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The SOCI Strategy as a Method to Meet the Innovation Challenges of COVID-19

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***Abstract*—**The COVID-19 causes a worldwide crisis and has an impact in every dimension of the economy. Organizations with the ability to adapt to new developments and which innovate solutions for the disrupted world during and after the Corona crises have the opportunity to not only survive the crisis but rather to use new trends to implement new business models and gain advantage. In this context, startups seem to have better opportunities to manage the Corona crisis through their innovation-based nature. The main result of this paper is the understanding that by applying a startup orientated innovation (SOCI) strategy, established companies can be motivated to meet the challenge of COVID-19 in a similar way like startups. This result can be achieved by describing the role of innovation and a SOCI strategy as helpful methods for organizations to meet the coming challenges during and after the COVID-19 epidemics. In addition to this, this paper presents a practical application of SOCI through the PANDA approach of the Fresenius University of Applied Sciences in Germany and discuss it in the context of COVID-19 as an exemplary successful real-world implementation of SOCI strategy.

***Keywords*—**COVID-19, innovation, open innovation, startup, SOCI framework.

I. Introduction

THE corona epidemic is the origin of numerous developments. In contrast to previous epidemics such as Sars or Mers, which had a regional limit, COVID-19 affects the entire world and almost all industries [1], [2]. Furthermore, unforeseen problems caused by COVID-19 lead to new behaviors and new needs which in turn can trigger innovative solutions. COVID-19 may change society beyond health problems, and innovations are likely to respond to those changes. Governance, society and economy has to find ways to adapt the newest developments and to survive the effects of COVID-19. The question now arises how to overcome the challenge of this global epidemic. Innovation can be seen as the answer to the worldwide crisis and the economy has to find innovative ways for meeting the epidemic [3].

Like in the past, innovation is seen as one of the key factors of the success of a company and is an essential strategic component to survive in a difficult market environment. But innovation does not have to be an accident, with a well-defined strategy a company can control and manage the generation of innovation [4]-[6]. Through managing innovation in the context of COVID-19 organizations have the chance to overcome the challenges of the upcoming years. To develop innovation strategy that fits the best to the coming developments and to find innovative solutions for the world during and after corona is one of the most important challenges in the coming months and years. Innovative startups are pivoting and aiming to exploit the emerging entrepreneurial opportunities in a fast and efficient way [8]. One possible strategy for established organizations to develop innovation like startup is the approach of SOCI strategy which follows the idea of Open Innovation combined with the characteristics of innovation processes of startups [9].

The goal of this paper is to describe how innovation can be seen as an answer to the challenges of COVID-19, and how a SOCI strategy can help established organizations to adapt to the developments of COVID-19 in a startup-like way. The paper now has the following structure: (i) Challenges of COVID-19, (ii) Open Innovation, (iii) SOCI Framework, (iv) SOCI Application: The PANDA approach and (v) Conclusion.

II. Challenges of COVID-19

COVID-19 has caused a worldwide crisis of the global economy [10]. The UNCTAD (United Nations Conference on Trade and Development) report of 2020 states that the global gross domestic product (GDP) has fallen by around 4.3% 2020, with an expected global recovery of 4.1% in 2021 [11]. Fig. 1 demonstrates this development.

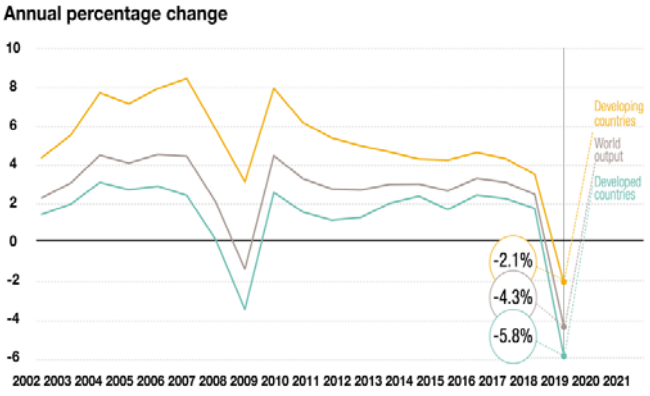

Fig. 1 Trends in global economic growth [11]

Fig. 1 shows that the Coronavirus disease has resulted in a global economic downturn for both developed and developing

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countries. Experts state that this development will be deeper and more dramatic than the great recession that followed the global financial crisis in 2008 and 2009 [11]. But exactly the analysis of the financial crisis of the past can help to find solutions for the current situation. Like described in the introduction experts have stated that innovation can be seen as the solution to meet the coming recession. This aspect is described in the following section.

A. Innovation during and after COVID-19

Although the current Corona crisis is to be seen as unique, experience and research from the past regarding man-made crises can be used to solve problems. One example of a man mad crisis is the global financial crisis 2008/09. Through the analysis of such crises, it is notable that global crises seem to have a negative impact on all innovation activity in economies. But at the same time, crises force the economy to develop a high potential for new solutions which are able to respond to new needs with innovative solutions. Therefore, it is to be concluded that innovation seems to be a key driver of corporate success and make a significant contribution to firm recovery after economic crises [3]. This aspect is supported by Chesbrough, inventor of the Open Innovation approach. He states that innovation will have an important role to play by meeting and recovering from the aftermath of the COVID-19 epidemic [12]. In addition to this, innovation is about asking new questions, trying new ways and searching for new opportunities – activities all associated with high-risk, and thus unusual for established organizations. The greater the risk, the greater the chance that traditional business processes and methods fail. In such cases, established businesses have a great deal in common with startups. The structure of startups follows the idea of generating experience by dealing with uncertainty and searching for the right business model which fits customer needs. Therefore, startups seen to be more suitable to overcome the challenges of the crises caused by COVID-19 [13]. The role of startups and COVID-19 is described in the following section

B. Startups and COVID-19

It seems that startups are less affected by crises than established organizations and startups can been seen as the key to generate rapid innovations in times of crises. The following list gives an overview about some of the reasons for this phenomenon [3].

Startups…

1) …have iterative, discovering approaches
2) …achieve key milestones and events over the venture creation process
3) …are more reasonable to create the future than to predict it

In addition to these capabilities the general entrepreneurial thinking in startups has a strong focus on external stakeholders like customers, investors, their entrepreneurial ecosystem or economic development agencies. Together with the startup characteristics like small size and a high number of financial and personnel limitations, younger companies are better in creating in innovation especially in times of crises [3]. But established organization can benefit and transfer characteristics of startups into their own business activities. One possible approach to approach this idea is the SOCI framework by Wolf et al. which is related to the Open Innovation approach by Chesbrough [9].

III. Open Innovation

The Open Innovation concept provides insights into how enterprises can harness inflows and outflows of knowledge to improve their innovation success [14]. On this basis, the three archetypes of Open Innovation were defined.

A. Three Archetypes of Open Innovation

1) The outside-in process describes that a company opens its innovation processes to external inputs and contributions [15]. The organization gets its knowledge through the integration of customer, suppliers and its general external environment [16].
2) The inside-out process requires organizations to allow unused and underutilized ideas to go outside the organization for others to use in their businesses and business models [15].
3) The coupled process combines the characteristics of outside-in and inside-out processes. This is aimed through cooperations with complementary partners and the general environment [16].

The three archetypes are illustrated in Fig. 2.

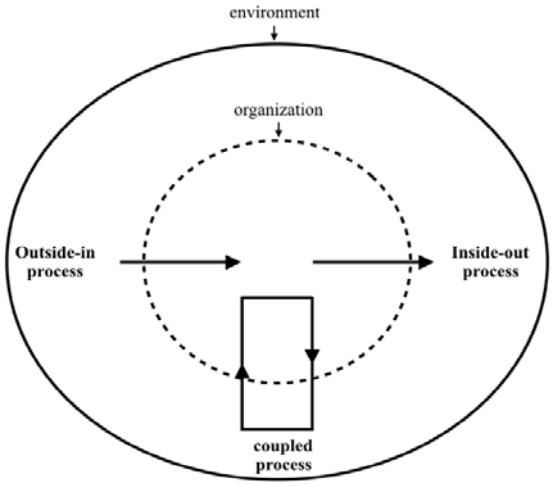

Fig. 2 Three archetypes of Open Innovation [16]

B. Open Innovation and COVID-19

The idea of openness can help the world to tackle the crises caused by COVID-19 through fighting against the pandemic with the help of speed, mobilizing knowledge form different stakeholders and learning from each other. Furthermore, Chesbrough states that opening organizations for external influences will speed up internal processes and in general the innovation potential in established organizations [12].

By transferring the advantages of Open Innovation in times of COVID-19 with the characteristics and advantages of

startups during the crisis it seems logical that the SOCI strategy can be seen as a helpful method to enable established organizations a similar handling of COVID-19 as startups. One suitable framework for this idea is the SOCI strategy which is described in the following section [9].

IV. SOCI Framework

A cooperation between an organization and external startups is nothing unusual. 262 companies out of the 500 world's biggest public companies cooperate with startups. The way this coworking is happening is of high diversity, however, it has not been tried to thoroughly analyze and classify those cooperation types yet [17]. Through the relating of the three archetypes of Open Innovation to a cooperation between an organization and a startup as the external input, three possible ways of cooperation are possible: Buy/rent a startup, spin-off, and a startup in a coupled process as a mixed method.

A. Archetypes of SOCI Framework

How the mentioned possible cooperations can now be integrated in the three archetypes of Open Innovation is described in the next sections.

1) Buy/Rent a Startup as an Outside-in Process

Most organizations have realized that the innovation potential of startups per definition is much higher than the internal innovation potential. Thus, organizations are trying to boost their own innovation potential acquisition of a startup. For startups this is one of the so-called exit strategies where the owners of a small company sell their shares to an established organization [18]. One emasculated way for this cooperation for an established organization is not to buy, but to rent a startup for a defined period of time. The worldwide increase of the acquisition of startups (1.217 (2011) to 4.217 (2017)) shows the relevance of the method of the outside-in process

2) Spin-off as an Inside-out Process

According to Davenport et al., a spin-off is when a company is formed through the transfer of technology from an R&D company (inside-out), which is independent of the parent company and involves the transfer of human and technological capital to a new formed market entity [19]. The innovation potential of, for example, the R&D unit of an established organization is used to find a new company which continues the innovation process as a quasi-autonomous entity. The smaller, more flexible and more agile structure of the new founded company aims to contribute to the innovation potential of the parent company. For example, the strategy of a spin-off is often used, when an innovation has great future potential but does not fit in the general approach of the parent company.

3) Startups in a Coupled Process

A coupled process includes general characteristics of the third archetype of Open Innovation where an existing organization cooperates with external partners in the field of startups or in a similar entrepreneurial way like startups. One exemplary approach for a coupled process of the SOCI strategy is described in a later section of this article.

4) The Three Archetypes of Startup-Based Cooperative Innovation Strategies

The mentioned three approaches of SOCI strategies can be related to the framework of the three archetypes of an Open Innovation. Out of this a framework, the SOCI-framework results, in which all three possible cooperation approaches between an established organization and a startup are considered. Fig. 3 now illustrates the three archetypes of SOCI-framework in analogy to the Open Innovation framework.

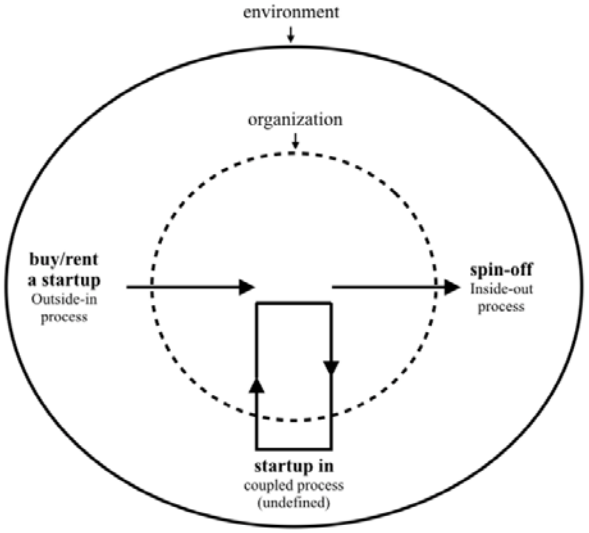

Fig. 3 Startups based cooperative innovation strategy framework [9]

Fig. 3 demonstrates the integration of the three described approaches of cooperative innovation with startups in the three archetypes of Open Innovation: Buy/rent a startup as an outside-in process, spin-off as an inside-out process and startup in coupled process.

In general, the SOCI framework has the intension to make clear which possible cooperation models between organizations and startups are possible. In addition to this, the framework helps to organize and categorize the different cooperation approaches of organizations with startups in the Open Innovation context [9].

V. SOCI Application: The PANDA Approach

As described in the sections before the orientation of established organizations on the characteristics and resulting advantages of startups during crises like COVID-19 seems to be an appropriate method to meet the challenges of the worldwide COVID-19 epidemic. To illustrate this idea, this chapter describes one established practical real-world implementation of the SOCI framework, the PANDA approach by Fresenius University in Germany, and analyses how the PANDA is helping established companies in Germany and Poland to innovate like start-up.

A. PANDA as a Coupled Process of the SOCI Framework

The PANDA approach is a project of the Fresenius University of applied Sciences in Germany. The PANDA approach of the Hochschule Fresenius has been implemented for the first time in 2017 [9]. During the last three years the PANDA approach was implemented 12 times with different companies in German and Polish technical industry. There are two goals behind the PANDA approach. The first goal is to enable established companies to develop a general idea to an innovation without any company-based limitation. For this motivation the statement "innovation like a startup" was established at the Hochschule Fresenius and with the participants of the PANDA projects. The second target is to inspire undergraduate and post-graduate students to explore the life of an entrepreneur in the respective industry and to help to decrease the barrier to found a new company through connecting students with companies and their specific business ideas. To summarize the intention of this project of the Fresenius University of applied Sciences, PANDA represents in the perspective of companies a coupled process cooperative innovation strategy and through the perspective of students, PANDA stands for a method to get in contact with the topic of entrepreneurship and to inspire students to become an entrepreneur [9].

Fig. 4 Idea of PANDA

The general procedure of a PANDA project is described in the next chapter.

B. Process of PANDA

The process of PANDA is that if a company has a general idea for a potential new technology or new application for an existing technology but no time or resources to explore the idea respectively to a possible market demand and develop the idea to an innovation with high market acceptance, the company gives the idea to students. With two or three students and one company employee one PANDA team is build. The main task of this team is to test the idea concerning a possible market demand and develop the idea to a promising business model. The PANDA team has the freedom to analyze the idea completely without any company-based limitations and develop the idea detached from the business model of the original company. After expiration of the project three results are possible [9]:

Result A: The PANDA team has identified that the idea of the company has a solid market demand and based on the findings of the project the team has developed a business model. If the business model fits the general structure and offerings of the company, the PANDA team transmits a business plan with the business model to the original company. Now the company can start immediately to implement the business plan [9].

Result B: The PANDA team has identified that the idea of the company has solid market demand and based on the findings of the project the team has developed a business idea, but this business idea does not fit the general structure and offerings of the original company. The PANDA team prepares a business plan for a new company. This new company can be founded by the writers of the business plan, the students. The original company can take the role of a mother company and own company shares [9].

Result C: During the PANDA project the team has identified no market demand for the idea. If this is the case, the PANDA team recommends the original company not to further advance the idea in the future and not to invest more time and effort to develop the idea.

Important to mention is that the participating companies pay for a PANDA project. The amount of payment depends on the time scope of a PANDA project. With a part of this payment the participating students get a payment for their work [9]. The general structure of this approach is displayed in Fig. 5.

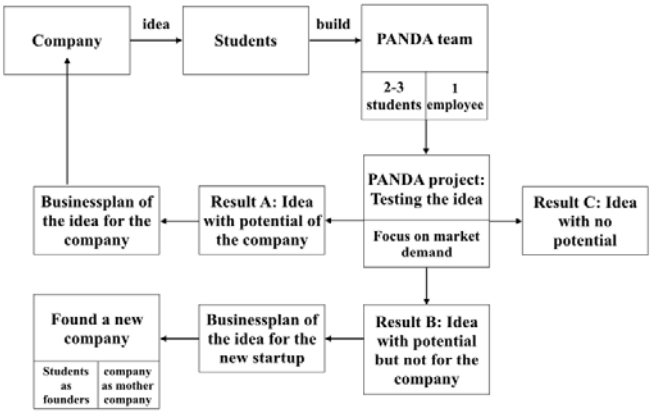

Fig. 5 PANDA process [9]

C. Advantages of SOCI Framework for Established Organizations to Meet COVID-19

Through the description of the PANDA approach, it gets notable that there are opportunities for established organizations to integrate the advantages of startups and entrepreneurial mindset into their business activities. Especially processes like the coupled process of the SOCI strategy, represented by the exemplary approach PANDA, can be seen as approaches in which companies can test and develop an idea which does not fit to the business activities of the past in a small amount of time, with a low personnel impact and without organization operational blindness.

As stated by Chesbrough and Almeida the openness of established organization to external influences and the orientation of established organization on the advantages of startup can be helpful to meet the challenges of COVID-19 [12], [20]. The SOCI framework which combines the benefits of Open Innovation with the trend of entrepreneurship can be seen as one possible solution of established companies to think and innovate like startups and to show a similar innovation

behavior like startups. A note to underline that approaches like PANDA are attractive for established companies during the Corona epidemic is that 33% of all PANDA project were requested during the COVID-19 crisis (May 2020 - January 2021) and are evaluated by the participating companies as a helpful innovation strategy even or especially in times of Corona. A detailed research about the effect of PANDA as a coupled process of the SOCI framework is currently implemented at Poznan University of Economics and Business in Poland in cooperation with Fresenius University of applied Sciences in Germany.

VI. Conclusion

Especially in times of COVID-19 the integration of external influences for generating new innovative solutions becomes more important and can be seen as one possible solution to meet the challenge caused by COVID-19. In addition to this aspect, the characteristics of startups seems to be more suitable to manage Corona by showing a more efficient way of generation time according innovations. Therefore, startups seem to have greater opportunity to meet the challenges of COVID-19 through their higher flexibility, time orientation and openness to external stakeholders. Through the description of the SOCI strategy and one exemplary real-world implementation, the PANDA approach, this paper shows that established companies can be motivated to meet the challenge of COVID-19 in a similar way like startups by applying a SOCI strategy. By relating the innovation process to the characteristics of startups established companies can innovate like a startup and can potentially generate competitive advantages. Especially by surviving and managing the Corona crisis the SOCI framework in the form of PANDA can be seen as one possible approach to meet the coming challenges.

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