WHU Institute of Family Business & Mittelstand

Innovation collaborations between family firms and start-ups

A qualitative study on intermediary-mediated innovation collaborations

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Notes regarding the following study

This study can be cited as follows:
Baumgaertner, L. D., Soluk, J., Kammerlander, N. 2022. *Innovation collaborations between family firms and start-ups: A qualitative study on intermediary-mediated innovation collaborations*. Vallendar: WHU, Institut für Familienunternehmen und Mittelstand.

Executive summary

[German version]

Forschungsthema und Relevanz

Familienunternehmen gelten als das **Rückgrat der deutschen Wirtschaft**. Aktuelle Forschungsergebnisse zeigen, dass sich Familienunternehmen von anderen etablierten Unternehmen u.a. durch ihre langfristige Ausrichtung, die Verfolgung finanzieller und nicht-finanzieller Ziele, ihre hohen Qualitätsansprüche und ihre soziale Verantwortung unterscheiden. Aufgrund der **zunehmenden Unsicherheit und Komplexität** des heutigen Geschäftsumfelds stehen Familienunternehmen jedoch vor **erheblichen und vielfältigen Herausforderungen**, wie z.B. der steigenden Innovationsgeschwindigkeit, dem zunehmenden „War for Talents" und einer dynamischen Digitalisierung. Die **Zusammenarbeit mit externen Organisationen** (wie z.B. mit Start-ups) wird oft als eine Möglichkeit gesehen, die Innovationsherausforderungen besser zu meistern, da etablierte Unternehmen dadurch **Zugang zu neuem Wissen und neuen Fähigkeiten** erhalten. Aufgrund der kulturellen und strukturellen Unterschiede zwischen den Unternehmen kann es während der Zusammenarbeit jedoch zu Reibungen und Frustrationen kommen. Evidenz aus Wissenschaft und Praxis zeigt: Der **Innovationsprozess kann von Vermittlern unterstützt** werden, um die Reibungen und Frustrationen ggf. zu vermeiden. Unsere Studie fokussiert sich auf **vier Forschungsfragen**: Warum und wie kollaborieren Familienunternehmen und Start-ups? Was sind Vermittler und wann und warum werden Vermittler in Innovationskollaborationen eingebunden? Welche Rolle spielen Vermittler in einer Innovationskollaboration? Wie wirken Innovationskollaborationen auf Familienunternehmen, Start-ups und Vermittler?

Forschungsdesign

Um diese Forschungsfragen zu beantworten, wurde ein **qualitatives Interview-basiertes Forschungsdesign** gewählt. Dieses Forschungsdesign ermöglicht es, die **Motivationen und Prozesse innerhalb von Innovationskollaborationen**, sowie die **Rolle von Vermittlern** tiefgründig zu verstehen. Insgesamt haben **wir 106 Interviews mit Familienunternehmen, Start-ups, Vermittlern und Experten** geführt. Die Experteninterviews haben es ermöglicht, weitere Einblicke in die Start-up- und Familienunternehmen-Ökosysteme zu gewinnen, und unsere vorläufigen Ergebnisse zu validieren. Die Interviews dauerten **im Durchschnitt eine Stunde** und wurden, wenn zugestimmt, aufgenommen und transkribiert. Neben allgemeinen Fragen zu Innovationskollaborationen haben wir auch die Motivationen, den Vertrauensaufbauprozess und die Rolle der Vermittler abgefragt.

Haupterkenntnisse

1) Warum und wie kollaborieren Familienunternehmen und Start-ups?

- **Drei Zusammenarbeitsarchetypen** existieren zwischen Familienunternehmen und Start-ups: **Kollaboration** in einem klar umrissenen Projekt (Start-up bleibt unabhängig), **Investition**, **Akquisition**.
- Familienunternehmen kollaborieren mit Start-ups, um die **interne Kompetenzlücke** (z. B. digitale Fähigkeiten) zu schließen, den **Innovationsprozess zu beschleunigen** (z. B. da kein zusätzlicher Kompetenzaufbau der Mitarbeiter im Familienunternehmen erforderlich ist und eine starke technologische Erfahrung des Start-ups vorhanden ist), den **Kulturwandel innerhalb des Familienunternehmens** voranzutreiben (z.B. agile und iterative Arbeitsweise) sowie zur **Gewinnung neuer und junger Talente**.
- Start-ups kollaborieren mit Familienunternehmen, um von dem Wissen und der dominanten Marktposition von Familienunternehmen zu profitieren und um den **Einstieg in einen neuen Markt zu vereinfachen**. Die Kollaboration ermöglicht auch den **Ausbau der Kerntechnologie** und des Geschäftsmodells des Start-ups. Start-ups bevorzugen Familienunternehmen gegenüber anderen etablierten Unternehmen wegen ihrer **Zuverlässigkeit und Stabilität** und wegen des **unternehmerischen Denkens**.
- Die **Impulse** für die Zusammenarbeit mit Start-ups können von **innen** (z.B. von der Unternehmerfamilie oder einzelnen Mitarbeitenden) oder von **außen** (z.B. Vermittler) kommen. Die **Einbindung der Familie** in die Zusammenarbeit löst ein **positives Signal an Start-ups** aus, da sie das hohe **Engagement und Interesse des Familienunternehmens** ausdrückt.
- Aufgrund von z.B. **kulturellen, strukturellen und/oder strategischen Unterschieden** können sich bei der Zusammenarbeit **Herausforderungen** ergeben (z.B. das Identifizieren eines Anwendungsfalles für die Technologie des Start-ups in dem Familienunternehmen, Informationsasymmetrien).

2) Was sind Vermittler und wann und warum werden Vermittler in Innovationskollaborationen eingebunden?

- **Vermittler** sind **Einzelpersonen oder Organisationen**, die während des Innovationsprozesses **Brücken zwischen Familienunternehmen und Start-ups bauen**.
- Vermittler unterstützen das **Lösen von typischen Herausforderungen** in einer Kollaboration und **entwickeln Präventionsmaßnahmen**, um deren Entstehung zu verhindern.
- Vermittler können **intern** (z.B. eine dedizierte Einheit oder Tochtergesellschaft des Familienunternehmens) oder **extern** zu einem Familienunternehmen sein, und zeichnen sich durch ihre **starke Verankerung in das Familienunternehmen- und Start-up-Ökosystem** aus (z.B. großes Netzwerk, Erfahrung in beiden Welten).

- Vermittler haben die **intrinsische Motivation** innerhalb ihres Netzwerks **Mehrwert zu schaffen** und zielen darauf ab, **erfolgreiche Kollaborationserfahrungen** für Familienunternehmen und Start-ups aufzubauen.
- Vermittler werden entweder vom Familienunternehmen oder vom Start-up beauftragt, sollen aber **neutral** bleiben, um die geeignetsten Lösungen anzubieten.
- Vermittler können in verschiedenen Phasen des Kollaborationsprozesses eingebunden werden: **Pre-Kollaboration** (z. B. Identifikation von Anwendungsfällen, Scouting von Start-ups), **Kollaboration** (z. B. Coaching, Re-fokussierung der Kollaboration), **Post-Kollaboration** (z.B. Kodifizierung von Learnings, Kompetenzaufbau).

3) Welche Rolle spielen Vermittler in einer Innovationskollaboration?

- Je nach **Intensität** und **Einbindungsphase** können Vermittler Innovationskollaborationen auf verschiedenen Ebenen beeinflussen, unter anderem: *(Auswahl von Beispielen)*
  - Die **Kollaborationsbereitschaft von Familienunternehmen und Start-ups erhöhen**: durch den Austausch regelmäßiger **Innovationsimpulse** (z.B. erfolgreiche Fallbeispiele) und das Veranstalten von **Touchpoints zwischen beiden Welten** (z.B. Speeddating, Pitch-Events) durch Vermittler wird das Potenzial einer Innovationskollaboration deutlicher und greifbarer und somit das Interesse an einer Kollaboration größer.
  - Die **Definition des Anwendungsfalls unterstützen**: die Vermittler stellen das aktuelle **Geschäftsmodell und die Strategie von Familienunternehmen** explizit in Frage (z.B. Besprechung von „was wäre, wenn"-Szenarien), um mögliche **Innovationsbedürfnisse** und **passende Start-ups zu identifizieren**.
  - Der **Kollaborationsprozess vereinfachen**: durch die **Orchestrierung des Informationsaustausches** und die **Einbeziehung der notwendigen Stakeholder** (z.B. Tech-Team für produktbezogene Fragen, Familienmitglieder für die Entscheidungsfindung) durch Vermittler wird auf die wichtigsten Aspekte der Kollaboration fokussiert (z.B. Tech-Bedürfnisse, Anforderungen der jeweiligen Parteien) und die Abstimmung zwischen den Stakeholdern gewährleistet und somit der Kollaborationsprozess optimiert.
  - Der **Vertrauensaufbauprozess beschleunigen**: durch die **Orchestrierung eines Vertrauenstransfers** vom Vermittler zum Kollaborationspartner verhindern Vermittler die Entstehung von **vertrauensspezifischen Herausforderungen** (z.B. kann zu wenig Vertrauen den Anlauf der Kollaboration verzögern oder verhindern).
  - Die **Herausforderungen abschwächen**: durch die frühe **Klärung** der Herausforderungen und den **Vorschlag potentieller Lösungsbereiche** ermöglicht der Vermittler das Abschwächen von Herausforderungen.
  - Der **Kompetenzaufbauprozess unterstützen**: durch das **Coaching** von Familienunternehmen und Start-ups während und nach der Kollaboration werden

neue Kompetenzen innerhalb der Unternehmen aufgebaut (z.B. Kommunikationsfähigkeiten).

4) Wie wirken Innovationskollaborationen auf Familienunternehmen, Start-ups und Vermittler?

- Innovationskollaborationen beeinflussen die Entwicklung der Familienunternehmen, Start-ups und Vermittler auf verschiedenen Ebenen.
- **Familienunternehmen-Perspektive**: Innovationskollaborationen führen zu **strukturellen und kulturellen Veränderungen** (z.B. neue und vereinfachte Einkaufsprozesse, Auflösung des „Not-Invented-Here-Syndroms“) sowie zu **Verschiebungen von Fokus und Bedürfnissen** (z.B. Entstehung des Wunsches, dauerhaft im Start-up-Ökosystem verankert zu sein).
- **Start-up-Perspektive**: Innovationskollaborationen lehren Start-ups **Resilienz**, insbesondere im Hinblick auf die (langen) Prozesse innerhalb eines Familienunternehmens und beeinflussen ihre Art und Weise, mit Familienunternehmen zu **kommunizieren** (z.B. Bereitstellung von „Speaking Notes“ für Mitarbeitende bei unternehmensinternen Abstimmungen).
- **Vermittler-Perspektive**: Vermittler haben eine temporäre Aufgabe, da parallel zu ihrer Unterstützung bei der Kollaboration Kollaborationskompetenzen in dem Familienunternehmen aufgebaut werden. Dies hat zu Folge, dass Vermittler nach einer gewissen Zeit **„überflüssig“** werden und ihre Rolle weiterentwickeln müssen: Vermittler werden dementsprechend Sparringspartner der Familienunternehmen und schaffen neue Kollaborationsformate (z.B. Formate, die „Co-Creation“ zwischen mehreren Unternehmen und/oder Kunden unterstützen).

5) Welche praxisorientierten Empfehlungen ergeben sich aus unserer Studie?

- Sich an Vermittler wenden, um **gezielte Innovationsimpulse** in das Familienunternehmen hineinzubringen: die Impulse werden es ermöglichen neue Innovationsoptionen zu identifizieren und somit auch neue Impulse in die Kultur des Unternehmens miteinzubringen.
- Vermittler bei **einer ersten Kollaboration mit einem Start-up einbinden**, um **Fallstricke zu überwinden** und somit auch **Geschwindigkeit zu gewinnen**: Vermittler werden bei der Problembestimmung und beim Scouting des Start-ups unterstützen und gleichzeitig im Familienunternehmen und im Start-up Fähigkeiten zur Kollaboration aufbauen.
- Die eigenen **Ziele und Bedenken offen mit Vermittlern teilen**: Nur so können Vermittler das passende Start-up identifizieren und den Kollaborationsprozess bedarfsgerecht orchestrieren.
- Gute Vermittler sind **neutral**, **vertrauenswürdig** und **lösungsorientiert**, da die Zufriedenheit der Klienten und dementsprechend die Reputation ihre wichtigsten Assets

sind. Gute Vermittler erkennt man an deren Netzwerk und Erfahrung sowohl in der Start-up als auch in der Corporate-Welt.

- Eine **Kollaboration mit einem Pilotprojekt beginnen**, damit die Organisation sich mit dem Start-up vertraut macht, weniger finanzielle Risiken auf dem Spiel stehen und die inhaltliche Übereinstimmung nochmals geprüft werden kann: Dies hat einen positiven Einfluss auf das Vertrauen und somit auch auf die Akzeptanz von Informationsasymmetrien.
- Die eigene **Zufriedenheit mit der Kollaboration einem Start-up vermitteln**, z.B. indem man dem Start-up anbietet, Referenzpartner zu werden oder indem man den eigenen Geschäftskunden kommuniziert, dass das Start-up an der Entwicklung des Produktes teilgenommen hat: Dies erhöht die Motivation und das Engagement des Start-ups.

[English version]

1) Why and how do family firms and start-ups collaborate?

- **Three archetypes of relationships** between family firms and start-ups exist: **collaboration** on a clearly outlined project (start-up remains independent), **investment**, and **acquisition**.
- **Family firms collaborate with start-ups** to close the **internal capabilities gap** (e.g., digital capabilities), **accelerate the innovation process** (i.e., as no capabilities building is necessary inside the family firm and due to the strong technological experience of the start-up), **engage in a cultural shift** within the family firm (e.g., implement agile and iterative ways of working), and **attract new and young talent**.
- **Start-ups collaborate with family firms** to benefit from their knowledge and dominant position to **enter a new market** and **scale up their technology**. Start-ups also prefer family firms to other established firms for their **reliability, stability,** and **entrepreneurial thinking**.
- The impulses to collaborate with start-ups may come from inside the company (e.g., from family or individual employees) or outside (e.g., intermediaries). **Family involvement in the collaboration sends a positive signal** to the start-up, as it expresses the commitment and interest of the family firm.
- Nevertheless, **challenges might arise** during the collaboration (e.g., identification of a use case for the technology of the start-up within the family firm, information asymmetry) due to, for instance, cultural, structural, or strategic differences.

2) What are intermediaries, and why are they involved in innovation collaborations?

- An intermediary is an **individual or an organization** acting as an agent during the innovation process and creating a **bridge between family firms and start-ups**.
- An intermediary **supports the mitigation of challenges** inherent to collaborations and engages in prevention mechanisms to **hinder their emergence** in the first place.
- An intermediary can be **internal** (i.e., a dedicated unit or subsidiary) **or external to a family firm** and is characterized by its **embeddedness in the family firm and start-up ecosystem** (i.e., large network, experience in both worlds).
- An intermediary has an **intrinsic motivation to create value within his or her network** and aims to **build successful collaboration experiences** for family firms and start-ups.
- An intermediary is either hired by the family firm or the start-up but **remains neutral** to provide the most adequate solutions.
- An intermediary can be **involved at different stages of the collaboration process**: pre-collaboration (e.g., identification of use case, scouting of start-ups), collaboration (e.g., coaching, refocusing of collaboration), post-collaboration (e.g., codification of learnings, building up of capabilities).

3) How do intermediaries influence innovation collaborations?

- **According to the intensity and stage of involvement**, intermediaries may influence innovation collaborations at different levels: *(selection of examples)*
  - The **family firm's and start-up's willingness to collaborate** can be triggered by the intermediary through the sharing of regular innovation impulses (e.g., successful case examples) and the organization of touchpoints between both worlds, as both parties will realize the potential benefits of joint collaboration.
  - The **outlining of the use case** can be supported by the intermediary by challenging family firms' current business model and strategy to identify possible innovation needs and start-ups capable of supporting family firms with their innovation needs.
  - The **collaboration process** can be streamlined and optimized by the intermediary by orchestrating the information sharing process and by managing the involvement of necessary stakeholders (e.g., involvement of the tech team for product-related questions, family members for decision-making).
  - The **trust building and trust-nurturing process** can be accelerated and supported by the intermediary by orchestrating a trust transfer from the intermediary to the collaboration partner and by engaging in mechanisms hindering the emergence of challenges.
  - The intermediary may aid in the **mitigation of challenges** by clarifying the challenges and suggesting possible solutions.
  - The **capabilities building process** (e.g., communication skills) can be supported through coaching of family firms and start-ups during and after collaboration.

4) How do innovation collaborations affect family firms, start-ups, and intermediaries?

- Innovation collaborations affect family firms, start-ups and intermediaries at different levels
  - **Family firm perspective**: innovation collaborations lead to **structural and cultural changes** (e.g., new and simplified purchasing processes, the dissolution of the "not-invented-here syndrome"), as well as **shifts in the focus and needs** (e.g., emergence of a desire to be permanently embedded in the start-up ecosystem).
  - **Start-up perspective**: innovation collaborations teach start-ups **resilience**, especially with regard to the (long) processes within a family firm, and affect their **way of communicating with family firms** (e.g., delivery of "speaking notes" for employees to convince their boss to collaborate with them).
  - **Intermediary perspective**: after supporting a few collaborations in the same family firm, intermediaries become "redundant", as family firms have built significant capabilities internally. Therefore, the intermediaries' role changes: they move from being orchestrators to being sparring partners for family firms and create new collaboration formats (e.g., formats supporting "co-creation").

Preface by the authors

Family businesses are considered the backbone of the German economy. Prior research has revealed that family firms differentiate themselves from other established companies by their long-term orientation, their pursuit of financial and non-financial goals, their high-quality standards, and their corporate social responsibility. As a consequence, family firms are known to be employee-, customer-, and supplier-oriented. Nevertheless, due to the increased uncertainty and complexity in today's business environment, family firms face significant and various challenges, such as the increasing innovation pace, the "war for talent", and the need for digitalization.

Innovation collaboration with external organizations has often been seen as one way to mitigate innovation-related challenges. Indeed, by collaborating with external organizations, established companies obtain access to knowledge and capabilities that are not available internally and would take too much time to acquire. In this regard, family firms frequently engage in innovation collaborations with other established companies, research institutes or universities, and with young companies. Due to the cultural and structural differences between family firms and start-ups, challenges (in terms of alignment on, e.g., risk taking, process speed, quality standards, and expectations) and frustration might arise during the collaboration. To mediate the process, some family firms and start-ups seek the support of intermediaries. Intermediaries are individuals or organizations embedded in the start-up and family firm ecosystems, fostering value creation between both worlds.

In light of the abovementioned challenges, several questions emerge: Why and how do family firms and start-ups collaborate? What are intermediaries, and why are they involved in innovation collaborations? How do intermediaries influence innovation collaborations? How do innovation collaborations affect family firms, start-ups, and intermediaries? Our study on *intermediary-mediated innovation collaborations* attempts to answer these questions.

After collecting and analyzing data for the past twelve months, the results of our study are presented in this practical publication. Please feel free to reach out to the authors of this study if you have any questions or would like to discuss the results in more detail. We would like to express our deepest gratitude to all our interview partners. Without their openness and dedication, this study would not have been possible. Thank you again for your time, insights, and trust.

Vallendar, December 2022

Laura Baumgärtner

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Introduction

Family firms and start-ups at a glance

As highlighted by a recent study (Stiftung Familienunternehmen, 2019), family firms play a **dominant role in the German economy**:

- **90%** of German companies are **controlled by families,**
- **More than 50% of the turnover** in the private sector in Germany is generated by family firms, and
- **17 million people are employed** by family firms in Germany.

Nevertheless, these figures might differ across studies, as there is **no overarching definition of a family firm** (Chua et al., 1999; Gómez-Mejía et al., 2007). Indeed, while the abovementioned study defined a family firm as a business where a family holds the majority of the shares, researchers often include **management and vision components** into the definition: "The family business is a business governed and/or managed with the intention to shape and pursue the vision of the business held by a **dominant coalition controlled by members of the same family** or a small number of families in a manner that is potentially **sustainable across generations** of the family or families." (Chua et al., 1999, p. 25). These unique characteristics of family firms **influence their internal structure** as well as their **interaction with externals** leading, e.g., to reluctance to share information with outsiders, willingness to retain control, and sensitivity to uncertainty due to the concentration of their own wealth in the company (Soluk et al., 2021). These characteristics might exert particularly interesting effects in the context of innovation collaboration.

Germany is also one of the **dominant tech start-up ecosystems in Europe**. According to the latest report from Bundesverband Deutsche Startups e. V. (2022), the following holds true for the German start-up landscape:

- **1,976 start-ups** are based in Germany,
- **45%** of the start-ups are **younger than two years**,
- **Approximately 50%** of all start-ups are located in **North Rhine-Westphalia, Berlin, and Bavaria**, and
- **Almost 30%** of the start-ups are in the **information and communication technology sector**.

In the abovementioned report, start-ups have been defined along three criteria: start-ups are younger than ten years, forecast growth (in terms of sales or number of employees), and show innovativeness (in terms of product, service, business model, and/or technology). While 63% of all German start-ups have collaborated with established companies in 2022, Bundesverband Deutsche Startups e. V. (Federal Association of German Start-ups) highlighted that this number has been decreasing since 2020, probably due to the pandemic, and called out for the launch of new initiatives fostering collaboration.

Innovation collaborations between family firms and start-ups

There are three ways for family firms and start-ups to work together: collaborations, investments, and acquisitions. In collaborations, start-ups remain independent, and family firms and start-ups focus their work on only one selected project. In investments and acquisitions, a family firm acquires a part of or all of the start-up and, therefore, has the opportunity to influence the strategic decisions of the start-up.

Archetype	Description	**Advantages** (family firm perspective)	**Drawbacks** (family firm perspective)
Collaboration	• Start-ups remain **independent** (i.e., no exclusivity of collaboration) • Focus on **one selected project** • Agreements on **cornerstones of collaboration** beforehand	• **Sharing of know-how and resources** for collaboration project • **Flexibility** (e.g., in terms of way of working) • **Safeguarding of motivation** of the start-up during the collaboration • **Limited risk** (e.g., financial risk) • **Performance of favors to collaboration partner** (esp. if limited effort)	• Prevailing of **individual goals and interests** • Need of **detailed NDA** • **No exclusivity** guaranteed • **Limited control** over the start-up (e.g., its strategy, customer portfolio)

Investment	• **Partial acquisition** of start-up by family firm
	• **Influence of family firm** at different levels within the start-up (e.g., **strategic** level)
	• **Long-term relationship**
		• **Sweet spot** between collaboration and acquisition
		• **Limited risk** (e.g., financial risk)
		• **Alignment on goals and interests**
			• **Financial risk**
			• In case of bad set-up of investment:
			  • **Limited leveraging of synergies**
			  • Prevalence of **individual goals and interests**

Acquisition	• **Full acquisition** of start-up by family firm • **Integration of start-up** in family firm (including, e.g., processes, patents) • **Long-term relationship**	• **Keeping of best things** of both worlds (e.g., ERP from family firm implemented in start-up, agility of start-up spread into the family firm) • **Alignment on goals and interests** when working together on a project as the start-up belongs to the family firm • **Cannibalization of products** not critical due to limited competitiveness between start-up and family firm	• **Loss of characteristics** of start-up (e.g., speed, attractivity for young talents)

Table 1: Three archetypes of family firm – start-up relationship with the advantages and drawbacks from a family firm perspective (adapted from Leitner et al. (2019))

Our study focuses on innovation *collaborations* between family firms and start-ups, as collaborations can provide interesting insights into the role of intermediaries, as there is no financial dependence between the family firm and the start-up, which increases the information asymmetry between the stakeholders and, therefore, presents difficulty in building a trustful relationship (Groote et al., 2022).

As emphasized by the Bundesverband Deutsche Start-ups e.V. (Federal Association of German Start-ups), collaborations between established firms and start-ups foster, among other things, innovativeness and efficiency gains and create new business avenues. This is in line with prior research: organizations can benefit from external sources of innovation, as innovating often implies a resource-intensive search process to identify new knowledge or technologies (Laursen & Salter (2006); Soluk (2022)). Nevertheless, although innovation collaborations show significant potential, challenges might arise before or during the collaboration, hampering its full success. Prior literature identified gaps in knowledge, competency, and capability (Klerkx & Leeuwis, 2009; Smedlund, 2006) as possible hindering factors. Indeed, one common challenge is due to communication: for instance, the start-up might use a language that the family firm does not understand or like (i.e., "Denglish"[1], which can be tricky when the employee of the family firm does not speak English). Alternatively, the start-up may talk about a technology without realizing that this technology is quite unknown to the employees of the family firm. This is often the case for technologies based on artificial intelligence (Soluk & Kammerlander, 2021). Another common challenge arises due to differences in speed between the family firm and the start-up: whereas start-ups expect prompt feedback and decisions from the family firm, family firms and other established companies typically have internal processes that take longer and, therefore, require more time.

In light of these challenges, individuals or organizations acting as third parties could support companies, such as family firms, in their interaction with external partners (Howells, 2006) by mediating the relationship and filling the abovementioned gaps (i.e., knowledge, competency, and capability). Prior research called these third parties "intermediaries" (Howells, 2006) and focused mainly on their function and the quantitative outcome of their involvement. Our research aims to enhance the understanding of the role intermediaries play in innovation collaborations and to strengthen our knowledge of the effect of innovation collaborations on the structures of involved parties.

[1] Denglish describes the use of anglicisms and pseudo anglicisms in the German language.

Overview of our research study

Research questions

Based on prior literature on innovation collaborations between family firms and start-ups and on the role of intermediaries in such collaborations, the following four research questions were examined:

1. **Why and how do family firms and start-ups collaborate?**
2. **What are intermediaries, and why are they involved in innovation collaborations?**
3. **How do intermediaries influence innovation collaborations?**
4. **How do innovation collaborations affect family firms, start-ups, and intermediaries?**

Method

In an attempt to answer these four research questions, an **interview-based qualitative multiple case study was conducted**. This research design allowed for a deepened understanding of motivations and processes within an innovation collaboration, especially with the role of intermediaries. Due to the high confidentiality of the interviews, quantitative data was not collected on the financial and technological performance of each innovation, and we anonymized our dataset.

Overall, **106 interviews with members of family firms, start-ups, and intermediaries were conducted**. Fifty-two interviews were directly related to eight cases of intermediary-mediated innovation collaborations. The remaining 54 interviews aimed to broaden our understanding of the studied phenomenon. Interview partners were recruited in two ways. First, online research was performed and intermediaries, family firms, and start-ups that had engaged in innovation collaborations were searched for. Second, we reached out to potential interview partners after a recommendation from our network or prior interview partners.

Our interviews lasted, on average, one hour. If interview partners agreed, interviews were recorded and transcribed. Interviews began with general questions on the collaboration and the involved parties. We then took a deep-dive into the **motivations** of engaging in an intermediary-mediated innovation collaboration, the **challenges** within the collaboration, and the **intermediary’s role** in the whole collaboration process.

Characteristics of interview partners

Family firms

Approximately 50% of the interviewed family firms have an **annual turnover** larger than EUR 1bn. Overall, the annual turnover of the interviewed family firms is between EUR 10mn and EUR 12bn.

Figure 1: Annual turnover of interviewed family firms (in EUR million)

Family firms from our data sample can be differentiated according to their **size**, the **family generation** currently leading the company, the composition of the **top management team**, and the **industry**. In this regard, 50% of the interviewed family firms had more than 5,000 employees.

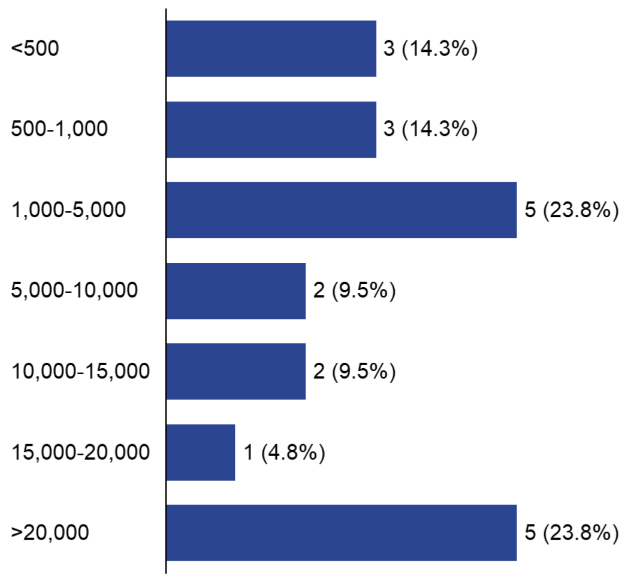

Figure 2: Size of interviewed family firms (in number of employees)

More than 75% of the interviewed family firms were led by the third generation or more, and almost all family firms had family members on the top management team.

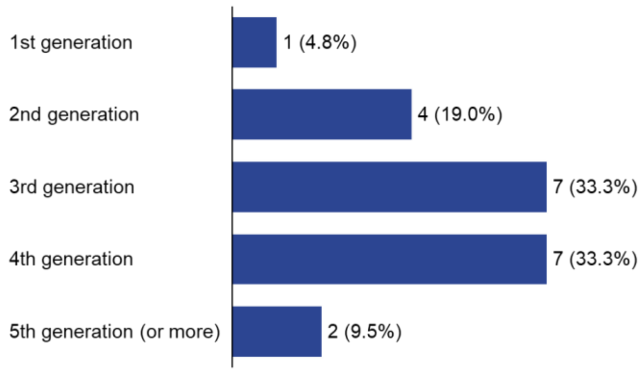

Figure 3: Managing family generation in interviewed family firms

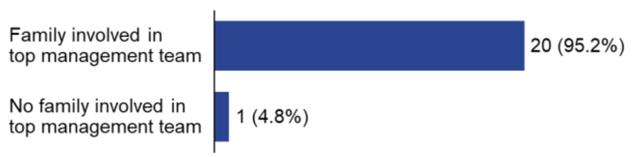

Figure 4: Composition of the top management team in interviewed family firms

Finally, 90% of the interviewed family firms were in the manufacturing industry (e.g., mechanical engineering, medical technology).

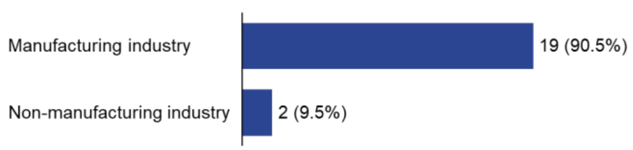

Figure 5: Industry focus of interviewed family firms

Start-ups

Fifty-five percent of the start-ups interviewed were **early-stage start-ups** (i.e., series A or less in terms of funding stage[2]), and 15% were privately held.

[2] A start-up in pre-seed is exploring the feasibility of turning an idea into a product or a service (funding: approx. EUR 50k). A start-up in seed phase is launching the product or developing a product for a market (funding: approx. EUR 3mn). A start-up in series A phase is working on a business model and on the further development of the product or service, and the core team is in place (approx. funding is EUR 15mn). A start-up in series B is working on scaling up and on increasing its market share (approx. funding is EUR 30mn). Start-ups in series C and beyond are expanding and increasing their market share (approx. funding is EUR 50mn). Source: based on https://www.cloudways.com/blog/startup-funding-stages/

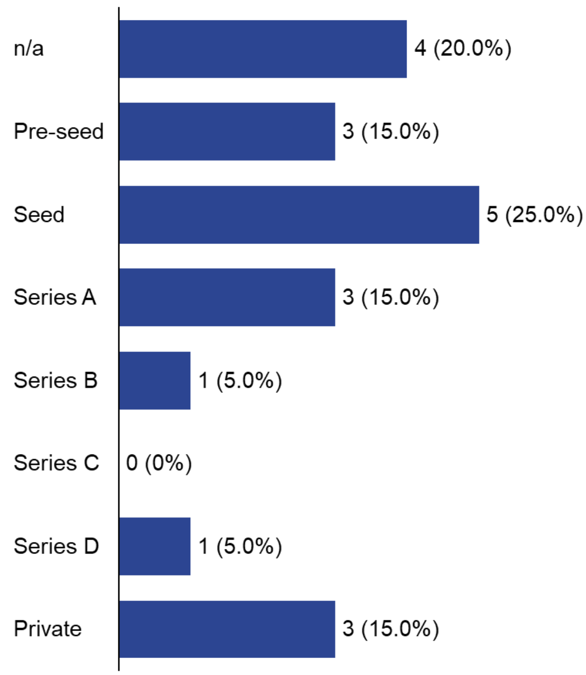

Figure 6: Funding stage of interviewed start-ups

Intermediaries

Almost 70% of the intermediaries interviewed were **external intermediaries** (i.e., in contrast to **internal intermediaries** belonging to the family firm). Most of them were composed of **very small teams** (i.e., fewer than 5 employees).

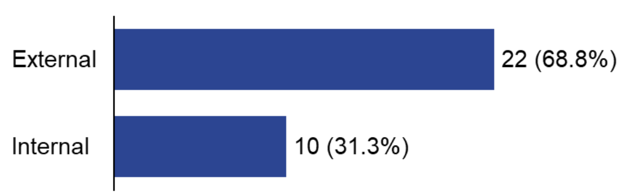

Figure 7: Type of intermediary interviewed

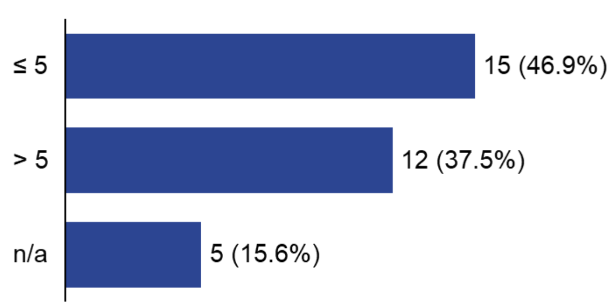

Figure 8: Size of intermediary organization interviewed (in number of employees)

Findings

Findings on innovation collaborations between family firms and start-ups

Motives of innovation collaborations

	Family firm perspective	Start-up perspective
Motives of an innovation collaboration	• **Lack of (digital) capabilities** internally • Need for **speed** in the innovation process • Need for **cultural shift** in the family firm • Attraction and retention of (young) **talent**	• **Market entry** • **Scaling-up** of technology • **Reliability** and **stability** of family firms • **Entrepreneurial** thinking of family

Table 2: Selection of motives in an innovation collaboration

In our study, family firms and start-ups mainly collaborated on the development of (new) products or services. For instance, one collaboration focused on the creation of a new application to facilitate their interaction with their suppliers, and another focused on the development of a new software added to a technology developed by the family firm itself.

In the two following sections, the motives of innovation collaborations highlighted by family firms and start-ups are detailed.

Perspective of family firms

Four main motives of innovation collaborations from a family firm perspective were identified:

- Lack of (digital) capabilities internally
- Need for speed
- Need for cultural shift within the family firm
- Attraction and retention of young talent

First, family firms highlighted the **lack of internal capabilities** as the main motive for engaging in innovation collaborations with start-ups. Indeed, although German family firms are renowned for often being world champions in their specific market (in this regard, they are often called the "hidden champions"), they often lack digital capabilities. These digital capabilities include, for example, knowledge in the fields of artificial intelligence, machine learning, data management, state-of-the-art IT infrastructure, and information and data literacy. To fill this digital gap, family firms try to hire young professionals with digital backgrounds. However, these young professionals often favor working at a start-up or a tech company, such as Google, over working at a Mittelstand company. As a consequence, collaborating with a start-up provides family firms access to new (digital) capabilities and the market's top technologies. In this regard, the CEO of a family business in the health care sector explained that without the start-up they intended to collaborate with, they would never be able to set foot in the digital health care market. The start-up had already developed a digital health care product in the past and, therefore, could build on its knowledge and capabilities to create a new digital health care product with the family business.

> ***"I need them at least as much as they need me, as I think that the business model and the area in which they operate are absolutely promising." (CEO of a family firm)***

Second, family firms collaborate with start-ups to **speed up the innovation process** as a collaboration gives them the opportunity to rely on the know-how of the start-up, create synergies in terms of costs and time, and exchange ideas to boost process efficiency. For instance, an executive of a manufacturing family firm explained the tradeoff he makes at the beginning of each innovation process: he weighs, on the one hand, the shortcuts resulting from a collaboration in terms of speed and capabilities and, on the other hand, the costs and amount of time resulting from an inhouse innovation process. Based on the priorities and goals of the family firm, he has to choose between a collaboration and an inhouse innovation process.

Third, family firms outlined the willingness to **impulse cultural shifts** within their company by collaborating with start-ups. For example, the NextGen[3] of a family firm in the chemical sector described the culture prevailing in their family firm as very "old school" and patriarchal. As they are meant to take over the management of the company in the next few years, they aim at modernizing and digitalizing the company until then. In this regard, they turn to business units with the least resistance toward innovation and start-ups and encourage them to collaborate with start-ups on specific topics. Hence, these business units come in touch with agile working methods and digital tools, contributing to a cultural shift within their business unit. In a similar vein, another company in the material finishing industry collaborated with a start-up to initiate a mindset change within the company. As the company and the industry were not ready for the innovation they were working on, the collaboration failed. However, it led the family firm to have a first touchpoint with agile working methods and encouraged top management to join a network of other innovative Mittelstand firms to be embedded in an innovative ecosystem.

Fourth, collaborating with start-ups is also a **way to attract and retain young talent** within the company. For instance, a young engineer from a German manufacturing company valued the fact that other rules apply when working with a start-up: there is much more flexibility in terms of time management, processes, and the need for fast results. Moreover, the innovation topics approached are much more forward looking (i.e., they do not respond to an urgent pressing need), which makes them exciting to work on. He also explained that working with start-ups was also a way for him to work with other young people. In a similar vein, several family firms decided to create locations in large German cities, such as Berlin. On the one hand, it enables them to be at the heart of the start-up ecosystem. On the other hand, it also attracts young talent reluctant to live in German rural areas and work in "old school" companies.

[3] NextGen is the abbreviation for Next Generation.

Perspective of start-ups

Four main motives of innovation collaborations from a start-up perspective were identified:

- Market entry
- Scaling-up of technology
- Reliability and stability of family firms
- Entrepreneurial thinking of family firms

First, start-ups are attracted by family firms because of their knowledge of the market. Indeed, most of the family firms have been involved in a specific market for years, have built a large customer base worldwide, and master distribution channels within this market. Start-ups hope to be able to use family firms' knowledge to **enter the market** themselves. For instance, a digital health start-up wanted to collaborate with a family firm because it has been embedded within the health ecosystem for more than forty years, meaning that they know the hospitals, physicians, and decision-makers of health insurance companies. Due to the family firm's network, the jointly developed product would, therefore, be distributed across hospitals in Germany, enabling the start-up to enter the market. In the same vein, an intermediary shared the example of a start-up which aiming at entering the Asian market via one country. However, the start-up was required by law to have a plant in this country to commercialize the products, so had no option other than collaborating with a German family firm that already had a plant in the country.

Second, start-ups expect support from family firms in the **process of scaling up their technology**. Family firms have the required financial means, machinery, and plants to drive the scaling-up process. Indeed, European certification processes (CE-certification[4]) are very long and costly, which makes it almost impossible for start-ups to complete the processes on their own. Two start-ups (in the software and health sector) explained that without the support of family firms, they would not have been able to navigate the process due to its complexity and would not have been able to pay for the certification on their own, especially since one start-up is privately financed.

Third, start-ups highlighted the **reliability and stability of family firms** compared to non-family firms as one important aspect of their willingness to collaborate with family firms. A software start-up mentioned, for example, being impressed by the fact that their collaboration partner existed for several centuries. According to the CEO of the start-up, this showed that you could count on the family as they had been able to navigate the firm across all these years. Three further start-ups highlighted that, compared to nonfamily firms, family firms stay true to their word. While, on the one hand, it is reassuring for a start-up, on the other hand, it saves time during the collaboration, as there are no delicate discussions on, for example, cost cutting. One start-up experienced such budget discussions with non-family firms in the middle of the collaboration, which led to the pausing of collaboration. Similarly, start-ups explained that they interpreted the

[4] Being CE-certified means that the produced or imported goods are conform with European health, safety, and environmental protection standard.

involvement of the family in discussions on the collaboration as a strong signal for commitment and interest.

> ***"I mean, this is a family business, and I had the feeling that if the head of the family commits to something, then it will be fulfilled." (CEO of a start-up)***

Fourth, some start-ups prefer collaborating with family firms compared to non-family firms, due to their **entrepreneurial spirit**. A start-up founder working on the development of a new information sharing platform with a family firm highlighted that he could more easily trust the family firm compared to a non-family firm, as he felt that the family shared the same fears, struggles, and needs for a good reputation as him. Talking about these aspects of the entrepreneurial life with the family gave him the confidence that the family would support the collaboration, even if there were unsuccessful moments.

Challenges in innovation collaborations

	Family firm perspective	Start-up perspective
Challenges in pre-collaboration phase	• **Identification of the innovation potential**, the **start-up** capable of filling technological gap, and the **concrete use case** for the innovation collaboration • **Information asymmetry** (e.g., regarding start-up structure, maturity of start-up's technology, intentions of start-up) • **Trust building** with start-up (i.e., gaining and giving trust) • **Set-up of the collaboration** (e.g., negotiations regarding exclusivity of collaboration and IP ownership, alignment on NDA, alignment on collaboration processes)	• **Information asymmetry** (e.g., regarding intentions and goals of family firm, family firm's internal processes) • **Fulfillment of requirements of family firm** for the collaboration (e.g., very detailed purchasing process, alignment NDA) • **Trust building** with family and family firm (e.g., convincing of family firm of reliability despite limited track record)
Challenges in collaboration phase	• **Gap between expectations of family firm and reality** of the collaboration (e.g., maturity of start-up and technology, standards of quality regarding output) • **Speed** of start-ups and high **demands** resulting from the speed (e.g., be faster as well) • **Unexpected changes in behaviors of the start-up** (e.g., start-up collaborating with competitor)	• **Unexpected technology-related challenges** (e.g., challenging product-certification process, limitations in product development) • **Communication** to family firm of unexpected challenges • **Management of (new) demands** of family firm • **Navigation** of the family firm (e.g., in terms of (long) decision processes, involvement of many stakeholders)

Table 3: Selection of challenges in innovation collaborations from a family firm and start-up perspective

Although there are very good reasons for family firms and start-ups to collaborate, innovation collaborations do not always succeed[5]. Indeed, several challenges arise before and during the collaboration process.

Challenges during pre-collaboration

Five main challenges in the pre-collaboration stage for family firms and start-ups were identified:

- Definition of a concrete use case for the collaboration
- Information asymmetry
- Fulfilment of the family firm's requirements for the launch of the collaboration
- Trust building with potential collaboration partners
- Set-up of the collaboration

The very first challenge in the pre-collaboration stage is the **identification of innovation opportunities** in the business model or product portfolio of the family firm. Several reasons explain this challenge: employees do not have the time to "look outside" of their scope of tasks, employees and management are reluctant to change as the firm is (temporarily) successful without new innovations ("we have always done it like this before"), or management prioritizes other aspects within the firm due to current political and resource challenges.

Once the innovation opportunity is identified, family firms also struggle with **finding start-ups** capable of supporting them. An executive of a family firm in the material finishing industry shared that, as she never got in touch with start-ups before, she did not know where to find the start-ups, how to reach out to them, and how to analyze them. This was even more challenging for employees with a "not-invented-here" mindset[6] who were resistant to outsiders, such as start-ups entering the family business.

Once the start-up has been identified as developing a technology that could be useful to the family firm, start-ups experience difficulty in **defining a concrete case** for collaboration. Indeed, the definition of a concrete and well scoped case is mandatory for collaboration; otherwise, responsibilities will be impossible to define, and the start-up will not be able to fulfill all tasks given its typically small team size. For example, one start-up specializing in deep learning explained that during their first collaborations with established companies, they did not detail the use cases well enough, resulting in use cases that were too broad, in which they even committed to doing things they were not capable of. The definition of the use case is challenging mainly because the start-ups and the family firms do not have the same understanding of the technology (e.g., family firms think that these technologies can resolve all the problems that they have, although this is, of course, not the case) and because family firms find it very hard to deal with situations with many unknowns.

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[5] For instance, a recent study (Wrobel et al., 2017) showed that roughly two third of the start-ups and established corporates they had interviewed already had experienced the failure of collaboration.
[6] The "not-invented-here"-mindset refers to the rejection of collaboration and innovation of externals by employees.

"However, for most companies it is inconceivable that in a project where I have many question marks or, in other words, complex problem solving, I find an approach leading to a solution." (An intermediary)

Information asymmetry is the second challenge. It can be defined as a situation where one party in a relationship has more or better information than the other. Our findings outline information asymmetries at several levels between family firms and start-ups:

- **Process level**: *(selected examples)*
    - The family firm has little transparency over the structure and processes within the start-up
    - The start-up has little transparency over the decision-making (e.g., who makes the decision for the collaboration?) and innovation processes within the family firm
- **Technological level**: *(selected examples)*
    - The family firm does not have full transparency over the maturity and readiness of the technology of the start-up or does not have the technological background required to understand the technology of the start-up
    - The start-up has little transparency over the maturity of the data from the family firm (e.g., is the data structured and complete enough to be used by the machine learning algorithm?) and on the overall technological readiness of the family firm to implement its technology
- **Financial level**: *(selected examples)*
    - The family firm does not have full transparency over the financials of the start-up (e.g., funding, financial engagements, recurring customers)
    - The start-up does not have full transparency over the financial investment that the family firm is willing to make for the collaboration (e.g., how much will the family firm invest? Will the family firm want to have stakes in the start-up?)
- **Capabilities level**: *(selected examples)*
    - The family firm does not have full transparency over the hard and soft skills of the start-up founding team (e.g., are they capable of running an innovation collaboration?)
    - The start-up does not have full transparency over the hard skills of family firm employees (e.g., will they be able to understand and implement the solution?)
- **Intention level**: *(selected examples)*
    - The family firm does not have full transparency over the possible exchange of (confidential) information on the family firm by the start-up with other parties (e.g., competitors with whom the start-up is also working)
    - The start-up has little transparency over a possible hidden agenda of the family firm or over the possible development of a similar technology in parallel (e.g., copying of intellectual property of the start-up by the family firm)

Considering the information asymmetry detailed above, making sound decisions is very difficult. The mitigation of the information asymmetry requires both parties to "undress themselves" (CEO of a start-up), to find the right balance between sharing information and keeping information confidential and to accept that not all information asymmetries can be fully mitigated.

Third, as family firms are often not used to collaborating with start-ups, their **expectations,** for instance, in terms of data security requirements and process requirements, are the same as for established companies, although start-ups are much smaller and have a completely different maturity. Several start-ups shared examples of this mismatch:

- Negotiation of the NDA[7]: the family firm wanted the start-up to sign a NDA drafted by ten lawyers, with very strict confidentiality and financial clauses, although it was not even clear to the CEO of the start-up if the start-up would survive the year.
- Supplier due diligence process: the family firm required very detailed information on the start-up, their intellectual property, their patents, etc. The start-up explained that it took them almost two months to collect the required data, which is a significant time investment given that the whole start-up team needed to support the process.

Fourth, due to the three challenges mentioned before, **building trust** between family firms and start-ups is difficult. Indeed, trust relies on, among other things, perceived capabilities and intentionality of the counterpart, which are hard to distinguish when there is so much information asymmetry. The CEO of a family firm explained that it was very hard to trust the start-up team at the beginning: the product prototype was at a very early stage, and the founding team did not include any founder with a business administration background. Trust building was made even harder for the family firm, and the start-up could not agree on the structure of the collaboration. Whereas the CEO of the family firm wanted to acquire shares from the start-up prior to or during the collaboration, the start-up only considered a collaboration including financial and non-financial support from the family firm. This led the CEO of the family firm to question the intentions of the start-up, hindering trust building.

Fifth, as described in the previous example, **finding the right setup for the collaboration** is most of the time challenging, as each party has different expectations: family firms often like to keep control over collaborations (this is strengthened when a family member is directly involved in the discussion around the collaboration), while start-ups prefer to keep their independence to remain agile and be able to work with other companies. For instance, one intermediary recalled working with one family CEO who got very emotional and wanted to influence the customer strategy of the start-up, although he did not have any shares in the start-up.

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[7] NDA is the abbreviation for nondisclosure agreement: it is a legal contract between the collaboration partners that outlines confidential material, knowledge, or information that collaboration partners want to share with one another, while restricting access to other parties not included in the contract.

Challenges during innovation collaborations

Three main overall challenges were identified in the collaboration stage for family firms and start-ups:

- Gap between expectations of collaboration partners and reality
- Technology-related challenges
- Changes in the behavior and intentions of the collaboration partner

First, family firms and start-ups experience a **gap between the expectations** they had at the beginning of the collaboration **and the reality**. As mentioned earlier, family firms have very high-quality standards and expect the same from the start-up they are working with, although this is not always possible, as start-ups could lose their competitive advantage (i.e., their speed). The executive of a family firm within the material finishing industry was disappointed by the initial product developed by the start-up, as it did not seem finished at all from a design and feature perspective. The executive felt that the start-up had just "thrown something" to them. However, for the start-up, it was completely normal to only have an 80% solution as they were used to work in an iterative way. This was emphasized by the fact that the family firm had asked to add features in the application, which took a lot of time to implement. This mismatch in expectations slowed down the collaboration as the family firm was less motivated to work on the project as they were disappointed. Nevertheless, not only do family firms have high expectations, but start-ups also expect a lot from family firms, especially in terms of speed. One start-up experienced frustration and even thought that the family firm did not want to collaborate with them anymore, as the family firm took much more time than expected to implement the machinery required to use their software within the company. In fact, the family firm was still very eager to collaborate with the start-up but only had long decision and quality control processes, which hindered working faster.

> ***"I think our technology people believed that we were pretty close to a kind of implementation at the family firm. But at the end of the day, they were not ready, they had to do a lot of internal stuff still to get things ready." (CEO of a start-up)***

Second, family firms and start-ups experience **technology-related challenges** that slow down collaboration. There are as many technology-related challenges as collaborations – a few examples are given here:

- One family firm in the manufacturing sector explained that during the collaboration process, they noticed that their data were not mature enough for the technology developed with the start-up. In fact, the algorithm needed to be fed with data provided by the machines. However, the data provided by the family firm did not contain enough historical data and were not complete and structured enough to enable a systematic analysis of the algorithm.
- One start-up detailed that the technology they were trying to develop with the family firm involved capabilities that the start-up team did not yet have. As these capabilities were

needed to finalize the product and get the product certified, both collaboration partners decided to hire an external expert, although it led to a cost increase.

Not all start-ups are as bold as the start-up in the latter example: many start-ups are not courageous enough to admit that they do not have the capabilities to fulfill their part of the collaboration, as they always think they can find ways to fix the issue. They also do not want to disappoint their collaboration partner. However, this behavior usually leads to delays in the delivery of milestones and appears as a surprise to the family firm, as no communication on potential delays had been done before by the start-up.

Third, collaboration partners can **change their behavior and intentions** during the collaboration. This is often the case when a new beneficial opportunity arises. For instance, one intermediary explained that a start-up decided to start a collaboration with a competitor of the family firm during the collaboration. As the new collaboration project seemed to be close to the project between the family firm and the start-up, the CEO of the family was very concerned about the possible transfer of data and knowledge to the competitor through the start-up and wished to end the collaboration. Another intermediary highlighted that employees from one company in the manufacturing sector used a technology similar to the technology of the start-up to create their own product, hence violating the intellectual property of the start-up during the collaboration.

Findings on the role of intermediaries in innovation collaborations

Characteristics of intermediaries

An intermediary can be defined as an "organization or body that acts [as] an agent or broker in any aspect of the innovation process between two or more parties" (Howells, 2006, p. 720). Two types of intermediaries were identified:

- An **external intermediary** is an independent third-party bringing family firms and start-ups together. An external intermediary can be an **individual person (or small team)**, such as an **industrial expert** or an **advisor** (see expert interview on p. 44) or an **organization such as an accelerator** (e.g., Startup Autobahn[8], TechFounders[9]), a **network** or **ecosystem** (e.g., Maschinenraum, It's Owl[10]), or an **advisory company**. For example, the family firm Viessmann launched the Maschinenraum, an ecosystem for Mittelstand companies. Since 2020, Maschinenraum partners with Bundesverband Deutsche Startups e. V. to build the bridge between the often family-influenced Mittelstand companies and the German start-up ecosystem[11].

[8] Please refer to the website of Startup Autobahn (https://startup-autobahn.com/)
[9] Please refer to the website of TechFounders (https://techfounders.com/)
[10] Please refer to the website of Its OWL (https://www.its-owl.de/die-projekte-im-ueberblick/innovationsprojekte/)
[11] Please refer to the website of Maschinenraum (https://www.maschinenraum.io/stories/bundesverband-deutsche-startups)

- **An internal intermediary** is typically dependent on the parent company of the family firm. It is, for instance, a **business unit** or a **subsidiary exclusively dealing with the digital transformation** of the family firm and collaborating with start-ups to enable digitalization.

Furthermore, in some family firms, **internal champions** acting as an interface between the external intermediary, the business unit, and the start-up were identified. Internal champions are only present in large family firms with strong experience in collaborations with start-ups and aim at building up intermediary capabilities within the firm. The role of internal champions is detailed in the section "findings on organizational changes following innovation collaborations".

The figure below depicts the interactions between the stakeholders of a collaboration in the two abovementioned settings (i.e., collaboration with an external intermediary and collaboration with an internal intermediary). Based on the depth of involvement of the intermediary, the interactions between the family firm and the start-up can either be fully or partly managed by the intermediary.

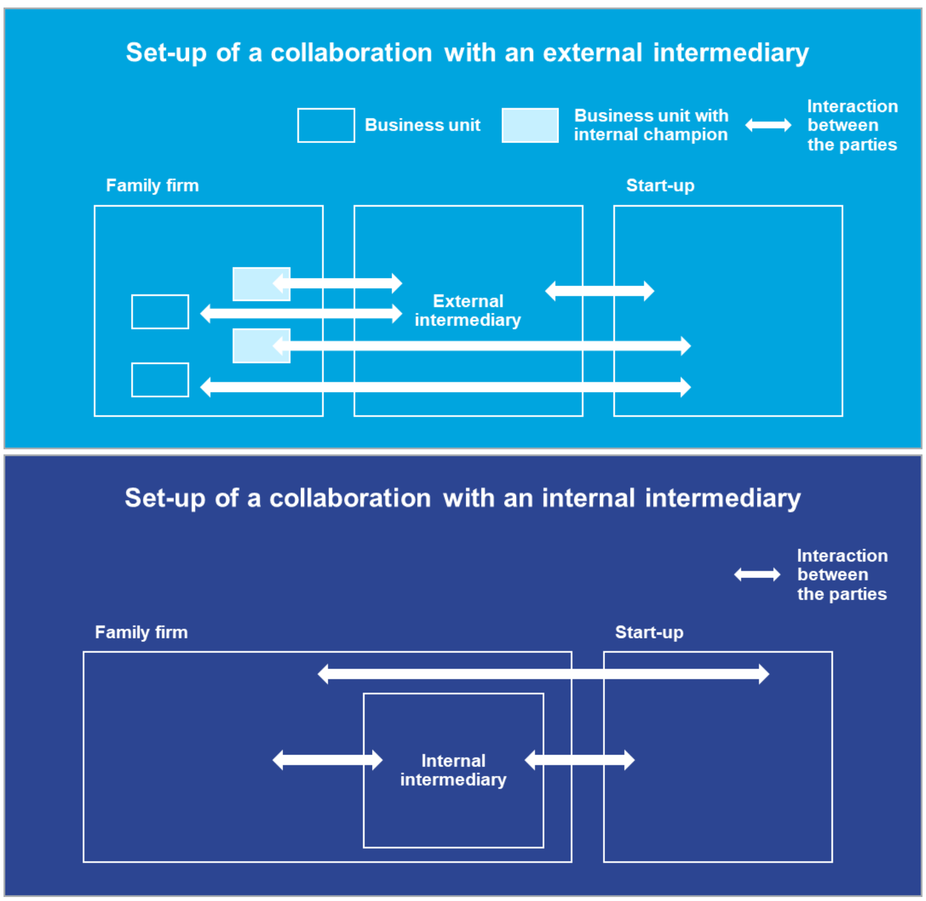

Figure 9: Interactions between stakeholders in a setup with an external and an internal intermediary

Intermediaries can be involved at any point of the collaboration process, depending on the need and preferences of the family firm. Three phases of involvement were identified: **pre-collaboration**, **collaboration** and **post-collaboration**. The roles of intermediaries in each phase are described in the next section (after a short description of intermediaries' characteristics).

	Pre-collaboration	Collaboration	Post-collaboration
Selected examples of intermediaries' involvement in collaboration process	• **Initiation** to collaborations • **Identification** of use case (e.g., scoping of innovation need, scouting and analysis of start-ups, matching of start-ups and family firms) • Establishment of **trust-based relationships**	• **Orchestration** of collaboration process (e.g., (post-) pilot project) • **Coaching** of family firms and start-ups • **Support** of mitigation of challenges	• **Codification** of lessons learned • Further **counselling** of family firm and start-up

Table 4: Intermediaries' involvement in innovation collaborations

Although each intermediary has a different area of expertise in terms of industry, geographical outreach, or technology, common characteristics among them were observed.

First, many intermediaries have both a **family firm** and a **start-up background**. For instance, two of our interviewed intermediaries were the NextGen of a family business and founded and led start-ups during their careers. Another intermediary founded and funded several start-ups before working for a family firm and advising different families for several years. Previous experience in the family firm and start-up ecosystem facilitates the understanding of both worlds, especially the goals and constraints of family firms and start-ups, and enables them to understand the 'Denglish' spoken by start-ups and translate it to family firms.

Second, intermediaries typically have a very **large network** and hence are strongly embedded in the family firm and start-up ecosystem. Selected external intermediaries have access to the German and worldwide start-up ecosystem (e.g., start-up ecosystem in Israel or in the United States of America). This provides them with deep market insights and access to the resources to connect family firms and start-ups among each other. Most intermediaries also collaborate with other intermediaries to broaden their outreach.

Although intermediaries do not need to be experts in one specific industry or technology, intermediaries often have a **strong technological understanding** of the products of the start-ups they connect to family firms (i.e., what does the core technology of the start-up enable, and what does it take to implement the core technology within the family firm?).

Last but not least, intermediaries are not only financially but also **intrinsically motivated to drive innovation within their network**. Intermediaries hence focus on **providing the best collaboration**

experience to both parties to enable a fast successful collaboration and encourage family firms and start-ups to engage in further joint innovation projects.

Role of intermediaries in innovation collaborations

The role of intermediaries evolves during the innovation collaboration process.

Pre-collaboration phase

1	Develop interest to collaborate		• **Embed** family firm and start-up in **innovation ecosystem** (e.g., through organization of regular touchpoints between both) • Share **inspirational success stories** • **Reassure family firm and start-up** about collaborations by discussing involvement and support within the collaboration
2	Outline concrete use case		• **Challenge family firm's strategy** to identify innovation need • **Divide innovation need** to identify where collaboration would be most valuable • **Identify start-ups** capable of solving need
3	Structure information-related processes	Information gathering process	• **Conduct separate discussions** with potential collaboration partners on, e.g., goals, expectations, budget • **Remain neutral** during discussions to ensure "win-win situation"
		Information sharing process	• **Translate** information shared by family firms and start-ups to ensure correct understanding • **Manage information shared** by each party to ensure only necessary information is being shared • **Set-up pilot project** to guarantee possibility to opt-out from collaboration
4	Involve family and non-family top management team		• **Ensure alignment between owner and top management** in family firm by requiring both to participate in scoping meetings • **Support signaling of importance of collaboration** for family firm by encouraging family members to meet start-ups

Table 5: Selection of best practices of intermediaries in the pre-collaboration phase

First, intermediaries **foster the willingness of family firms and start-ups to collaborate**. This willingness is developed through **inspiration**, which is driven in different ways according to intermediaries' network size, financial and human resources, and personal preferences regarding which format will drive the most value for their network. Examples of how intermediaries foster inspiration:

- **Organization of regular touchpoints between family firms and start-ups**, e.g.,
    - **Organization of speed-dating events** consisting of established companies and start-ups engaging in short discussions to get an idea of the topics they are working on, the working methods, etc.
    - **Organization of pitch events** consisting of either family firms or start-ups pitching their business model, capabilities and current needs. One family firm in the retail industry started collaborating after such a pitch event. In fact, the technology developed by the start-up caught the attention of the retailer, as it had the potential to automate and hence accelerate one of their supply chain processes.
- **Facilitation of experience sharing among peers**
    - **Connecting established companies** during industry fairs or dinners. A start-up explained that the intermediary brought the family firm they wanted to collaborate with together with another Mittelstand firm they had already worked with. The experience shared by the Mittelstand firm helped the family firm to better understand how the technology of the start-up could be implemented within their own structure and gave them the confidence that they could make it.
- **Sharing examples of collaboration cases** collected from all around the world. One family firm in the material finishing sector explained that the idea to collaborate with the start-up came from a case shared by the intermediary: the case showed how a retailer developed a mobile application facilitating the visualization of the goods in a given location. They decided, together with the start-up, to create a similar visualization application that would increase the efficiency of their transportation process as it would increase the utilization rate of their trucks.

Second, intermediaries support the **definition of the use case for collaboration**. In this regard, intermediaries are actively involved in the identification of areas with potential for innovation in the family firm. As they are embedded in different ecosystems, they **transfer knowledge and best practices from one industry to another** and, therefore, are able to challenge the current business models of the family firms. One intermediary mentioned discussions in which they **mentally 'cannibalize' the business model and strategy** of the family firm: "What would you do if this new technology of this start-up would be used in your industry?", "What would it mean for your product portfolio?", etc. These discussions[12] are especially useful to overcome the "we have always done it like this before"-mindset, as it has become clear that if they keep their routines and ways of doing business, they will not be able to successfully respond to market changes. Once this innovation gap is identified, intermediaries and family firms cut it into smaller pieces and prioritize the different areas. Indeed, **collaborations require a well-defined scope, as start-ups (just as family firms) have only limited human resources**. Our findings show that this phase of scoping takes place in parallel to the start-up scouting phase. Indeed, **seeing "real examples" of start-ups helps family firms identify what they *do not* need**, which in turn helps the intermediary

[12] Further details on the discussions aiming at mentally 'cannibalizing' the business model and the strategy of family firms are shared in the following article: https://familybusiness.org/content/Learn-to-defend-your-family-firm

derive the aspects that the family *does* need. Furthermore, asking the same question several times in different ways and reformulating the answers by highlighting the implications of the choices helps family firms in their reflective process.

Third, **intermediaries support the information gathering and sharing process** between family firms and start-ups. It is all the more important, as family firms and start-ups might initially be reluctant to share information with the potential collaboration partner due to the lack of mutual trust. Therefore, it is crucial to find a balance between sharing necessary information, ensuring the understanding of this information by the collaboration partner, and ensuring information confidentiality. Intermediaries act on 5 levers:

- **Gathering of information on the family firm and start-up**
    - In addition to crucial information on the technology, the business model, internal processes, the strategy, and the financial health (of the start-up), intermediaries also look into the motivations and goals of both parties to ensure alignment. **Motivations and goals can be different, but they need to be aligned for collaboration to work**. For instance, we learnt about a collaboration where the goal of the family firm was only to get insights into how start-ups work, and the goal of the start-up was to further develop their technology with the family firm. The collaboration did not work as, instead of focusing on the technology of the start-up, the CEO of the family firm only focused on their internal processes and their working methods.
    - Intermediaries not only gather written information (some intermediaries share a list with the information they need to provide with the family firm and start-up), they also conduct several individual discussions to increase their understanding of the information and build up their relationship with each partner. During these discussions, **it is very important that the intermediary remains neutral**, i.e., does not favor one partner over the other or their own interests[13], **to ensure a "win–win situation" for all the parties involved**. For example, a collaboration between a family firm in the retailing industry and a start-up in the sustainability sector was ultimately not launched because of the inappropriate behavior of the intermediary. Indeed, the intermediary pushed the start-up toward a collaboration deal that would not make sense for the start-up, as it would imply that they develop a similar technology with the family firm, without building on what they had done in the past and without strong financial support.
- **Moderation of the information sharing process**: intermediaries ensure that **only required information is being shared between family firms and start-ups**. Indeed, due to either skepticism or curiosity, employees of family firms tend to ask the start-up many questions that are not directly relevant to the collaboration. Often, due to the asymmetry in terms of size and power between both companies, start-ups feel obliged to answer all these

[13] Similar to trusted family business advisors that also need to take a balanced, neutral position in situations of, e.g., succession advising.

questions, despite the time-consuming nature of such requests. One intermediary explained that one engineer of an established company was requesting to see the algorithm of the start-up. As this is part of the intellectual property of the start-up, the intermediary jumped in and made both parties aware that sending the code behind the technology of the start-up should not be a prerequisite for collaboration. In a similar vein, **intermediaries ensure the understanding of information** by all stakeholders. Indeed, as family firms often are not familiar with new technologies developed by start-ups, they need someone to put it into perspective: what does this technology mean for us? What are the prerequisites for the implementation of this technology? What skills do we need to have to engage in this collaboration? For instance, one family firm explained that they would have never been able to collaborate with a start-up without the intermediary because they only had a very limited understanding of the technology in question. However, the intermediary was able to recognize that the technology was state-of-the-art (and that therefore, it made sense to use it) and reformulated the information shared by the start-up so that the family firm could understand what the technology truly implied for them.

- **Ensuring the confidentiality of information**: not all the information that has been shared with the intermediary is expected to be shared with the collaboration partner. Indeed, **some pieces of information are required by intermediaries to deepen their analysis of the start-up but are not relevant for the family firm in the context of a collaboration**. For instance, one start-up explained that the intermediary required their financial data (e.g., balance sheet and income statement), as it was important to the family firm to collaborate with a start-up that was not close to bankruptcy. However, these data were not shared with the family firm, as they had trust in the intermediary and his analysis.
- **Facilitating the acceptance of information asymmetry by family firms and start-ups**: as described earlier, family firms and start-ups need to accept that they will not have full transparency over their counterparts before the collaboration. This acceptance process is supported by the intermediary who orchestrates a **trust transfer from him or her to the prospective partner**. For example, the family firm has trust in the intermediary (e.g., trust in his or her capabilities and intentions) and transfers this trust to the start-up, provided that the intermediary trusts the start-up.

  "I just think that we are doing it [the collaboration] because of the intermediary. I do not think we would have dared to take this step without him." (CEO of a family firm)

- **Facilitation of the start of the collaboration**: intermediaries strive for the **setup of pilot projects to accelerate the start of the collaboration**. Indeed, a pilot project is limited in time (usually 3 to 6 months) and requires a limited amount of financial and human resources. While it **creates a safe environment** for both partners to get to know each other, it also **gives them the option to opt out from the collaboration** if their expectations are not met. In this regard, a pilot project is a great way for start-ups to show what they are good at. For instance, one start-up explained that although the family firm was reluctant to work with them at the beginning, the intermediary managed to convince them to try a pilot project. During the pilot project, the start-up managed to impress the family firm by showing positive results quickly, and this success, in the end, led to the extension of the collaboration.

Fourth, intermediaries **ensure the involvement of family members** in the collaboration. An external intermediary once had the (unsatisfactory) experience of not involving both the managers and the owners of the family firm. He was indeed working on the preparation of the collaboration with the top management of the family firm and the start-up. At a very advanced stage of the pre-collaboration phase, the project was rejected by family members on the advisory board, leading to cancellation of the collaboration. This was, not only a waste of time for all the involved parties, but it also got the start-up into trouble as it had invested significant human resources for these discussions. Hence, to **ensure alignment between the stakeholders** and **protect start-ups** from the downsides of a cancellation of a collaboration, intermediaries actively involve owners that are not managers in the discussions by, for example, organizing regular steering committees with them or introducing them to start-ups. Additionally, involving the family in innovation and collaboration talks has another positive effect: it is a **strong signal toward the employees of the family firm and to the start-up** that this collaboration is important to the family firm. It hence increases the willingness of the start-up to collaborate with the family firm and vice versa.

Collaboration phase

1	Coach collaboration partners		• **Manage expectations** of family firms and start-ups by explaining behavior and limitations of collaboration partners • **Support** family firms and start-ups at embracing new working methods by involving experts
2	Challenge decision making		• **Share examples** from other collaborations to illustrate possible implications of decision • **Reformulate implications** of some decisions to ensure family firm and start-up are moving into the right direction
3	Structure collaboration process		• **Schedule regular alignment calls** between all stakeholders • **Keep written track** of responsibilities, milestones, and issues raised by each collaboration partner to ensure alignment between both parties during the whole collaboration
4	Mediate challenging situations	Identification of challenges	• **Clarify challenges** by conducting discussions with each collaboration partner • **Emphasize intermediary's neutral position** to ensure own legitimacy in collaboration
		Mitigation of challenges	• **Shift and refocus collaboration** (e.g., by finding other areas of implementation of technology within family firm, developing parallel processes with the family firm) • **Implement controlling mechanisms** to ensure challenges do not arise again (e.g., structured change request process)

Table 6: Selection of best practices of intermediaries in the collaboration phase

Intermediaries are usually involved in the collaboration phase, as family firms and start-ups require further support, especially when it is their first collaboration. The neutrality and commitment of intermediaries give them a **feeling of security**, as intermediaries step up in the case of issues.

First, **intermediaries coach collaboration partners to prevent frustration** arising from the differences in ways of working and the gap between expectations and reality. In this regard, intermediaries share explanations and examples of previous collaborations at the beginning to **mentally prepare stakeholders in these situations and avoid the surprise effect**: due to their small size and short decision-making processes, start-ups can find solutions very fast. As they focus on a specific area, they can be very innovative in their domain; the downside that the family firm needs to accept is that they are typically only 5-10 people in the start-up and, therefore, they have limited work capacity. One intermediary even involved an agile coach to support the first days of the collaboration: this helped both collaboration partners to set the base of their working mode and working rules.

Second, **intermediaries challenge the decision-making** of family firms and start-ups during collaboration to ensure that decisions are not made hastily and that the collaboration partners are fully aware of the consequences of the decisions they make. In this regard, one intermediary explained that she constantly asked questions, such as “are you sure about it?” or “did you talk about it to another stakeholder?” to ensure that her counterparts thought things through. In a similar vein, she reformulated the consequences of the decisions to ensure that her counterparts have all the information needed to make these decisions. This is especially helpful when her counterparts do not have the technological background to fully understand all the implications of the implementation of the core technology of the start-up within the family firm.

Third, intermediaries support the **structure** of the collaboration. Their **breadth of influence on the structure depends on their depth of involvement** in the collaboration. Indeed, for example, internal intermediaries are typically more involved during the collaboration as external intermediaries, as they are part of the family firm and have high interest in the success of the collaboration: if the collaboration does not succeed, it will diminish their credibility and legitimacy in the eyes of other business units. In this regard, intermediaries can be involved in different ways: some intermediaries only support the setup of the timeline for the collaboration (including the definition of the milestones that need to be achieved), some set up and orchestrate all the meetings between the family firm and the start-up, and some manage the whole communication between both collaboration partners. For instance, one internal intermediary explained that the engineers in the business unit had very few touchpoints with the start-up. Indeed, the intermediary orchestrated the data sharing, managed the pilot project with the start-up on his own, and reviewed the results with the experts from the business unit after each step to obtain their opinion and guidance. One of the engineers experienced this centralized communication as convenient, as it ensured a steady alignment between the parties and no loss of information. Nevertheless, this way of working requires full trust from the family firm toward the intermediary and a great technical understanding by the intermediary, as he or she would otherwise not be able to understand the feedback from the experts and manage the whole collaboration on his or her own.

> ***“The gain is still greater if you truly try to communicate in a reasonably structured way. As I said, nothing is worse than everyone talking to each other, as I said, Germans always say, too many cooks spoil the broth.“ (An engineer in a family firm)***

Fourth, when requested by the collaboration partners, intermediaries **mediate the discussions in case of issues**. As intermediaries are neutral third parties, they have **legitimacy in the eyes of the stakeholders to ask questions and to give their opinion**. Therefore, they conduct discussions with each collaboration partner to **clarify the situation** and then share their view on the **possible areas of solution**. For example, in the case of an issue due to a product delay, the intermediary would suggest a prioritization of the tasks, an adaptation of the working plan, and the implementation of controlling mechanisms to avoid similar situations in the future. In case the issue is linked to the fact that the technology cannot be implemented in a specific business unit (due to missing data, for instance), the intermediary would search for possible new areas of implementation within the family firm.

Post-collaboration phase

1	**Build up capabilities**	• **Develop new processes and responsibilities** within the family firm (e.g., creation of "internal champions", development of purchasing processes) • **Share knowledge and best practices** on typical tasks of intermediaries (e.g., scouting) and **providing feedback**
2	**Nurture willingness to innovate**	• **Share further innovation impulses** with family firm • **Challenge family firm's strategy** to identify further innovation need
3	**Extend network**	• **Connect family firms with peers** to foster **co-creation** among companies from the same ecosystem • **Connect start-ups with other (family) firms** for potential other collaborations, investments, etc.
4	**Codify learnings**	• **Codify best practices** from successful collaborations to be able to share them with other established corporates • **Implement lessons learned** in next collaboration

Table 7: Selection of best practices of intermediaries in the post-collaboration phase

Intermediaries often continue supporting family firms and start-ups after a collaboration.

First, intermediaries **build up capabilities** within family firms that are directly related to the ability to collaborate with start-ups. To name a few of these capabilities: identification of use case for a collaboration, start-up scouting, and the structuring of a collaboration. These capabilities are **built in an iterative way**: the intermediary shares best practices with selected employees of the family firm already during the collaboration, employees of the family firm perform a task (for example scouting of several start-ups) for a potential new collaboration, and the intermediary provides feedback on the tasks performed by the employee of the family firm and shares how he or she could improve it (for example, on the start-ups scouted by the employee).

Second, intermediaries **nurture their relationship with family firms and start-ups** after a collaboration. In this regard, they continue fostering their **willingness to innovate**. Intermediaries **continue sharing inspirational success stories** with family firms to help them obtain new collaboration ideas. Similarly, they **continue to challenge family firms** on their business model, strategy, and product portfolio. Indeed, intermediaries are convinced that a company can always do better and should never stop thinking about innovation. One intermediary even mentioned that he is probably considered annoying by family firms, as he keeps pushing for innovation.

> ***"I think they truly hate me sometimes. However, we should not stop trying to improve ourselves. Nobody has to like me. If everyone is satisfied, it means that we have overlooked something. Everyone is somehow settled in, and we stop striving to get better." (An intermediary)***

Third, intermediaries **actively extend the network** of the family firms and start-ups, always with the goal of strengthening and driving innovation within their network. For instance, at the end of the successful collaboration between a family firm in the manufacturing sector and an IoT-specialized start-up, the intermediary directly connected both with another established company: they are now working together on an innovation project.

Fourth, intermediaries **codify their key learning** from the collaboration. Intermediaries aim at adding value to the collaboration and at providing a streamlined experience to collaboration partners. Therefore, challenges that arose during the collaboration and their mitigation are codified in the sense that the **intermediary implements the learning directly in the following interaction**. For instance, one start-up scouter explained that during the collaboration, the family firm lost trust in him because he did not identify the types of start-ups that they had in mind. Indeed, as the research scope was very small, few start-ups were active in the sector. To avoid a similar issue in the future, he now intends to always ask family firms to broaden their start-up research scope (to be sure to find start-ups) and to have more feedback rounds with the established company during the scouting process. Furthermore, intermediaries also make sure to **codify the collaboration itself, as it can be used to inspire other established companies to collaborate with start-ups**. In this regard, one intermediary explained collecting the cases she has been involved in for years. This enables her to have an example that she can share with her network for each type of collaboration.

Findings on organizational changes following innovation collaborations

Organizational shifts performed by family firms	Organizational shifts performed by start-ups	(Organizational) shifts performed by intermediaries
• **Strategic shift**, e.g., embeddedness in start-up ecosystem, prioritization of collaborations with externals for innovation • **Changes in internal processes**, e.g., shorter purchasing processes, development of internal champions • **Cultural shift**, e.g., use of agile working methods	• **Changes in internal processes**, e.g., careful selection of collaboration partner, structured and targeted interaction with family firm • **Behavioral change**, e.g., increased communication and transparency toward the family firm during the collaboration	• **Strategic shift**, e.g., moving from the orchestrator to the sparring partner, fostering co-creation among family firms • **Processual shift**, e.g., careful selection of family firms with whom they are going to work, interaction with family and non-family top management team to ensure alignment between both parties

Table 8: Selection of examples of organizational shifts following innovation collaborations involving a family firm, a start-up, and an intermediary

Our findings show that innovation collaborations involving family firms, start-ups, and intermediaries trigger organizational changes within each stakeholder.

Perspective of family firms

First, innovation collaborations trigger **strategic shifts** within family firms, which occur at the level of innovation and, more specifically, in the **way innovation is conducted** within the company. In this regard, it was observed that several family firms no longer considered collaboration with start-ups as exceptional cases but were even prioritizing collaboration over in-house innovation. For instance, one family firm in the manufacturing sector shared that prior to the launch of an innovation project, employees systematically scout start-ups to identify potential collaboration partners. The start-ups can support the entire innovation project or only a part of it. Another family firm decided, after its first collaboration with a start-up, to join a network dedicated to Mittelstand and innovation, to be surrounded by other Mittelstand firms operating the same strategic shift and to be embedded in the start-up ecosystem.

Second, innovation collaborations have led to **processual changes** within family firms, as they recognize that they need to **increase their flexibility** to facilitate the launch of collaborations with young firms, such as start-ups. For example, several family firms started to develop parallel purchasing processes with their purchasing department. While one family firm in the manufacturing sector agreed on requiring less detailed financial data and information on the intellectual property of the start-up, another family firm in the manufacturing sector agreed on a billing process relying on the start-up's self-assessment of advancement, as it was very difficult for them to assess it from the outside. Some other family firms simplified their NDAs and reduced, for instance, the NDA timeframe from 10 to 3 years and included a smaller contractual penalty.

> ***"No, we do not do the standard purchasing process. For once, we leave all our forms at the side, we sit down at a table, and make a joint contract about what we actually want to achieve." (Executive of a family firm)***

As described earlier, larger family firms developed the **concept of internal champions**. These internal champions act as an interface between the start-up, the business unit, and the external intermediary. In fact, internal champions are employees within business units of a family firm who build up intermediary capabilities, such as start-up scouting, project management, and mediation. The goal is to increase the family firm's ability to collaborate with start-ups by spreading the knowledge of the external intermediary across the organization. Furthermore, as internal champions belong to a business unit, they have a large firm-internal network and a good overview of the needs (in terms of external knowledge) within this unit. Internal champions usually do not fully replace external intermediaries: as being an internal champion is not their main job, some tasks are still being outsourced to an external intermediary. For instance, while one family firm outsourced the start-up scouting to an external intermediary, another family firm outsourced the setup and management of pilot projects. This depends on the maturity of the business unit in terms of collaboration (i.e., whether they are experienced or not) and on the availability of the internal champion to support the collaboration.

Third, innovation collaborations lead to **cultural shifts** within family firms. These cultural shifts are mainly visible at two levels: the **mindset of the employees** and their **working methods**. At the beginning of this report, it was mentioned that one challenge was the "not invented here syndrome" in family firms, referring to the tendency to avoid using knowledge from externals (i.e., start-ups). Our findings show that collaborations support the mitigation of this tendency, as they show employees that ideas and knowledge from outside can be beneficial for the family firms, even if the processes and standards within a start-up are different from an established company. In this regard, one executive of a family firm explained being impressed by how this mindset change positively affected the communication from his employees toward the start-up: instead of writing nasty emails to the start-up to complain about how things have been done in the wrong way, the employees engaged with the start-up in an effective and solution-driven way. This was only possible because they recognized the potential of the start-up and their capabilities. In a similar vein, one start-up noticed that some working practices from them were implemented in the family firm. For instance, agile working methods were used to run a parallel project, and the family firm even brought to life roundtable discussions on innovation. The start-up was invited to one of the roundtables and had the opportunity to present the collaboration and the challenges with their counterparts in the family firm. During these discussion rounds, no PowerPoint slides were allowed.

Perspective of start-ups

First, innovation collaboration also leads to **processual changes** within the start-up. In this regard, start-ups change their **communication processes** with established companies: several start-ups were observed sharing information with employees of the family firm based on their role and responsibilities. The CEO of a start-up working with a large car manufacturer explained that she learned to recognize what type of information was needed by each type of counterpart: when the counterpart is not the decision-maker, she needs to provide "promotional material" so that the counterpart can convince the decision-maker to collaborate with her start-up; if the counterpart is an engineer, she provides more information on the algorithm and the data structure. Before that, she used to share the same information with everyone, leading to misunderstandings and confusion, as not all the counterparts had the same background knowledge. Similarly, the other way around, she now focuses her questions on the topics that matter, such as the budget and the decision-maker within the company. She indeed learned, for instance, that precise questions on the strategy are scarcely answered, and therefore, it is not worth focusing on these topics. Furthermore, start-ups sharpen their **collaboration partner selection process** after their first collaboration experiences. For instance, the co-founder of a start-up specializing in deep learning explained that he did not have many expectations toward his first collaboration partner for two reasons: first, he did not know what to expect from a partner and what is important when choosing one; second, as the start-up had no significant track record, only very few established companies were ready to collaborate with them. Now that he had gained some collaboration experience, he was able to identify several aspects to check before engaging in a collaboration, such as the following:

- Obtain feedback from start-ups that have worked with the company in the past.
- Identify who would be the decision-makers during the collaboration: if the decision-maker is related to marketing, the collaboration might only be a "public relations joke", meaning that the company is not interested in a real collaboration and just wants to advertise the fact that they are working with start-ups.
- Understand what goal the family firm is striving for with the collaboration.

Second, innovation collaborations trigger **behavioral changes** within start-ups. It was observed that **start-ups with collaboration experience are more transparent** toward their collaboration partner, especially in the case of challenges (for example, when there is a technology-related issue). Indeed, based on their learning from past collaborations, they know that being transparent with their counterpart about challenges and sharing areas of solutions to resolve these challenges are the best way to nurture the trust between the family firm and the start-up. Nevertheless, young start-ups with no collaboration experience tend to be fully transparent, as they are afraid of losing the trust of the family firm. In a similar vein, our findings show that start-ups with collaboration experience **accept differences between themselves and other family firms and take advantage of this difference**. For instance, the CEO of a start-up in the health care sector working with a family firm in the manufacturing industry explained that he developed patience with the long processes of established companies and used it to his advantage: when the information shared by the family firm was delayed, he clearly communicated to the family firm that the work of the start-up would be, as a consequence, delayed as well, as he did not want to put pressure on his team. Most of the start-ups would try to make up the delay, as most established companies would expect that from start-ups.

Perspective of intermediaries

First, intermediaries operate a **strategic shift** to counteract the "redundancy" of their role. Indeed, as mentioned earlier in this section, innovation collaborations trigger processual changes within family firms, thereof the development of capabilities to collaborate. As a consequence, tasks that were previously performed by the intermediary can later be performed by employees of the family firm. To continue to create value for the family firm, intermediaries need to evolve themselves. Specifically, intermediaries **move from being the orchestrator of the collaborations to being the sparring partner of the family firms**. This means that intermediaries are less operatively involved in the collaboration (as the family firm is in the driver's seat), support the family firm by providing feedback (for example, on the start-ups scouted by the family firm) and by pushing topics that family firms cannot drive on their own. For instance, **co-creation** between companies (i.e., established companies or start-ups) and their customers is seen as an important area of development for intermediaries. Indeed, intermediaries have the knowledge to identify potential areas of interest for co-creation (i.e., new business areas) and the network to bring together the required parties. Co-creation fosters innovation and strengthens the ties between the corporates within the ecosystem.

Second, intermediaries operate **processual changes** to enhance the experience of the family firms and start-ups working with them. In this regard, intermediaries **adapt the way they collaborate with family firms**. It is quite often the case that family firms are not fully sure of what type of innovation they want to drive and do not share all the information with the intermediary, which makes it difficult to define the start-up research scope. Hence, intermediaries adopt an iterative way of working with family firms, consisting of first discussing the overall scope with the family firm, then suggesting a first batch of start-ups, getting feedback from the family firm, asking precise questions to understand the feedback (e.g., "What do you exactly mean by this?", "How would you like to do that?"), and readjusting the start-up research scope. Furthermore, to establish a smooth innovation collaboration and avoid any misunderstandings when the start-up is involved, the intermediary **ensures alignment between managers and owners within the family firm by organizing regular touchpoints** with all family firm stakeholders.

Recommendations for your next innovation collaboration

Based on our findings, we share the following six recommendations with family firms for their future innovation collaborations with start-ups.

1) Foster willingness to collaborate with start-ups through targeted innovation impulses by the intermediary

- **Participate in events** (e.g., pitch events, speed-dating events, roundtables) organized by the intermediary with start-ups and other established companies **to raise interest** in innovation and in collaboration within the family firm, **get inspiration**, and **increase exposure within the ecosystem**.
- **Get challenged by the intermediary** on your business model, products, or processes **to identify opportunities for innovation and collaboration**.
- **Discuss cases of collaboration or innovation** from other companies with the intermediary **to identify new business** and **innovation opportunities**.

2) Require involvement and commitment of the top management team and family members before and during the collaboration

- **Involve top management team and family members** during the whole collaboration process **to ensure alignment** between stakeholders.
- **Require commitment to innovation of top management** team of the family firm and family members **to signal its importance** to the employees and externals, such as start-ups.

3) Accelerate the innovation process by involving an intermediary before and during the collaboration

- **Mitigate information asymmetry** between the family firm and the start-up by following the intermediary's guidance on information sharing during the (pre-) collaboration process.
- **Structure the collaboration** with the start-up by clarifying goals, expectations for outcome, and milestones with the support of the intermediary's best practices.
- **Ensure relevance of collaboration** by involving an intermediary conducting preliminary discussions and validating the relevance of the start-up for resolving the issue of the family firm.
- **Avoid collaboration pitfalls** by learning from the experiences and best practices of the intermediary.

4) Openly communicate goals, needs, and doubts with the intermediary

- **Share goals and needs** with the intermediary **to ensure adequate representation** by the intermediary.

- **Share doubts** with **intermediaries to ensure adequate steering of the collaboration**, especially when challenges arise.

5) Start an innovation collaboration with a pilot project

- **Ensure the cultural and technological fit** with start-up by starting the collaboration with a pilot project.
- **Trigger fast initial success** of the collaboration by setting “easy” targets at the beginning to increase enthusiasm around collaboration.
- **Stop the collaboration** after completion of the pilot if expectations are not met (e.g., regarding the technology of the start-up or the family firm).

6) Proactively communicate satisfaction with the start-up

- **Share satisfaction with collaboration** by communicating it directly with the start-up, connecting the start-up with own suppliers, or featuring the name of the start-up on the developed product.
- **Strengthen the reputation of the family firm in start-up ecosystems** by ensuring communication around successful collaborations (e.g., by word of mouth from the start-ups or through (online) publications by the family firm).

Experience sharing by an intermediary

[German version]

Gerne möchten wir an dieser Stelle beispielhaft einen Vermittler vorstellen. Dieter Büttenbender ist Berater für Mittelstandsunternehmen und Start-ups.

Könnten Sie sich bitte vorstellen und erklären, was Sie zur Vermittlung von Kooperationen zwischen Start-ups und Familien-/Mittelstandsunternehmen geführt hat?

Nach meinem Studium mit dem Schwerpunkt Nachrichtentechnik habe ich, beginnend Ende der 80er Jahre, für fast 30 Jahre in Unternehmen mit einem High-Tech Portfolio gearbeitet. Alle Unternehmen waren in internationalen Märkten erfolgreich und wurden zum Teil als Familienunternehmen geführt. Innovation war in allen Unternehmen ein wichtiger Faktor für den Unternehmenserfolg. Bereits 2006 kam ich erstmals in Kontakt mit der damaligen Start-up-Szene, die in Deutschland noch in einer sehr frühen Phase war. In diesem Umfeld agiere ich als Angel Investor, als Beirat und auch als Gründer, sowie hin und wieder als Mentor in abgeschlossen Programmen zur Unterstützung von Start-ups. Die von mir unterstützten Start-ups sowie Unternehmen kommen aus Deutschland, Belgien, Finnland und Irland.

Im Laufe meiner beruflichen Karriere und wachsender Erfahrung wurden mir die Grenzen etablierter Unternehmen immer transparenter. Insbesondere bei Unternehmen, die sich im Rahmen ihrer Entwicklung fast ausschließlich auf den Input und die Ideen der internen Produktentwicklungsabteilungen als Innovationstreiber verließen, wurden diese Grenzen offensichtlich. Während meiner Zeit in diesen Unternehmen kam ich mit der Start-up Szene in Berührung. Dort engagiere ich mich seit dieser Zeit als „Sparringspartner“ und ermöglichte den Start-ups Zugang zu Teilen meines Netzwerkes.

Aufgrund dieser gleichzeitigen Erfahrungen aus der Welt der etablierten Unternehmen und der Start-ups wurde mir noch klarer, was den etablierten Unternehmen an Agilität, Fokus und Zielstrebigkeit fehlte, um sich im Markt weiterhin erfolgreich zu behaupten. Vieles davon erlebte ich in der Zeit während der Zusammenarbeit mit den von mir unterstützen Start-ups. So verschieden diese „Unternehmerwelten“ auch sind, so viel haben sie doch gemeinsam. Insbesondere das gemeinsame Streben nach unternehmerischem Erfolg. Meine eigenen Erfahrungen aus beiden Unternehmerwelten haben mich dazu bewogen, als aktiver Mittler eine orchestrierende Rolle zwischen Start-ups und Mittelstandsunternehmen einzunehmen und damit das sehr oft schlummernde Potential, das sich aus einer Zusammenarbeit ergibt, komplett zu erschließen.

Wie unterstützen Sie die Zusammenarbeit zwischen Familien-/Mittelstandsunternehmen und Start-ups?

Im Rahmen meiner Zusammenarbeit und der Begleitung des gesamten Prozesses der Zusammenarbeit gilt es eine neutrale Position zwischen den Unternehmen und den Start-ups einzunehmen. Mein Ziel ist es, alle Optionen, die sich aus einer Zusammenarbeit entstehen können, aufzuzeigen, um damit bestmögliche Ergebnisse für das Unternehmen und das Start-up zu ermöglichen. Im Rahmen der Umsetzung von Projekten mit den Unternehmen kommen insbesondere „Lean Start-up“ Methodiken zum Einsatz. Mitunter sind hierbei auch „lediglich“ Übersetzungsaufgaben notwendig, um sicherzustellen, dass sich beide Unternehmenswelten auch wirklich verstehen. Es gilt den sogenannten „Lost-in-Translation“ Effekt zu vermeiden.

Die Art der Unterstützung für Unternehmen kann sich beispielsweise in folgenden Bereichen entfalten:

- Festlegung der Innovationsfelder im Einklang mit der Unternehmensstrategie
- Gap-Analyse zu Kompetenzen und Technologien – Was fehlt uns, um die Innovationsfelder zu erschließen?
- Identifikation von möglichen Technologien und Ökosystempartnern wie z.B. Start-ups
- Erste Zusammenarbeit in definierten Projekten auf Grundlage von Lean-Start-up-Methoden (wie z.B. die Erstellung von Minimum Viable Products bzw. die Etablierung eines Build x Measure x Learn

Zyklus, Umsetzung von Projekten als Proof of Concept usw.)
- Definition der Erfolgsfaktoren – KPIs qualitativ und quantitativ
- Andocken der Innovationsprojekte in operative Strukturen
- Etablierung von Intrapreneurship im Unternehmen

Eine häufige Anforderung an mich und meinen Beitrag ist es, einen frischen Blick von außen mit einzubringen, um so ein Momentum aufzubauen, mit dem man „Dinge einfach mal macht“. Damit soll mit meinem Beitrag sichergestellt werden, dass die angeschobenen Veränderungen im Unternehmen zum Selbstläufer werden, sich eine kontinuierliche Innovationskraft etabliert und damit letztendlich mein Beitrag langfristig nicht mehr benötigt wird.

Was sind die typischen Fehler, die in einer Zusammenarbeit gemacht werden?

Meine Beobachtung ist es, dass Unternehmer sich häufig nicht auf Augenhöhe mit den Start-ups austauschen und nur die ihnen bekannten Erfolgsfaktoren aus ihrem etablierten eigenen Geschäft nutzen, um den unternehmerischen Erfolg im Rahmen der Zusammenarbeit mit Start-ups zu bewerten. Leider fehlt den Unternehmen oftmals das Verständnis, dass die operativen Ziele ihres eigenen Geschäfts anders gelagert sind als die eines Start-ups, das in seiner frühen Phase sehr fokussiert und agil nach den passenden Zielgruppen und Nutznießern ihrer Lösung im Markt sucht.

Gleichzeitig haben viele Unternehmen schon ganz früh im Prozess der Zusammenarbeit die Ambition, ein Start-up zu kontrollieren, womit Entfaltungs- und Entwicklungsspielräume für das Start-up genommen werden. Dieses führt mitunter auch schon mal zum Rückzug von Start-ups aus einer Kollaboration, was am Ende des Tages ein schlechtes Ergebnis für beide Parteien, die Start-ups und die Unternehmen, ist.

Was sind Ihre Empfehlungen für eine erfolgreiche Zusammenarbeit?

Vor einer erfolgreichen Zusammenarbeit mit Start-ups steht zuerst die eigene Analyse zum Status Quo, um sich zu vergewissern, wo man als Unternehmen steht und was die Wachstums- und Problemfelder sind, die es zu adressieren gilt. Diese sollte direkt in Verbindung mit der konkreten Zielsetzung für die angestrebte Zusammenarbeit ausformuliert werden, bevor man eine Zusammenarbeit mit Start-ups beginnt.

Darüber hinaus ist es wichtig, dass das Unternehmen auf allen operativen Ebenen die Zusammenarbeit mit Start-ups mitträgt. Es braucht Sponsoren im Management, die die angestrebte Zusammenarbeit fördern und mittragen, sowie eine Reihe von Protagonisten im Unternehmen, die im Rahmen der Umsetzung von Projekten und Initiativen aktiv mitarbeiten, um den Erfolg zu sichern.

Man sollte anerkennen, dass Start-up anders sind. Mittelstandsunternehmen sind es ja auch. Hieraus lassen sich über eine strukturierte Zusammenarbeit neue Potentiale für beide, Unternehmen und Start-ups, erschließen.

Welche Aspekte Ihrer Rolle in einer Zusammenarbeit sind besonders bereichernd?

Sehr oft gibt es Momente des Erkenntnisgewinns auf der Unternehmer- und Start-up-Seite. Insbesondere wenn sich Ergebnisse aus gemeinsamen Aktivitäten entwickeln, die sich auf der Basis einer bisher nicht angewandten Herangehensweise oder Methodik ergeben. Das sind dann die absoluten Aha-Effekte, die mitunter mit „oh, das hätte ich so nicht erwartet“ kommentiert werden.

Letztendlich ist es ein sehr schönes und auch erfüllendes Gefühl, wenn man das Ergebnis der Zusammenarbeit als Teil von guten Ergebnissen der Unternehmen und der Start-ups wiederfindet.

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[English version]

To illustrate the work of intermediaries, we interviewed Dieter Büttenbender, who works as advisor for Mittelstand firms and start-ups.

Could you please introduce yourself and explain what led you to mediate collaborations between start-ups and family/Mittelstand firms?

Starting in the late 80s, after my studies with a focus on communications engineering, I worked for almost 30 years in companies with a high-tech portfolio. All companies were successful internationally and were partly run as family businesses. Innovation was an important factor for their success. I first came into contact with the start-up scene in 2006. At the time, the start-up scene was still in a very early phase in Germany. Today I act as an angel investor, an advisory board member, a founder, and occasionally as a mentor in programs supporting start-ups. The start-ups and established companies I support are located in Germany, Belgium, Finland, and Ireland.

In the course of my professional career and with my growing experience, the limitations of established companies became increasingly clear to me. This was especially the case for established companies that relied almost exclusively on the input and the ideas of internal product development departments for their innovation processes. I came into contact with the start-up scene while working at a corporate. Since then, I have been involved there as a "sparring partner" and gave the start-ups access to parts of my network.

Experiencing the corporate and start-up worlds simultaneously showed me established companies' lack of agility, focus, and determination to further strengthen their market position. I used to witness this a lot when I was supporting the collaborations between the corporate I worked for and the start-ups. Although both "entrepreneurial worlds" are obviously very different, they still have a lot in common. For instance, they are both pursuing entrepreneurial success. My experience from both business worlds has encouraged me to take up an orchestrating role as intermediary between start-ups and Mittelstand companies and, hence, to unlock the potential of collaborations.

How do you support collaborations between family/Mittelstand firms and start-ups?

In my role as an intermediary between established companies and start-ups, it is important to remain neutral. My goal is to reveal all the options arising from a collaboration in order to guarantee a "win-win" situation for both, the established company and the start-up. In the course of projects with companies, "lean start-up" methodologies are often used. In some cases, "only" support in translation is necessary: it indeed ensures that both worlds understand each other and it impedes the so-called "lost-in-translation" effect.

I support established companies in different areas:

- Identification of innovation areas in line with the corporate strategy
- Gap analysis on competencies and technologies – What is missing to unfold the innovation areas?
- Identification of possible technologies and ecosystem partners such as start-ups
- Initial collaboration in defined projects using "lean start-up" methodologies (such as the creation of Minimum Viable Products and the establishment of a build x measure x learn cycle, implementation of projects as Proof of Concepts, etc.)
- Definition of success factors – qualitative and quantitative KPIs
- Docking of innovation projects into operational structures
- Establishment of intrapreneurship in the company

My involvement in projects often aims at bringing in an external and fresh perspective in order to build up a momentum where companies are encouraged to "just do things." The goal is to ensure that the initiated changes in the company become self-runners, continuous innovation is being established, and ultimately, that my support is no longer required in the long-term.

What are the most typical mistakes that are made in a collaboration?

My observation is that established companies often do not share ideas at eye-level with start-ups and evaluate entrepreneurial success within the collaboration with the start-up only along success factors typical of established companies. Unfortunately, established companies often forget that the operational goals of their own business are different from those of a start-up. Indeed, start-ups are very focused and agile in their early phase as they need to identify the right target groups and users for their solution in the market.

Moreover, many established companies have the ambition to control start-ups at a very early stage of the collaboration process, although it leaves only limited room for development to the start-up. This ambition leads in some cases to the withdrawal of the start-up from the collaboration, which results in a negative outcome for both parties at the end of the day.

What are your recommendations for a successful collaboration?

The first step towards a successful collaboration with a start-up is to analyze the status quo. Indeed, it is important to understand where you stand as an established company and which growth and challenging areas need to be addressed. This should be directly related to the desired outcome of the collaboration and should be achieved prior to the start of the collaboration with the start-up.

Furthermore, it is key that the collaboration with the start-up is supported by all operational levels within the established company: sponsors within the management promoting and supporting the desired collaboration, as well as numerous protagonists within the company actively participating in the implementation of the project and driving initiatives to ensure the success of the collaboration.

It should be acknowledged that start-ups and Mittelstand companies are different. However, through a structured collaboration, new potential for both parties can be unlocked.

What makes your role in a collaboration particularly rewarding?

There are very often moments in which established companies and start-ups build up knowledge thanks to the collaboration. This is particularly the case when successful results arise from a joint activity based on an approach or methodology that they had never used before. This generates an absolute ‘aha-effect’ and is often commented as “oh, I would not have expected that.”

Finally, it is a very nice and fulfilling feeling when the collaboration contributes to the overall success of established companies and start-ups.

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Institute of Family Business and Mittelstand

The Institute of Family Business and Mittelstand at WHU (ifbm@WHU) is a pioneer in the field of family businesses and medium-sized businesses. We are a dedicated team of researchers and practitioners, studying various aspects of family businesses, hidden champions, and small and medium-sized businesses. For instance, our current research projects aim to deepen our understanding of innovation, leadership and employee satisfaction, succession, business ethics, and financing of family businesses and family offices. We continually discuss findings from our research and managerial implications with businesses in order to transfer and expand knowledge. Our goal is to positively influence family businesses and small and medium-sized businesses at regional, national, and international level.