establishing a separate business unit) to increase the chances of a specific technology succeeding away from the mother corporation. Spin-offs have the advantage of being able to develop their own processes and culture, different from the corporations’ (Edison et al., 2018, p. 74). Part of equity remains with the mother corporation, which profits if the spin-off is successful. Corporations foster ideal environments for spin-offs to emerge, since they have the largest innovation budgets on one hand and substantial bureaucracy barriers which might prevent internal commercialisation of some innovations on the other (West & Gallagher, 2006, p. 329).

The slightly modified OECD (2008, p. 39) diagram in Figure 2 below shows the above listed options 1 to 8 of external knowledge sources, classified according to two dimensions: **time** dedication and **autonomy** of the partner. On the upper right edge of the diagram is **in-house development** – *de facto* closed innovation; the do it yourself model, which requires a lot of time but makes the firm more independent. On the completely opposite side we placed **buying technology or licencing**, which requires little time, since the technology is already developed, however, leaves the firm dependant on the patent or technology holder.

Figure 2: Open innovation models – strategic autonomy versus dedicated time



Applied from OECD, *Open Innovation in Global Networks*, 2008, p. 39.

In different situations, different OI models are most appropriate. For high-technology innovation for example, choosing more integrated cooperation models such as CVC brings better results (Santamaria et al., 2010, p. 109). This is due to the fact that such kind of innovation requires complex coordination procedures and is confronted with dispersed knowledge which needs to be pooled together. On the other hand, OI in low-technology partnerships is more efficient when they use less integration as for example external consultants or hiring new experts (in Figure 2 above “mobility of people”). Such industries usually integrate and adapt innovations which have already been standardized by high-tech corporations.

#### 4 CORPORATE-START-UP COLLABORATION

When considering their general characteristics, corporations and start-ups are extremely complementary, which is why both kinds of firms should collaborate in order to exploit each other’s strengths. Research showed<sup>17</sup> that 82 % of corporations now see interactions with start-ups as at least somewhat important and 23 % say it is critical to their business (Imaginatik & MassChallenge, 2017, p. 2). Corporations want to transform start-ups into “engines of corporate innovation” (Weiblen & Chesbrough, 2015, p. 68). On the other hand, 99 % of start-ups expressed at least some desire to work with corporations (Imaginatik & MassChallenge, 2017, p. 13), and this shows that start-ups need corporations slightly more than vice versa, which is to a large extent due to lack of their own resources, forcing them to look for partners (Usman & Vanhaverbeke, 2017, p. 182).

In recent years, we can observe a change in how corporations and start-ups collaborate. For corporations the biggest motivator behind collaboration today is to explore new technologies and business models (60 % responses), followed by exploring emerging industries (26 %) (Imaginatik & MassChallenge, 2017, p. 5). These activities are **early product lifecycle**, where many times the product does not even exist yet. Corporations need start-ups especially in early stages of the product life cycle, where they need to draw external knowledge *deeply* from a *small* number of key sources of innovation (Laursen & Salter, 2006, p. 146). Start-ups possess the innovative niche know-how which is of great value to the corporation until later in the products’ life cycle, when the inventions are challenged by competitors. At that point, the specific knowledge spreads and the corporation can draw from a more diverse pool of knowledge sources, where new combinations of existing technologies can contribute to product improvements (Laursen & Salter, 2006, p. 146).

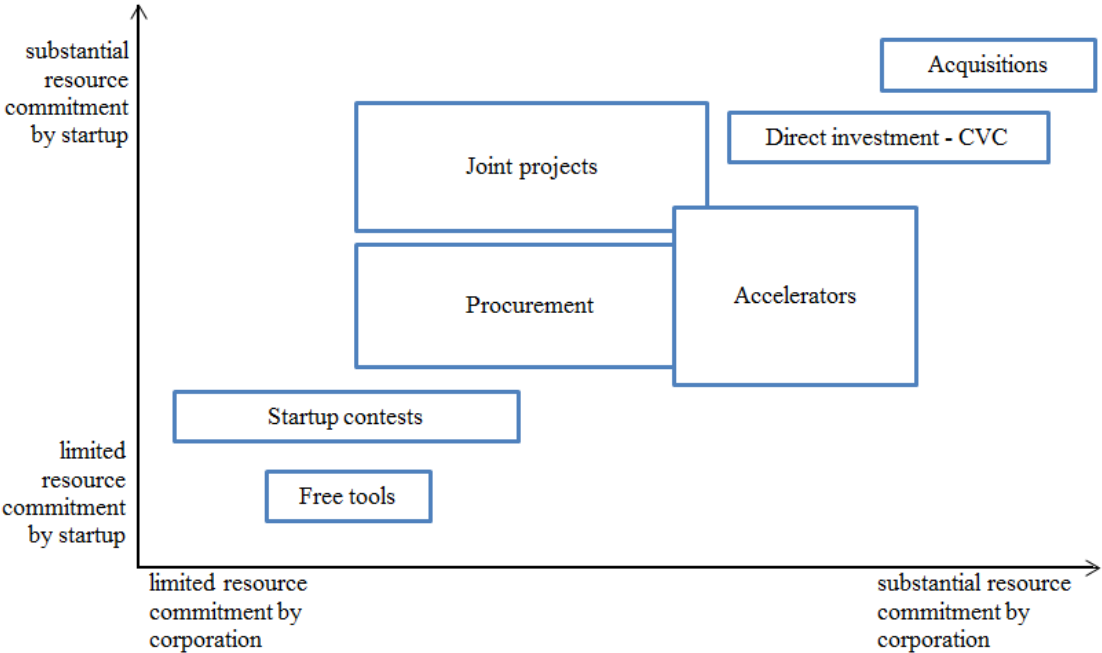
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<sup>17</sup> The study by Imaginatik and MassChallenge (2017) which investigates corporate-start-up collaboration was conducted in 2016 on a sample of 112 corporations and 233 start-ups across diverse industries and geographical dimensions. 48 % of responding corporations have more than 10,000 employees; 44 % have annual revenues greater than \$5 billion. 64 % of start-ups interviewed have five or less employees; 59 % were not generating revenues at the time of interviews.

The focus on early stage collaboration is a new phenomenon since in the past corporations were predominantly acquiring start-ups which were right before entering the market and were expected to generate their first earnings. Today only 10 % of corporations *predominantly* invest in start-ups to earn returns on (venture) investments, whereas only 14 % of start-ups collaborate with corporations to secure acquisition (Imaginatik & MassChallenge, 2017, p. 6, p. 16). This means that investments and acquisitions follow later, as a means of deepening the already existing knowledge exchange relationship (Imaginatik & MassChallenge, 2017, p. 6). A typical start-up that is being acquired is eight years old, has 12–50 employees and rises on average \$127 mio in capital (Mind the Bridge, 2017, p. 27). Until 2015 there have been more than 15,500 start-up acquisitions worldwide and top three start-up acquirers since 2010 are Google, Facebook and Yahoo!, which are not funds but corporations (Mind the Bridge, 2017, pp. 18–22).

There are many practices of corporate-start-up collaboration which can service specific needs of future partners, with regard to their capacity. In Figure 3 below, we can see them distributed on the two-dimensional scale from **limited** to **substantial** resource commitment by start-up and limited to substantial resource commitment by corporation. The figure indicates that *free tools* provided by one of the partners are on the limited side of the chart whereas *CVC and acquisitions* are on the opposite and require the largest commitment of both partners. Below we will briefly discuss different practices of corporate-start-up collaboration.

Figure 3: Different practices of corporate-start-up interaction and commitment



Adapted from S. Bannerjee, S. Bielli, & C. Haley, *Scaling Together: Overcoming barriers in corporate-start-up collaboration*, 2016, p. 6.



**Giving out free tools** (outbound OI from the corporate perspective), such as for example the PayPal paying system, is a way for corporations to test the tool on a population of young companies and ultimately prove commitment to the established firms, that the tool is working and how it can contribute to their businesses. Start-ups can enjoy free tools – the so called freemium treatment, up to a certain point and when they begin accumulating revenues, they become a paying customer, generating a new revenue stream for the corporation (Weiblen & Chesbrough, 2015, p. 79).

**Procurement** (inbound OI from the corporate perspective) is when a start-up supplies products to the corporation and services its needs – the corporation is start-ups' high-profile client (Kohler, 2016, p. 349). Procurement is often traditional collaboration with contracting, and one could argue that in such collaboration there is not much joint work, and the contractor merely buys knowledge on the market (OECD/Eurostat, 2005). A corporation can license the start-up's intellectual property or acquire patented technology (Bannerjee, Bielli, & Haley, 2016, p. 27). In procurement, the innovation already exists, and the corporation either uses it as it is, or builds upon it by incorporating it into its own internal innovation process.

**Joint projects** are time-limited, narrowly focused specific product co-developments or market exploration efforts intended to solve a specific business challenge or to service an innovation need (Kohler, 2016, p. 349). Partners can merge their individually developed solutions and temporarily exchange people (Minshall et al., 2010, p. 61). In order to successfully manage projects, project teams have to be constructed, where members are both corporate employees as well as the start-ups. Such projects have a specific pre-determined time frame and budget.

In 2015, 40 % of corporations interviewed by Imaginatik and MassChallenge (2017, p. 9) started using **innovation labs**, versions of **incubators**, **accelerators** or **start-up contests** (see Schaeffer, 2015), often called **hackathons**, to manage relationships and match with start-ups. Such organisational setting is suitable for time-limited start-up hosting either in physical or virtual form (Schaeffer, 2015). Through them corporations search for useful external knowledge and innovations that could be incorporated in their own businesses (inbound OI). The incubators have an important role of an interface to facilitate corporate-start-up interactions (Kohler, 2016, p. 347) and give the corporations visibility and the ability to perceive the market through external viewpoint (Schaeffer, 2015). If properly managed the incubator has the scale and scope of a large, established corporation on one hand and the entrepreneurial spirit of small start-ups on the other (Kohler, 2016, p. 348). They can specifically contribute to internal corporate culture when external ideas and contacts are utilized to stimulate internal innovation (Weiblen & Chesbrough, 2015, p. 81). Most importantly when corporate employees participate at contests, this can contribute to corporate culture (Kohler, 2016, p. 351). In 2017 a Slovenian company Petrol organised a hackathon, where each external group at the contest was also assigned minimum one

member from the firm itself. If properly managed and empowered, these corporate individuals taking part in the contest could later act as internal advocates of change. Start-ups or external teams on the other hand, depending on the duration of incubation and involvement into the contest, receive mentoring, corporate technological and strategic expertise and a possibility to access their commercial network (outbound OI) (Kohler, 2016, p. 348). Accelerators usually offer a seed investment (equity stake) when the start-up begins the incubation, whereas hackathons focus on rewarding the best team after the contest is finished.

Investments into perspective start-ups can also be autonomous, without institutionalised acceleration. Such **direct investment**<sup>18</sup> of CVC into a start-up enables the corporation to participate in external innovation and gain insight into non-core business and new markets, tapping into new sources of growth (Weiblen & Chesbrough, 2015, p. 81). Each of the partners brings to the partnership complementary characteristics. The resources required for such collaboration depend on how much is invested since CVC impacts the equity distribution of the start-up where corporation gains some control over it. After the investment is made, the investors might require the start-up to set up a clear governing structure. In this stage the organic work environment in the start-up begins to grow more structured (Freeman & Engel, 2007, p. 104). Such partnership requires close attention of corporations' top management because of equity stake in the start-up, where due diligence, monitoring and board meetings are necessary (Weiblen & Chesbrough, 2015, p. 71). It requires periodical reporting and renewing contracts (Weiblen & Chesbrough, 2015, p. 80), where funding is not allocated in one batch but gradually when contract goals are met.

CVC is besides acquisition the most integrated cooperation among start-ups and corporations (see Figure 3 above). In the first quarter of 2017 26 % (or \$3.6 billion) of all VC invested was CVC, where its share in the last three years fluctuates between 22 and 26 % of total VC investments (PwC, 2017, p. 10). The size of CVC shows that corporations are increasingly looking for external knowledge to complement their everyday processes and engage with innovations that are not necessary related to their core business (OECD, 2008, p. 39). Contrary to VC funds the objective of CVC is not capital appreciation, but instead the evaluation of external ventures' technologies for applicability inside the parent corporation (Chesbrough & Kardon Crowther, 2006, p. 234). Collaboration in the form of CVC was found to be especially appropriate for radical innovation since this way the corporation avoids cannibalization of innovation budgets from other departments and isolates experimenting on non-core business from their everyday processes (WEF, 2015, p. 18). CVC funds can also be syndicated, when more than one corporation join funds to invest in (usually) more than one promising start-up (Anokhin, Öerqvist, Thorgren, & Wincent, 2011, p. 135). Benefit of syndicated investments is that start-ups can be much

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<sup>18</sup> Sometimes incubation and direct investment are closely connected – corporation incubates start-ups it invests in.

more easily found because of constant start-up search flow (Anokhin et al., 2011, p. 137) and lower due diligence costs for individual co-investing corporations (Weiblen & Chesbrough, 2015, p. 87). A downside of syndication however is a larger chance of leaking knowledge within networks to competitors (Anokhin et al., 2011, p. 145). As also in the case of incubation, start-ups in which corporations invest, gain assistance in the form of social capital, access to corporate networks, market access and a supply of materials and personnel – which is an important insight into the industry that both the corporation and start-up work in. For start-ups this is especially of high value in industries with high barriers to enter, as for example the automotive (WEF, 2015, p. 18).

#### **4.1 Benefits of Corporate-Start-up Collaboration**

According to Ireland et al. (2003) all firms should engage in **strategic entrepreneurship** activities – to combine new opportunity seeking behaviour (entrepreneurship) with advantage seeking behaviour within existing processes (strategic management), which results in the creation of wealth. Namely, wealth creation cannot be sustainable merely on the premises of entrepreneurial opportunity seeking through risky radical innovation processes, since this should be buffered with adequate internal process improvements; radical innovation should not take place at the expense of incremental, even if the current competitive environment might indicate differently (Ireland et al., 2003, p. 983). This means that one firm has to be skilled in traditionally corporate as well as entrepreneurial activities, however when this is not possible, collaboration is a close substitute. Most benefits of OI are expected when organisations not only share knowledge but actively collaborate with each other in their innovation processes.

Corporations and start-ups have different capabilities to innovate (Christensen, 2003): corporations have resources, connections to supply chains and market access whereas start-ups have speed and dedication. Corporations are skilled in developing and sustaining competitive advantage whereas start-ups are skilled in seeking opportunities (Ireland et al., 2003, p. 966). Start-ups and corporations are very different, which makes them an excellent fit for active collaboration where they can fill each other's gaps, listed in Table 2 on the next page.

Table 2: Start-ups' and Corporations' capabilities and Challenges

	<b>Start-ups</b>	<b>Corporations</b>
<b>C A P A B I L I T I E S</b>	<ul style="list-style-type: none"> <li>- lower risk at problem solving</li> <li>- reinventing corporate brands and attracting new customers, partners and talent</li> <li>- rejuvenating corporate culture by creating awareness of new technology and mind-set</li> <li>- closeness to sources of tech- knowledge, that is universities and research centres</li> <li>- flexible organisation structure</li> <li>- faster response to market demands</li> <li>- quick business-specific problem solving because they are closer to users, have flexible organisation of work and fresh perspectives</li> </ul>	<ul style="list-style-type: none"> <li>- various available resources</li> <li>- access to (traditional) funding</li> <li>- market reach</li> <li>- technical expertise</li> <li>- brand exposure</li> <li>- regulatory and compliance expertise</li> <li>- IP protection knowledge</li> <li>- customer validation</li> </ul>
<b>C H A L L E N G E S</b>	<ul style="list-style-type: none"> <li>- scarcity of resources</li> <li>- unavailability of traditional funding (bank loans)</li> <li>- incapable of scaling production</li> <li>- have few distribution channels</li> <li>- market entry problems</li> </ul>	<ul style="list-style-type: none"> <li>- if resources are fixed, it can be problematic to utilize them for innovation</li> <li>- risk averse and tough risk management (can sometimes slow down innovation processes not directly in line with corporations' core business)</li> <li>- bureaucracy and inertia – slow information flow, less flexibility, less creativity</li> </ul>

Adapted from WEF, *Collaborative Innovation: Transforming Business, Driving Growth*, 2015, p. 9.

In previous section, we elaborated on different corporate-start-up partnerships and observed that start-ups benefit from all in a very similar way. Start-ups either expect to win the corporation as a potential customer, gain visibility, reputation, market knowledge or access to contacts (Bannerjee et al., 2016, p. 7). There is a distinction in reasons why to approach corporations by B2B start-ups, which offer solutions to businesses and B2C start-ups, offering products directly to customers. B2B start-ups often see partner corporations as customers whereas B2C start-ups mostly expect gains from established corporate marketing channels (Imaginatik & MassChallenge, 2017, p. 14). For this reason, the benefits of corporate-start-up cooperation we elaborate on in the next section are mostly written from the perspective of the larger party, the corporation.

#### 4.1.1 Leveraging Structural Advantages of Small Start-ups

Entrepreneurs working in start-ups take part in a special kind of dynamics where employees are completely dedicated to the process of building up the company and competing against other entrepreneurs who are starting their own business paths (Freeman & Engel, 2007, p. 101). In large corporations the interaction between multiple layers of management is more complicated, and top management interacts with innovation teams less frequently (Freeman & Engel, 2007, p. 102) so large efforts need to be put in properly communicating the purpose and mission of the company in order for it not to get lost in the long chain of commands. Freeman and Engel (2007, p. 113) argue that creativity in innovation process thrives in an organic structure of the enterprise whereas the commercialisation part requires discipline. This is where start-up and corporation are complementary. Start-ups have organic structure and corporations have disciplined systems in place.

A corporation can, for example, not be able to commercialise a technology due to its business model constraints. With corporate-start-up collaboration, the corporate core business can be extended with less risk and fewer resources (OECD, 2008, p. 40). When its business model does not fit the new invention, licencing intellectual property to a start-up, might be a better idea, since the small company can tailor its business model with relatively low costs to fit the invention, which can then be successfully put to the market (Chesbrough & Chen, 2013, p. 97). This can be cheaper than pursuing development in house, which would require redistribution of innovators or even new hires to build new teams and put pressure on established communication channels, incentive schemes and resource allocations (Freeman & Engel, 2007, p. 112).

Start-up is according to Ries (2011) a perfect organisation to quickly test the innovation because with small batches it is capable of (1) building the innovation, (2) observing the response of the customers and (3) learning from it (the build-measure-learn feedback loop) much faster than larger firms. With collaboration with a corporation, the start-up receives funding whereas the corporation gains knowledge on multiple technology development areas (Freeman & Engel, 2007, p. 112). The result is that the innovation can be brought to market without the corporation having to endure a costly redistribution of resources (Freeman & Engel, 2007, p. 112).

#### 4.1.2 Stimulating Corporate Employees to Embrace Innovative Culture

Mentoring a start-up in-house can help promote innovation among the corporation's employees (Chesbrough, 2003, p. 56). It can have immediate effect on those employees working with the start-ups and they can further transfer the experience deeper into the corporate organisation. The corporate culture is rejuvenated and internal learning encouraged through fresh ideas and problem solving approaches (Bannerjee et al., 2016, p.

10). Contact to creative teams can encourage corporate teams to accept entrepreneurial mind-set – seeking opportunities where others see barriers (Kuratko, 2009, p. 425).

#### 4.1.3 A Tool for Investing in Future Technologies to Ensure Growth

If a corporation is expecting financial risk in its R&D projects due to uncertain markets, they are more likely to seek for external partners (Lokshin et al., 2011, 303). Collaboration with start-ups gives the corporation an opportunity to study the area of potential interest. Start-ups become pilots for potential market opportunities. In this way, they can test if the market is ready for a disruptive technology either through offering it to customers via the start-up or even using the start-up as a customer by giving out free tools to try out (Weiblen & Chesbrough, 2015, p. 79). Such trials are costly and risky but are the best market research tool available, since real people pay real money for products offered (or used) (Chesbrough, 2003, p. 55).

In this sense, corporation and start-up that are collaborating might be competitors and choose to share development costs where each of them contributes complementary strengths – the start-up contributes speed and the corporation brings funding and experience (OECD, 2008). Due to knowledge spillover risk corporations usually collaborate with direct competitors (such as other corporations) on protected (patented) or non-vital parts of their businesses (Fernandes et al., 2017, p. 155). This barrier can be defeated when collaborating with competitive start-ups since the two types of organisations are complementary and asymmetric, making a spillover of knowledge to the start-up result in less damage because such companies lack (financial) capabilities to commercialise it.

#### 4.1.4 Realisation of Opportunities from Accumulated Innovation

Corporations accumulate ideas and technologies that never get commercialised because they lay outside current corporate strategy, are considered non-core or do not fit the existing corporate business portfolio (Hossain & Simula, 2017). OI is a tool for corporations' mature technology to move faster out of the lab. Developed but unused knowledge, possibly even collected in patents, is valuable however hard to estimate. In 2003, an EU project called PatVal, estimated that about 36 % of European patents are not used for industrial or commercial purposes whereas only 13 % are licenced out (Gambardella et al., 2005, p. 5). One reason for this could be the **not sold here virus**, when the business decides that if *they* will not capitalize on the invention, *no one* should (Chesbrough, 2003, p. 186). Un-commercialised intellectual property is a waste of corporate resources, demoralising the innovators who produced it and cluttering the internal innovation process (Chesbrough, 2006, p. 26). Therefore, also out of self-interest, corporations nowadays increasingly want to capitalize on the knowledge they have developed, which in practice means they are licencing out more “shelved” intellectual property (Chesbrough, 2006, p. 26; OECD, 2008, p. 21). This is happening even in

industries which have traditionally been piling up unused patents and inventions, such as the pharmaceuticals, where corporations heavily utilize patents to protect potential candidate compounds (Chesbrough & Chen, 2013, p. 97).

Chesbrough (2006) argues that intellectual property should be more like **intellectual partnering** with more information flow and genuine sharing. The emphasis should not only be on licensing out technology but also other ways of outbound OI – joint projects with existing start-ups and licencing out technology to spin-offs *coupled* with capital investments in the form of CVC (Hossain & Simula, 2017, p. 16). Start-ups have difficulties at gaining access to patented technologies because transaction and legal costs are often too high, however, when partnering with a corporation, a mutual agreement can be achieved so both benefit – the corporation commercialises their technology, and the start-up receives knowledge to supplement their processes.

#### 4.1.5 Start-ups Receive Credibility

Finally, we mention one specific benefit of corporate-start-up collaboration which is of major significance for start-ups. Innovative start-ups have difficulties obtaining traditional funding and the involvement with the corporation provides funding on one hand whereas it also creates a halo-effect, where the first partnership the start-up successfully seals – especially if the latter is with an established corporation, gives the start-up credibility for further partnership initiations (Usman & Vanhaverbeke, 2017, p. 179). This is a major benefit for the start-up for which funds which would enable sustainable growth are often a scarce commodity.

## 4.2 Obstacles to Corporate-Start-up Collaboration

According to 45 % interviewees of the Imaginatik and MassChallenge (2017, p. 7) the **strategic fit** (future focus, product fit and corporate culture) is the most important factor for successful collaboration. 55 % corporations and 60 % start-ups stated that collaborating with each other has brought at least some success (Imaginatik & MassChallenge, 2017, p. 19). Too many corporations, however, have not yet found the most efficient way to successfully collaborate with start-ups. Research found that when corporations “moderately” use many different channels of OI – that is specific staff to scout start-ups, accelerators, dedicated office space, CVC funds, marketing programs – the success rates are worse (Imaginatik & MassChallenge, 2017, p. 11). Moreover budgets for start-up collaboration in general remain small and are the result of budget shifts from other departments, which is evidence that corporate-start-up collaboration is still a learning process (Imaginatik & MassChallenge, 2017, p. 11) and consequently the fact that 50 % of start-ups rated their experience working with corporations as average or worse, is understandable (Imaginatik & MassChallenge, 2017, p.17).

Taking into consideration the bigger picture beyond corporate-start-up collaboration, utilizing OI means that a firm, no matter its size, dares to utilize external resources it has little or no hierarchical power over (Anokhin et al., 2011, p. 135). When collaborating with external partners, internal R&D risk transforms into a partnership risk where cooperation might create dependence on external partners (OECD, 2008, p. 41). As internal innovation, also OI is difficult and costly to manage. Partnership may bring high short-term costs and low immediate returns since these, if collaboration is successful, come later (Freeman & Engel, 2007, p. 100). Chesbrough (2006) argues that efficient employment of OI requires new business models and organisational structures in the corporation, which can be very costly. The cost of external collaboration, however, cannot exceed the additional value added. Similar analysis as whether the innovation is worth implementing and eventually to be put on the market, should be done when deciding (how) to collaborate externally (Freeman & Engel, 2007, p. 100). Some theoretical approaches on collaboration obstacles and possible failures are (Lokshin et al., 2011, p. 297):

- **transaction costs** when the pursuit of partners' self-interest at the expense of the others results in costly opportunistic behaviour;
- **game theory** emphasizes the uncertainty of predictions of the partners' intentions and expected payoffs;
- **resource-based view** suggests that when partners collaborate with different amounts of resources brought into the partnership, the consequent power imbalance may result in partnership failure;
- **strategic behaviour** addresses the inter-firm rivalry between partners, which become competitors.

Every collaboration relationship has several phases with its own difficulties. Because of different characteristics of corporations and start-ups, partnerships between these two types of firms are extremely asymmetric, where the power is (usually) tilted in favour of larger and more experienced corporations (Minshall et al., 2010). In the following section, we will briefly elaborate on some corporate-start-up collaboration obstacles or difficulties. We will elaborate individually on difficulties partners can encounter in three stages: during partnership initiation, construction and maintenance.

#### 4.2.1 Initiate the Partnership

Firstly, a corporation and the start-up need to find each other. Both can encounter **search problems** where the corporation has difficulties spotting the low-profile start-ups and the start-ups have difficulties finding the right person in the corporation to speak to (Bannerjee et al., 2016, p. 23; Minshall et al., 2010, p. 54). The reason for this difficulty might be a **complex (unclear) decision making structure** in corporations. Start-ups cannot know who the decision maker for a particular innovation is and how to best negotiate. Research by Nesta found that one third of start-ups reported difficulties arising from poor



communication, changing contact points, or unclear processes (Bannerjee et al., 2016, p. 10).

Different integrations require different levels of commitment and time (Weiblen & Chesbrough, 2015, p. 71). Corporation preparing to engage with a start-up has to put some effort in collecting information on start-up's value proposition, business model and market opportunity, which might be time consuming (Bannerjee et al., 2016, p. 23). Expected **long and complicated procedures** due to hierarchical decision-making structure in corporations may discourage start-ups. The more vertical the organisation, the longer it takes to approve decisions on collaborating with start-ups and agree on investments (Bannerjee et al., 2016, p. 15). In research conducted by Nesta, half of all start-ups reported problems with long cycle times and slow decision-making in corporations (Bannerjee et al., 2016, p. 10). Such situations result in lost time-sensitive opportunities. Procurement systems in corporations can also be problematic since they are often tailored to ordering standard goods or services whereas start-ups offer novel, disruptive solutions (Minshall et al., 2010, p. 57).

Decision making times can also be prolonged by start-ups, when they are not completely prepared to receive an investment. When corporation and start-up are negotiating whether or not they will partner, corporations demand start-ups submit various information about their business model, current valuation and investment information where they want to know who previously invested in the start-up to avoid possible conflicts with competitor firms. Often corporations also demand that the start-up protects its IP to avoid steep value decrease, when copied. The difficulty here might be that corporations sometimes treat start-ups as if they are large firms, for example insist on evidence of a specific certification (such as ISO) even though it is very unlikely for the start-up to already have it (Bannerjee et al., 2016, p. 17). A. T. Kearney found in their 2016 survey that only half of corporations accordingly adapt their processes for start-up partners to make them more flexible (Engel et al., 2016, p. 121). This means that start-ups frequently face complexity and high transaction costs when dealing with internal processes and long response times of corporations.

Usman and Vanhaverbeke (2017, p. 174) pointed out how much easier it is for start-ups, when their manager had previous experience from working in corporations. Such manager can more easily find his or her way around the corporate structure, enjoy more credibility and understand corporations' needs when approaching them for negotiations. If the manager is not skilled, an external mentor with relevant experience also proved useful (Minshall et al., 2010, p. 61).

#### 4.2.2 Build the Partnership

When the partners finally manage to find each other, what follows is building trust where plans for collaboration are outlined, so both partners are aware of the situation they are entering in. First important thing is setting objectives in advance, since otherwise the partnership will be undergoing changes in priorities once already launched which is later one of the possible reasons for partnership failure (Lokshin et al., 2011, p. 298; Usman & Vanhaverbeke, 2017, p. 172). Start-upbootcamp, a European accelerator, from the field of matching start-ups and corporations, observed in practice that even after the partnership is initiated and contact is established, the corporation too often fails to **identify clear objectives** about what exactly is to be done with the start-ups' disruptive technology, that is, they fail to prepare a path of engagement, which can lead to lost opportunities (WEF, 2015, p. 13).

Since corporations are large and complex, different departments might have different priorities – they are **strategically misaligned**, which is an obstacle to smooth collaboration (Bannerjee et al., 2016, p. 13). Especially problematic is misalignment between top management and the team actually working with the start-up (WEF, 2015, p. 12). “The lack of openness of firms to their external environment may reflect an organizational myopia, indicating that managers may overemphasize internal sources and under emphasize external sources” (Laursen & Salter, 2006, p. 146). A reason for strategic misalignment can be poor corporate communication because the external partnership could be hampered if the corporations' own departments do not communicate and collaborate efficiently (WEF, 2015, p. 13). Information can create problems if there is too much or too little of it being shared and both result in departments not understanding why they have to work with start-ups and some may think that collaboration is there primarily to improve the corporate image even if this is not the case (Bannerjee et al., 2016, p. 13). Too little data availability to successfully measure the benefits, strategic and indirect values of start-up collaboration and incorporate these measurements into return on investment calculations is also an obstacle when trying to justify the benefits of collaboration (Bannerjee et al., 2016, p. 9).

Corporations usually have established **risk management** systems, which slow down decision making for entering and managing the collaboration process (Bannerjee et al., 2016, p. 17). Thus, the team working with the start-up can be reluctant to take risks due to established incentive schemes and promotion milestones, increasing employees' personal cost of failure (WEF, 2015, p. 13).

Much effort needs to be put in to negotiating formal terms and conditions of the partnership and sign intellectual assets and property (patents, trademarks etc.) protection,

non-disclosure agreements, dispute resolution structures, benefit-sharing plans and partnership termination clauses (Bannerjee et al., 2016). Minshall et al. (2010, p. 57)<sup>19</sup> found that start-ups are usually the ones reluctant to disclose their intellectual property, pushing to sign non-disclosure agreements. When (B2B) start-ups are suppliers to the corporation, there remains a threat that the corporation will not need the partnership any more, once they master the solution the start-up provided, themselves (Usman & Vanhaverbeke, 2017, p. 182). Start-up representatives on the other side may feel the obvious power imbalance, which is a consequence of the size and experience of the corporation they negotiate with. Research by Nesta showed that sometimes start-ups did not collaborate with corporations because of fear of being overwhelmed with due diligence and legal requirements, which would grow out of their teams' control (Bannerjee et al., 2016, p. 9). Financing IP protection and negotiation costs *upfront* is also a challenge (WEF, 2015, p. 16). Lack of funds in start-ups results in not seeking expert legal advice in time (Bannerjee et al., 2016, p. 28; WEF, 2015, p. 16).

Collaboration agreements can fail before they even started if the corporation insists on exclusive partnership to limit possible other opportunities of the start-up. Entering exclusive partnerships with corporations can happen not to be the most suitable offer for start-ups and thus it is beforehand necessary to consider whether another partner or even the possibility to avoid exclusive partnerships might realize more value (WEF, 2015, p. 122). Start-ups are used to looking for assistance at many different organisations: they can receive funding from an angel investor, coaching at the local accelerator and residence at a non-profit co-working space (Weiblen & Chesbrough, 2015, p. 85). All these organisations supporting the start-ups are not necessarily to be understood as corporations' competitors but as part of the environment that assists the start-ups to perform better and simultaneously represents a channel for the corporations to find perspective partners more easily (Weiblen & Chesbrough, 2015, p. 85).

If forming a partnership for the start-up can be a necessity to survive, this same partnership can be of marginal importance to the corporation (Minshall et al., 2010, p. 55). Once the start-up decides to enter the partnership, this requires a significant shift in their business model, focusing on the needs of the partner corporation (WEF, 2015, p. 13). Consequences arising from the possible loss of interest from the corporation may have devastating effects on such a start-up since young firms usually do not have diversified partner portfolios and revenue streams. Losing a major partner which is (helping) generating a large share of start-ups' revenues is always very risky. Lokshin et al. (2011, p. 304) found that when a firm has a diverse portfolio of technology partners the probability of encountering a

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<sup>19</sup> They interviewed 12 start-ups and nine large firms.

**bumpy road**<sup>20</sup> diminishes. Their finding that large firms are less likely to encounter a bumpy road when collaborating with external partners (Lokshin et al., 2011, p. 304) also suggest that the challenge for young smaller start-ups compared to corporations' is much larger.

Other difficulties can arise for example from cultural and language differences, different expectations and lack of information. When a start-up signs an agreement with a large well-known corporation, they are inclined towards using it for their own promotion and corporations sometimes fear their brand will be somehow misused in the process (Minshall et al., 2010, p. 57). Additionally, corporations can face the so called **Not Invented Here** bias where a group of researchers in the company is of opinion that they possess all the required knowledge in the field of their work and in turn reject ideas coming from outside because they are different and not to be trusted (Chesbrough, 2006, p. 25). They tend to see their internal innovation as superior (West & Gallagher, 2006, p. 321). Innovations that come from the outside might be understood as a threat to the staff and their organisations and imply that insiders are less technically capable than they should be (otherwise they would have come up with the invention on their own) (Freeman & Engel, 2007, p. 100; Ireland et al., 2003, p. 971). There might also be fear of employees that their own projects will lose funding and support due to executives' focus on external collaboration.

Kale et al. (in Belderbos et al., 2012, p. 169) have found that firms which give close attention to alliance management (external cooperation) are generally more successful in their joint R&D efforts. It is much easier for start-ups if a corporation sets up a special start-up programme, which can buffer the effect of structural differences of both organisations aspiring to collaborate (Weiblen & Chesbrough, 2015, p. 77). The more start-ups a corporation collaborates with, the faster it needs to be at taking decisions (Weiblen & Chesbrough, 2015, p. 68). Managers of such buffer departments are better off when they had previous experience with start-ups and have the entrepreneurial mentality (Weiblen & Chesbrough, 2015, p. 85). This should be highly visible senior manager, who understands the needs of the corporation, can help with external knowledge search and has the authority to internally deliver on the partnership agreements (WEF, 2015, p. 13). Today start-up interactions are in 29 % of cases managed by corporate innovation managers (Imaginatik & MassChallenge, 2017, p. 10).

One other important partnership decision is the choice of model of collaboration. Professional VC investors invest in many start-ups and can expect the following returns: 71 % of start-ups do not return capital invested, 16 % return between one and three times the capital invested, 8 % return five to ten times the investment and 5 % produce 100 times

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<sup>20</sup> "Bumpy road" was defined as a firm experiencing mal-functioning in R&D technology partnerships which lead to one or more innovation projects stopped, seriously delayed or not started (Lokshin et al., 2011, p. 300).

or higher pay-outs (Mind the Bridge, 2017). This means that corporations investing in start-ups with the purpose to earn returns have to either invest in many start-ups or have the skill to choose the right start-ups, which is often hard. Chuck Goldman (2017), a former director at Apple, for example argues that corporations in particular are not professional investors skilled at studying start-ups, which results in unprofitable CVC investments. Similarly Freeman and Engel (2007, p. 101) argue that start-ups are born to be sold: “Their shared imperative is the creation of liquid equity value. This imperative may change the very definition of success, and ultimately involve the loss of control by the entrepreneur, and the disappearance of the business entity formed by that entrepreneur through merger or acquisition.” CVC investment is in this sense only a starting investment, which is sooner or later leading to acquisition.

#### 4.2.3 Sustain the Partnership

Even if all these obstacles are successfully dealt with, the coordination risk remains and the partners need to make effort to sustain collaboration, measure and monitor results. Start-ups’ management and resources are limited in size and thus it is hard to ensure the required level of attention to the collaboration efforts (WEF, 2015, p. 19). Corporation on the other hand needs to ensure continuity even if its representative working closely with the start-up is replaced (Bannerjee et al., 2016, p. 23). Because start-ups undergo changes when years pass, corporate-start-up relationship is a dynamic process since the needs, strategic positions and network formation of both partners shift (Usman & Vanhaverbeke, 2017, p. 182). Corporation can first be a technology provider (outbound OI, capitalising on unused assets) to the start-up and later when the start-up expands its knowledge about the technology provided to it or even outgrow the corporations’ expertise, the corporations’ role may shift towards becoming a logistic partner to the start-up (Usman & Vanhaverbeke, 2017, p. 182). If the partnership is unsuccessful, it might cost the corporation reputational damage (WEF, 2015, p. 18) and this is an incentive to successfully monitor the partnership, after this is made public.

## **5 EMPIRICAL ANALYSIS: INTRAPRENEURSHIP AND OPEN INNOVATION IN SLOVENIAN FIRMS**

After close elaboration of the dynamics of intrapreneurship and OI as presented through previous research results, we are now turning our attention to the case studies from Slovenia. We have identified a few larger Slovenian firms that collaborate with start-ups and invited their representatives to sit with us for in-depth semi-structured interviews. Below we first discuss the methodology; thereafter we continue with the description of research procedure, move on to cross case analysis and finish with discussion.

## **5.1 Methodology**

For learning more about corporate-start-up collaboration in Slovenia, we employed exploratory method with multiple-case studies, qualitative data coding and interpretation. In our case this is the only suitable research method because no appropriate extensive statistical database has been composed yet and it would also be impossible to construct a sample large enough for a survey due to the fact that corporate-start-up collaboration in Slovenia is not an omnipresent phenomenon. Moreover, in general Slovenian large firms are rather small compared to the global scale of multinational corporations, which reduces the (possible) sample size even further.

## **5.2 Research Procedure**

In order to identify firms actively looking to cooperate with start-ups we reviewed media such as Finance journals' startaj.si portal, platforms such as Start:up Slovenija and paid close attention to corporate participants of conferences such as PODIM. Our data for the analysis itself was primarily obtained through interviews. We contacted in total 11 Slovenian firms, received replies from 6 and 4 agreed on interviews, which we now consider our multiple-case study sample.

With the interviews, we explored the extent of and approaches taken in corporate involvement in cooperation with start-ups. One of core questions was the role of top management in this relationship; whether they were the initiators and how much they are actively engaged. We explored how the corporation and start-up found each other (search strategy), the model of cooperation and how the partners agreed on operative details. Furthermore, we were interested in if and how corporations that collaborate with start-ups redesign their own internal operations and how this can contribute to the partnership.

We spoke to one senior staff representative, a coordinator of start-up collaboration initiatives, from each of the four companies. Interviews were carried out from January 8 until February 7, 2018. They lasted between 40 and 50 minutes each. In Table 3 on the next page, we collected basic information about the companies whose representatives we have interviewed. We can see that three out of four cases are large firms, whereas Digiwe scales as a small and medium size enterprise. The firms come from different industries, producing products as well as services.

Table 3: Case Study Companies

<b>Company Name<sup>21</sup></b>	<b>Buildprosp</b>	<b>Fastrack</b>	<b>Digiwe</b>	<b>Inscomu</b>
<b>Company Background</b>	specialised industrial production	commerce enabling services	banking support services	insurance services
<b>Total revenue (2016)</b>	> 500 mio €	> 200 mio €	> 8 mio €	> 200 mio €
<b>Total number of employees (2016)</b>	> 3500	> 5000	> 100	> 1000

Source: *Ajpes*, no date.

In addition to interviews, we have also employed direct observation at corporate-start-up networking events such as the 2017 PODIM conference, the ABC Accelerators' 2017 Meet & Match and CorpoHub's 2018 Lean Start-up Night to validate firms' stated activities. To further validate the interview results, we have discussed our general findings with a local Conscom<sup>22</sup> consulting firm's representative who actively works with companies such as or similar to the ones we have interviewed. This interview was held on March 12, 2018 and lasted one hour.

The four corporate interview transcripts which are attached in the appendices are broken down and rearranged into eight categories, following the previously defined research questions and modified through the interview results. The eight categories on the left hand of Table 4 can (almost) entirely be applied to all four case studies, with the exception of category 8: *Difficulties*, for which no data were obtained in the case of Inscomu.

Table 4: Research Categories

	<b>Category</b>	<b>Corresponding research questions</b>
1	Reasons to collaborate with start-ups	What is the extent of corporate involvement in cooperation with start-ups?
2	Ways to collaborate with start-ups	What is the extent of corporate involvement in cooperation with start-ups? & What is the model of cooperation?
3	The responsible person/department	What is the role of top management?

(table continues)

<sup>21</sup> Names of companies are fictional due to anonymity requests of the interviewees.

<sup>22</sup> The name of the consulting firm is fictional as well due to anonymity request.

(continued)

	Category	Corresponding research questions
4	Start-up search	How did the corporation and start-up found each other (search strategy)?
5	Protection of intellectual property	How did the partners agree on operative details?
6	Performance measurement of the start-ups	How did the partners agree on operative details?
7	Changing internal corporate dynamics	How did corporations redesign their own internal operations and how this can contribute to the partnership?
8	Difficulties	What is the model of cooperation? & How did the partners agree on operative details?

The four case studies are further compared through the eight categories to look for similarities and differences. We deepen the discussion with comments on the cross case analysis through the topics addressed in the theoretical part of this thesis.

### 5.3 Results through Discussion and Contributions

The previously mentioned eight categories from Table 4 are below in Tables 5–12 broken down to 58 characteristics, which were identified from case studies’ transcripts. Three characteristics of corporate-start-up collaboration were found across all four case studies. Namely, all four have (1) worked with start-ups on individual projects; (2) collaboration is top management initiated; and (3) is understood as an important part of internal innovation.

On the other hand, the four case studies are very distinct from one another. Buildprosp is a company giving the impression of having strong systems in place to collaborate with start-ups; they know what they want and how to get there. Digiwes’ case study is focused on past events from before its ownership structure changed in 2016. In the case of Digiwe it is specifically interesting that the top management decided to employ an idea manager, who became the driving force behind the start-up collaboration processes. Fastrack on the contrary is specifically future oriented. They have learned from past mistakes of not properly monitoring start-ups in their pipeline and have now constructed ambitious systems to be better in the future. Inscomu began collaborating with start-ups just recently, after it was established from a merger of several large firms. They have organized a hackathon and frequently refer to start-ups they encounter as simply “teams”. Now we turn to each category individually.

Table 5 on the next page displays five characteristics from the four case studies. Sign “x” indicates that the characteristic *is* attributed to the case study in the corresponding column. This is valid for all the following tables.



Table 5: Cross case similarities and differences – reasons to collaborate with start-ups

Characteristic	Buildprosp	Fastrack	Digiwe	Inscomu
looking for ideas from outside is a strategic objective	x		x	
lack of internal resources (such as time and knowledge)	x		x	
demand in future will change	x	x		
innovation is a strategic objective		x	x	x
collaboration with start-ups will help address current issues faster				x

Buildprosp and Fastrack understand start-ups on the market as disruption – contributors of ideas that might in the future change demand for corporation’s mature-industry products. All four company representatives we talked to somehow expressed that they are aware of the fact that corporations and start-ups are complementary and can thus benefit from each other very well. Most attention of the responders regarding motives to collaborate externally was put on complementing internal knowledge or spreading into business areas where they are not present yet. Buildprosp stated that entrepreneurial start-ups are faster and have no heritage burden. Inscomu finds it particularly useful that start-ups are often available for specific projects to be swiftly executed. This is also an advantage against fellow big companies, where

*“engineers’ hours are too expensive and lots of administrative tasks are required before a collaboration can begin, which is too complicated for short projects, expected to last for only up to three weeks”.*

- Inscomu

None of the companies we interviewed talked about shelved patents or unexploited internal innovations (Chesbrough, 2006), waiting to be commercialised as one of reasons to collaborate externally. This could be due to the fact that among the four case studies only Buildprosp had an R&D department prior to initiating OI.

Entrepreneurial firms constantly monitor their environment to find opportunities for strengthening their competitive position by either developing further their existing competence or adjusting their operations to new markets, providing new solutions to new customers (Cheng & Huizingh, 2014, p. 1240). Cheng and Huizingh (2014, p. 1248) found that if firms behave entrepreneurially this has a positive impact on OI and innovation performance which can be attributed to the fact that both OI as well as entrepreneurship thrive in dynamic environments. Corporations which are seeking to exploit external knowledge because of their own limitations, such as for example lack of time and internal knowledge in the case of Buildprosp, are in this sense behaving entrepreneurially.

Now we turn our attention to Table 6 below, displaying ten characteristics from the four case studies.

Table 6: Cross case similarities and differences – ways to collaborate

Characteristic	Buildprosp	Fastrack	Digiwe	Inscomu
corporation as a strategic investor	x			
partnership relationship		x	x	x
offering insight into a closed industry, access to complexity	x	x		
procurement	x			in future
projects	x	x	x	x
financial investments (CVC)	x	x		in future
hackathon			x	x
spin-off			x	
acquisition		x		
pre-project partnering		x		

In the interviews, we discovered that four companies use several corporate-start-up collaboration practices<sup>23</sup>. Digiwe as well as Inscomu held start-up contests (hackathons) which require a limited resource commitment (Bannerjee et al., 2016) by both the start-up and corporation. However, according to Conscom, the consulting company we spoke to, these start-up contests in Slovenia are often mismanaged.

*“Corporations do not exactly know what to do with the outcomes and how to keep the innovation momentum going after the employees return to their regular nine to five office hours.”*

- Conscom

Digiwe is an example proving differently, since the idea manager has restructured the company and continued working with employees even after the hackathon. From start-up contests, they have also invited individuals for job interviews and some of the most promising talents were hired.

All four companies spoke of collaborating with start-ups in early product lifecycle – that is joint projects. A characteristic of projects is that corporation contributes part of knowledge or funding, and the start-up complements it. This means that projects can be a way to commercialise “shelved” intellectual property (Chesbrough, 2006) even though none of the corporations explicitly mentioned having it. Fastrack mentioned “pre-project partnering”, because internal projects are in their opinion too complex for start-ups and would scare

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<sup>23</sup> For all possible corporate-start-up collaboration practices see Figure 3 on page 28.

them away. Project work is demanding for the start-up, because having little resources means a large share of them needs to be focused entirely on the joint project. Corporation on the other hand sacrifices or engages a much smaller share of their workforce and available capital. Buildprosp is the only case study which has already collaborated with start-ups through procurement (contracting) whereas Inscomu is planning to do so in the future. Procurement was not understood by our case studies as ordering a standardised good or service (Minshall et al., 2010, p. 57) but more as a tool to engage with a previously chosen start-up. When a start-up was identified to offer something that is useful to the corporation, the collaboration was sealed. Fastrack is the only company of the four which acquired a start-up, which is the most intense resource commitment collaboration practice according to Bannerjee et al. (2016).

Buildprosp and Fastrack both invested into one or more start-ups. Such collaboration practices are more demanding, because investments require substantial resource commitments by start-ups and corporations (Bannerjee et al., 2016). The four corporations we interviewed are, despite global growing CVC trends (PwC, 2017), vigilant about investing in start-ups because it is very demanding to find an appropriate start-up with a strategic fit. Buildprosp for example has difficulties finding start-ups from their own industry, which required them to look beyond that into areas of smart grids and factories of the future. Until the end of 2017, they have invested in four start-ups from which they require a business plan and clear objectives, which have to be met if the next tranche of funds is to be released. Although some might argue that corporations are not skilled investors (Goldman, 2017) and can thus not expect financial returns from investments, none of the companies we interviewed invests or differently collaborates with start-ups with the sole objective to earn revenues. Their primary objective is filling the gaps in internal knowledge and exploitation of start-ups' speed.

Collaboration between corporations and start-ups is complicated to manage because, as previously elaborated, the partnership is very asymmetric (Minshall et al., 2010).

Next, we discuss Table 7 below, displaying six characteristics from the four case studies.

Table 7: Cross case similarities and differences – the responsible person

<b>Characteristic</b>	<b>Buildprosp</b>	<b>Fastrack</b>	<b>Digiwe</b>	<b>Inscomu</b>
collaboration is top management initiated	x	x	x	x
individuals from different departments		x		
innovation department		in future	x	x
CVC department	x			
idea manager			x	
receive special training (in lean management) to become good mentors to start-ups		x		

Among the companies we interviewed, the most systematic approach towards start-ups is conducted by Buildprosp. They have a special department with the specific task to search for relevant start-ups, carry out investments and integrate them into the corporate processes. All aspects of cooperation are controlled by this department, consisting of two employees. The department's role was to buffer the differences between the corporation and start-up, so Buildprosp can react faster. Laursen and Salter's (2006) argue that more R&D intensive firms are more likely to collaborate externally and as mentioned, among the four firms we have interviewed, Buildprosp is the only one with an R&D department. They are also the only case study which systematically and continuously prepares for start-up search, negotiates the partnership and continually monitors the on-boarded start-up. They visit events where start-ups usually go to, make contacts, follow up, check the team and their business model and construct a contract where periodic performance reviews are a precondition for further financial investments. This is how Buildprosp encourages start-ups to put more attention to important business aspects such as for example about the competition where initially

*“they all claim having the best product out there and having no competition – but they are wrong; there is always competition”.*

- Buildprosp

What was missing at Buildprosp however, was integration of external knowledge into their day-to-day business, which is being addressed through the internal venture, to which we turn our attention later. While Buildprosp is already actively addressing the internal-external innovation interaction, Digiwe and Fastrack are focused on internal reorganisation. Digiwe had the innovation manager overlooking external collaboration, however, the latter was less important compared to internal innovation management, to which most of his attention was given. Fastrack will first be building the innovation platform to stimulate internal innovating to thereafter more equally balance it against external innovation integration.

We continue with Table 8, displaying ten characteristics from the four case studies.

Table 8: Cross case similarities and differences – start-up search

Characteristic	Buildprosp	Fastrack	Digiwe	Inscomu
PODIM	x	x		
Slovene Enterprise Fund	x			
ABC Accelerator <sup>24</sup>	x			

*(table continues)*

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<sup>24</sup> ABC Accelerator was founded by several Slovenian larger companies such as Xlab, Telekom Slovenije, Zavarovalnica Triglav and Petrol (Ajpes, no date).

(continued)

Characteristic	Buildprosp	Fastrack	Digiwe	Inscomu
Tovarna podjemov				x
Start:up Maribor community		x		x
technology conferences	x			
abroad	x	in future	x	
advertise on Facebook			x	
advertise on LinkedIn			x	
collaboration with student organizations			x	

Fastrack as well as Buildprosp rely heavily on their networks, when searching for start-ups. One of the most important points of contact with start-ups is the local conference PODIM, which is held every spring in Maribor. Buildprosp argued that

*“traditional advertising to find start-ups is not efficient and thus being present and visible at events where start-ups go to is of crucial importance to draw the attention of relevant start-ups.”*

Contrary to Buildprosp’s poor experience with traditional advertising, Digiwe did employ social media. Their social media reach was, however, local and if we use Laursen and Salter’s (2006) terminology, they were searching narrowly. Fastrack built its entire annual cycle of search, evaluate, monitor around the PODIM conference, meaning that they draw external knowledge deeply from few or even only one channel. It is a great recognition to the organizers of the conference because as explained by Fastrack’s representative

*“the PODIM organizers were the ones who initially encouraged us to think outside the limits of our own firm three years ago<sup>25</sup>, when they first invited us to participate”.*

Fastracks’ start-up search and management processes are not standardised yet, however, Fastrack has learned from their past experience of start-up monitoring mismanagement and are now setting up plans for accountability of individuals.

Similarly narrow is Inscomu’s search, which focused on two rather regional channels – Tovarna Podjemov and Start:up Maribor community, both located in Štajerska region of Slovenia. Buildprosp is searching more broadly using five channels – PODIM, Slovene Enterprise Fund, ABC Accelerator, conferences in Slovenia and abroad; however we could describe it as deep (Laursen & Sallter, 2006), since they have a thorough department for start-up search. Buildprosp does not understand other entrepreneurship support institutions such as ABC Accelerator as competitors, but a channel through which they can find

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<sup>25</sup> That is in 2015.

perspective start-ups, which is as argued by Weiblen and Chesbrough very positive (2015, p. 85).

Even though our targets for interviews were corporations, the four firms we have interviewed operate much more locally, compared to for example the corporations from the United States of America. Buildprosp, Inscomu and Digiwe have subsidiaries abroad, whereas Fastrack has subsidiaries only in Slovenia. Digiwe reached out internationally through student associations and not their subsidiary network. Buildprosp, too, searched for start-ups in many countries abroad, however, they did not mention taking advantage of their subsidiaries and focused more on international start-up events. This could be due to the fact that Buildprosp start-up department is located in Slovenia and subsidiaries in other countries do not have a person responsible for start-ups. As argued by Almeida and Phene (2012) corporations have the advantage of international networks and Slovenian corporations could in the future grab the opportunity arising from them as well.

Now we briefly turn our attention to Table 9 below, displaying four characteristics from the four case studies.

Table 9: Cross case similarities and differences – protection of IP

<b>Characteristic</b>	<b>Buildprosp</b>	<b>Fastrack</b>	<b>Digiwe</b>	<b>Inscomu</b>
IP part of investment contract	x			
IP a separate agreement	x		x	
a general non-disclosure agreement				x
avoid pushing for IP protection contracts in initial stages		x		x

Significant power imbalance in the asymmetric partnership in the corporate-start-up collaboration (Minshall et al., 2010) was addressed by three out of four companies we interviewed, when they were at some point stressing the importance of partnership. As argued by Blauth et al. (2014, p. 502), partnering instead of regarding other actors on the market as competitors positively effects creativity of employees whenever in the situation of uncertainty – basically, when innovating. Fastrack and Inscomu in this regard avoid pushing for IP protection contracts, to sustain a pleasant environment and not burden start-ups with too much legal obligations. In other two cases, the initiators of IP protection contracts were corporations, and these were standardised. Digiwe was concerned with creating win-win collaboration with external teams. Digiwe as well as Fastrack put special attention to educating their own employees in creativity, mentoring skills and lean management, so individuals can be better in collaborating with start-ups, once again confirming the importance of pleasant partnership relationship when collaborating with start-ups.

Below follows Table 10 displaying six characteristics from the four case studies.

Table 10: Cross case similarities and differences – performance measurement

<b>Characteristic</b>	<b>Buildprosp</b>	<b>Fastrack</b>	<b>Digiwe</b>	<b>Inscomu</b>
goals set for 1–2 years in advance as part of collaboration agreement	x			in future
periodic reviews	x		x	
CVC depends on meeting goals	x			
start-ups should build, follow, revise business plans	x			
no performance measurement system		x		x
steering group of experts, to consult the corporation on start-ups' technological progress		in future		

From Table 10 above it is again visible that Buildprosp has the most rules or structure attached to collaboration with start-ups. It is the only case study of the four which was able to provide concrete information about how they follow the performance of start-ups in their pipeline.

Findings from one of the most interesting aspects of corporate-start-up collaboration based on our case studies follow below in Table 11 displaying ten characteristics.

Table 11: Cross case similarities and differences – chanting internal corporate dynamics

<b>Characteristic</b>	<b>Buildprosp</b>	<b>Fastrack</b>	<b>Digiwe</b>	<b>Inscomu</b>
temporary internal ventures/start-ups	in future		x	in future
lean management in all departments			x	
lean management in interaction with external actors	x		x	x
start-up collaboration goes hand in hand with establishing first internal innovation department		in future	x	x
start-up collaboration an important part of internal innovation	x	x	x	x
train employees to be creative			x	
train employees to give good presentations			x	
train employees in lean management and mentoring techniques		x	x	
become more open to external ideas			x	
living lab, design center		in future		

In all four case studies, collaboration with start-ups was initiated by top management, which in turn means that if they are willing, they can assure the resources required for innovation collaboration with start-ups, including possible necessary internal reorganisation. This claim is somehow contradicting Freeman and Engel (2007) and Ford et al. (2010, p. 83) that corporations in general have more difficulties in re-shifting their existing resources. Nevertheless, our case studies are specific since we only interviewed the companies we already knew were working with start-ups, meaning that these corporations in particular were able to surpass obstacles to internal resources re-shifts. Thus, the ability of the four specific firms to do that might be an exception from average.

The most significant organisational structure shifts or changes towards increasing innovation outputs were made by Digiwe, however, not as a result of collaboration with start-ups, but after a strategic decision of the management that the company needed to turn away from short term thinking (production and administration) towards long term activities of entrepreneurship and integration of knowledge. Entrepreneurial mind-set of corporations sets up a fertile environment for the integration of external knowledge into existing innovation processes and encourages sharing internal knowledge via successfully located opportunities outside the parent corporation to capitalizing from (partially) already developed ideas (Cheng & Huizingh, 2014, p. 1248). To foster innovation among their existing employees, Digiwe hired an idea manager, made him head of internal incubator and began extensively introducing lean methods throughout the firm. They set up four pillars of change: (1) internal start-up challenge, where employees contribute ideas; (2) active engagement in acquiring external funding to further support realisation of ideas; (3) employing OI by engaging with students and external teams; and (4) training employees to become good presenters. Lyth Frederiksen and Brem (2017, p. 185) argue that corporations practices which promote faster and cheaper (agile) trial and error business strategies lead to larger diversification of new products and services *within* the firms instead of the rigid environment forcing innovators to take their ideas outside the company, creating spin-offs. Digiwe attempted to set up such environment. The idea for one particular innovative product, which was eventually spun-off, emerged from within Digiwe's creative environment and to test its value on the market, they held it separate – under a different but similar brand. As argued by Weiblen and Chesbrough (2015, p. 73) that IP should be sold if it is ready for the market, but if not, an internal venture should be created to make it market ready, Digiwe was building a not yet market-ready product. Even though Digiwe was ambitious in internal restructuring this trend was not assured a definite future after plans for change in Digiwe's ownership structure emerged. Eventually Digiwe parted ways with the spin-off, selling it to another large Slovenian company.

Similar to Digiwe, Buildprosp too is planning a smaller-scale reorganisation. They are in the process of setting up an internal venture consisting of internal visionary employees, temporary assigned to projects, to work with external start-ups. This will ensure cross-disciplinary blend of knowledge, which is as argued by Edison et al. (2018) of utmost



importance. Both ventures have included (or in Buildprosp's case *plan* to include) individuals who either showed genuine interest in collaborating with start-ups or contributed the original idea the venture is working on. In Digiwe's internal venture, (incubator) the decision making process was entrepreneurial (Blauth et al., 2014) since ideas worth to be explored on further were chosen democratically. Buildprosp is aware of the fact that different people within the corporation are differently optimistic about OI and thus to avoid issues during the initiation of first internal venture projects, they intend to only engage those individuals who openly expressed interest.

*“Understanding why it is good to employ OI still needs to spread through the entire corporation,”*

- Buildprosp,

which might take time (Bannerjee et al., 2016). The two cases of Buildprosp's and Digiwe's creation of separate internal ventures indicate that partial mobility of resources is possible even in corporations, since the two firms decided to temporarily reallocate specific employees.

Contrary to Digiwe, which has already undergone a large internal reorganisation, Fastrack is planning it for the future. They are in the process of establishing an innovation platform, which will make the entire corporation flatter in structure to facilitate internal flow of ideas, reaching into all departments and putting collaboration with start-ups in the middle.

*“OI with start-ups will become an important part of innovation generation, where a special core group of external experts will be engaged to evaluate ideas submitted by start-ups.”*

- Fastrack

Even though they have some experience with start-up collaboration, massive increase in activities might bring along some difficulties, as suggested by previous surveys (Imaginatic & MassChallenge, 2017), which showed lower collaboration success rates when too many channels of OI are utilised. Thus Fastrack has to carefully plan its expansion of OI from the today's moderate extent of external collaboration, to aforementioned future plans.

A smaller-scale reorganisation with the establishment of first innovation unit was carried out by Inscomu. The unit was put similarly as the Digiwe's and Fastrack's, directly under top management and is acting as an *“idea catalyser among traditional departments”*. Most importantly, the unit used lean approaches to interact with external actors, whereas these same approaches are according to the interviewee, *“too radical to be implemented across the entire firm”*, however, agile methods of innovation were successfully implemented for example in Digiwe. Lean enables companies to interact with start-ups more efficiently, because such practices are closer to start-ups' everyday activities, and thus the differences

among them and corporations are buffered when a corporation also uses lean approaches to innovation.

This means that all four corporations we interviewed have in last two years undergone some kind of restructuring, to improve their innovation capabilities, which confirms previously identified (Ireland et al., 2003) quest for innovation as a tool to remain competitive. The most interesting case for our research is Buildprosp’s reorganisation and the fact that its semi-autonomous venture emerged directly from the need to better integrate knowledge of start-ups into the firms’ existing processes. This venture is thus a direct consequence of identified high quality external knowledge, which they want to integrate with internal knowledge and thereby contribute to the emergence of diversity, as elaborated by Antončič and Hisrich (2003) and Kuratko et al. (2009). Due to the fact that at the time when we were taking the interview, this venture was just being established, we unfortunately could not obtain specific information on how exactly it will be funded and operated.

Last but not least, we turn our attention to Table 12, displaying seven characteristics.

Table 12: Cross case similarities and differences – difficulties

<b>Characteristic</b>	<b>Buildprosp</b>	<b>Fastrack</b>	<b>Digiwe</b>	<b>Inscomu</b>
different decision timeframes of corporation and start-up	x			
one common goal for the start-up and many different goals for corporation (un-alignment)	x			
missed opportunity due to not keeping track of the start-up		x		
long decision making in corporation	x	x		
employees lack mentoring skills		x		
start-up’s sub-optimal team structure		x		
responsible person for open innovation leaves the corporation			x	

Some characteristics from Table 12 were addressed during the discussion above, and thus we are now turning to only those which have not been addressed yet. For example when we were inviting corporate representatives to sit with us at interviews, in one case, where we eventually did not secure an interview, we were exchanging emails for a couple of months, during which the corporate representative stated that

*“managing relationships with start-ups was not her only area of work and that she is responsible for many other areas, which makes her very busy”.*

Start-ups in Slovenia might experience similar difficulties with long response times of start-up managers, who engage start-ups not with dedicated start-up departments as for example Buildprosp does, but as a side occupation.

One specific implication of large corporation characteristics which was mentioned in our interviews is strategic misalignment (Bannerjee et al., 2016, p. 13) between different corporate departments. How this misalignment effects collaboration with start-ups was stressed by Buildprosp representative, who commented that

*“start-ups almost never understand how different parts of firms can have different objectives, since they themselves are so small that their entire team follows a very focused objective. In corporations this is of course different and each department follows their own objective, resulting in sometimes taking months before one computer can be purchased. This means that other decisions<sup>26</sup> take time too”.*

Fastrack experienced difficulties in the phase of building a partnership with one specific start-up, which matched their area of business. They eventually failed to monitor it and realize how much it has grown. At the end, a foreign company similar to Fastrack acquired the start-up and the opportunity was missed. This could be due to the fact that Fastrack at the time did not have a plan how exactly to engage start-ups they find. The decision making structure within Fastrack was unclear and

*“individuals dealing with this start-up were not pushed to report on developments because no one was overlooking the process”.*

In the theoretical part, we argued about the importance of individual start-ups' team members and their education background (Backes-Gellner & Werner, 2007). None of the case studies, however, explicitly expressed their concern over a crucial team member leaving the start-up and breaking with the innovation momentum. Fastrack, however, mentioned that

*“a lot of start-ups success can be contributed to a good team and that these sometimes have to be restructured, to become better”.*

## **5.4 Practical Implications**

Practical implications of this thesis arise from both the theoretical part as well as empirical. Various consulting agencies' reports such as PwC's and A. T. Kearney's have addressed and analysed the introduction of intrapreneurship and OI within firms. The general trend of

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<sup>26</sup> Such as for example choosing an appropriate start-up to collaborate with.

opening up to external knowledge is well documented in examples from scientific articles we referred to and what we also presented in this thesis are similar trends present in Slovenian firms as well. Overall practical implications of this thesis can be relevant for three distinct groups of readers: (1) firms without contact to start-ups, (2) those firms which are already establishing collaboration with start-ups and (3) start-ups themselves.

Firstly, companies that have not yet considered investing in relationships with start-ups can receive insight into why and how ties to the innovative and dynamic underground start-ups can be useful to strengthening the innovative capacity of their organisations. We have elaborated on the benefits from- and obstacles to corporate-start-up collaboration, which is a good insight into what can be expected, once the firm initiates contact. On top of that, fellow corporations' case study descriptions provide an insight into relevant first-hand experience.

Secondly, corporate representatives already collaborating with start-ups can gain a better understanding of their own activities relative to other firms, fostering similar relations to the start-up environment. They can assess how much internal staff they involve in start-up collaboration relatively to their counterparts and understand that there are different models of collaboration from simple procurement to acquisition and full integration. Moreover, they can read about search channels of their fellow corporations, where this section is of particular regional relevance to Slovenian firms. To some extent, we also elaborated on corporate systems behind collaboration and the degree of their standardisation.

The third group which can draw useful insight from this thesis are the start-ups. The case study corporations originate from different industries, from manufacturing to services, however, their common objective is searching for connections with technology-based start-ups. From the thesis, the start-ups can understand their most highly valued characteristics such as speed and dedication. This can further help them in negotiating partnerships with corporations. Our analysis can also assist them in better understanding their corporate partners' internal processes – the fact that they are slower and lots of effort needs to be put in surpassing it. One clear message of all case studies is that search for suitable start-ups is time consuming, and it helps if start-ups make themselves visible.

## **5.5 Validity, Limitations and Further Research**

To ensure validity, we used multiple sources to obtain the data, however, the majority of analysis rests on interview transcripts. Before conducting the interviews, we gathered some experience through moderating at least one focus group discussion in previous research. We also contributed the theory preceding the empirical part of the thesis, which means we understood the topic in depth and have studied and analysed several previous studies. This contributed positively to the quality of transcript interpretation.

To increase validity we consulted an “external audit” (Creswell, 2007, p. 209), a consultant working in the field of corporate-start-up collaboration to review the researchers’ impression of the cases<sup>27</sup>. Moreover we ensured “peer review” (Creswell, 2007, p. 208) in the form of thesis advisors’ guidance, to critically evaluate and comment on the interview transcript analysis.

Despite these efforts to ensure research validity, there remain a few limitations. Firstly, we did not take the results back to the interview participants. Secondly, in order for us to understand how external innovations produced by start-ups are accepted within corporations, we could have spoken to several employees from different departments, especially the innovators bound to collaborate with start-ups. If we were able to extend our research in this way, we could have for example explored the “not invented here” behaviour as explained by Chesbrough (2006).

Moreover, we did not focus on external environmental effects on corporate-start-up collaboration, such as for example the economic policy, legislation, tax systems and geographic distance. These dimensions, however, do affect collaboration efforts (Andrew et al., 2009; Bannerjee et al., 2016, p. 22). One example is public funding incentives that might be or have been provided by the state, or the European Union to encourage firms to build departments dedicated to helping start-ups grow into prosperous companies. At the time our surveys were conducted, the Slovenian economy as a whole was growing and the prospects for the future were positive. For further research it would be interesting to understand if and how corporations’ standpoints regarding the need for OI and more specifically collaboration with start-ups change, together with a downturn of the state of economy.

Furthermore, the individual case studies were not examined over longer time periods but are reflecting past experience from current viewpoints of the interviewees, briefly touching upon future plans. Problematic here is that it is complicated to assess the real long-term impact of specific actions and systems which are being implemented. Even more intangible are data focused on future *plans*, which is true to a fairly large share of Fastrack’s case study. These cannot be understood as set in stone since plans can easily be altered.

As argued by Freeman and Engel (2007), collaboration with start-ups brings along short term costs and low immediate returns. Immediate results from collaboration with start-ups in corporate revenue streams are close to impossible to expect, whereas for all those companies attempting to design successful corporate-start-up collaboration systems, it would be a useful piece of information to know when they could expect positive returns. If we were able to track the four case studies through time, this would give us insight into

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<sup>27</sup> For details of the discussion see the last section of Appendix A: Interview Transcripts.

how many and under what circumstances a corporation would be able to breach the initial period where investment costs into partnerships are larger than returns from them.

## CONCLUSION

In this thesis, we attempted to address the quest of previous research for the need to merge the analysis of entrepreneurship and open innovation (Usman & Vanhaverbeke, 2017). We elaborated on intrapreneurship and OI interchangeably, which was also evident from our case studies, where the two ways of encouraging innovation within corporations were utilized hand in hand.

Our discussion was focused on the two very different organisational structures, corporations and start-ups, which are, because of their inherent characteristics, forming very asymmetric partnerships. Effort has to be put into designing environment enabling successful collaboration between them and *theoretically*, if they succeed, the benefits are plentiful, and both firms can be positively impacted. Nonetheless, we were not able to discuss the impact of collaboration as much as we would have liked, due to the very nature of the case studies we were able to gather. What we have managed, however, was to understand that the trigger of corporate-start-up collaboration in our case studies was the decision initiated by top management, which was somehow also impacted by local organisations such as the PODIM Conference, working towards building connections between corporations and start-ups. We learned about corporate narrow and wide search channels for start-ups. A large part of our discussion was dedicated to collaboration models in terms of joint projects, CVC and acquisitions, together with obstacles and difficulties that emerge.

Throughout the thesis, we dedicated much thought to internal restructuring of large corporations, so they can become more like start-ups. All four firms we have analysed somehow restructured their internal organisation, which is evidence how culture and internal innovation are becoming recognized as the differentiating factors of keeping the momentum or becoming more successful in the future. Internal ventures are gaining popularity, and the motivation for this is to become better at catching and building upon external knowledge, often provided by start-ups.

We also made some conceptual differences from previous research. For example, Weiblen and Chesbrough (2015) put internal venture inside the (outbound) OI concept as one of the models “commonly used to engage with start-ups”. In this thesis, however, we made a clear distinction between external start-ups and internal ventures. Internal ventures have a dual purpose – to encourage generation and utilization of internal innovation on one hand, and integration and utilization of external start-ups’ contributions. Whereas generation of internal innovation can be a standalone process separated from OI, it can be encouraged

when internal innovators have access and contact to external ideas. This is when OI can contribute to already restructured internal corporate dynamics and add momentum.

From our small but diverse case study portfolio of four firms, we have learned much about the state of OI in Slovenia, and the fact that the theory of it had just recently, only two or three years ago, became the object of implementation in practice. Good stories inspire the followers and successful examples of inclusive and innovative corporate culture, combined with open approach to understanding the external environment not necessarily as competition, but as contributors of missing pieces, can move mountains on the path to sustainable growth.

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## **APPENDICES**



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## **Appendix A: Interview transcript summaries**

### **Buildprosp**

**WHY** Buildprosp's core business is in mature industries which are on their peak and may be "winding down soon" and thus looking for more software related ideas from outside became their strategic objective for the future. Buildprosp is aware of its own limitations, that software knowledge is not their area of competitive advantage and that they lack resources, specifically time, to build new technologies in house. Thus looking for start-ups without heritage burden, with fresh ideas specifically from the field of smart grids and factories of the future became their strategic objective.

**HOW** Buildprosp considers itself a strategic investor or a field manager, meaning that they do not merely fund the chosen start-ups but "offer them a playground" for testing their ideas. Namely they are able to provide the start-ups insight into the closed industry Buildprosp operates in. They collaborate with start-ups as clients (procurement) or integrate them into pilot projects, which can take place before or after the financial investment into the start-up has been made. The company representative pointed out that strategic investors such as themselves care much better for the start-ups they invest in and rarely let them fail because they invest in the start-up much more than only money. Until end 2017 they have invested in four start-ups.

**WHO** To ease collaboration between the corporation and the start-up Buildprosp built a special CVC department with the specific task to search for relevant start-ups, carry out the investment and integrate them into the corporate processes. All aspects of cooperation are controlled by this department. The department currently consists of two employees. The main objective behind building the department was to buffer the differences between the corporation and start-up, so the corporation can be faster.

Corporate management is in close contact to the department and one specific board member receives weekly briefings on developments. Cooperation with start-ups is part of their strategic objective for the next five years.

The internal corporate innovation department does not extensively collaborate with start-ups, but only to a point. This is due to the fact that this department is mainly concerned with incremental innovation, which is sometimes not compatible with start-ups disruptive innovation. However if this department stumbles upon an issue they can send it to the start-up to come up with an idea to solve it.

**SEARCH** Buildprosp would like to work with up to 10 start-ups however has difficulties finding them. In ideal case scenario they would search for an industrial start-up, however these are rare and consequently they focus on knowledge from the field of artificial

intelligence, augmented reality, virtual reality, simulations, sensors and factories of the future. In searching for start-ups traditional methods such as advertising are not appropriate and thus Buildprosp start-up collaboration departments' representatives actively engage with local initiatives such as Podim, Slovene Enterprise Fund, ABC Accelerator, various technology conferences – they go to where start-ups are. They have also searched for start-ups abroad in Austria, Italy, Croatia, Serbia, Bosnia, Hungary, Poland, Germany, the Netherlands, Switzerland, USA, Singapore and Israel.

**PROTECTION OF INTELECTUAL PROPERTY** The initiative for signing the IP protection documentation is in most cases mutual and comes from Buildprosp when they are the first investor to the start-up they are negotiating with. In the case that the start-up already has a previous investor, they negotiate for the terms in the framework of previous agreement. IP protection rules are part of the contract when Buildprosp invests into start-up and part of a separate agreement when there is no supplementing investment. Buildprosp usually does not require the start-up to sign an exclusive partnership with them; however this depends on the project.

**PERFORMANCE** Buildprosp keeps a close eye on the start-ups performance measures, which are built in the cooperation agreement for approximately one to two years in advance. Financial investments are usually not given in one package but follow the pre-determined objectives – when these are met, the start-up receives the next financial investment. Buildprosp requires the start-ups to build a business plan, which is a means of forcing them to think about their future, possible threats, opportunities, re-evaluate their market and competition.

**CHANGING INTERNAL DYNAMICS** Not as a consequence of corporate-start-up collaboration but as a general part of their strategy Buildprosp in end 2017 announced to their employees that they are building an internal venture, an incubator, which is going to be an intermediary between Buildprosp and the environment. Into this venture they will (temporary or permanently) bring the most visionary (those who expressed interest in start-up collaboration) and creative employees from the entire corporation, the start-ups they invested in and other external experts (“somehow as Google X”) to encourage innovation – searching solutions to identified problems within the corporation. They will build temporary groups that will work with certain content with the objective to develop a certain product in a fast, lean and agile way. The process will last from one to three months and the result could either be a spin-off, integrated into the corporation or abandoned. The idea for the venture comes directly from the corporate strategic objective to become more innovative and more actively use the knowledge they find externally in start-ups.

**DIFFICULTIES** According to Buildprosp collaboration with start-ups is complicated due to different decision timeframes of start-ups on one hand and the corporation on the other. While start-ups make decisions very fast, in one day, corporations take much more time

and 6-18 months can pass very quickly. The representative of Buildprosp also made an observation how start-ups do not understand how different people in larger firms such as corporations do not follow the same objectives. This is namely very different from the start-ups where everybody is briefed about everything and the objective is one.

## **Fastrack**

**WHY** Fastrack expects that future demand will change and shift away from their current core business. Therefore they are aware of the need to gradually spend more time and money investing in areas where they are currently active to a lesser extent, but growth opportunities are high. In the future they will focus more on innovation – both internal to empower creative individuals as well as external to bring in disruptive but complementary ideas.

**HOW** Fastrack wants to be understood by the start-up community as a partner. They can give the start-ups access to their complex logistical network. In what way Fastrack collaborates with start-ups depends from case to case. They might invest into a start-up, include it into pilot project or acquire it. Currently they have acquired at least one start-up. Most collaboration with start-ups is expected in the pre-project phase, because projects as they are currently run within Fastrack are probably too complicated for start-ups, especially in terms of bureaucracy. They intend to collaborate with start-ups which will either change Fastracks' internal operations or run in parallel.

**CHANGING INTERNAL DYNAMICS** Currently Fastrack has no separate innovation department and innovation is taking place in different parts of the firm, such as marketing, operations, logistics etc. For the next planning period, which begins with 2018, Fastrack management put the so-called “innovation platform” into the center of internal processes, managed by the “chief of innovation”. The platform is not established yet, but is envisioned to restructure interactions between employees, to enable the flow of ideas. In long term the innovation platform is expected to contribute to complete restructuring of Fastrack, to become more dynamic and innovate faster. The platform will not only coordinate Fastracks' collaboration with start-ups, but also introduce a design center for innovative infrastructure management; a living lab for testing new systems; and a “core group” managing innovation processes per se. Collaborating with start-ups will thus represent an important part in contributing to internal restructuring.

**WHO** Currently there is no start-up department within Fastrack, but a group of four to five people is actively working in this area, even if this is only part of their day to day responsibilities, which makes it difficult for them to properly follow the individual start-ups. Until next Podim conference this May, Fastrack plans to already have established the previously mentioned core group. This group will consist of current four to five start-up-engaged employees, enlarged with up to 15 individuals from within Fastrack as well as

new hires. Fastrack will send them to specialized training in lean management and mentoring techniques so they can become the ones responsible for overseeing collaboration with start-ups. With this group Fastrack would like to introduce accountability, to avoid “misplacing” start-ups, where no employee specifically was responsible to oversee the search-identify-screen process and months passed before a decision on an initiative, possibly even coming from a start-up, was brought to a conclusion. The core group will have access to all parts of Fastrack and will search for and initiate linkages between internal innovation and start-ups.

Corporate management is closely engaged in setting up the innovation platform, which will include the start-up collaboration dimension.

**SEARCH** In 2017 Fastrack began to strategically approach the start-up environment, starting with the Podim conference. Later they intend to look abroad as well. To Fastrack, Podim currently represents core annual event where they are (and will) be meeting start-ups and identifying the ones worthy of further screening for strategic fit with Fastrack. Fastrack will share their own corporate “pains” with start-ups and challenge them into finding solutions. They expect to find one out of 10 start-ups they decide to screen, to prove of strategic fit.

Fastrack is interested in start-ups that provide solutions from the field of smart logistics, innovative package delivery, payment systems, last mile delivery and IT security.

**PROTECTION OF INTELLECTUAL PROPERTY** Fastrack tends to avoid pushing for signing non-disclosure agreements in initial discussions to cooperate with a specific a start-up. Namely, they believe that too much pressure too early in the process might obstruct successful partnering talks and scare start-ups away.

**PERFORMANCE** Currently there is no standard start-up performance measurement system. Fastrack is designing a system or a start-up program which will set clear steps of the search-identify-screen and later -monitor process. Monitoring is especially important because Fastrack does not want to miss any opportunities failing to recognize, how much a start-up they might already have in the pipeline, has progressed. A special “steering group” consisting of external experts from research institutions etc. will be engaged to consult on technical capabilities of start-ups under consideration.

**DIFFICULTIES** Fastrack has learned from their past experience. Lack of central coordination of start-up collaboration and long lasting procedures, considering whether a start-up is complementary with them or not, were all issues they identified and are now being addressed through the larger framework of the innovation platform. Moreover they know their own employees lack competence for successful mentoring of start-ups and thus they will as already mentioned provide training. One other major obstacle to corporate

start-up collaboration identified by Fastrack is also the start-up team structure. Namely much of start-ups' success can be contributed to a good team and according to Fastrack the teams sometimes need to be restructured, to become better.

## **Digiwe**

**WHY** The main reason for collaboration with start-ups at Digiwe was the decision of top management that the company needs to turn away from short term thinking (production and administration) towards long term activities of entrepreneurship and integration of knowledge. Therefore a strategic decision has been made to reinvest part of revenues in innovation activities, no matter the end of year financial results. Collaboration with start-ups was only part of the strategy to redesign the company. The firm was interested in start-ups from their own sector – fin-tech and cyber security. They were engaging external knowledge (even hiring new people) to fill the gaps in their internal knowledge – to complement it.

**HOW** Digiwe collaborated with start-ups via hackathons to which external groups could apply; through partnerships within consortia of European Union funded projects; and through spinning out an internal idea. In total they have collaborated with approximately 10 different start-ups with the aim of forming a win-win partnership. Collaboration differed from case to case however in most cases it was limited to idea generation without financial investments. One specific spin-off however was supported financially as well.

**CHANGING INTERNAL DYNAMICS** Digiwe initially did not have an innovation department which in 2013 changed with the introduction and intensive personal engagement of the newly employed “idea manager” and “internal incubator”. Top management prepared a plan to redesign the entire firm and introduced four pillars of action to move from short-term to long-term orientation. The first pillar is “internal start-up challenge” which encourages Digiwe’s employees to be creative and develop and present their own ideas. They publicly present them to their coworkers and the audience decides whether they are worth of being explored on further. Digiwe then supports prospective ideas with infrastructure and encouragement to “keep the pace” since innovation needs to be fast, or competition beats you to it. The original idea contributors get to further improve their ideas. Speed and perseverance are most important for the innovation process. The second pillar is acquiring European and national funding to support these ideas. Third pillar is opening up to external environment via mentoring students, holding hackathons and encouraging collaborative idea generation. This was especially important for Digiwe in terms of new ideas, improving the competences of employees and even hiring new perspective staff. The fourth pillar are workshops on how to give good presentations because if Digiwe wanted their employees to successfully sell their ideas, a good presentation was a necessity.

Besides the four pillars the idea manager also actively worked on spreading the lean and scrum (agile software development) methods, which were implemented to all departments and not only the IT department or the internal incubator (the innovation department). This transformed the organization.

**WHO** Digiwes' top management decision to hire an idea manager was crucial in the process of redesigning the firm to further enable fruitful collaboration with start-ups. Start-up collaboration is only one part of activities within the innovation department, managed by the idea manager.

**SEARCH** For searching prospective start-ups Digiwe employed free channels such as Facebook and LinkedIn. They posted the information of an event such as a hackathon or a student workshop and received enough response. They were also closely collaborating with an electrical engineering student organization which assisted them with spreading the news about their events and even looking for perspective teams and individuals abroad, mostly in the rest of Europe.

**PROTECTION OF INTELLECTUAL PROPERTY** Digiwe had pre-designed agreements about IP protection for each of the programs (such as Demola) they have undertaken. They always followed the rule that the idea belongs to the team that produced it. There was also a system to award good ideas that Digiwe wanted to implement, however the ideas were explored on further in collaboration with the original team, which produced the idea.

**PERFORMANCE** Digiwe actively tracked performance of its spin-off. They were periodically reviewing its business results, where growth was one of the core parameters. Following a spin-off's performance is however different from following an established firm. When the spin-off, basically behaving like a start-up, is younger than three years, it is understandable for it not to generate any profits. Top management was being briefed regularly.

**DIFFICULTIES** When the ownership structure changed in 2016, the idea manager left with the spin-off that was successfully sold to another large Slovenian company and the Digiwes' internal redesign of processes with sustainable idea-generating activities is now under a large test.

## **Inscomu**

**WHY** Inscomu is aware of the fact that it has to offer new functionalities. External start-up pressure made them believe that without looking beyond business as usual, they will not be able to succeed. Collaboration with start-ups enables addressing current issues faster. If Inscomu for example outsourced a problem to be solved in another corporation, this could

be extremely expensive and timely difficult to execute because the engineers working at this large firm might not be available right here and now. Start-ups on the other hand often are. Inscomu is interested in start-ups from the field of informatics technology, those that can be tied to insurance services.

**HOW** They have organized a “business hackathon”, where Inscomu practiced lean methods of mentoring teams that have applied, to finally choose potential ideas worth exploring further. As a result they have currently established contact with two “teams” whereas the ultimate goal is to work together on pilot projects that can be scaled up and potentially sold as a solution to other firms abroad. The two teams have been established before the hackathon and applied to it with already existing ideas. The process of collaborating with start-ups is not standardized yet; however it will be in the future.

Inscomu would collaborate with start-ups in different ways as well however they have not found the right match. “What the start-ups are offering is not yet sufficiently elaborated.” Currently they do not invest CVC, however it is possible they will undertake such investments in the future.

**WHO** Inscomu first began collaborating with start-ups in the beginning of 2017, when a special organizational “innovation” unit within the firm was established to “get in touch” with the start-up community. The unit (or the department) is part of Inscomu’s strategy to establish permanent contact with the start-up community, doing more than organizing an occasional hackathon. Currently approximately 10 people from Inscomu are actively engaged in collaboration with start-ups. The main organizational unit within Inscomu responsible for start-up collaboration is the innovation department.

The management will be periodically briefed on the developments by the aforementioned special department.

**SEARCH** Inscomu is searching for start-ups in a non-systematic way through occasional networking events and entrepreneurial incubators such as *Tovarna podjemov*<sup>28</sup> and Start:up Maribor community. They also used this channel to establish their first contact with start-ups.

**CHANGING INTERNAL DYNAMICS** Introduction of open innovation is foremost the consequence of internal restructuring of Inscomu, which emerged from a merger. Before the new aforementioned innovation unit was established, the innovation department per se did not exist. Innovation however did take place within individual departments such as sales, where creative teams were developing their own innovative solutions. The new

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<sup>28</sup> *Tovarna podjemov* is a University of Maribor’s incubator, working in the field of start-up consulting towards promotion of entrepreneurship (Tovarna podjemov, 2018).

innovation unit is positioned directly under Inscomu top management and it collaborates on the project level with other “standard departments” to be a “catalyzer” in interaction of individual departments to innovate (faster) together.

With interaction with start-ups or external teams Inscomu first encountered lean methodologies of detailed project preparation, testing and pivoting. Whereas they would like to have lean methodologies throughout the company, this would be very tough to implement and thus they intend to use lean only when working with external teams.

In general there have not yet been any immediate consequences of start-up collaboration to the internal corporate dynamics. Creating a separate unit which would work with entrepreneurial dynamics might not be the best idea since this unit might distance itself too far from the core of the firm, become too different and finally end up being there only to “serve its own purpose”. For the future however Inscomu is thinking to redesign operations in terms of building interdisciplinary, temporary teams working on current projects – somehow “temporal internal start-ups”. According to Inscomu start-ups are as they are because of their unique characteristics and culture which cannot be copied to an existing organization. “Imagine accounting department behaving as a start-up!”

**PROTECTION OF INTELECTUAL PROPERTY** With the two teams Inscomu signed a general non-disclosure agreement whereas an IP protection contract has not been drafted yet. Their idea is namely to foster open innovation partnership without requiring the applicants to their hackathons giving up the ownership of an idea. Namely Inscomu believes it is important that both parties – the firm and the start-up feel safe. “Too many contracts lower the level of trust.”

**PERFORMANCE** Inscomu is currently not tracking the performance of the two teams they collaborate with. Performance measuring will in future be part of project documentation, in which they will specify goals and create a plan how they can reach them together.

## **Conscom**

Core question we asked the Conscom consulting firms’s representative is, how do Slovenian corporations work with start-ups. We also explicitly addressed the four companies we have interviewed and on two of them he was able to provide some insight into concrete experience. In the following section we sum up the interview.

General observation of Conscom was that Slovenian corporations do not actively engage with start-ups and on top of that, they are not employing lean methods. However a few companies did start to initiate collaboration and setting up standardized procedures, which is a step forward. It took foreign firms such as General Electric or Procter & Gamble from



four to five years to actively involve start-up knowledge into their own internal processes. Years passed before they have found where exactly the benefits of corporate-start-up collaboration lie. Since Slovenian firms have all begun just recently, say in 2015 or 2016, not enough time has passed and they are still in the learning phase.

However they could do better if the management went all in. Namely, there has not yet been a manager who would allow that disruption reached and redesigned all, even the most traditional departments. From his experience most internal organizational change can occur when at some point there emerges a vacuum within the firm and there is suddenly room for improvisation and change. It is almost never top management, but individuals from middle management that push for change. People are the ones initiating and executing internal organizational change and it helps if top management is supportive. “It is never the firm, it is always people.” Some managers in Slovenia might allow their employees to disrupt the companies only partially that is employing lean methods towards external actors or containing lean to smaller departments around the creative individuals.

Examples of innovation mismanagement are occasional hackathons the Slovenian firms are organizing. Many companies do not know what to do with the results of such competitions or what conclusions to draw from them. The most important lesson however is learning and many managers neglect this dimension. Hackathons do not need to be scheduled, but have to be encouraged *during* regular work hours. When an employee finds a problem and provides a rough idea on how to solve it, he or she needs to be encouraged to “hack it on the spot”.

Some corporations did not have an innovation department before they initiated start-up collaboration, but this does not mean they did not innovate. The consultant explained that we have to make a distinction between research and development. Development is innovating new products or services whereas research is the part where we seek value. This is the “pre-project work”. Slovenian firms all conduct proper development – separate departments innovate within themselves, launching new solutions and enabling steady growth. However growth would be much faster and sales much higher if this development would have been accompanied by research for value – searching for value of the solutions which are being developed. Doing research while developing enables building small prototypes, testing them on the market and pivoting when necessary, which are the building blocks of “lean start-up way” and the hierarchy of “investment readiness levels”.

A start-up is a temporary organization which is looking for a market-appropriate business model in times of uncertainty. Even suppliers to a specific corporation can form a temporary start-up, trying to fit a new business model within their existing value chains. These are working towards being sold and not necessarily to sell their product/service.

## **Appendix B: Summary of basic findings in Slovenian**

Namen te magistrske naloge je bil nasloviti poziv raziskovalcev za raziskovanje podjetništva in odprtega inoviranja s prepletanjem in hkratno analizo obeh (Usman & Vanhaverberke, 2017). O konceptih odprtega inoviranja in podjetništva sem tako razpravljala izmenično, kar je razvidno tudi iz študij primerov.

V razpravi sem se osredotočila na dve različni organizacijski strukturi: korporacije in zagonska podjetja. Zaradi značilnosti teh dveh vrst podjetij je sodelovanje med njimi izrazito asimetrično. Da podjetja ustvarijo okolje, ki omogoča uspešno sodelovanje, je potrebno vložiti veliko energije in če so uspešna, podjetja pridobijo veliko, učinek sodelovanja pa je pozitiven. Kljub temu v tem magistrskem delu zaradi omejene obsežnosti izbranih študij primerov samega vpliva sodelovanja na uspešnost podjetij nisem mogla dovolj temeljito raziskati, vseeno pa mi je uspelo razumeti sprožilce sodelovanja med korporacijami in zagonskimi podjetji. V vseh štirih študijah primerov je bila namreč odločitev za sodelovanje v rokah managementa. K temu so jih spodbudile tudi lokalne organizacije, kot je na primer konferenca PODIM, ki si že najmanj tri leta prizadeva vzpostaviti povezave med korporacijami in zagonskimi podjetji.

Analizirala sem kanale iskanja partnerjev, velik delež razprave pa je bil namenjen modelom sodelovanja: bodisi na skupnih projektih bodisi z vlaganjem korporativnega tveganega kapitala in prevzemov. Podrobno sem opredelila ovire in težave, ki izhajajo iz asimetričnega partnerstva med korporacijami in zagonskimi podjetji.

Skozi magistrsko nalogo sem velik del razmisleka namenila notranjemu prestrukturiranju velikih podjetij, da bi le-ta postala bolj podobna zagonskim podjetjem. Vsa štiri podjetja, ki sem jih raziskovala, so vsaj delno izvedla notranje prestrukturiranje, kar je še en primer tega, kako kultura in notranje inoviranje postajata vedno bolj odločujoča faktorja za zadržanje ali oblikovanje konkurenčne prednosti. Zagonska podjetja znotraj korporacij so vedno bolj razširjena – z namenom v prihodnosti bolje uloviti in graditi na zunanjem znanju, ki ga pogosto prispevajo tudi zagonska podjetja.

V magistrski nalogi sem nekatere koncepte razlikovala in predstavila drugače. Weiblen in Chesbrough (2015) sta na primer notranje zagonsko podjetje razumela kot del koncepta odprtega inoviranja in način interakcije z zunanjimi startupi. Obratno sem jaz notranja zagonska podjetja od zunanjih strogo razlikovala. Notranja zagonska podjetja imajo dvojni namen: spodbujanje in uporabo notranjih inovacij na eni in integracijo idej zunanjih zagonskih podjetij na drugi strani. Razvoj notranjih inovacij je lahko samostojen proces, ločen od odprtega inoviranja, lahko pa se ga spodbuja tako, da imajo razvojniki stik z zunanjimi idejami. Tukaj odprto inoviranje s sodelovanjem z zunanjimi zagonskimi podjetji lahko prispeva k že prestrukturirani notranji dinamiki v korporacijah in doda zagon za rast.

Iz ozkega, a vseeno raznolikega nabora štirih študij primerov sem se naučila veliko o stanju in stopnji implementacije koncepta odprtega inoviranja v Sloveniji. Dejstvo je, da se je teorija le-tega v Sloveniji začela implementirati šele pred dvema ali tremi leti. Dobre zgodbe pa navdihnejo sledilce. Podjetja bodo uspešno uresničila načrte vzdrževanja trajnostne rasti, če se bodo odprla navzven in poleg zagonskih podjetij tudi konkurenco pričela dojemati kot tisto, ki lahko prispeva manjkajoče koščke znanja.

## **Appendix C: List of frequently used abbreviations**

**B2B** – business to business

**B2C** – business to customer

**CVC** – corporate venture capital

**ICT** – information and communication technology

**IP** – intellectual property

**M&A** – merger and acquisition

**OI** – open innovation

**R&D** – research & development

**VC** – venture capital