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Research Paper

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Strategic corporate venturing to design targeted innovation initiatives

High-tech multinationals face a strong need for efficient innovation. Methods beyond conventional research, referred to as corporate venturing (CV), have proven capable of increasing innovativeness. This work presents the results of a conducted action research project following the action innovation management research-framework (AIMR-framework). Over a six-month period, the author accompanied a CV management team of a high-tech multinational corporation.

The course of the project and the results are presented in this paper. First, specific characteristics of central CV management units are compiled. Next, best practices from across CV literature are systematically extracted to match these characteristics. As a result, an aligned CV initiative for integration of novel technologies is proposed.

The paper contributes to the methodological base of corporate technology management and innovation management literature. By design, the proposed CV initiative connects internal and external stakeholders and combines attributes, such as a broad scope of innovation, employee-sourced ideas, and direct financial support. The methodology applied in this work paves the way for strategic CV by which corporate innovation units can increase their innovation capabilities. The findings will subsequently help managers to increase their company´s innovation capabilities and thus provide a competitive advantage.

Keywords: corporate innovation management, technology management, corporate venturing, corporate innovation initiative portfolio, action innovation management research framework

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1 Introduction

1.1 Recent developments in corporate venturing

Innovation is an essential element of today's corporate strategies. Corporations pursue innovation in multiple ways (Cefis and Marsili, 2005; Gardiner et al., 2006; de Jong et al., 2015; Bradley et al., 2018; Zander, 2022). As one element, corporate venturing (CV) refers to a loose set of corporate innovation initiatives (CIIs) designed to accelerate, create, capture and deliver different types of innovation (Burgelman, 1983; Gutmann, 2019). As a typical characteristic, CIIs include some form of innovation funnel and project portfolio management (Enkel and Sagmeister, 2020; Kock and Gemünden, 2021).

Over recent years CV received increased attention, resulting in a growing number of presented CIIs (Zahra et al., 2016) (see Figure 1). Some types, such as accelerator and incubator emerged dominant but remain rather vague (Roessler and Velamuri, 2015). Overall comparability between CIIs is described as low as well as high in ambiguity which limits overall effectiveness of CV research (Phan et al., 2009; Heinzelmann et al., 2020). Recently, scholars have begun to form clusters in which CIIs are taken and put in context to each other (Gutmann, 2019; Heinzelmann and Baltes, 2019; Heinzelmann et al., 2020).

Like a puzzle, the ideal corporate innovation initiative portfolio (CIIP) follows the MECE-principle (mutually exclusive and collectively exhaustive). Each CII acts as an essential part of the CIIP, while no two CIIs compete against each other (Rasiel, 1999; Gutmann, 2019). This systematic approach to CIIs and the CIIP is referred to as strategic CV management.

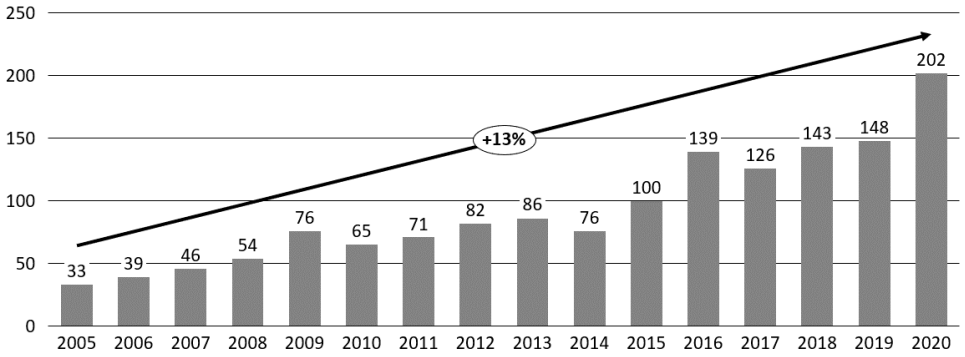

Figure 1: Number of publications on the topic "corporate venturing" over time, Compound annual growth rate between 2005-2020 of 13 %, Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI. Source: webofscience, 14.04.2021

1.2 Strategic corporate venturing management in high-tech multinational corporations

In multiple high-tech industries, such as the chemical and pharmaceutical industry innovation is a key element of business value (Shah, 2004; Festel, 2013; Festel and Rammer, 2015; Bradley et al., 2018; Glaß et al., 2020). Within multinational corporations (MNC) central functions manage CV activities. This setting comes with several characteristics which allow the application of strategic CV management (see Table 1).

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Table 1: Selected characteristics of corporate innovation management functions.

Characteristics	Description
Complexity	Each area of the value chain applies many different technologies of different maturity levels. Also, many globally situated employees with different areas of expertise are involved. Novel technologies continuously emerge from inside an outside the organization (Chesbrough and Garman, 2009; Lee et al., 2019).
Ambidexterity	The capability to exploit incremental innovation and at the same time explore radical innovation for lasting success is described as ambidextrous and seen as a key challenge for MNC innovation management (Andriopoulos and Lewis, 2008).
Ivory tower syndrome	The ivory tower syndrome refers to the gap between the scope and aims of central management functions and the ones from functions on the operations level (e.g., at manufacturing sites) due to different routines and target systems (Rockefeller, 1979).
Not invented here syndrome	Distributed employees are responsible for integrating innovations in the field, for example at different manufacturing sites. If these are not be fully convinced by an idea, resistance or biases can undermine the effectiveness of central innovation management function (Katz and Allen, 1982; Ismail et al., 2023).
Limited outside perspective	Outside perspective is essential to innovation (Bradley et al., 2018). Historically, ideas emerged from within the corporation and little focus was put on external assessment of their quality. In the early 2000s the term “open innovation” was shaped and became an established part of today’s innovation management (Chesbrough, 2003). This applies to innovation and innovation management alike.
Efficient innovation management and budget allocation	Budgets in daily operations and manufacturing e.g. at manufacturing sites are clearly defined, structured, and reported. Budgets without clear purpose are avoided. As a result, there is little flexibility to spontaneously support promising but uncertain innovation projects (Keller et al., 2020). In contrast, dedicated innovation units require high innovation output to justify themselves against higher management. Low funding volumes of early-stage ideas make it crucial to not overengineer operations within the innovation unit.
Fuzziness at the front end of innovation	Fuzziness refers to the uncertainty in early stages of innovation. Within the creative innovation process it is not clear where and when ideas emerge and how innovation can best be ensured (Management of the Fuzzy Front End of Innovation, 2014).

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The relevance of each characteristic partially depends on the industry. As an example, the value chain of pharmaceutical product supply holds a high level of complexity. The end-to-end process is initiated by patient demand, which results in dedicated research and development activities. The successful identification of an active pharmaceutical ingredient is followed by the development and approval of a novel drug. From there, the drug manufacturing starts with the raw materials. Afterwards, the drug substance is synthesized and combined with excipients to form a final drug product. Following, the drug product is packaged, distributed, and made available to patients. Each part of this chain is essential and contributes towards overall value generation (Friend, 2011) (see figure 2).

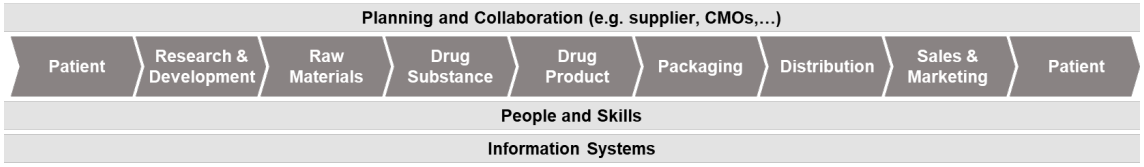

Figure 2: Schematic value chain of end-to-end product supply in pharmaceutical industry, adapted from (Friend, 2011).

With respect to the different dimensions and scope, CII design and management are complex. It remains desired to design a CII closely aligned with the specific needs and capabilities of central innovation functions. With an action research project in mind, the authors aim to answer the following research question:

RQ: How to design a corporate innovation initiative (CII) with respect to the characteristics of a corporate innovation management function?

To answer this question, this work is structured as follows. First, the action innovation management research-framework (AIMR-framework by Guertler et al. 2019) and the methods applied within the framework are described. Next, insights into several literature analyses are gathered, mapping various established CIIs, and identifying best practices. The extracted insights from literature are applied to propose an CII aligned with the characteristics of central corporate innovation management functions. Results are discussed and recommendations for management and avenues for future research are presented.

2 Methods

2.1 The action innovation management research-framework

Innovation management research can be triggered by academia or in practice, that is, by identifying a research gap or noticing specific industry needs (Kaplan, 1998; Mumford, 2001; Eikeland, 2006). Close scholar-practitioner relation can help to overcome the frequent perception of research being an activity isolated from practitioners (Flyvbjerg, 2001; Ven and Ven, 2007). Therefore, action research is a favorable method. Guertler et al. 2019 provided an overview of action research and described its high compatibility with technology and innovation management research. Action research and innovation management show similarities such as close practitioner contact and uncertainty in outcome, making the method highly compatible with innovation management (Frederiksen and Brem, 2017; Guertler et al., 2019). Subsequently, Guertler et al. formulated the AIMR-framework to specifically enable action research in innovation management (see Figure 3) (Guertler et al., 2020). The framework is already embraced, to promote rigor and diversity in innovation management (Ritala et al., 2020).

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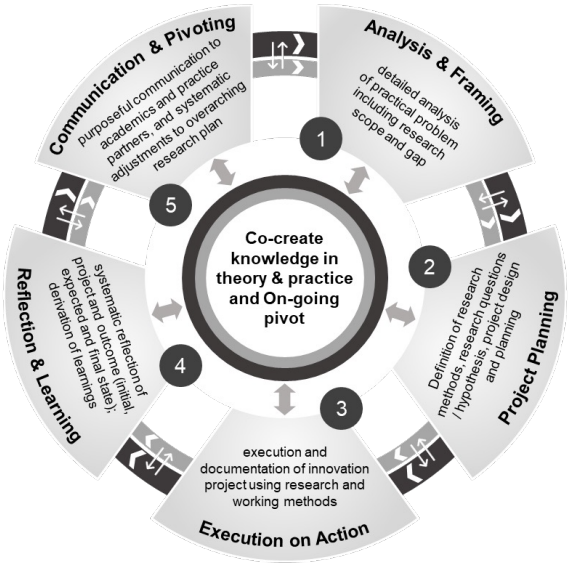

Figure 3: The action innovation management research - framework by Guertler et. al. 2019.

The AIMR-framework suggested by Guertler et al. 2019 was applied to guide the overall action research project. The different phases of the framework are briefly summarized in the following:

1. Analysis & Framing
The project is initiated, and general scope and framing are derived. Practitioner and scholarly goals and results are defined. When the researcher joins the practitioner, he holds the role of an academic-practice co-creator.

2. Project Planning
The project planning starts with extensive exchange to gain a detailed understanding of the practitioner's specifics. Afterwards a project plan is developed and research methods are selected (Mumford, 2001). Next, a basic literature analysis is performed to identify relevant literature steams and a suitable CIIP framework. From here, the characteristics of corporate innovation management functions are established (see Table 1).

3. Execution on Action
The execution phase includes the application of previously defined tasks and methods. Existing CIIs are systematically identified, prioritized and reviewed. During execution, agile iterations are possible by facilitating the "intra-project pivot" integrated in the AIMR-framework.

4. Reflection & Learning
Aligned with Guertler et al. the reflection and learning blends with the iterative approach during the previous phase. Overall insights are discussed in dedicated review meetings and aligned with overall scope.

5. Communication & Pivoting
Communication is split between tangible results for the practitioner and academic results. The practitioner results potentially including confidential information are handed over at the end the co-creation. The academic results are developed for public communication.

2.2 Applied methods within the AIMR-framework

Across its phases, the AIMR-framework recommends the application of different methods of primary and secondary research. The selected and applied methods are shown in Figure 4 and described in the following.

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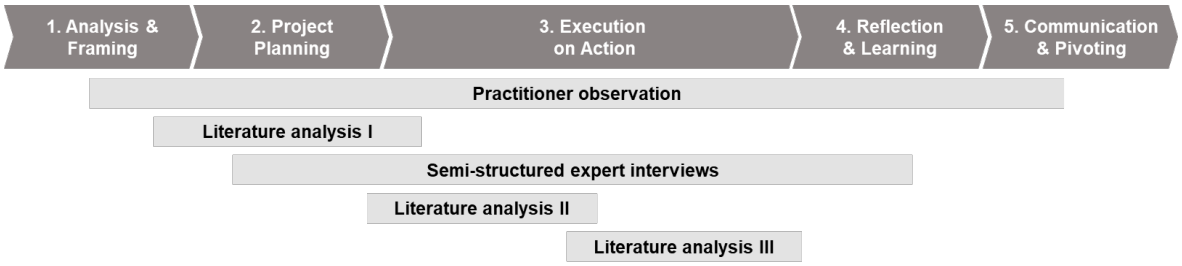

Figure 4: Applied research methods during the action research project.

2.2.1 Literature analyses

Three interconnected literature analyses are conducted over several months in different phases of the action research project. The initial literature analysis targets the identification of a structuring framework for existing CIIs. The second literature analysis focuses on CII case studies. CIIs are identified across various literature streams. The growing understanding during the action research project steadily influences the targeted literature streams. This iterative approach based on practitioners needs aims at a holistic screening of the heterogeneous literature. CIIs identified during the second literature analysis are categorized and prioritized by mapping in the framework of the first literature analysis. From there, respective literature streams are derived and further explored in the third literature analysis. The final analysis aims at extracting best practices for the later proposal of a CII aligned with the characteristics of a corporate innovation management function. Further details on the approach are summarized in Table 2.

Table 2: Overview of sequential literature analysis.

	1: Framework	2: Case Study	3: Best practices
Aim / Target	Holistic CV framework; literature reviews	CII case studies; research papers	Best practices within specific literature streams; literature reviews; research papers
Search approach / platform	Key words; high impact journals	Cross referencing from frameworks; key words; journals and conference papers	Cross referencing from selected CIIs; key words
Search platform	Google Scholar, webofscience	Google Scholar	Google Scholar
Selected Keywords	Innovation management framework, structure; corporate venturing framework;	Multinational innovation; internal corporate venturing; open innovation; case study; accelerator; incubator; internal crowdsourcing	Innovation project portfolio management; corporate venture capital; stage gate evaluation

2.2.2 Practitioner observation

Practitioner observation is applied to explore the practitioner's characteristics and existing CIIP. Participatory observation serves as a qualitative method of organizational research to develop understanding of the research subject through intensive interactions with people relevant to the research (Jorgensen, 2015). Key limitation of participating observation is that the intersubjective verifiability of the data obtained is limited due to the single source. In addition, the long presence in the field makes the method very time-consuming (Jorgensen, 2015). Furthermore, potential conflicts in confidentiality limit the extent of publicly sharing detailed insights during the phase of Communication & Pivoting. The possible restriction of objectivity due to the intensive cooperation was considered and accepted due to the chance of an in-depth understanding.

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3 Resulting insights

3.1 Frameworks for clustering corporate innovation initiatives

The landscape of CV research is fragmented and ambiguous (Phan et al., 2009; Gutmann, 2019; Heinzelmann and Baltes, 2019). The first innovation management literature analysis revealed six frameworks to structure CIIs. As one of the earliest, (Miles and Covin, 2002) present four forms of CV by differentiate between internal and external focus of entrepreneurship and direct or indirect investment resulting in a 2x2 matrix. Narayanan et al., 2009 and Selig and Baltes, 2019 later follow this differentiating between the source of innovation. Next to mention is Blume, 2020. Here, a specific focus is set on open innovation. In addition, CIIs are arranged regarding the maturity of the innovation projects. Enkel and Sagmeister, 2020 map CIIs to dynamic capability development. In a review of previous frameworks, Gutmann, 2019 derived the following seven dimensions: locus of opportunity, prioritization of objectives, ambidexterity, link to the corporate firm, level of investment intermediation, equity involvement, and the direction of innovation flow. Subsequently, Gutmann, 2019 presents a framework based on innovation flow and objectives, resulting in a 3x3 matrix. A novelty of this framework is the consideration of an "inside-in flow of innovation" as a distinct characteristic of the CIIP in MNCs (see Figure 5).

As of writing, none of the frameworks for clustering CIIs appears dominant. For this work, the framework of Gutmann 2019 was selected based on several criteria: As other, it is mutually exclusive and collectively exhaustive, allowing for a clear allocation of each identified CII. Furthermore, while early frameworks follow a 2x2 matrix (Miles and Covin, 2002), a 3x3 matrix allows for a higher degree of differentiation. Finally, the selected framework uniquely includes the inside-in flow of innovation connecting to internal open innovation initiatives and the conducted action research project. The framework can be seen in Figure 5. Detailed description regarding each category can be found in the respective publication (Gutmann, 2019).

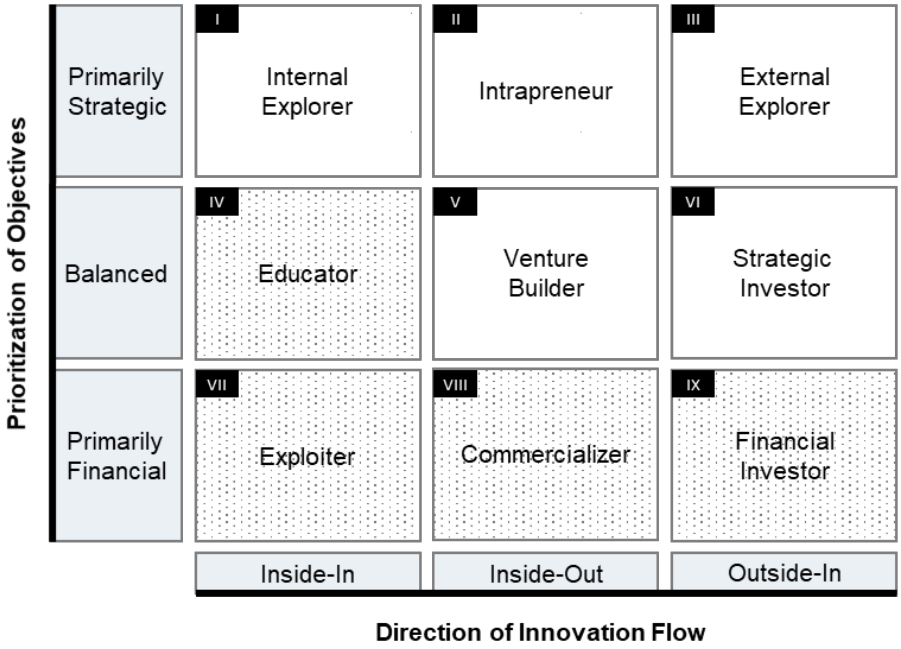

Figure 5: Gutmann's harmonized 3×3 framework for Corporate Venturing, figure adapted from (Gutmann, 2019). Highlighted modes of corporate venturing (IV, VII, VIII, IX) refer to exploitation, the others (I, II, III, V, VI) to exploration of innovation

3.2 Structured analysis of corporate innovation initiatives

During the second literature analysis 19 case studies on CIIs are identified. The CIIs are analyzed, summarized and specific characteristics of the CII are given (see Table 3). In addition, the CIIs are mapped in the related area of the presented framework of (Gutmann, 2019) (see Figure 6).

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Table 3: Selected corporate innovation initiatives from literature, area in respect to the framework of (Gutmann, 2019).

#	Focus and key learnings	Area	Source
1	■ Selection process at an internal corporate venture unit of a major energy company ■ Differentiation between development risk of early-stage entrepreneurial initiatives and later risk for field adaptation	I, II	(Masucci et al., 2021)
2	■ Insights from an internal corporate venture capital unit at a large German industrial conglomerate ■ Inside-in flow of ideas applied over various business units	III, VI	(Grimpe, 2006)
3	■ Internal crowdsourcing of ideas at SAP to overcome information silos	I, IV	(Pohlisch, 2020)
4	■ Corporate venturing at Telekom ■ Iterative approach for validation of assumptions based on lean start-up approach (Ries, 2014)	V	(Breuer and Mahdjour, 2012)
5	■ Investigation of lean internal start-ups at software corporations ■ Top management support and cross-functional team as key enablers	IV	(Edison et al., 2016, 2018)
6	■ Internal corporate venturing in a large manufacturing company following a staged process ■ Entrepreneurial mindset and innovation culture	II, V	(Abrell and Karjalainen, 2017)
7	■ Success factors in internal corporate venturing at a multinational consumer goods company: Pragmatic, cross-functional support, internal visibility, risk taking	II, V	(Makarevich, 2017)
8	■ Crowdsourcing of new product ideas at Zeiss ■ Idea marketplace to prequalify ideas by employees	I	(Soukhoroukova et al., 2012)
9	■ External innovation competition at Cisco ■ Open crowdsourcing for new product development	V, VIII	(Jouret, 2016)
10	■ Strategic technology carve-outs at Thermo	VIII	(Powell, 2010)
11	■ Intrapreneurship in a knowledge-intensive industrial MNC ■ Risk tolerance, rewards, and top management support	II	(Skovvang Christensen, 2005)
12	■ Technology intelligence processes at Novartis at others ■ Complexity and learning ability of the company	V, VI	(Lichtenthaler, 2004)
13	■ Agile Stage-Gate Management for physical products ■ Benefits and challenges of agile culture	VII	(Edwards et al., 2019; Salvato and Laplume, 2020)
14	■ Large-scale paper manufacturing company ■ Quantitative selection model in new product development	VII	(Ma et al., 2020)
15	■ Front end idea evaluation at automotive OEMs ■ Focus on high customer relevance, strategic fit, ■ high communication potential and vision potential	VII	(Dziallas, 2020)
16	■ Internal corporate venturing at an electronics MNC ■ Focus on capability development not direct financials	I, IV	(Keil et al., 2009)
17	■ Internal crowdsourcing system design ■ Focus on structure, actors, technology, and projects	IV, VII	(Knop et al., 2017)
18	■ Open innovation in pharmaceutical drug development ■ High-value of outside-in innovation flow	VI	(Lee et al., 2019)
19	■ Intra-corporate crowdsourcing at an MNC ■ Idea marketplace for frontline employees	I	(Villarroel and Reis, 2010)

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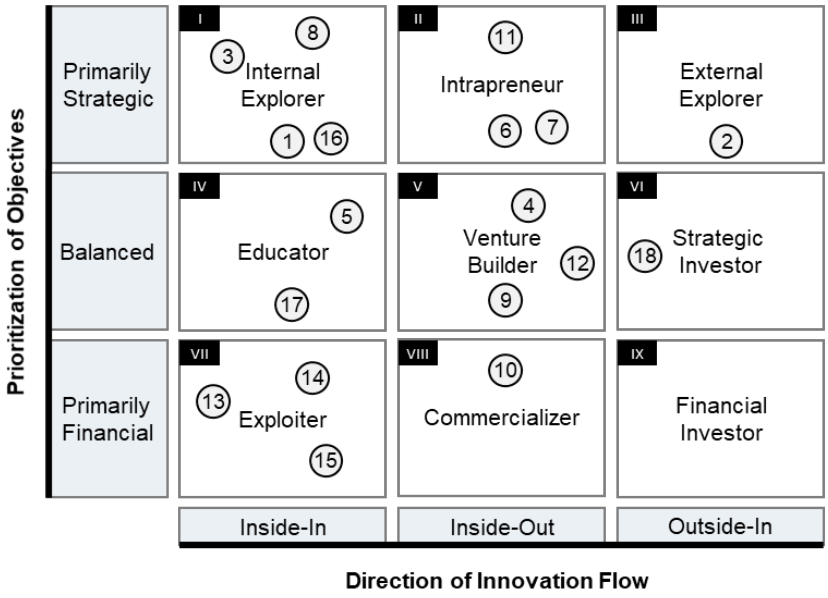

Figure 6: Corporate venturing framework of (Gutmann, 2019) including mapped corporate innovation initiatives identified from literature (see Table 3).

The research question focuses on the design of a CII harmonized with the characteristics of a corporate innovation management function. These concentrate on integration (outside-in innovation flow) of emerging technologies (primarily strategic objectives). This mainly correlates with the exploitation of innovation. Within this target area, nine CIIs are identified.

3.3 Best practices across different literature streams

In the third and final literature analysis, each framing, focus and literature stream of the nine identified CIIs is further explored. This allows the extraction and aggregation of best practices across different literature streams such as new product development, venture capital and innovation project portfolio management. Insights from 21 publications are mapped with the characteristics of a corporate innovation management function (see Table 4) and considered in CII proposal.

Differentiated risk analysis

Under the area new product development, multiple works of Cooper at al. present the Stage-Gate method (Cooper, 2008, 2019; Cooper and Edgett, 2014). Recent works focus on management of high uncertainty (Cooper, 2019). The presented expected project value takes the different phases of innovation projects into account. First there are the development costs and the associated risk of development. Later there are implementation costs as well as the associated implementation risk.

→ These insights contribute towards a differentiated evaluation of proposals.

Community approach

Best practices from (corporate) venture capital (VC) studies were gathered (Clarysse, 2005; Cavagnaro et al., 2016; Gompers et al., 2020). VC is focused on active deal generation and the process is divided into three phases: sourcing, selection, and post-investment management. A quantitative identification of key success factors remains challenging (Clarysse, 2005). A survey among 1110 VCs by Gompers, 2020 provides detailed insight. During sourcing >30% of proposals come from direct or indirect contacts of the VC management. 47% of survey participants rate the team as the most important factor. Others follow that assessment (Cavagnaro et al., 2016). This is followed by business-related factors at 37% (Gompers et al., 2020).

→ These insights contribute towards the phased structure of the CII, the roles for sourcing and execution within a network and community approach.

Vol.22, Iss.1, February 2025
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Project lineage

It was shown that pharmaceutical organizations learn from continuous venture activities (Dunlap-Hinkler et al., 2010). These results where generalized by an empirical analysis of 257 firms (Kock and Gemünden, 2019). The authors showed that the factors innovativeness and risk taking both linked to entrepreneurial orientation positively moderate the relationship between managerial practices and performance of continuous innovation project portfolio management practices.

→ These insights contribute towards a repetitive and learning approach for projects and the CII itself.

Dynamic portfolio management

A risk-positive, entrepreneurial orientation can leverage the quality of innovation project portfolio management (Kock and Gemünden, 2021). This includes adjustments as rigor as project termination as uncertainty reduces over time (Kaufmann et al., 2021). Subsequently, performance measurements should focus on overall portfolio success (Bailey et al., 2019).

→ These insights contribute towards a dynamic portfolio design and risk-positive attitude.

The overall gained insights from literature were considered in the proposed CII which is presented in the following chapter.

4 Proposed corporate innovation initiative for integration of emerging technologies

In the first chapter of this work, specific needs of innovation management units in MNCs were identified from literature and practice (see Table 1). In subsequent literature analyses elements from CIIs and best practices from selected literature streams were collected (see chapter 3). Subsequently, these insights are combined. The characteristics of innovation management units in MNCs are addressed by selected features of CIIs (see Table 4).

Vol.22, Iss.1, February 2025
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Table 4: Features of proposed corporate innovation initiative aligned with characteristics of corporate innovation management functions.

Characteristics	Features of proposed CII including confirmation from literature findings
Complexity ■ Fast value chain ■ Many technologies ■ Many employees involved	Decentralized sourcing of ideas via employees (Soukhoroukova et al., 2012; Pohlisch, 2020) Interdisciplinary CII expert community to determine expected project value (Cooper, 2019; Edwards et al., 2019; Salvato and Laplume, 2020)
Ambidexterity ■ Exploitation of incremental innovation ■ Exploration of radical innovation	Clear focus on exploration of novel technologies (Andriopoulos and Lewis, 2008) Portfolio balancing via risk assessment (Sanchez et al., 2008; Antonczyk and Salzmann, 2012)
Ivory tower syndrome ■ Gap between central management understanding and operations needs	Sourcing ideas from front-line employees (Jouret, 2016; Abrell and Karjalainen, 2017; Makarevich, 2017) Ensuring operational need via project sponsor (Kock and Gemünden, 2021) Expert community for cross-functional exchange
Not invented here syndrome ■ Resistance or biases to fully embrace external ideas	Sourcing ideas from front-line employees (Jouret, 2016; Abrell and Karjalainen, 2017; Makarevich, 2017) Decentralized sourcing of ideas via employees (Soukhoroukova et al., 2012; Pohlisch, 2020) Ensuring operational need via project sponsor (Kock and Gemünden, 2021)
Limited outside perspective ■ Need for open innovation and external benchmarks ■ Applies to projects and CII	External scope is essential for application (Festel and Rammer, 2015; Lee et al., 2019) Funding focus on external resources (Festel et al., 2015)
Efficient innovation management and budget allocation ■ Little decentral innovation budgets ■ Low funding volumes in early-stage funding need to be in balance with CII management effort	Lean flow of information Valuation based on few selected quantitative parameters and focus on expert discussion (Cooper, 2017; Cooper and Sommer, 2020) Repetitive funding process to foster learning (Lichtenthaler, 2004; Kock and Gemünden, 2019)
Fuzziness at the front end of innovation ■ Unclear how and when invention starts	Open innovation approach: Exploring external ideas aligned with specific internal innovation needs (Villarroel and Reis, 2010; Kock and Gemünden, 2021)

The features in Table 4 guide the proposal of a CII, which is presented in the following. The description focuses on operations and corresponding roles. In essence, the proposed CII maintains a dynamic and rolling innovation project portfolio. The core process is a regularly triggered funding procedure including a screening phase, a selection phase, and an ongoing supporting phase. Regular project selection allows competence to build up and to learn from past funding rounds (Kock and Gemünden, 2019). Next to these events the community is continuously maintained to foster cross-functional exchange regarding novel emerging technologies and therefore potential new projects (de Jong et al., 2015; Garrett, 2015). The proposed setup includes five dedicated roles. Each role comes from a different area across the organization. To keep operations efficient, each employee involved contributes to the initiative as one of multiple responsibilities (Table 5).

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Table 5: Overview of roles for the proposed corporate innovation initiative (CII).

Role	Description
CII expert community	The CII expert community holds various expertise from various functional areas. They act as a cross-functional community to support the inside-in innovation flow. Individual expertise allows for project recommendation and evaluation. In addition, the community members leverage their network to collect additional proposals.
Project sponsor	The project sponsor ensures real operational need and later field implementation of projects.
Project initiator and manager	The project initiator is a frontline employee from across the value chain. If the project is selected, the role shifts to project manager, ensuring commitment and individual expertise.
Project partner (external)	The project partner is a mandatory part of every project. This external stakeholder provides the desired novel technology, either as a product or service.
Project customer (internal)	The project customer is the receiver of the project's results and the potential applicant of the technology (e.g., a manufacturing site or research unit)

After presenting these roles the specific operations of the funding process are described in Table 6.

Table 6: Overview of the proposed corporate innovation initiative's (CII) annual funding process.

Phase	Step	Content and key reference
Screen	**1**	In repetitive intervals the CII distributes a call for applications across functional areas. Applicants can apply until a certain deadline is reached. The guided application includes first descriptions and assumptions for determination of the expected project value. The network of the CII expert community is leveraged to extend the reach of the call for applications. → This leverages the learning by project lineage (Kock and Gemünden, 2019) and active idea sourcing from employees (Gompers et al., 2020).
Select	**2**	Members of the CII expert community pre-evaluate the received proposals through the lens of their area of expertise. Factors include team setup and value estimation following (Cooper and Sommer, 2020). → This leverages technology expert evaluation for optimal portfolio selection (Clarysse, 2005; Festel et al., 2015).
	3	High-priority projects are reviewed in discussion sessions. The cross-functional background of the CII expert community allows termination and transfer of ideas if they are already perused somewhere else in the organization or prior knowledge is available. Criteria follow → This leverages the inside-in innovation flow (Guertler et al., 2020) across the supply chain.
	4	Higher management selects the projects based on prior evaluation. → This leverages cross-functional and top-management approval to ensure project priority (Skovvang Christensen, 2005).
Sustain	**5**	Results are communicated and budgets distributed. To achieve tangible results projects, focus on proof of concepts, feasibility studies and minimal viable products (MVPs). → This leverages entrepreneurial orientation and lean start-up focus of the ideators (Breuer and Mahdjour, 2012; Kock and Gemünden, 2021).

Vol.22, Iss.1, February 2025
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5 Discussion

This work describes an action research project proposing a CII based on strategic CV. First, practitioner needs are identified. Next, selected CIIs are analyzed across various literature streams and best practices are extracted. As result, a CII for integration of emerging technologies across a wide area of applications is proposed. The CII is characterized by idea sourcing from frontline employees, expert evaluation with cross-functional exchange, efficiency, and a rolling innovation project portfolio.

The systematic research approach is supported by the application of multiple frameworks. First, the AIMR-framework guides through the phases of the action research project. By 'intra-project pivoting', the framework allows for the necessary flexibility in operations. This scalability and flexibility make it a promising addition for innovation management research.
Next, for the systematic literature analysis, a framework for CV was applied to support structuring the heterogeneous research landscape. As a result, potentially otherwise overlooked best practices are included in the results. For example, multiple best practices from venture capital and new product development literature are incorporated. Also, the framework itself gave guidance, highlighting the inside-in flow of innovation.

The systematic approach in this work confirms the need for harmonized structures in CV research. Generally, initiatives are often not described in such a level of detail to be fully comprehensible in regard to complexity, operations, and motivation. While the applied framework of Guertler et al. 2019 was among the most sophisticated frameworks available, there are more characteristics to distinguish CIIs and that are relevant for CII design. Some examples for additional characteristics are budget, timeline, type of resource allocation and level of employee involvement.

The proposed CII is derived from multiple research findings. First, VC research shows advantages of community project selection. To better cope with the high level of uncertainty of early-stage innovation projects moderated open discussions are prioritized over individual complex quantitative scoring. Second, it is shown in literature that a lineage of work increases quality of outcome and characterizes innovation leaders. As a result, a repetitive process of portfolio assembly is proposed. Third, evaluation of innovation projects is aligned with positive research findings from new product development, the differentiation between technology maturity and implementation risk allows for a sophisticated discussion. Risk of technological development can be assessed by subject matter experts, while implementation risk is linked to project sponsor commitment and project customer need. After project assessment the portfolio is jointly formed balancing cost, risk, time, and expected benefit.

The proposed CII is aligned with the needs of corporate innovation management units responsible for pursuing CV across the organization. The presented characteristics were derived from academic literature and practitioner insight. The literature foundation lets the authors hope that the identified features of corporate innovation units are generally valid and that the proposed CII can support other CV functions in need of integration of emerging technologies in their respective CIIP.

6 Conclusion and Outlook

Central CV management functions aim at increasing the level of corporate innovation. Specific characteristics of these units and corporate structures in general challenge the integration of external emerging technologies. This work shows how strategic CV can be applied to address such specific innovation needs. It thus contributes to management and research in different ways.
First to mention are the several contributions towards management. The described action research project can serve as a template for practitioner-scholar interaction. The applied framework of Guertler et al. 2019 shall encourage practitioners to strategically assess their CIIP. This might reveal blank spots where innovation management can be further improved. Here the presented CIIs can serve as a starting point. Also, practitioners are advised to incorporate cross-functional communities from throughout the whole company, strengthening the inside-in innovation flow.
Second to mention are the scholarly contributions. The detailed application and discussion of the AIMR-framework strengthens its role in innovation management. The work confirmed it as an advantageous framework to follow scholar-practitioner cooperation in innovation management. Furthermore, a CII was designed and proposed based on practitioners' needs. The authors can confidently claim

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that they have found no identical CII within their literature research, making the proposed CII a potentially valuable addition.

The pursuit of cost-effectiveness across the whole value chain does not stop at innovation management. Here practitioners need pragmatic decision guidelines for CII and CIIP setups. In order to achieve this, CV research needs sophisticated multidimensional frameworks to cope with the fuzzy nature of innovation. Current research started with CII interactions analyzed (Heinzelmann and Baltes, 2019; Heinzelmann et al., 2020) and should continue towards CIIP analysis. Detailed specifications on different CIIPs might allow cross-corporation comparability and reveal blank spaces where novel CIIs are yet to be developed. Here, comparing studies between CIIPs of top performers and others would be of great scholarly and practitioner interest.

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