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Understanding the heterogeneity of corporate entrepreneurship programs

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6 The value creation of CE programs

Even though it is widely accepted that the value creation of CE is manifold (see Chapter 2), surprisingly little attention has been paid to understand the different types of value creation that can be achieved by CE programs.

In this chapter, we will answer RQ2: *What types of outputs are created by CE programs?*

Chapter 6 is based on the following four publications:

- C. J. Selig, T. Gasser and G. H. Baltes (2018) "**How Corporate Accelerators Foster Organizational Transformation: An Internal Perspective**", 2018 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), Stuttgart, 2018, pp. 1-9.
- C. J. Selig, T. Gasser and G. H. Baltes (2019) "**Effects of Internal Corporate Venturing on the Transformation of Established Companies**", In: Baierl R., Behrens J., Brem A. (eds) Digital Entrepreneurship. FGF Studies in Small Business and Entrepreneurship. Springer, Cham, pp. 159 – 183.
- C. J. Selig and G. H. Baltes (2019) "**Towards an effective management of corporate entrepreneurship activities**", 2019 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), Valbonne Sophia-Antipolis, France, 2019, pp. 1-9.
- C. J. Selig and G. H. Baltes (2020) "**Strengthening Organizational Ambidexterity through Corporate Entrepreneurship**", 2020 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), Virtual Conference 20202, pp. 1-9.

To deepen the understanding of the value creation we will focus on the outputs that can be created by CE programs. The importance of understanding the variety of outputs has been underlined by a literature review on the performance of CE.

The literature review concludes with the three recommendations (Bierwerth et al., 2015).

- 1) To use multiple performance indicators for measuring CE performance instead of making a summed index, which does not reflect the variety of motivations behind CE.
- 2) To use theories that are covering more than just financial objectives in order to fully understand the heterogeneity of CE activities.
- 3) To improve the alignment between the objective of CE activities and the respective performance measurement.

In particular, the first and second recommendations highlight the need for a better understanding of the variety of outputs to improve CE program performance measurement.

To investigate the value creation of the CE programs, we have structured this chapter as follows. Section 6.1 discusses the approach used to analyze the outputs. Section 6.2 will present the identified outputs. In Section 6.3, we provide an overview of the distribution of these outputs. Section 6.4 discusses the outputs and the limitations that must be considered. In Section 6.5, we show how the results contribute to answering RQ2.

6.1 Research approach for investigating outputs

Currently, we are experiencing the emergence of novel CE program types (see Chapter 5) and new use cases for which CE programs are utilized. This is accompanied by a lack of understanding of (1) the full range of outputs that can be created and (2) how the CE program types differ regarding these outputs (Hill & Georgoulas, 2016).

In our analysis, we focus on understanding the outputs of CE programs. Generally, there is a distinction between outputs and outcomes (see, e.g., van der Voordt et al., 2016; Vermeulen et al., 2003; Neely et al., 2000). Outputs are the concrete results delivered by an activity. This holds for a meal cooked by a restaurant as well as for a computer program. Outcomes, in contrast, describe the impact that results out of a particular output, e.g., a family is happy after having eaten meals from a restaurant. Mirroring this to the context of CE programs, outputs are direct results of the program, e.g., a new product or technology. The impact of the outcomes is to be understood as rather long-term effects resulting out of the outputs, such as a strengthened competitive position or an increased level of innovativeness. We will focus on outputs, as they can be directly observed in our study design.

Our analysis follows the grounded theory principles with its three coding steps of (A) open coding, (B) axial coding, and (C) selective coding (for details, see Chapter 3).

A: Open coding

In the open coding step, the focus was set on the different concepts that are related to the value creation of CE programs. It resulted in three themes: (1) results of the work of the CE program, (2) spill-over effects and changes in the core organization, and (3) performance measurement of CE programs. In total, the open coding step resulted in a number of 90 concepts (codes) that were identified.

B: Axial coding

In the axial coding step, the initial 90 concepts were further aggregated (according to similarities in their content) to create a first set of outputs to be observed for CE programs. The aggregation led to the creation of 39 codes that are reflecting the value creation of CE programs. At this point, (a) the different codes were not harmonized, and (b) it was not clear whether they were created by multiple cases or just by one.

C: Selective coding

In the selective coding step, the 39 codes were applied to our data set (54 cases, see Section 3.2). By continuous comparison and re-coding the cases, the codes were further harmonized. That process revealed that 13 codes were (a) either defined too narrow – leading to further aggregation with other codes – or (b) did only occur in an individual case. All 13 were removed from the final set. The 26 output codes were complemented by one additional output that was uncovered in the selective coding step. Consequently, a total number of 27 codes were identified. They will form the final set of outputs.

Thematic clustering of the outputs

The 27 outputs are reflecting the full range of strategic value that can be created by CE programs. The outputs were clustered according to thematic similarities. They led to the creation of seven overall output categories covering 27 outputs (see Table 6.1).

The clustering of the outputs was tested with three colleagues from the research institute to increase credibility and confirmability. The test did consist of the following two steps.

- In the first step, colleagues were individually asked to sort the 27 outputs into thematic clusters. Then, feedback was collected on difficulties in the clustering process and on

the clarity of the output descriptions. This procedure reduced unclarities in the descriptions and unveiled new perspectives on how the outputs could be related.

- In the second step, each of the three colleagues was provided with the seven pre-defined output categories. They were asked to align and, if necessary, re-arrange the clusters based on our output categories. This step provided further insights into the clarity and traceability of the output categories.

After each test with a colleague, the feedback was used to improve the descriptions of the outputs and output categories.

6.2 Outputs created by CE programs

In this section, the seven output categories and 27 outputs will be presented. Table 6.1 is providing a first overview of the output categories and the associated outputs.

Output category	Outputs
1. Innovation capability	(1) Innovation services & expertise, (2) additional innovation path, (3) digital capabilities, and (4) roles or formats to support innovation
2. Innovation culture	(5) Sensitized senior management, (6) increased awareness for innovation, and (7) increased openness for innovation
3. Innovation ecosystem	(8) Strategic partnership, (9) venture portfolio, and (10) reputation within innovation ecosystem
4. Innovation know-how	(11) Intelligence on trends, and (12) technological know-how
5. Intrapreneurial empowerment	(13) Entrepreneurial skills & methods, (14) network of supporters, and (15) intrapreneurial community
6. New business offering	(16) Validated innovation concept, (17) new product, (18) new stand-alone business, (19) value adding service or feature, (20) new market, and (21) reconfigured business model
7. Organizational transformation	(22) Increased efficiency, (23) new ways of working, (24) digital infrastructure, (25) improved flexibility & speed, (26) improved corporate image, and (27) employer branding

Table 6.1: Output categories and associated outputs

The seven output categories are presented in the table in alphabetical order. The respective outputs per output category are sorted by frequency of occurrence in descending order, meaning that the first-mentioned output has the highest frequency of occurrence for the respective output category (based on Table 6.2 from page 161).

In addition to the 27 strategic outputs, there are also financial outputs that can be created by CE programs. We mentioned here the sales of new products and the increasing financial value of startup investments. However, these financial outputs are not investigated in our study for the following two reasons. First, the scope of our study focuses on strategic outputs that support the organizational transformation of a company (see the problem statement in Section 1.4). Second, relevant financial outputs require a long time to become visible and measurable. For example, when a new product is created, it can require multiple years until the full sales potential becomes clear. Consequently, the investigation of financial outputs would require a longitudinal study design rather than a cross-sectional study design.¹⁷ This line of reasoning is underpinned by the fact that only 1% of the identified outputs were financial ones, supporting the assumption that they become visible after a long period of time.

The outputs categories will be presented in the following Subsections 6.2.1 – 6.2.7. Each output category contains multiple outputs (see Table 6.1), which will be described within the respective subsection. For describing the outputs, the following three aspects will be used: (a) description of the output, (b) explanation of (b1) practical manifestations of the output, and (b2) how the output can be achieved, and (c) a quote to underline the description.

6.2.1 Innovation capability

The category *innovation capability* focuses on the creation of structures and capabilities that are established alongside the core organization to support the development of innovation ideas that do not fit the core business. The output category consists of the four outputs: (1) innovation services & expertise, (2) additional innovation path, (3) digital capabilities, and (4) roles and formats to support innovation. The order is starting with the output that has the highest frequency of occurrence within the output category (based on the values in Table 6.2).

¹⁷ We acknowledge the value of some strategic outputs might also occur after a rather long time (see distinction between outputs and outcome in Section 6.1). However, in contrast to financial value, e.g., the value of investment portfolio or profitable business, strategic outputs can be observed earlier and fit to our study design.

1 Innovation service & expertise

(a) Description: The expertise that is created through the CE activities is demanded and accessible for the core organization as a service that is provided by the CE program.

(b) Explanation: The innovation expertise generated within the CE program is used by other parts of the organization. Depending on the type of CE program, the expertise can range from evaluating startups or innovation ideas, over supporting the due diligence of acquisition targets, to a sparring partner for digitalization projects and strategy development. While in some cases, the service can be formally booked by other organizational units, in most cases, the support is more informal and based on goodwill.

(c) Quote: *" [...] business unit or a division wants to invest, we are the service provider who makes your investments. Not only service provider, but also sparring partner. That means, if they find a company and want to invest there, then we look at the company and in 90% of the cases we say, 'don't do it'! [...] In other words, we still do, I would say, service providers and, I would say, sparring partners."*

2 Additional innovation path

(a) Description: The company has established (formally integrated and in use) a new way to implement innovation ideas that is complementing the traditional R&D or innovation process.

(b) Explanation: The CE program has established itself as an additional innovation channel and is used by the core organization for a specific type of innovation. This can include both the internal development, e.g., creation of digital services, as well as the insourcing of external innovation, e.g., innovation purchasing of startup technologies. CE programs that are established as an additional channel have typically left the "discovery phase" and reached a more stable state (clear processes, structured transfer, etc.), in which the added value for the core organization is clear and demanded. Thereby, the traditional innovation or development processes of the company are complemented by the CE program.

(c) Quote: *"So in principle, the motivation was not to say that innovation doesn't work at [company], we have to do it now, but we have deliberately separated the innovation activities in the [CE Program] from the classical R&D [...] But we have said that in order to prepare for the future, we simply have to do more things that are perhaps not in the area of classic R&D, tackle new topics, perhaps think about new business models and simply go a little further than we are doing today in classic R&D. And for this we used the [CE program]."*

3 Digital capabilities

(a) Description: New capabilities are being developed that encompass both a deep understanding of digitalization and the structures and concrete competencies for implementing digital innovations.

(b) Explanation: Digitalization demands changes in current business practices. Building up the required capabilities and creating an understanding of the effects of digitization is part of the work of CE programs. In particular, if no other unit in the core organization is responsible for the digitalization strategy or if the CE program has a strong digital orientation. Thereby, the creation of digital capabilities can either be achieved by building an environment that is attracting digital talents or through work on concrete digital innovations projects – training on the job. Capabilities often result in competence centers for certain digital topics, such as app development or user design, which are available in the core organization and the CE program.

(c) Quote: *“Exactly. Well, of course, you always come up against limits where even a new business model outside needs some enablers internally. Well, one of them is our data analytics hub or our app and web studio, where we realized early on that if we didn't have that we wouldn't even have to think about many things outside.”*

4 Roles or formats to support innovation

(a) Description: New job roles or formats to promote innovation are transferred to the core organization, as they have proven valuable through the activities of the CE program.

(b) Explanation: The development of discontinuous innovations demands from companies to use different approaches and changes to the traditional innovation process. As a part of their work, CE programs explore and implement new approaches in their context. As the value of these new approaches applies not only to innovation within the CE program but to the entire organization, new roles or new programs/formats are being established in parts of the company. These new roles or new formats are designed to increase the innovativeness within the core organization and typically focus on innovation closer to the core business.

(c) Quote: *“There are now also individual initiatives from the business units themselves, where smaller programs are created in such a way that topics that are now closer to the business units [...] in order to let them really mature for a certain time before they are exposed to the standard criteria. That is definitely the case.”*

6.2.2 Innovation culture

The category *innovation culture* is focusing on the changes that are caused by the CE program's activities that lead to a more innovation-friendly culture on all levels of the core organization. This category consists of the three outputs: (1) sensitized senior management, (2) increased awareness for innovation, and (3) increased openness for innovation. The order is starting with the output that has the highest frequency of occurrence within the output category (based on the values in Table 6.2).

1 Sensitized senior management

(a) Description: Senior management has regular contact with innovative topics, often involved as a jury member or in investment boards, which is sensitizing them for innovation.

(b) Explanation: In many CE programs, the C-level or the higher management (depending mostly on the size of the company) is involved at a certain point in the activities of the CE program. Mostly this is the case for the evaluation of the innovation ideas. Another case is the involvement in the investment decision into an external startup or the spin-off decision of a corporate venture. Due to this involvement, the senior management is using a part of their time for new technologies, different business models, or other types of innovation, which is sensitizing them for the relevance of innovation and potential consequences for the company.

(c) Quote: *"The great thing is that they [top management] really enjoy it. So, they were happy to spend this day with me in [city]. So, it was really like that. I think I had already talked to the CTO [business unit] about it and then he said, Really, I want to be there, I don't want to get out of it, I would be rather offended if I had to get out of it and so on."*

2 Increased awareness for innovation

(a) Description: Activities are undertaken that increase the awareness of the employees for innovation, trends, and technologies and their impact on the organization.

(b) Explanation: One activity of many CE programs is to show the relevance of the topics of innovation and entrepreneurship, e.g., by organization events with well-known keynote speakers or pitching sessions. The activities mainly aim at promoting the necessity of their own work (raison d'être) and communicating their offer to the employees, e.g., when employees can apply with their idea for participation in the program itself. In addition, these activities do also lead to an overall increased awareness for innovation, as employees of the core organization have more points of contact to innovation topics and entrepreneurship.

(c) Quote: *“For example, there is now a regular [CE program] session for all [company] employees, a virtual session that we do once a month. And once a month we are looking for a topic of the month, where [company] colleagues can experience a [CE program] session. It's either a start-up that presents something, or a partner of ours, or a coach of ours, or we say.”*

3 Increased openness for innovation

(a) Description: Employees of the core organization are more open to new ideas innovations as well as for the opening of the innovation process towards external partners.

(b) Explanation: The CE program's activities contribute to an increasing openness for discontinuous innovation ideas. This output is related to the output increased awareness for innovation; however, their causes appear to be different. More openness was mostly found in connection with the concrete innovation projects in which employees of the core organization were involved. Positive experiences and results from the collaboration lead to the employees involved recognizing the value and becoming more open to these new topics.

(c) Quote: *“Well, that has changed a lot, that you don't believe anymore that they are just beginners, they are just students [...startups from Silicon Valley]. That has changed very much. The acceptance of not making technology oneself, but taking it from someone else and industrializing it, that is a completely new concept, that didn't exist before.”*

6.2.3 Innovation ecosystem

The output category *innovation ecosystem* focuses on external linkages that are built by the CE program as a basis to opening up the innovation process and to make more use of external means. The category consists of the three outputs: (1) strategic partnership, (2) venture portfolio, and (3) reputation within innovation ecosystem. The order is starting with the output that has the highest frequency of occurrence within the output category (based on the values in Table 6.2).

1 Strategic partnership

(a) Description: The company has established strategic partnerships with startups to increase the innovativeness of the core organization.

(b) Explanation: The CE activities have led to the development of a strategic partnership with startups. Thereby, different types of partnerships can be created, e.g., rather transactional

customer-supplier relationships but also co-development partnerships that aim at joint commercialization of a new product that is created together. The strategic value of these partnerships can either be created on the product level – e.g., by accessing technologies that are new to the company – or on the process-level – e.g., by using technologies to optimize the processes of the company.

(c) Quote: *“And that is the position we [as a corporate investor] come in and say, look, we could do this [commercialization of a technology] for you. For us, that is totally good, because we get innovations that we cannot develop ourselves, simply because everyone has his limitations. And for the startups, it is good because they do not have to do the capex-intensive stuff and all the boring stuff where you don't find many people here [Silicon Valley].”*

2 Venture portfolio

(a) Description: The company has built a portfolio of corporate ventures or independent ventures (including the contractual option to invest) that show a strategic relevance.

(b) Explanation: The creation of a portfolio of (a) independent startups or (b) corporate ventures can be achieved in various ways. CE programs that focus on startup investing by nature focus on creating a portfolio of startups. However, also startup engagement programs can create a portfolio of startups, e.g., small equity investments as a part of their support services or the option (contractual) of having a priority as an investor in the next investment round. In addition, a portfolio of corporate ventures can be achieved through the continuous founding of corporate ventures. Whereas for some corporate ventures, the strategic value for the core organization is clear, others are seen as a financial investment or have the option of spinning them in again when the strategic fit to the core organization becomes clearer.

(c) Quote: *“We have passed through 18 ideas. No, 18 plus four more. 22 have been passed. That means until February 2020 and six spin-offs, so to speak. So, I would count the two that are in spin-offs at the moment, too, exactly.”*

3 Reputation within innovation ecosystem

(a) Description: The company is known and has a positive reputation for working together with or investing in startups.

(b) Explanation: To successfully working with or investing in startups, it is important that the respective company is acknowledged as being a good partner. In particular, when the

company aims at working with the best-in-class startups (this output was especially relevant for CE activities in the Silicon Valley). Having a well-defined collaboration model or a good track record of previous, successful projects, companies can build a good reputation in an innovation ecosystem through their CE activities.

(c) Quote: *“And so, I think we quite have a very good reputation outside. And that also is visible when we start the scouting. Because basically, every year we have been decreasing the budget we use in terms of pushing the message out. Because sometimes also the message goes itself, because already your name is well known and people usually know what are the timelines, what are the requirements.”*

6.2.4 Innovation know-how

The output category *innovation know-how* focuses on know-how gained through the activities of the CE program, with a clear focus on innovation-related topics such as new technologies, trends, or changing customer behavior. The category consists of the two outputs: (1) intelligence on trends, and (2) technological know-how. The order is starting with the output that has the highest frequency of occurrence within the output category (based on the values in Table 6.2).

1 Intelligence on trends

(a) Description: Market and technology trends are identified, analyzed, and transferred back to the core organization to create a better understanding of potential future developments.

(b) Explanation: In volatile market environments, it is important for companies to identify or anticipate trends and developments that potentially affect the organization. Since CE programs deal with new topics in their daily work, they serve, among other things, as a means to identify trends about relevant technologies and social developments that may impact the business and to transfer this knowledge back to the core organization.

(c) Quote: *“But of course, if we come across interesting things, say new types of technology elements that are used somewhere else in another industry and where we could then combine this with our knowledge to create a new product for the [industry name] as well, then of course we also proactively approach our business units and point out to them that there could be something interesting where they have perhaps not yet thought about it.”*

2 Technological know-how

(a) Description: Technological know-how, which is relevant for the company's future product development, is built or absorbed to make it available for the core organization.

(b) Explanation: This output describes the development of technological knowledge that will serve as a basis for future innovation developments. CE programs can be used to acquire this knowledge internally or to make it available to the core organization through cooperation with external partners. In general, it is important to consider whether the technology is one that allows the company to stand out from the competition or whether it is a commodity that is freely available on the market.

(c) Quote: *“So, that technology when they first started it was hard for the rest of the organization to kind of understand and get their minds around. And it was not until the group actually packaged it as a [technology] like this say in the [use case] that the business leaders in the meeting said, Okay, well I understand that now and I get that. Let's now take this to market.”*

6.2.5 Intrapreneurial empowerment

The output category *intrapreneurial empowerment* has mainly an internal focus as it aims at supporting the employees of the core organization in developing innovation ideas to leverage internal innovation potentials. For this purpose, the CE program fosters intrapreneurial activities on the individual-level and serves as a network for like-minded employees. The category consists of the three outputs: (1) entrepreneurial skills & methods, (2) network of supporters, and (3) intrapreneurial community. Starting with the output that has the highest frequency of occurrence within the output category (based on the values in Table 6.2).

1 Entrepreneurial skills & methods

(a) Description: Employees are taught entrepreneurial thinking and methods, either through dedicated workshop formats or through training on the job by working on their ideas.

(b) Explanation: CE programs educate their participants in the use of entrepreneurial and innovation methods such as design thinking, lean startup, or agile working methods. Thereby, the intensity of teaching these methods and thinking can range from formalized curricula of workshop formats, do-it-yourself toolboxes with methods and advice, or regular coaching and mentoring of the intrapreneurial teams. In some cases, the method training was open to all

employees of the organization, whereas in other cases, the CE program focused on their participants only.

(c) Quote: *“And then we have our innovation programs, these 75 projects. They had about five to eight members each, so you could say 100 of them, definitely got 75. And then we had a little program of that [method name]. Maybe seven or eight hundred people were involved in the innovation programs, a thousand people in the network [...].”*

2 Network of supporters

(a) Description: A network of internal and or external mentors, coaches & promoters that are supporting innovation ideas with their expertise, know-how, and power is created.

(b) Explanation: This output describes the activity of connecting intrapreneurial employees with supporters. The supporters either provide methodological know-how and expertise in driving innovation within an established organization or have the formal power to push promising innovation ideas through the organization. Creating such as network is one part of the work of CE programs in order to ensure successful innovation ideas that survive after they have left the program again.

(c) Quote: *“These are people, as I said, mostly alumni, who are an [CE program] promoter at the [unit] and who are not only able to methodically support us internally [...] they are an incredibly, completely underestimated element of what we are doing and a huge lever into the respective decentralized organizational units.”*

3 Intrapreneurial community

(a) Description: Intrapreneurial employees of the company have the possibility (physically or virtually) to connect and exchange with other intrapreneurs.

(b) Explanation: The CE program is creating a platform, which can either be digital or physical events, that is supporting intrapreneurial employees in finding and connecting with other like-minded people. Regular events, also for alumni of the CE program, are helping in building a community of intrapreneurial employees across the different organizational units/silos.

(c) Quote: *“We founded a [community name] three or four years ago [...] (laughs) And I think the people who are there, they are very emotionally connected to our unit and they are also very proud. And I think that [community name & location] works as our home base and that has a spreading effect.”*

6.2.6 New offering

The output category *new offering* includes market-related innovations created by CE program activities, which are enhancing or adjusting the business offering of the company. The innovations show a wide variety, ranging from (a) new innovative features added to existing products to (b) complete new businesses that are created. The category consists of the following six outputs: (1) validated innovation idea, (2) new stand-alone business, (3) new product, (4) value adding service or feature, (5) new market, and (6) reconfigured business model. The order is starting with the output that has the highest frequency of occurrence within the output category (based on the values in Table 6.2).

1 Validated innovation idea

(a) Description: Innovation ideas are evaluated using entrepreneurial methods, according to their feasibility, fit to the company, or market chance as a basis for resource allocation decisions.

(b) Explanation: Following the principle of “fail early, fail cheap” – one output of activities in CE programs is the validation (or falsification) of an innovation idea or concept. Fast learning and an early decision about the continuation of a project is not only linked to gaining new knowledge but also that a more entrepreneurial attitude is being established.

(c) Quote: “[During the CE program...] So, for the first time there is the possibility to stop. That is important at this point. Or one says, so the sponsors for this topic say okay, understood, these are the findings. At the beginning we had a project that started with waving flags, because it was somehow clear that it would have to be technological this and that. It just came out, the customer actually needed something completely different and that is a completely different one. So, this pivoting has already taken place at that point.”

2 New stand-alone business

(a) Description: Innovations are developed, which build the basis for a new business that typically remains outside the core organization or becomes a new business unit.

(b) Explanation: One reason for initiating CE programs is the development of discontinuous or non-core business innovation. Due to the circumstance that these innovations do not fit into the core organization, they often result in the creation of an entirely new business, which

shows either a strategic relevance or is financially promising. Mostly, these new businesses are transferred into a new business unit or spun off into their own legal entity.

(c) Quote: *"So, if they were in the incubator, there are three possibilities. One is the spin-off. That happened once, now in / I don't want to say anything wrong. When was that? In June, I think. In June we made the very first spin-off from [company name]. We were all very, very proud of it. That happens very rarely at Corporates. And even (laughs) less frequently at [company name]. That's why it happened the first time."*

3 New product

(a) Description: New products are developed, which are transferred back into existing units within the core business to complement or adjust the current product offering.

(b) Explanation: The development of innovations is one key task of CE programs. Not every innovation idea has the potential for creating a new business unit or spin-off. In such a case, they are often transferred back to the core organization as a new product that is complementing the existing product portfolio.

(c) Quote: *"Many topics [run by the CE program] are currently project business, and you can then convert that into a product business and develop a SaaS platform next to it, where massive scaling is possible or things like that, that's what we do."*

4 Value adding service or feature

(a) Description: Product features or (digital) services are developed that enhance the current product offering to serve changing customer needs and to ensure a digitalized product offer.

(b) Explanation: The digitization of products often leads to hybrid constellations that combine hardware products and digital services. For most established companies, the development of digital services requires new know-how and new capabilities, which are often built up as part of a CE program. As a result, the activities of a CE program can lead to the development of digital services that complement the existing product portfolio of the core organization.

(c) Quote: *"This means that someone in our service department can receive a notification. "Hey, watch out. The [product] is now ten thousand hours running. Why don't you give us a call, because in two months it will somehow reach the limit of its lifetime. Just give us a call". Proactively do service. Proactively maybe even put a spare part in stock. You don't have to have a big date, do machine learning. Just to know the basics."*

5 New market

(a) Description: New customer groups or markets are opened up, either by establishing additional sales channels or by leveraging existing technologies into new markets.

(b) Explanation: Expanding the core business into new markets is one way to foster growth. This can either be achieved by (a) establishing additional sales channel, often e-commerce, mobile commerce, or platforms, which is supporting companies in their digital transformation and enables them to access new customer groups or by (b) leveraging their current technologies or products through the collaboration with startups into new market areas. In this case, startups are building their innovation on top of existing technologies/infrastructure. One example is the introduction of 5G technology, where telecommunication providers leverage the use cases of the technology through startup collaboration.

(c) Quote: *"Exactly. So, what we actually do, I would say "direct to consumer" has two tasks, on the one hand it has the task of acquiring new customers, where we have no chance via B2B, so direct consumers. And the second is, of course, to create new revenue channels or, yes, to exploit new revenue streams in which we cannot exploit in B2B, e.g., via own e-commerce, marketplace, and retail."*

6 Reconfigured business model

(a) Description: The existing business model of the core organization is reconfigured to meet changing requirements.

(b) Explanation: Besides the development of entirely new businesses, the reconfiguration of the existing business or business models is a key challenge for many companies. The digital-enabled trend moving from selling products to offering them value as a service is often a core activity of CE programs.

(c) Quote: *"I know that this one was the service thing, which was our project last year. And where we found by chance a start-up that does this whole financial thing, a FinTech start-up. And then we found a [subsidiary] that is interested in the topic. We have piloted the topic in [country] this year. That means [product name - as-a-service] and we have already made a lot of money there. So that is, if you look at the money, by far our most successful project."*

6.2.7 Organizational transformation

The output category *organizational transformation* is focusing on how the activities of CE programs lead to transformation and changes in the core organization's structure, processes, and capabilities. The category consists of the following six outputs: (1) increased efficiency, (2) new ways of working, (3) digital infrastructure, (4) improved flexibility & speed, (5) improved image, and (6) employer branding. The order is starting with the output that has the highest frequency of occurrence within the output category (based on the values in Table 6.2).

1 Increased efficiency

(a) Description: The activities result in optimizing the core organization by leveraging efficiencies through the use of digital technologies.

(b) Explanation: With the emergence of new, mostly digital technologies, many processes in the core organization can be digitalized, leading to an increasing level of automation. Some innovation ideas in CE programs focus on how new technologies support the optimization and automation of existing processes, which ultimately leads to increased efficiency.

(c) Quote: *"The colleagues in [city], for example, have brought a [technology] platform into the [company] that controls server utilization more intelligently, so that if several processes are running, not all servers are used simultaneously, and so on. And this clearly has nothing to do with the front end, it is a background process, but so far, it has cost the [company] a lot of money. And is then a real cost saver on the side."*

2 New ways of working

(a) Description: New methods, approaches, and ways of collaboration, which were introduced in the CE program, are transferred to and adopted by the core organization.

(b) Explanation: Within the CE program, different working methods are employed than in the core organization. These methods typically include design thinking, lean startup, and agile methods, but also different forms of organizing teams that are helpful in the development of rather discontinuous or non-core business innovations. Through the work of the CE program, the value of these new working methods for the core organization becomes clearer and some methods or elements of them are adopted by the core organization. This can be done either through the adoption of methods by an organizational unit or through the formalized integration of workshops and training by the human resources department.

(c) Quote: *“Or working methods, working with personas, such agile procedures, story maps. In a new project, our [unit director] has even adapted this and tried to implement it. And even there, rather/the others look at it, see that it has substance, that makes sense in terms of content, there is also a better success in the end.”*

3 Digital infrastructure

(a) Description: Digital tools and technologies are implemented, building the basis for the overall digital transformation of the core organization.

(b) Explanation: In many cases, the discontinuous innovations of the CE program have a strong digital focus. Dealing with these digital innovations requires certain basics, e.g., the availability of data, design principles to develop apps or tools to use machine learning. Since the know-how about these digital technologies is often not available, CE program must explore and develop the digital basics on their own as a prerequisite for creating digital innovations. As a result, these digital technologies and basics are also available and used by the core organization.

(c) Quote: *“Because we have been working with [company name] IT for long enough and know what we can or cannot expect from them and so on, then things just happen. Design system [developed by CE program] that we don't reinvent the button for every app, there is now a design system where you double-click, and you have the code.”*

4 Improved flexibility & speed

(a) Description: Processes and structures within the core organization are adjusted to serve the need for becoming more flexible and faster to support the company's innovation activities.

(b) Explanation: The activities of the CE program are leading to the adjustment of processes and structures within the core organization. They are becoming more flexible and faster. Two different reasons can be identified for these adjustments in the core organization. First, the CE program challenges the status quo by giving an example of how a modern organization can be designed and triggers change activities. Second, processes and structures are adjusted to ensure that innovation ideas out of the CE program can be transferred successfully to the core organization. Thereby, the concrete innovation ideas are trigger points for changes.

(c) Quote: *“We have introduced lean corporate governance for our issues [for the CE program], which of course is within the [company name], who said “hey, how do they manage to do it all*

at once so fast"? So, they did a content project to learn from us how to be leaner. A communication in IT, something like slack or what you use to survive normally, the [company name] sees and thinks "hey, why don't we do that"?"

5 Improved image

(a) Description: The CE program has a positive impact on the company's image and reputation, as it is being recognized to be innovative by relevant stakeholders.

(b) Explanation: In addition to the influence on employer branding, CE activities can also have a positive effect on the company's general reputation. Various stakeholders such as politicians, other companies (partners or customers), but also shareholders of the organizations recognize the activities as important and associate positive connotations with the CE program.

(c) Quote: *"[Company manager] he brings executives, 30 executives from the German [industry]. So, from [different company types] and so on, who will be allowed to do Design Thinking here in two days, they will be there / are very enthusiastic and will go out of [CE program] and so on like on cloud number nine. So, there's already cooperation at this point."*

6 Employer branding

(a) Description: The CE program makes the company more attractive for employees (often digital talents) who previously did not feel attracted by the company.

(b) Explanation: The activities of the CE program are perceived as innovative and attractive for potential employees that have a digital-driven mindset, e.g., having a favor for the "new work" concept. Thereby, the CE program itself can be used as a pool to attract talents from the outside. However, it can also be observed that the existence of a CE program has a positive impact on the overall company.

(c) Quote: *"But on the other hand, and this is the next topic, an unintended positive side effect is the topic of employer branding. Well, I was once told by the personnel department that by now an enormous number of applicants, when they are asked: "Why do you want to work in the [company]," they say: "Well, you have the [CE program], which means you are super innovative. Especially young employees, who you might not get otherwise. And when they join the company, it also contributes to the cultural change."*

6.3 Distribution of the outputs

The seven output categories and 27 outputs described in Section 6.2 have been applied to the 54 cases from our data set. Through this coding, 952 text passages describing an output were identified. In total, we coded 450 outputs across all cases. The difference between the 952 text passages and the 450 outputs can be explained as follows. When an output was mentioned multiple times during an interview, we have multiple text passages coded for one output, which explains why the total number of text passages is twice that of outputs.

In this section, the frequency of occurrence of the outputs and their distribution across the output categories will be described. Figure 6.1 shows that the general distribution of the seven output categories is rather balanced. Still, the output categories that account for the highest shares are (a) *new offering* with 22%, (b) *innovation culture* with 19%, and (c) *organizational transformation* with 16%. Together, these three output categories comprise more than 50% of all coded outputs. However, the meaning of the pure distribution of outputs is limited since the output categories cover a different number of outputs. For example, *innovation know-how* consists only of two different outputs, whereas *new offering* covers seven outputs.

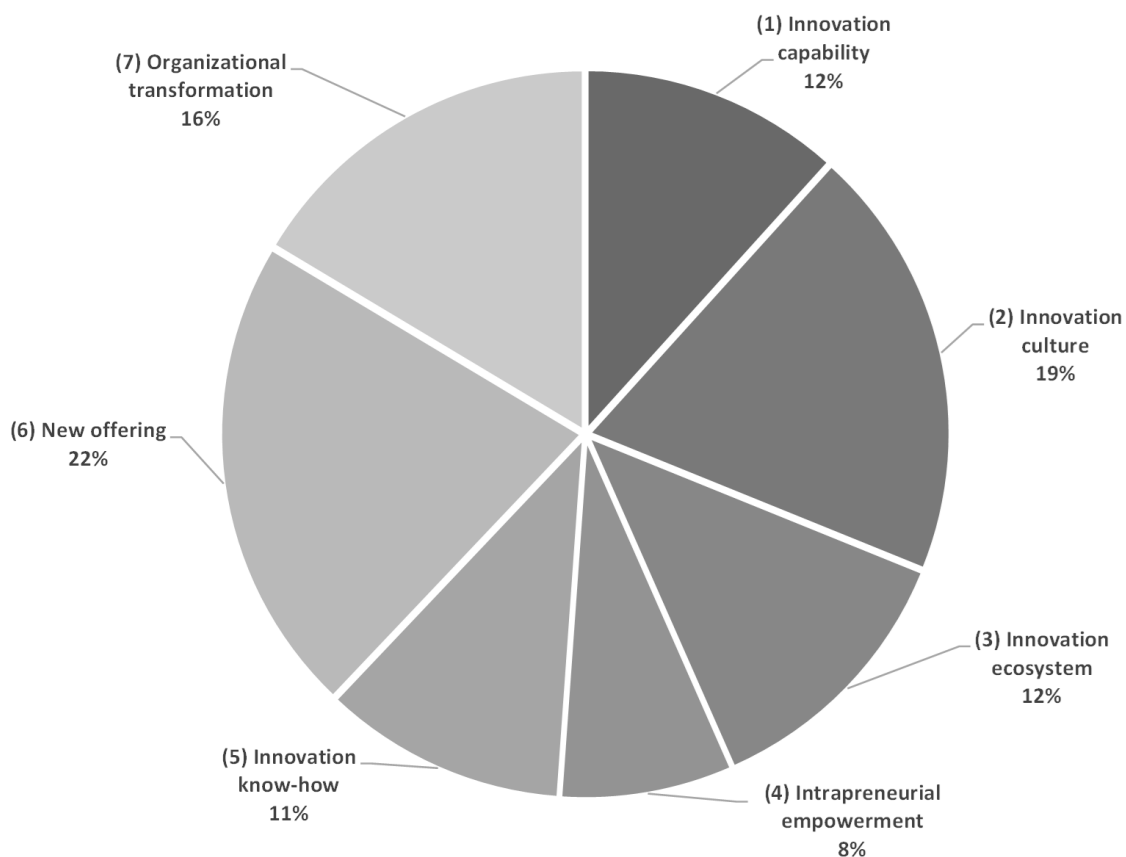


Figure 6.1: Distribution of output categories

Figure 6.1 shows that CE programs (a) lead to the creation of new businesses and new products, (b) support the transformation of the organization, and (c) strengthen the innovation capabilities of a company. This finding is also highly relevant when looking at the performance measurement of CE programs since turnover or growth seem not to represent the broad range of value (outputs) that is created by them.

In Table 6.2 (see next page), the distribution of all 27 outputs is listed and the frequency of occurrence is given. It is important to note that the outputs in the table are not ordered according to the output category but according to their frequency of occurrence across all cases in descending order. This means that an output with 100% would have been identified in all 54 cases. For example, the output *entrepreneurial skills & methods*, which has a frequency of occurrence of 50%, can be found in 27 cases.

The three most common outputs (highest frequency of occurrence) are (1) the *sensitized senior management* with 80%, followed by (2) *validated innovation idea* with 74%, and (3) *increased awareness for innovation* with 67%. On the contrary, the output with the lowest frequency of occurrence is the *reconfigured business model* with 7%, which is at the same time the only one that is scoring lower than 10%.

Based on Table 6.2, it can be stated that a major part of the outputs does not occur across the various cases and consequently neither across the various CE program types. Only six outputs have a frequency of occurrence higher than 50%. This supports the initial assumption of our study that the value creation between the CE program types is different.

The 27 outputs that are described in this section build the basis for identifying how exactly the CE program types differ regarding their value creation by linking them with the respective outputs. This will be done in Chapter 7 by linking the 27 outputs from this chapter with the twelve types of organizational design presented in Chapter 5.

Outputs	Frequency of occurrence
Sensitized senior management	80%
Validated innovation idea	74%
Increased awareness for innovation	67%
Strategic partnership	61%
Intelligence on trends	59%
Entrepreneurial skills & methods	50%
Technological know-how	48%
Increased openness for innovation	44%
Innovation service & expertise	43%
New stand-alone business	41%
New product	41%
Additional innovation path	35%
Value adding service or feature	35%
Increased efficiency	33%
Venture portfolio	31%
Improved flexibility and speed	28%
Digital infrastructure	28%
New ways of working	28%
Improved corporate image	28%
Positive reputation within innovation ecosystem	28%
Digital capabilities	22%
Employer branding	17%
Roles or formats to support innovation	15%
Intrapreneurial community	13%
New market	13%
Network of supporters	13%
Reconfigured business model	7%

Table 6.2: Outputs and frequency of occurrence (descending order) across all cases

6.4 Discussion of the results

In this section, we will discuss the findings that were presented in Section 6.2. Therefore, Subsection 6.4.1 will describe the limitations that must be considered regarding our results. In Subsection 6.4.2, we will discuss how the results can be embedded into the literature. This is followed by a practical perspective on the results in Subsection 6.4.3.

6.4.1 Limitations of the results

In this subsection, the three limitations will be described that must be considered with respect to the results that were presented in Chapter 6.

Limitation 1 – Size of the data set

The identified output categories and outputs were inductively derived from our data set. Even though the data set covers the full heterogeneity of CE program types, the number of cases per CE program type is rather small, e.g., the collective matchmaker with three cases or the venture builder with three cases. The rather small number of cases for some CE program types may imply that a few types of output were not found. However, we assume that the chance of outputs or even output categories is not covered in our data set is rather small, as most outputs are created by multiple CE program types.

Furthermore, a larger number of cases could also lead to outputs that were previously excluded because they were too low in occurrence (fewer than 2 cases) being included again in the harmonized set of outputs. In our study, this applies to two outputs that were not included in the final set of outputs in the last coding step (selective coding). These outputs are (a) identifying and managing entrepreneurial talents, which was observed in one case, and (b) a redefined status quo, which was observed in two cases.

For (a) holds: The output *identifying and managing entrepreneurial talents* is describing the result that by running a CE program, the company identifies entrepreneurial talents within its organization and uses this knowledge, e.g., when it comes to the staffing of certain projects that require non-standard profiles.

For (b) holds: The output *redefined status quo* is describing the circumstance that the activities and results of the CE program leading to a reconsideration of company-own standards and values may no longer fit the changing market environment. For example, by demonstrating

that even in a highly restricted industry, general terms and conditions can be reduced to two pages, which was previously considered impossible because it would not be legally secure.

Generally, it might be that with a larger or different data set, these two outputs described above could occur more often. However, due to the large number of cases covered in our data set, we consider that the 27 outputs described in Section 6.2 are the ones that are most common for CE programs.

Limitation 2 – Study participants

The second limitation comes in hand with the design of the study itself. The interviews were conducted with members of CE programs themselves. In most cases, they were well aware of the innovation ideas that were participating in the program. However, after the program has ended, the insights into the development of the respective innovation idea did decrease.

Based on the selection of the interview partners (focus on the CE program only) some outputs might not be identified. This is in particular the case for outputs that do not directly result from the CE program but emerge a while after an innovation idea has left the program. It means that the CE program might have an initial effect on an output that is later also influenced by factors outside the CE program. Such indirect outputs are not covered in our study as it is unclear to what extent the output can be attributed to CE programs or to the conditions after the innovation idea left that program.

The scope of the CE program only limits insights into the effect of the concrete innovation ideas. A previous study that was analyzing the CE programs and the corporate ventures resulting from the program shows that additional outputs exist on the venture-level, e.g., *creation of entrepreneurial role models* (Selig et al., 2019). A second study did highlight that there are also learning and capability outputs from corporate ventures that were discontinued and hence often interpreted as failed (Keil et al., 2009).

Identifying these outputs would have required a set of additional interviews per CE program, which was not possible in our study due to the limited availability of time and access.

Limitation 3 – Impact of time

A third limitation comes in hand with the focus on outputs. They typically have rather direct and short-term effects. However, focusing on the short-term effects does not reflect the full potential of the different CE activities. A broader understanding would require that the long-term outcomes (see Section 6.1 for a distinction) are also investigated. For example, when multiple corporate ventures are founded as an output of a CE program, it is not covered how their products and businesses are having an impact on the core business. One of the reasons for this is that the business of a corporate venture would have to be relatively large and mature in order to be able to assess the impact on the core company. A practical example from the automotive industry is illustrating this circumstance.

Example: In 2009, Daimler AG started its car-sharing activities called Car2Go. They were operating and scaling this service for nearly ten years until, in 2019, they decided to merge their car-sharing activities with their competitor BMW and their services, previously called Drive Now. While car-sharing was perceived in its early days as one crucial element in the growth of both car manufactures, in 2020, they stated that they will increase their focus on luxury cars again and did reduce their efforts in the area of mobility as a service.

This example shows that it is initially difficult to evaluate the long-term outcome that arises out of the output new business. For understanding the full impact of CE, in particular, with a focus on the long-term influence on the core organization, it seems that a longitudinal research design is recommended.

6.4.2 Embedding the outputs into CE concept

The outputs described in this chapter show a broad range of different types of value creation that can be achieved through CE programs. The variety ranges from the creation of new businesses, over intrapreneurial empowerment, to the transformation of the core organization. This goes in line with the three sub-categories of CE, which are (a) corporate venturing, (b) strategic entrepreneurship, and (c) corporate nurturing (see Section 2.1). Table 6.3 illustrates how the outputs categories can be linked with the three CE sub-categories and shows that a better understanding of the outputs is also contributing to more clarity of the CE concept.

CE sub-category	Sub-category definition	Output categories
(a) Corporate venturing	... is defined as all structures and processes that are entrepreneurial approaches to develop rather discontinuous innovations in the context of an established company	New offering
		Innovation capability
(b) Strategic entrepreneurship	... is focusing on the transformational aspect of entrepreneurial activities within an established company.	Organizational transformation
		Intrapreneurial empowerment
		Innovation culture
(c) Corporate nurturing	... is defined as all means to gain access to external innovations of new ventures, either by direct insourcing of innovations or indirectly by securing the option to access them.	Innovation ecosystem
		Innovation know-how

Table 6.3: Mapping CE sub-categories and output categories

The assignment of the output categories to the three CE sub-categories is based on the respective definitions. We focused on the highest overlap between the output category and the CE sub-categories. However, it must be noted that this assignment is not exclusive, meaning that an output category might also have an overlap with another CE sub-category. An example of this is the *innovation know-how* category (assigned to corporate nurturing), which includes understanding trends and know-how for new technologies. These outputs do also contribute to the development of innovations, which are part of the *new offering* category (assigned to corporate venturing). This brief example shows that the output categories have links to several CE sub-categories.

Table 6.3 provides a first indicator of how the value creation of the three CE sub-categories differs and shows that each sub-category can provide a distinct value for the core organization. However, we also see that regarding the value creation there are no clear boundaries between the three sub-categories. The lack of a clear distinction between CE sub-categories was also stated by Kuratko and Hoskinson (2019), which recommend understanding the CE sub-categories rather as lenses by which CE is being studied than clearly distinguishable concepts.

A better understanding of the differences may be provided after linking the outputs with the respective CE program types, which will be done in Chapter 7.

Moreover, the results of this chapter suggest that the three recommendations made through a literature review on CE performance are also valid for CE program outputs. In Table 6.4, we use our results to evaluate to what extent we agree with the three recommendations.

Recommendation by Bierwerth et al. (2015)	Evaluation of the three recommendations
To use multiple performance indicators for measuring CE performance instead of making a summed index, which does not reflect the variety of motivations behind CE.	The 27 strategic outputs, which can be grouped into seven categories, cover a wide variety of value that can be created. It is unlikely that the full value of CE programs can be measured with one summed index. Hence, we agree with the first recommendation.
To use theories that are covering more than just financial objectives in order to fully understand the heterogeneity of CE activities.	In our results, only 1% were financial outputs, whereas the remaining 99% were strategic ones. Hence, we agree with the second recommendation. It is crucial to focus more on the strategic value creation of CE.
To improve the alignment between the objective of CE activities and the respective performance measurement.	Our results did not focus on the objectives of CE programs. Nevertheless, the broad range of value that can be created suggests that an alignment between objectives and performance measurement is important. Hence, we also agree with the third recommendation.

Table 6.4: Evaluating the recommendations for the performance measurement of CE

6.4.3 Practical perspective on the identified outputs

Generally, it is important to acknowledge that the described outputs can be achieved in various ways, whereby CE programs are just one potential way to do so. For example, many of the HR-related outputs, such as *entrepreneurial skills & methods* or *increased awareness for innovation* can also be achieved through training programs or similar HR development activities. Another example is accessing new *technological knowledge*, which can also be accomplished by merger & acquisition of other companies (not exclusively startups) or within a radical innovation unit. Hence, if the intent is to create a certain output, the corporate management should evaluate the different options in addition to implementing a CE program.

We chose to focus on defining and then comparing outputs of different CE programs rather than comparing how some outputs can be achieved through CE or other strategic options.

Future research may pick up the questions of what the alternative ways or approaches are that companies can use to create the 27 outputs, which were presented in this chapter.

A second important topic is the temporary nature of some outputs. Due to the ongoing digital transformation, established companies are challenged to re-invent themselves and their business. In our results, two outputs did show a strong digitalization focus, which are (a) the *digital infrastructure* and (b) the *digital capabilities*. It is not surprising that CE programs, which are implemented to drive innovation, are frontrunners for some digitalization topics. However, given the ongoing transformation of companies and the development of the required digital capabilities and infrastructures, it can be assumed that, over time, companies will not need a CE program anymore to create these outputs as they have become part of the core organization. This shows that some outputs may have a rather temporary nature, whereas other outputs, such as *intelligence on trends* or building *strategic partnerships*, may last longer as companies have a continuous need for them.

To conclude on the outputs of CE programs. There is a broad variety of different outputs that can be created. For the effective use of CE programs, it must be clear which objectives should be achieved and what types of outputs belong to this objective. In addition, it seems to be crucial to evaluate if the desired outputs could also be created by other means.

6.5 Concluding on the outputs

The aim of this chapter is to answer RQ2: *What types of outputs are created by CE programs?*

By presenting a set of outputs which consists of seven output categories and 27 outputs, we provide an answer to the second RQ of our study. The identified output categories and outputs show that CE programs create a wide range of values that support the organizational transformation of a company.

For a deeper understanding of the outputs, next, we will explore the relationship between them (see Chapter 7) and the different types of CE programs (see Chapter 5). This will contribute to a more detailed understanding of how CE programs differ in their value creation.