

UNIVERSITY-SME COLLABORATIONS

When and why businesses want to be involved



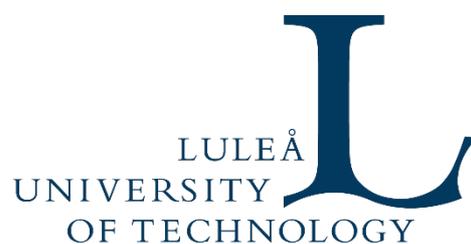
LULEÅ
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When and why businesses want to be involved

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NorrlandsNavet is a center for business development in northern Sweden in collaboration between The Kamprad Family Foundation for Entrepreneurship, Research & Charity and Luleå University of Technology.

The study presented in this report was conducted by the authors as part of a project within NorrlandsNavet. The authors are thus responsible for the study design, methods, findings, and conclusions drawn in this study.

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SUMMARY

Universities are increasingly investing resources into third mission activities, where they share and exchange knowledge with public/private partners and the surrounding society. As a result, there is also an increase in available collaboration opportunities, especially those targeting small- and medium-sized enterprises (SMEs). With the increasing focus for universities to build collaborative relationships with SMEs there is, however, a scarce understanding of what would make SMEs interested in engaging in collaborative relationships with universities. Drawing on interviews with SMEs, this report identifies when and why SMEs want to be involved in collaborations with universities. The identified reasons are related to perceptions about how relevant, valuable, and efficient the collaboration would be for the SME. This report identifies factors that increase the perceived relevance, value, and efficiency of collaboration for the SMEs, and hence, result in a positive attitude towards and interest in collaboration. The report concludes with recommendations for leaders and coordinators of university-SME collaborations. The key value of this report lies in giving SMEs a voice by expressing their preferences for collaborations with universities.

CHAPTER 1

INTRODUCTION

With an ever-increasing pressure on universities to transfer and exchange knowledge with businesses (Benneworth et al., 2015; Compagnucci & Spigarelli, 2020), more and more collaboration opportunities are starting to emerge (Schnurbus & Edvardsson, 2022). Universities are receiving more of the public and private funds to increase a number and quality of collaborations with businesses (Arocena & Sutz, 2016; Göransson, 2016), usually those within the same region (Apa et al., 2021). Meanwhile, local businesses are continuously trying to preserve the resources they possess, therefore making engagement in collaborations with universities a well thought through decision (Gimenez-Fernandez et al., 2020; Papazu, 2021).

Small- and medium-sized enterprises—hereafter SMEs¹ (EC, 2022)—are particularly prone to disregard collaboration opportunities that universities offer for two main reasons: 1) for the sake of keeping their business afloat, they cannot afford to allocate resources to anything other vital operations (Gimenez-Fernandez et al., 2020), and 2) being constantly “in the field”, they tend to believe that knowledge possessed by universities can be rather outdated and hardly practical (Spithoven et al., 2013). That said, SME-university collaborations do occur and have sparked scholarly interest in investigating the topic. Numerous studies examined these collaborations (commonly post-factum) in a pursuit of crafting a formula of success (commonly measured in terms of innovation output) (Chau et al., 2017; Jones & Corral de Zubielqui, 2017; Suh et al., 2019). It has been found that successful university-SME collaborations are those that build upon tailored offers (Atta-Owusu et al., 2021), long-lasting relationships (De Silva & Rossi, 2018), and mutual trust (Darabi & Clark, 2012; Darabi et al., 2020). Although the literature on success factors of actual collaboration is quite extensive, there is scarce understanding of what would make SMEs perceive such collaboration opportunities appealing in the first place. Therefore, in a pursuit of enriching the existing knowledge on university-SME collaborations with novel insights, the authors of this report conducted an empirical study featuring 30 Swedish SMEs and, based on the findings, outlined a number of recommendations to collaboration leaders and coordinators.

¹ SMEs are defined as enterprises that employ fewer than 250 persons and that have an annual turnover not exceeding EUR 50 million or an annual balance sheet total not exceeding EUR 43 million.

CHAPTER 2

UNIVERSITY-SME COLLABORATIONS

Over the course of the recent decades, universities around the world are increasingly expanding their traditional dual mission, which consists of teaching and research, to what is commonly referred to as university's third mission (Sam & van der Sijde, 2014). This mission is broadly focused on university's engagement in interactions with various non-academic stakeholder groups to both transfer and exchange knowledge (Compagnucci & Spigarelli, 2020) as well as promote entrepreneurial skills (Guerrero et al., 2015). The spectrum of possible activities that fall under this mission is quite expansive, with anything from PhD research projects (Hellström et al., 2013) to university spin-offs (Mariani et al., 2018) commonly seen as means for universities to contribute to regional development (Breschi & Lissoni, 2001; Salomaa, 2019).

Businesses located in a proximity to universities are one of the key target groups for university's third mission activities (Atta-Owusu et al., 2021; Bruneel et al., 2016). By engaging in collaborations with universities, these businesses cannot only improve their competitive advantage—through product development and innovation (Laursen & Salter, 2004; Perkmann & Walsh, 2007)—but also create a more prosperous environment—through job creation and community building (Agasisti et al., 2019). SMEs are viewed by universities as crucial collaboration partners due to their embeddedness in and impact on the local community (Duong et al., 2022; Klofsten et al., 2019; Petersen & Kruss, 2021).

In order for these third mission collaborations to reach desired outcomes—such as knowledge exchange for universities and innovation for SMEs—a number of collaboration success factors are outlined in the existing literature (Apa et al., 2021; De Silva et al., 2021; Gibson et al., 2019). First, collaborations tailored to the needs of both the involved parties show higher chances of bringing fruitful results that not only meet but also exceed the initial expectations (Bellandi et al., 2021). For universities to fulfil this criterion and offer collaboration opportunities that fit SMEs' current state and future directions, surface level understanding of the company's size and industry is not sufficient (Fernández-Esquinas et al., 2016). What is, however, needed is a continuous dialogue between universities and SMEs where each party will not only fully understand each other's possibilities and limitations

(Chau et al., 2017; De Silva & Rossi, 2018; Fernández-Esquinas et al., 2016) but also set actionable expectations (Bellandi et al., 2021). Second, by establishing long-lasting relationships, both parties, throughout time, build better understanding of each other's organizations, processes, and goals, ultimately making collaborations more fruitful and reoccurring (Chau et al., 2017). The element of having long-lasting collaborations over those occurring on a short and fixed timeframe is especially beneficial for both the parties involved (De Silva & Rossi, 2018). Since the conditions tend to change as the time goes by, the parties are able to draw upon each other (by using each other's resources) in both favorable and unfavorable conditions, making the overall perception of the collaboration more beneficial and, overall, more successful (Apa et al., 2021). Third, scholars highlight the importance of building mutual trust between collaboration partners. The literature widely discusses how interpersonal relationships, that entail mutual trust, are beneficial for both the parties involved, especially in the context of collaboration efficiency (Gibbons & Henderson, 2012). Through trust, both parties, and particularly SMEs, are able to be more open and honest about their company's ongoing and foreseeable challenges (Chau et al., 2017). This openness, in turn, allows the partner university to make more targeted contributions to SMEs' development and growth.

Notwithstanding the importance of the aforementioned collaboration success factors for designing and executing SME-university collaborations, research remains largely unclear what is useful for attracting SMEs to be interested and engage in universities' third mission collaboration offers in the first place. Even though existing research previously looked into both determinants and outcomes of university-industry collaborations, those have almost exclusively captured the *universities'* side of view (Perkmann et al., 2021), leaving SMEs' perspective with disproportionately low attention. By shedding light on this knowledge gap, this report aims at enriching the existing literature (this of both theoretical and practical purposes) on SME-university collaborations by gaining a better understanding of *SMEs'* attitudes toward collaborating with universities.

SMEs' ATTITUDES TOWARD COLLABORATING AN EXPLORATIVE STUDY

The following study was conducted by the authors of this report as part of a project within NorrlandsNavet². The study was performed in the context of two northernmost regions of Sweden (Norrbotten and Västerbotten) where each has a university. The results are drawn from 30 interviews conducted with local SMEs with varying experiences of collaborating with universities, some have collaborated for many years, some occasionally, and some never. More information about the study is available in the Appendix.

3.1 What makes SMEs perceive collaboration with universities as relevant?

When being exposed to a broad range of different collaboration opportunities, and specifically those proposed by universities, SMEs evaluate whether certain opportunities are of more relevance to them than others. Thus, relevance in this case is referred to SMEs' perception of whether any particular collaboration opportunity is worth having a closer look at as it displays some hints of how and why a proposal is interesting to a particular SME.

3.1.1 Collaboration embedded in established structures

Established organizations (that are also familiar to SMEs) are among those mechanisms that can either facilitate or hinder collaboration occurrence, mainly due to their information filtering function. A substantial number of the entrepreneurs interviewed work in micro-enterprises, where all the company's operations rely on just a few individuals. As such, resources that could be allocated to monitoring collaboration opportunities are limited. There are, however, several governmental (e.g., municipalities) and non-governmental (e.g., tourism and hospitality associations) organizations that provide support to these SMEs through, among other things, sharing collaboration opportunities, which they accumulate in newsletters and distribute among businesses. One informant exemplified how efficient hospitality organizations are when bringing relevant information on potential collaboration opportunities to businesses:

² NorrlandsNavet is a center for business development in northern Sweden in collaboration between the Kamprad Family Foundation for Entrepreneurship, Research & Charity and Luleå University of Technology.

[In last week's newsletter] I saw that universities have a seminar [on our topic of interest]. It came from [the hospitality organization] because that organization works for all [the companies within the hospitality industry] in the region. They are good with bringing us information.

Another informant implied that collaboration-related opportunities will probably not reach her when sent through channels other than those established between her and her business and tourism organizations: "[Only] if I read [about a university's collaboration opportunities] through the newsletter from the [tourism organizations], then they will reach me". As an alternative to newsletters, informants mentioned other ways that business support organizations can bring them information about relevant collaboration opportunities, but also create an arena to meet with potential collaborators such as universities. The following informant exemplified this by suggesting that an annual/biannual event could be a good meeting place for universities and companies:

[All the businesses within the tourism industry] usually gather once or twice a year [at an event organized by the tourism organization]. Maybe if [the university] would like to reach a lot of people [and] get everyone's attention, there could be something where [the tourism organization and a university] find a way to cooperate and present [collaboration opportunities].

Regardless of whether messages about relevant collaboration opportunities are received verbally (e.g., at events) or non-verbally (e.g., through newsletters), they are communicated through familiar and established information channels (i.e., organizations) which gives informants a sense of confidence in the universities and collaboration opportunities that they offer.

3.1.2 Track record of SME collaboration

Universities that accumulate and further spread information about their previously successful collaborations with the industry, and particularly SMEs, have a higher chance to attract more SMEs to engage in collaborations. Most businesses with no experience collaborating with universities emphasized that communications about collaboration opportunities are deemed more appealing when they incorporate exemplar cases that showcase successful past collaborations. Otherwise, it can be challenging to envision what such collaborations might entail. One informant described this by mentioning case studies as a way for universities to illustrate prior collaborations:

[Universities] could lift the opportunities [by showing] good examples and case studies. It is always interesting to exemplify how you could collaborate, and I think it is difficult for companies to know what collaborations could be about.

Another informant reflected on highlighting successful cases in which participating companies were happy with the results brought to them through collaborations with universities:

One good thing can be that if [universities] have done some collaborations that have been successful with some companies, [these examples] can [be] used in promotional materials. Maybe [universities] have some collaborations with some companies that can [be] highlighted because they have been successful, and companies have been very happy with the collaboration and that gives you also something to highlight.

In conclusion, showcasing relevant exemplar cases that incorporate information about previous topics and success stories of companies that benefited from such collaborations stimulates other businesses to consider engaging. This is especially true in cases when these exemplar cases are sent through established channels (i.e., organizations) with which SMEs are familiar and in which they trust. One explanation for this lies in the increased confidence that these established structures have. They want SMEs to succeed, and if such collaborations with universities were beneficial for other businesses, there are strong prospects that their company might also benefit.

3.2 What makes SMEs perceive collaboration with universities as valuable?

In a rapidly changing world with an abundance of different opportunities, it is no wonder that everyone needs to set priorities and filter, for example, collaboration opportunities that come their way. When it comes to small businesses, where every available resource is of vital importance for company's operations and, thus, survival on the market, engagements in anything other than critical business operations is not possible, unless such an engagement can bring value to the company.

3.2.1 Value creation for SMEs

In an abundance of all the possible engagements, small businesses have no other choice but to make priorities and thought-through choices for what would be worth their resource investment, mostly based on how valuable proposed engagements are for their business. The majority of informants mentioned benefits that are specifically relevant to their companies as one of the main deciding factors for engaging in collaborations with universities. It is not surprising that companies that experience extremely scarce resources would expect a specific return on their resource investment. Of particular interest, however, is that these benefits might not necessarily be monetary. That is, companies do not necessarily expect universities to pay them for collaborating. At the same time, they want

these collaborations to eventually yield some monetary value so they can cover everyday expenses and grow their companies. One informant described this in the following way:

If we are in some kind of project, we are putting in much time [into it], and we need to get something back from it because we need to earn money to pay our rent and our staff salaries and so on. [. . .] There must be something in it for us.

Similarly, another informant reflected on how the quality (i.e., tailored benefits) of collaboration takes precedence over quantity (i.e., several different collaboration opportunities), while also referring to limited resource availability:

I see [collaboration opportunities] every now and then. It's a lot of buzz around, so you need to be very, very strict on what you choose to go into. But, if it's a tailor-made thing [. . .], then it could be interesting.

Considering companies' scarce resources, communications that reflect benefits that are specifically valuable to the companies are essential for interaction occurrence and longevity. In cases when universities are clear on communicating tailored benefits and when they appoint engaged collaboration coordinators, companies see gains rather than losses from allocating resources to such collaborations.

3.2.2. Competence access

When resources are scarce and a need for quality knowledge is high—when, for example trying to design and/or develop a business process—small businesses seek competence. Informants view universities as a place where new skills, abilities, and knowledge are developed to solve current and future business challenges, and they are particularly interested in acquiring these competencies. These companies' challenges might not necessarily be connected to negative circumstances; instead, they could be related to major and positive changes happening in the companies' surrounding environment, as one informant described:

I think that [the northern] part of Sweden will be very interesting for the coming decade. [. . .] I think that the region has all the best prerequisites now to make something very good out of [new emerging technologies] and the university [together with its] competence is the key.

This informant went on to explain why his company would collaborate with universities:

The reason for us to join [a project with a university] is that we think that we can find a competence...that we can use in one way or [an]other.

Another informant who, instead of dealing with a positive change posed by major investments in regional transformations, reflected on desired competence connected to negative challenges that his company is facing. Competence in this case is needed to keep the business afloat: "It's competence that we're looking to expand through the university", the informant said. Furthermore, another informant was looking to expand competencies through collaborating with universities, which would be valuable for addressing both positive (e.g., regional transformations) and negative (e.g., adversities) challenges. Irrespective of whether these acquired competencies would be used to develop personally and professionally or used to address various challenges that the company might face, access to a university's competencies would be beneficial. Below is how this informant described it:

[By collaborating] I would benefit from either getting my own competence to a higher level or [by] borrowing competence for a specific topic or a challenge that I have in the company.

Gaining access to a university's developed competencies is valuable for SMEs regardless of whether they intend to use them for addressing positive or negative and current or future challenges.

3.2.3 Organizational causes for the greater good

With a rising awareness of the sustainable development goals, different organizations seek collaborations that can assist them with contributing to such goals and/or spread information that they do care about these goals. From the informants' side, it is evident that there is interest in doing their business in a sustainable way, as well as engaging in collaborations that contribute to local and global development. When evaluating potential collaboration opportunities, informants seek information on how these respective collaborations might contribute to the greater good. For example, one informant described how she and her company are interested primarily in long-term collaborations that incorporate global development in their agenda: "[We are interested in] long-term [collaborations on the topic of] eco-friendliness. [. . .] [Not] to just participate, [but] to make the world last longer." In addition to their desire to contribute to global development, some informants also described how they place regional development high on their priority list, especially when choosing collaborations. One informant described her interest in creating sustainable innovations by working as a community with universities:

[In collaborating with universities,] I am really interested in how companies can be a bigger part of the community [. . .] which can do influential [things]. [. . .] [For example,] how we can work together to make a more sustainable innovation?

Another informant described how important it is for his company to engage in collaborations that bring benefits to his company, as well as to the region and its further development:

One of the values we definitely have as a company is to support local development and things that happen nearby. That's really important for us. [. . .] When it comes to [collaborations with universities] [. . .] it doesn't mean that it only has to benefit us, [. . .] but it can also benefit the region.

These examples suggest that companies are prone to engaging in collaborations that bring value not only to their company (if at all) but also to society. While some companies are striving to contribute on a larger scale (e.g., to the environment), others think more locally (e.g., regional development). Therefore, depending on the university's mission and, specifically whether it includes supporting global and/or local causes, companies will decide whether to collaborate.

3.3 What makes SMEs perceive collaboration with universities as efficient?

While being quite flexible to change, SMEs are also known to exhibit a liability of smallness. That is, their possession of, most critically, time resources is usually just enough to perform vital business operations, not even mentioning any side projects which collaborations could be related to. However, when they evaluate collaboration opportunities to be a good return on investment, they expect such engagements to be carried out as efficiently as possible, meaning that no time and other resource is wasted in the process.

3.3.1 Accessible organization

When SMEs consider collaborating with organizations as big as universities, being able to identify and get in contact with relevant university employees is deemed particularly important as the saved time and energy is then dedicated towards executing collaborations. Informants commonly view universities as rather complex organizations, because they consist of numerous departments, divisions, and subject groups. This organizational complexity makes it challenging for informants to identify and contact relevant university representatives. Not surprisingly, informants share that this is likely to deter companies from initiating contact with universities about potential collaboration opportunities. This happens

even in cases when companies have some initial ideas about what potential collaboration could entail, as the following informant described:

If I had some [ideas for collaboration], I think that would be really hard to know who to [discuss them with at a university]. [. . .] There's no way of knowing who to reach if we wanted anything.

In line with this thought, another informant highlighted how challenging it is to create collaborations with universities due to uncertainty surrounding who to contact and how to accomplish that task:

It's hard to create collaborations [with universities] because of sending emails to random people [and wondering] how can I reach this person that is working in this field [that I am interested in].

Similarly, another informant emphasized the impossibility of finding a relevant university representative when trying to discuss collaboration opportunities: "From the outside, it's almost impossible to find the right person internally at the university." Finally, another informant exemplified how she would have had no idea about who to contact at a university without their extensive network, which helped her connect with relevant university representatives:

In my network, I have people who have a lot of contacts with the universities. So, I used them. [Otherwise], where do you even start looking? [. . .] I [would] have had no idea.

All in all, the perceived organizational complexity of universities makes it significantly harder for SMEs to discuss collaboration opportunities and, hence, eventually collaborate. Alternatively, what can make the process more efficient is when universities make it easy for external people to navigate the organization's structure and easily identify relevant and competent university representatives, then collaborations between SMEs and universities are more likely to occur. Competence, in this case, plays a central role, because it is also one of the key needs SMEs aim to address through collaboration.

3.3.2 Personal university contact

Having a personal contact within such an extensive structure of universities is important for SMEs as it allows both collaborating parties to have efficient two-sided communication throughout. Recalling past experiences of interacting with universities, informants suggested that personal contact with university representatives added significant value to initiating collaborations. The value, therefore, lies in efficiency and communication continuity, both enabled by establishing a personal contact. Several informants emphasized that no online

communication can surpass personal contact. Even though online communications can arguably be more efficient as it allows people to connect irrespective of time and space, it lacks in establishing interpersonal connection, which fuels trust (essential for sharing company secrets) and creativity, and thus efficiency. For example, one informant described this as follows:

The project didn't have the chance to reach its full potential because [. . .] we had to do a lot of [online] meetings. Everybody tried their best, but it's not the same as meeting in person. [. . .] If we would have had the chance to have these live meetings, we could have fueled [these meetings] and shared even more experiences [through] immediate dialogue [. . .] If you're looking for having creative discussions, you lose some in the digital transformation. It's not the same thing.

Another example focuses primarily on the collaboration initiation phase, where setting the tone for further collaboration communication is essential:

[A university representative] personally came to us. She was so clear, and it didn't take much time. [. . .] I was so impressed that it was so efficient [to discuss collaborations at a personal meeting].

In this case, personal contact played a central role in further initiating collaboration with a university. Another informant reflected on prior collaborations with universities and suggested it would be valuable to establish personal communication, which could take some time:

[What could be improved in university communications is to have] a more interactive and a more face-to-face [approach]. [. . .] [Setting up such a dialogue] requires some time from [our company's side], which as I said, we [wish] we had.

Although establishing personal contact might take time to find the right contact person and decide on a suitable time to meet, personal contact adds to efficiency, as parties can have an immediate dialogue about any arising questions.

3.3.3 Engaged collaborative coordination

When knowing who to contact in a rather large organization and sometime even having a personal contact to keep in touch with, it is also very important for SMEs engaging in collaborations with universities to have an engaged collaboration coordination, a person or a group of people who would have both the resources and dedication to run collaborative projects from the beginning until the end. It is commonly portrayed in the literature that having an engaged team of collaborative coordinators is desired from companies that collaborated with universities on several occasions (e.g., Bischoff et al., 2018; Manning, 2017).

Those informants who had not collaborated with a university also seek this criterion in communications that promote or advertise potential collaborations. This suggests that companies are increasingly valuing the availability of engaged collaboration coordinators who stay in touch with companies over time. By being aware of companies' needs, collaboration coordinators can suggest the most relevant projects and connect them with the right people at the university. One informant who had no prior collaborations with any university described a need for engaged collaboration coordination in the following way:

For me, it would help to have a person who I can turn to, who is engaged, and who can really help me take the next step or contact the next person that I don't know that I need, but this person knows [what] I need. [. . .] [They would say:] 'you want this and this, and I know this person, know this department. [We] have this and have done this before.' It is someone who knows almost everything about what's happening on the university level and knows all the competencies that are at the university. Like a router. When I turn to that [router], it's spreading my questions to the right [people].

SMEs are specifically looking for information on whether the proposed collaboration includes a person who will help them navigate the collaboration, show readiness to answer questions, and connect them with relevant people. Although this applies primarily to SMEs with no prior collaboration experience, a similar conclusion can be drawn regarding those who collaborated in the past. The key difference between them, however, is that those who have collaboration experience would prefer to have several people coordinating collaboration rather than just one, as the following informant suggested:

It's a good idea to have company liaisons connecting the university with the local companies. [. . .] An agile team from different sections at the university [that helps businesses] get a better understanding of the whole picture. [. . .] Someone who keeps in touch regularly, maybe comes up with a few ideas. Someone who we can spontaneously ask some questions. [. . .] That would be a good bridge between local companies and the university.

The ability to ask and receive answers to spontaneous questions was mentioned frequently among informants who previously had numerous collaborations with universities. Not only did they highlight this ability as one of the success factors of their previous collaborations but also as an important factor for engaging in future collaborations. Another example emerges from this informant's explanation of what was especially good in previous collaborations with the university:

I was really happy about [establishing a contact with a university professor who] has been really helpful. Once in a while, I ran into certain questions, and I could just send him an email to check if he knew how I could move on further with my [ideas] or if he has any ideas about people I could

get in contact with. He has always been helpful with that kind of information. [. . .] You can have these people in your network, and they are really helpful to pass you to different contacts if they cannot help you themselves.

Overall, companies interpret collaborations that have an engaged coordinator from the start until the end (and even beyond) as efficient, meaning that each parties' resources are respected.

3.3.4 Individuals passionate about their work

SMEs describe a person-to-person collaboration with driven people—those who are experts in their field, are eager to share their experience and expertise with others and have enough drive to keep themselves and others engaged throughout collaborative projects—to be of utmost importance. Contrary to the common understanding that the university's reputation is a deciding factor for companies when choosing whether to collaborate (Hemmert et al., 2014; Hughes et al., 2016; Kruss & Visser, 2017; Sengupta & Ray, 2017), nearly all our informants suggested that this factor is of lesser importance than the individual passion or drive of university employees. An example comes from an informant who, while reflecting on university representative's attributes, mentioned the importance of having hands-on, field knowledge. He described knowledgeability and skillfulness of university employees and their importance when deciding whether to engage in collaboration in the following way:

It comes back to the people involved in the project [who] have hands-on [knowledge] from working in the field and [with whom we have] a common goal. [. . .] I mean, it's people to people. Always. [. . .] Let's say that there is one very skilled person [within our field of interest]. [If we contact that person], then he or she could give [us] good benefits.

Another informant specifically mentioned that driven university employees and their expertise is what he looks for when seeking collaborations:

What [we] are looking for in the end is those individuals and their expertise, even maybe that they are really driven and know their stuff.

Two other informants emphasized that the university itself is not the main attraction but instead those university employees who are experts in a particular area: "I don't think that the university itself is the main attraction. [. . .] It's the people who are talking and what they are talking about." In a similar manner, another informant pointed out that the driven people who are behind collaborations are significantly more important than the university's reputation: "Obviously it's the people who [are behind the collaborations], it's not a

university itself, it's the people who make the difference."

In conclusion, as the vast majority of the informants stated, individual attributes (that is, passion) of university employees take precedence over a university's characteristics.

3.3.5 Individuals companies can trust their internal processes

In collaborations with universities, SMEs particularly value trustworthiness of university's employees as, they believe that, collaborations cannot be efficient in cases when parties cannot trust their organizational confidential information to one another. In line with the prior literature on the importance of trust in interpersonal interactions (Bellini et al., 2019; Hemmert et al., 2014), informants reaffirmed that trust between themselves and university employees is essential for collaborations to occur and reoccur. As small businesses that are trying to create competitive products and services, it is vital for them to collaborate with trusted people. One informant justified this as follows:

I think it's important [for university employees] to know the kinds of projects they are working on [and whether] this is something for the public [eye] or confidential. [. . .] Especially in early stages of inventions where it's very sensitive. [This is then] a tricky time to see who we can we really trust in this.

Another informant's view on trustworthiness sheds light on why it is so critical when trusting a company's secrets to outsiders: "If you are going to honor [your company's] secrets [. . .], it's extremely important that you can trust the people that you have discussions with." Quite expectedly, trust is something that is challenging to sense from the first interaction. It tends to build over time, proven by numerous interactions, both positive and not so positive. A quote from an informant who exemplified how trust between himself and university employees grew over time supports this conclusion: "If I know a person that I trust and that I've worked with before and it worked [out], that's everything to me [when deciding to collaborate with universities again]."

These examples highlight the importance of establishing trust between SMEs and university employees. Once established, it allows companies to share and discuss their internal operations and even company secrets more openly. This, in turn, makes collaborations more efficient, because universities can tailor their offers and thus their benefits. Efficiency, in this case, is achieved by having driven university employees who do their best to organize and run collaborations

3.3.6 Clear collaborative expectations

For both collaborating parties—SMEs and universities—to achieve desired results and to take calculated steps towards these results, it is necessary for both parties to communicate their expectations. To decide whether specific resources should be allocated to a proposed collaboration opportunity and allocate them effectively, companies seek information on what they can expect from engaging in collaborations with universities. Communicating and setting expectations is important because it allows parties to outline an action plan and decide on attainable goals. For example, one informant described how universities should be specific when reaching out to companies:

[Universities] need to be more specific [when reaching out companies]. [. . .] It's easier [to decide whether a collaboration is worth it] when you have a concrete, specific [plan] to work with.

In line with this informant's suggestion, another informant explained that many companies are willing to collaborate with universities but, they often lack information to make a decision, particularly on what they should expect, especially in terms of contributions:

It's all about [knowing] what, [exactly], the university wants from me. Do they want money, information, or [something else]? That's the thing, because you always expect something in return when you do something for someone else. [. . .] A lot of companies are happy to [collaborate], but they need to know what to expect.

Another informant provided a similar yet slightly different description, indicating the importance of setting short-term plans and expectations in cases when prolonged collaborations take place:

[It's a] good idea to have long-term collaborations [with] short-term plans [that are reworked upon completion]. If you are starting something all the time, you know that there is a beginning and an end. [. . .] Then it's easier to put full focus on that, and maybe even a little bit more time and energy because it also gives you more [in return].

Setting expectations early in the initial stages of collaborations is important, as informants suggested, as is establishing a personal contact with universities. Hence, when universities combine information on available personal contact with preliminary collaboration expectations, SMEs are more likely to be interested in considering and further engaging in such collaborations due to their efficiency.

CONCLUSIONS AND RECOMMENDATIONS

This report has both reviewed existing literature on university-SME collaborations and contributed with novel insights that are of a high practical relevance. Based on the findings derived from the empirical study, universities can have a more nuanced understanding of how to design and communicate collaboration opportunities targeted at SMEs. The findings are equally important for universities that initially design collaboration opportunities as well as those that engage in developmental work of already existent collaboration practices. Below the findings of the empirical study are translated into recommendations to collaboration leaders and coordinators working on behalf of the universities.

How leaders and coordinators of collaborative opportunities can demonstrate the *relevance* of SME-university collaboration:

- Use established and/or relevant channels aimed at SME development and growth for sharing information on collaborative opportunities. For example, there are several channels that are governmental (e.g., municipalities) or non-governmental (e.g., tourism and hospitality associations) through which information can be shared.
- Show examples of previous interactions that can give SMEs a perspective of what could be the topic, structure, and the result of collaborating with universities.

How leaders and coordinators of collaborative opportunities can demonstrate the *value* of SME-university collaboration:

- Target collaboration opportunities towards individual company needs.
- Position the university, the research group, or research centre as an actor to whom SMEs can turn when in search of competence.
- Have a mission in the research group/department/division/faculty to collaborate with SMEs to create societal value.

How leaders and coordinators of collaborative opportunities can demonstrate the *efficiency* of SME-university collaboration:

- Make it easy for SMEs to identify and get in contact with relevant university employees if they have questions or are interested in collaboration opportunities.

- For each collaboration opportunity, offer SMEs a personal contact at the university who demonstrates proactivity, structure, and respect toward SMEs' resource availability.
- Involve university employees who are committed and engaged when collaborating with SMEs, this includes but is not limited to the quality (i.e., regularity and usefulness) of communication at different stages of the collaborative project.
- Engage university employees who are passionate about their work, are experts in their field, and are eager to put their expertise into practice and, possibly, also learn new insights along the way.
- Encourage university employees to establish a trusted relationship with SMEs and respect companies' desire to keep some information for internal use only.
- For each collaboration opportunity, provide involved SMEs clear and specific details in relation to required resources, structure, and goals.

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APPENDIX

Research context

The empirical study upon which this report draws is conducted in two neighboring Swedish regions: Västserbotten and Norrbotten. The two regions have a similar representation of business industries (e.g., tourism, technology, food production), yet some dissimilarities—one region has a higher presence of mining companies, whereas businesses in the other region are more centered around producing sustainable energy. The regions have one university each. Together, the two universities offer educational programs across all disciplines. Each university claims that they contribute to society (local and global) through research and education enabled by, among other things, long-term collaborations with industrial partners. Given that these two regions are currently the hub of the green industry transformation in Sweden, SMEs and universities are expected to play a significant role in the expected positive development of the region.

Data collection procedures

Data was collected through semi-structured interviews with 30 SMEs in October 2021. These SMEs have 5-10 employees and represent industries such as, consulting, manufacturing, hospitality, entertainment, and IT. Of the interviewed SMEs, 16 had prior experience of collaborating with universities while the remaining 14 had no such experience.

Upon SMEs' agreements to participate in this study, the informants were sent a participant information letter—a document that contained important information about the study, including the purpose, roles and responsibilities, and data collection and management. All interviews were conducted over the phone and recorded with the informants' consent.

Data analysis

Data was analyzed in two steps. First, factors important for when and why SMEs would be interested in collaborating with universities were identified. The interview guide had a clear structure and division among sections which made the process of cross-comparing different informant responses straightforward. At this early stage, the interview transcripts were coded in an open manner, meaning that the analysis was kept close to informants' words. In the coding process emerging codes were further renamed and merged as it became evident that even though the informants used different words, it still captured the same concept. This resulted in identifying 11 factors that were important for SMEs' interest in collaboration. As a

second step, the factors were clustered into three themes, which were about the SMEs' perceptions of the (a) relevance, (b) value, and (c) efficiency of the collaboration. The factors and the themes were used for structuring the presentations of the findings and the recommendations in this report.

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