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# BARRIERS FOR SMEs IN ADOPTING CROWDSOURCING

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**Abstract** Despite its undisputable benefits for firms, crowdsourcing is rarely applied in small and medium sized enterprises (SME), yet. Until today extant literature provides only an uncomplete picture of the barriers that hinder SMEs from adopting crowdsourcing. Because of these incomplete insights on this phenomenon there is a great deal of uncertainty on how to overcome these barriers all the more. In the scope of an interview series with 15 SMEs we explore a range of different barriers. The findings from our study do not only expand the so far incomplete body of knowledge but also provide practical references for SMEs to be aware of the barriers. This simplifies avoiding them and successfully adopting crowdsourcing.

**Keywords:**

SME,  
crowdsourcing,  
crowdworking,  
barriers,  
challenges.

## 1 Introduction

Crowdsourcing is flourishing. As of today, especially large companies benefit from crowdsourcing. Crowdsourcing is the process of outsourcing tasks to an unknown mass of people via the internet (Howe, 2006; Majchrzak, 2020). It enables organizations to get external support for different value creating activities. For example, Starbucks applied crowdsourcing for their new product development (NPD) (Hsiang & Rayz, 2020). They were asking the crowd for ideas to improve the experience at the coffee place. For more than 10 years Starbucks customers (representing the crowd) were called to upload their improvement suggestions to a platform called “*MyStarbucksIdea.com*” (Hsiang & Rayz, 2020; Bretschneider, Leimeister, & Mathiassen, 2015). This way, splash sticks (which keep to-go drinks in the cup), new coffee creations and free store Wi-Fi were introduced (Hsiang & Rayz, 2020). Another example involves PepsiCo, who applied a crowdsourcing strategy for their marketing activities. PepsiCo was running several crowdsourcing campaigns, called “*Do Us a Flavor*”, for its potato chips brand “*Lay*” (Sanz-Blas, Tena-Monferrer, & Sánchez-García, 2015). Different new potato chip flavors were handed in by individuals. To identify the most popular ones, the crowd could vote on their preferred suggestion(s). After the campaign was completed, PepsiCo brought the three most popular flavors to the market (Sanz-Blas et al., 2015).

Despite its increasing recognition, dissemination, and success in larger organizations, crowdsourcing is rarely applied in small and medium sized enterprises (SMEs) (Mrass and Peters 2017; Qin, van der Velde, Chatzakis, McStea, & Smith, 2016). This observation is surprising since adopting crowdsourcing seems to be particularly worthwhile for SMEs. In general, SMEs are known for having limited manpower for completing tasks that are outside their core competences (Erickson, 2012; Nakanishi & Syozugawa, 2021). Thus, crowdsourcing provides great potential to reduce employee’s workload. Further, SMEs are discussed to have less bureaucracy and shorter decision-making processes (Brien & Hamburg, 2014, 62), which per se is attractive for applying crowdsourcing.

Until today, crowdsourcing scholars have only insufficiently researched the reasons why SMEs are shy of applying it. Existing literature provides an uncomplete picture of the barriers that hinder SMEs from adopting crowdsourcing (Qin et al., 2016).

Because of incomplete insights on barriers, there is also great uncertainty on how to overcome them (Qin et al., 2016).

Against this background, the aim of this paper is to identify and describe barriers that SMEs face when applying crowdsourcing. The underlying research question is as follows: *RQ*: “Which barriers hinder SMEs in adopting crowdsourcing in their value creation?”

For exploring the barriers, we applied a qualitative research approach. We interviewed 18 representatives from 15 SMEs. The findings from our study do not only expand the so far incomplete body of knowledge, but also provide practical references for SMEs to overcome the barriers and to adopt crowdsourcing for their value-creating activities.

## 2 Theoretical Background

### 2.1 Crowdsourcing and Crowdworking

In this paper we define *crowdsourcing* as the execution of contracting out a task to an anonymous group of people via the internet. This definition is *inter alia* in accordance with Nakanishi and Syozugawa (2021), Blohm et al. (2013), Estellés-Arolas and González-Ladrón-de-Guevara (2012) and Afuah and Tucci (2012).

The task given to the crowd can be remunerated or non-remunerated (Blohm et al., 2013; Kittur et al., 2013). Crowdsourcing is characterized by no monetary remuneration. In some cases, the crowd receives freebies when they are solving a task. In most instances the crowd is not compensated as they are intrinsically motivated and enjoy contributing to an organization’s value creation (Estellés-Arolas and González-Ladrón-de-Guevara, 2012). Whenever a task is remunerated, one is talking about *crowdworking*. Crowdworking is a subcategory of crowdsourcing (Durward, Blohm, & Leimeister, 2016). The crowdworking concept differs from crowdsourcing in that a task is outsourced to an individual and not to several people. A precise task description is uploaded to a fitting platform and crowdworkers willing to conduct the job need to apply for it. Thereafter, the organization is screening potential contractors and selects an individual. After the selected crowdworker has completed the task and the contracting organization is satisfied with the task handed in, the crowdworker receives the in advance defined remuneration. Thus, in the

context of crowdworking, individuals are extrinsically motivated and have the goal of creating income via online labor platforms (Durward et al., 2016). Durward et al. describe crowdworking as “*digital gainful employment based on crowdsourcing*” (2016, 283).

In the context of crowdsourcing and crowdworking, one differentiates between micro and macrotasks. Micro tasks cover parts that are repetitive and can be done without a certain set of skills (Gol, Stein, & Avital, 2019; Stefano, 2015). Completing surveys, tagging images, testing webpages, or training an artificial intelligence are common microtasks. These assignments are easy and clear to describe, they can be completed within a short period of time and do not require certain qualification. Due to higher complexity, macrotasks often require skilled workers. When conducting macrotasks, the crowd gets greater insights into the entire project. This is necessary to conclude the job. These macrotask campaigns are often announced for new product development projects, for designing logos and advancing new product development (Majchrzak & Malhotra, 2013; Boons & Stam, 2019). Organizations can benefit from handing out macrotasks to a crowd as this process supports generating external knowledge and promotes idea and innovation creation (Ricardo Buettner, 2015; Gol et al., 2019; Margaryan, 2016).

For bringing the crowd and the organization together, platforms with different focusses act as an intermediary. Some platforms specialize on crowdworking, others focus on crowdsourcing. Also, platforms differ contextually. While some focus on clicktasks, others aim attention at design tasks and small development tasks. Well known platforms for clicktasks, are clickworker and Amazon Mechanical Turk. A popular platform for macrotasks is Upwork. Any communication between the organization and the individual/crowd occurs via the platform through which all work processes and activities are managed (Kittur et al., 2013).

Recently crowdsourcing has often been referred to as on-demand workforce or as a form of online labor (Taylor & Joshi, 2018) with high economic potential (Fuller, Raman, Bailey, & Vaduganathan, 2020). According to Fuller et al., “*almost 90% of business leaders reported talent platforms would be somewhat or very important to their organization’s future competitive advantage*” (November 2020, 2).

## 2.2 SMEs in Germany

With over 95% of all companies in Europe and over 99% of all companies in Germany (European Commission, 2015), SMEs present an important building block for the European economy.

According to the European Commission, SMEs are organizations that “*employ fewer than 250 employees and have either an annual turnover not exceeding 50 million Euro or an annual balance sheet total not exceeding than 43 million Euro*” (European Commission, 2015). If these values are exceeded, the organization is defined as a large organization. According to Becker and Ulrich (2009) those quantitative categories only present approximate values to identify SMEs. Common qualitative categories to classify organizations into SMEs include “(1) *the company’s economic and legal independence, (2) the unity of ownership, control, and management as well as (3) a close link between the company and its owners*” (Hausch, 2004, 15).

According to Berrone et al. (2012), the SMEs employees’ personal commitment, their company loyalty (Miller & Le Breton-Miller, 2006) and the firm’s high innovation potential make themselves to candidates for successfully introducing digital transformation and new ways of working such as crowdsourcing and crowdworking. Low hierarchy levels, short decision making paths and flexibility are further characteristics that distinguish SMEs from larger organizations. Due to less employees the organization chart within SMEs is less complex and there are fewer hierarchical levels than there are in large organizations. All these conditions theoretically simplify adopting crowdsourcing in organizations. However, introducing changes and new ways of working in SMEs can be challenging. Developing and building up capabilities for those changes presents additional effort for traditionally oriented organizations (Soluk & Kammerlander, 2021; Nambisan, Lyytinen, Majchrzak, & Song, 2017; Sambamurthy, Bharadwaj, & Grover, 2003; Yoo, 2013). SMEs often associate such alterations with additional costs and effort. Thus, they do not perceive crowdsourcing as suitable for everyday use (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007). Furthermore, SMEs do not associate long-term benefits such as sustainable competitiveness by exploring new horizons in the digital environment (Soluk, Miroshnychenko, Kammerlander, & Massis, 2021).

### 3 Methodology

To identify barriers that SMEs face when introducing crowdsourcing, we conducted 15 open interviews with 18 site managers, managing directors and CEOs from different industries. With this data collection approach and according to recent research, we reached meaning saturation (Hennink, Kaiser, & Marconi, 2017). Most of the interviewed experts come from the production industry, the mobility industry, and the metalworking industry. To identify our interview partners, we sent out a survey to 30 SMEs from various industries. For the dialogues, we approached those firms that indicated being interested in introducing crowdsourcing in the survey. During the interviews we asked them to freely explain their personal attitudes, values, beliefs, and views on crowdsourcing. To allow an extensive interaction with the interviewees and to uncover unexpected or unanticipated information, we carried out the interviews as unstructured as possible (Schultze & Avital, 2011). Because of the uncertain pandemic situation during the data collection period, nine of the interviews were conducted via video or telephone conference. The remaining six were carried out on site of the relative organization. The discussions lasted between 60 and 100 minutes; we recorded them with prior consent.

In line with Strauss and Corbin's grounded theory approach, we involved new insights and discussion questions that developed throughout previous interviews (Charmaz, 2014). During the conversations, we started with general questions about the company, the interview partner, and their experience with crowdsourcing and crowdworking. In the main part of the interview, we investigated current barriers that SMEs face when applying crowdsourcing. We asked the interlocutors about reasons for their reluctance and challenges for not implementing this new way of working. In the final part of the interview, we gave them the opportunity to share anything with us that was not mentioned yet.

After conducting and transcribing the interviews, we started rereading all statements. This allowed us to cluster the different phenomena that we identified based on the open coding procedure. After clustering, labelling, and conceptualizing the different phenomena, we added a label to each of the clusters (Strauss, 1997). The resulting codes presented the basis for the axial coding process, in which we grouped similar codes. For each of the codes we identified a category (= heading). Interlinking those

categories allowed us to phrase theory building blocks for the analyzed research question (Strauss, 1997).

## 4 Findings

The **first barrier** that SMEs are confronted with when applying crowdsourcing is the risk of quality issues induced by the crowd. While SMEs want the crowdsources/crowdworkers to provide high-quality solutions at low prices, the crowdsources/crowdworkers want to complete the job as fast as possible and with at least effort as possible (*“With the salaries paid to the crowdworkers, it is not surprising that they want to complete them as fast as possible.”*, interviewee 6). Besides, the interviews show that the credibility of documents uploaded to the platform is lower than a certified copy attached to a conventional application (*“Having a job reference on paper is different from mentioning it online that you worked for Volkswagen, Mercedes or whomever.”*, interviewee 2, *“I needed to check the qualifications of the people that work for me.”*, interviewee 4).

Two interviewees stated that in case of poor-quality products or services SMEs might face image losses, lawsuits, and complaints. Depending on the extent, poor delivered quality products or services can drive SMEs into insolvency. As the contracting authority enters an agreement with the online labor platform and the online labor platform enters an agreement with the crowdworker(s), SMEs have limited legal claims against them (Gimpel et al., 2020; interviewee 4).

Since the crowd (including crowdworkers) do not enter a contract with SMEs, they have limited claims against them. This entails that SMEs are liable for poor quality products or services that are delivered to the customers (*„The lack of responsibility on the client’s side is often criticized, but when advocating minimum wages for crowdworkers, one has to take into consideration that both sides have very few obligations.”* (Schmidt, 2017b, 16)).

The **second barrier** that we identified is the management’s reluctance towards crowdsourcing, including crowdworking. Managing directors of SMEs are often experienced executives. Because of their traditional ways of doing business, they prefer to hire permanent employees over crowdworkers (*“Of course, in a traditional company, for instance a 150-year-old company, a CEO won't be in a situation of cost pressure. Therefore, he would rather hire someone fulltime instead of dealing with [a platform provider such as] Textbroker.”*, interviewee 9). In the context of implementing new forms of labor,



interviewees see a time-consuming effort of coordinating crowdworkers. The interviewees fear that the coordination effort is more time intensive than doing the job themselves (“*then I need to do the work twice. As soon as I signed [the transmittals] I am the one that needs to make sure that the transmission is safe. If it's not safe, then I need to recalculate it. That means that I don't economize anything.*”, interviewee 8). Delivered solutions by crowdworkers with uncertain skills and qualifications require intensive quality evaluation by internal employees (interviewee 6). Having heard about negative incidents such as underestimating the required coordination effort and “*facing something new*” hinders managers of SMEs from introducing crowdworking (interviewee 10).

As many SMEs are offering specialized goods and services, the interlocutors perceive it as difficult and “*in some cases [as] impossible*” to find an appropriate crowdworker (interviewee 5). Projects and tasks that require specific knowledge are not suited for being handed over to a crowdworker (interviewee 4). Losing the identity of a SME by introducing crowdsourcing and crowdworking is a further concern that managers have. This phenomenon is known as the “*not invented here syndrome*” (interviewee 14, 15). The “*not invented here*” and “*not sold here*” syndromes describe the aversion against ideas that were developed externally (Dubouloz, Bocquet, Equey Balzli, Gardet, & Gandia, 2021, 116).

The **third barrier** that SMEs face when establishing crowdsourcing and crowdworking is the employees' reluctance. New ways of on-demand work force models contradict the close personal relationships that colleagues in SMEs have (“*Our staff is more than just employees. They are part of a family like network*”, interviewee 11). Having external workers taking part in everyday business increases the pressure and competition between permanent employees and crowdworkers (“*That means you become an internal freelancer, so to speak, and that's sometimes not nice when working, because you are seen differently. You are no longer perceived as an essential component in terms of appreciation.*”, interviewee 8).

The **fourth identified barrier** is the increased risk of losing sensitive information when applying crowdsourcing and crowdworking. SMEs' secrets and their sensitive information are often protected with patents, trade secrets or copyrights. These copyrights on an invention are extremely relevant for the SMEs' value creation; many of these firms have been successful with the same or a further developed

business model since their founding (“*We cannot hand over tasks that require certain knowledge of our internal affairs.*”).

The **fifth barrier** that we identified is the coordination effort that comes along with crowdsourcing. Before the crowd overtakes a task, an appropriate group and a suitable platform needs to be identified. After having determined both, a precise task description is written (“*You need to know how to ask questions correctly and understand them accordingly. It's always a question of what you write and how others understand it.*”, interviewee 12; “*Yes, complex tasks need to be described more detailed than simple tasks*”, interviewee 1).

As soon as the crowd has completed the task, submitted solutions need to be screened. Gathering and evaluating these answers is time-consuming and presents additional effort for SMEs (“*As an SME, we are busy with our tasks. I need the crowd to do the work for me and I don't have the capacity to control and coordinate them permanently.*”, interviewee 1). Whenever crowdsourcing is practiced, it is important to “*ensure that the quality management system established in the company is also applied [...] by the crowd*” (interviewee 15). Getting hired for different projects and by different organizations makes it impossible for the crowd to familiarize themselves with the internal processes and quality expectations of different firms (interviewee 2, 13, 14, 15). Kickoff meetings which are identified as substantial in project management cannot be implemented if the crowd is overtaking certain tasks (“*In practice, I ideally have a kick-off in which all participants or project/planners, programmers are meeting. That facilitates being on the same boat from the beginning of the project on*”, interviewee 1).

The **sixth barrier** that SMEs face when introducing crowdsourcing is their specific requirements. These requirements include quality and legal standards which are extremely relevant for SMEs following a niche or a one product strategy. Companies that generate their sales with one or a few products are under greater pressure to deliver highest quality standards. It is necessary for meeting the few customers' specific expectations. Poor delivered quality can lead to losing the few customers and, in the worst case, it pushes SMEs into an existential threat. As large companies are more diversified in terms of products and have more clients, they have a higher chance to continue their business in case they lost one or more clients due to quality flaws.

Next to the higher risk that SMEs have when delivering insufficient quality, legal guidelines are highly complex in the SMEs' environment. Getting familiar with those specifications takes time. Therefore, it is clear for interviewees that certain tasks cannot be outsourced to the crowd (*„I can't just handout certain tasks to someone who has a good idea, but they also have to know and understand the industry specific rules and quality requirements.“*, interviewee 5, 11, 13).

## 5 Analysis and Discussion

After having presented the barriers that SMEs face when introducing crowdsourcing, we will now explain the barrier categories through specific characteristics of SMEs. Thereby we follow a clearly structured theoretical logic as well as point out the barrier categories through generic management theories.

The **first barrier**, the risk of quality issues induced by the crowd, can be explained by the principal agent theory and the associated information asymmetries. The principal (in our case the crowdsourcer = SME) and the agent (in our case the crowdsourcee/crowdworker) have conflicting interests as both are acting according to their own best benefit (Sappington, 1991). It brings the crowdsourcers (= principal = SME) in an underprivileged situation as crowdsourcee/crowdworker (= agent/s) do focus on completing the task as fast as possible.

As SMEs generally follow a niche or a one product strategy, their business depends on few customers (Santoro, Ferraris, Giacosa, & Giovando, 2018). A faulty and substandard performance of tasks that lead to quality issues can contribute to existential threats for SMEs (Raymond & St-Pierre, 2004). Potential risk failures have greater existential consequences for the analyzed organizations than similar defects can have for large companies (Qin et al., 2016). This is why interviewees fear redoing tasks executed by the crowd due to lack of quality (Qin et al., 2016; interviewee 3, 4, 7). Such a scenario presented double the workload and thus crowdsourcing loses its attractiveness (Qin et al., 2016; interviewee 4).

The **second barrier** covers transaction costs and the management's reluctance towards crowdsourcing. Because of their traditional and conservative mindset, many SMEs have little interest in innovation, new organizational forms, or novel work approaches (Morck & Yeung, 2003; Gómez-Mejía et al., 2007, 134). Their

mistrustful perspective on digital technologies intensifies the unwillingness to engage with digital initiatives (Soluk & Kammerlander, 2021). This hesitation impedes crowdsourcing and crowdworking in SMEs (interviewee 15). Besides, managers fear that crowdworking does not fit into the organizational structure (Berrone et al., 2012, 269). According to Qin et al. (2016), managers “[have a] (1) lack of awareness of crowdsourcing systems and applications, (2) fear changing established business models, (3) [have] trust and confidentiality issues in the open and digital environment, and (4) [they] lack appropriate and flexible platforms that meet the contextual, relational and situational needs of SMEs.” (1062). Unawareness and low likelihood of diversifying technologically (Berrone et al., 2012, 260) are further reasons for managers’ reluctance towards crowdsourcing in SMEs. Strategies and approaches need to be identified to make on-demand work force more attractive.

The **third barrier** (the employee’s reluctance) is characterized by intra-organizational relationships among employees. These relationships are more important than in larger companies as the family-like connections are essential for a company culture of SMEs (Kmecova & Tlustý, 2021). When new ways of flexible working are implemented, permanent staff fear losing their job and the positive working atmosphere (“*In general, it can be said that the extreme competition between the individuals in the creative crowd can cause a toxic work climate.*” (Schmidt, 2017b, 18)). As Berrone et al. identified in 2012, social emotional wealth (SEW) plays an important role in family possessed firms (“*it [the SEW] accounts for nonfinancial aspects, and it contemplates both positive and negative consequences of these noneconomic aspects.*” (Berrone et al., 2012, 274)). A SEW describes the firm’s values and goals which they have apart from maximizing value creation. Examples for those values are “*family control and influence, identification of family members with the firm, binding social ties, emotional attachment of family members, and a renewal of family bonds to the firm through dynastic succession.*” (Berrone et al., 2012, 259). Those dimensions are in the core of a family’s business model and their decisions (“*family firms’ sense of belonging, self, and identity are often shared by nonfamily employees, promoting a sense of stability and commitment to the firm*” (Miller & Le Breton-Miller, 2006; Berrone et al., 2012, 263)).

Employees anticipate that family firm’s core values get lost as soon as the crowd overtakes tasks. Stringent control of the crowdsourcee’s and the crowdworker’s performance contradicts the SEW and the low hierarchy within SMEs (“*Performance is directly and closely controlled through a so-called work diary: a software tool periodically takes*

*snapshots of the [crowd]workers' computer screens or counts the keystrokes'* Kittur et al., 2013). The ability of taking advantage of absorptive capacity puts organizations in a situation in which they are flooded with solutions and ideas (Cohen & Levinthal, 2008). It necessitates to screen all the ideas to evaluate their value for the organization. Not being able to filter the best ideas hinders SMEs to benefit from the absorptive capacity. Absorptive capacity is “[the] ability to recognize the value of new information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 2008, 128). According to Raymond and St-Pierre not including novel concepts submitted in by the crowd can lead to “*over-specializing their [the SME's] firm and neglecting its development and adaptation required to survive and prosper in the longer term within an ever-changing business environment*”, (Raymond & St-Pierre, 2004, 25).

The increased risk of losing sensitive information (**fourth barrier**) is especially threatening for SMEs as patents are extremely relevant for the SMEs' value creation; many of these firms have been successful with the same or a further developed business model since their founding. Other than bigger organizations, SMEs often follow a niche strategy and thus their existence depends on one or a few products (Maleewat & Banjongprasert, 2022).

The **fifth barrier** that we identified is the coordination effort that comes along with crowdsourcing. As especially SMEs have skills shortage, they cannot make use of absorptive capacity since they do not have the resources for sighting and evaluating all solutions handed in by the crowd. Absorptive capacity refers to the ability of a recipient to assimilate value and use the knowledge transferred (Cohen & Levinthal, 2008). Even though crowdsourcing has great potential for SMEs to get external knowledge and a great variety of ideas, the interviewees and literature agree that „*not every job can be outsourced to the crowd*“ (Schmidt, 2017a, 23; interviewee 2, 4, 14).

The **last barrier** identified is the firm's specific quality and legal requirements. This finding gets supported by Greineder and Blohm who emphasize that crowdsourcing “*is not only about evaluating the output but also about carrying out secondary tasks such as finding errors, identifying duplicates and providing targeted feedback.*” (2020, 12).

## 6 Conclusion

### 6.1 Contribution to Theory and Managerial Implications

This research offers both academic and practical value. As it concerns the academic value, our research contributes to the body of knowledge on crowdsourcing and crowdworking. Although scholars are looking at this phenomenon for many years now, research on barriers of SMEs adopting crowdsourcing is still in its infancy. Qin et al. (2016) are one of the rare scholars who researched this phenomenon. For example, Qin et al. (2016) identified „*unawareness of tools/models*“ as well as „*no appropriate platforms*“ as barriers that hinder SMEs from adopting crowdsourcing. However, these insights solely cover the technical view on the phenomenon. At large, extant literature so-far only provides an uncomplete picture of the phenomenon of interest. Against this background, our findings cover the managerial and organizational perspective of crowdsourcing and therefore expand the body of knowledge by presenting additional perspectives. This study also provides validation of two specific barriers that already have been partially identified by Qin et al. (2016). In their work Qin et al. (2016) propose „*internal culture*“ as well as „*trust/confidentiality issues*“, which correspond with our „*Employee’s Reluctance*“ (third barrier) respectively „*Risk of Quality Issues*“ (first barrier) barriers. Beside the mentioned validation our findings even constitute a refinement of the first work by Qin et al. (2016).

### 6.2 Limitations and Further Research

Our study provides a broad insight in barriers that German SMEs currently face when introducing crowdsourcing. Besides, we empirically developed barriers that SMEs hinder from implementing crowdsourcing. The basis for our results is 15 conducted interviews with 18 representatives from different industries. One limitation of our study is that we only interviewed managers and department heads but did not talk to the workers who play an important role in implementing crowdsourcing. In a second step, their perception could be compared to our findings and discrepancies could be developed. The interviews that we conducted with managers allowed us to get an overarching overview of company related, employee related and management related barriers for introducing crowdsourcing in SMEs. A

longitudinal study with employees might reveal other or additional valuable insights with respect to the identified barriers.

A second limitation is that we focused on SMEs in one country. Only focusing on SMEs in one country ensures a high comparability of the findings. This is because structures and challenges in SMEs within one country are alike. Taking our study and results as a basis and conducting the same investigation in other countries increases the results' generalizability. Country specific barriers can be identified.

A third limitation is that we interviewed representatives from different industries. This gave us the opportunity to get a brought inside into current challenges and barriers that SMEs in different industries face. At the same time, it would be interesting to identify which industry specific hurdles exist. Our study does not have a focus on industry specific barriers and thus our results are more brought. In future research these industry specific difficulties can be detained, and specificities be compared.

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