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Customers as knowledge partners in a digital business ecosystem: From customer analytics towards knowledge partnerships

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ABSTRACT

Analyzing data of your customers and providing them with the best product or service is no longer sufficient within the digital economy to make your customers satisfied or even enthusiastic about your company in the long run. These days the approach of customer needs analysis seems to be extended towards big data and customer analytics. But is collecting data really helpful, especially for SMEs with limited resources? Research shows that pure data collection does not provide any additional strategic value. In fact, most companies have no clue what to do with the collected big data and how to gain strategic value out of it. In this empirical paper, drawing on the ecosystem theory, we argue that customers should not any longer be seen as pure raw material of data, but as active knowledge partners. This requires a complete mind shift in how SMEs deal with their customers. In this paper, we contribute to the existing literature by providing an interaction framework to show how companies can create a well-functioning knowledge partnership based on the customer's motivational foundations to benefit from different contributions and strategic values customers are willing to make.

1. Introduction

New technologies such as artificial intelligence, robotics, blockchain, cloud computing, or virtual reality are fundamentally changing the way companies do business (Cennamo et al., 2020). Small and medium-sized firms (SMEs) are embedded in a digital environment characterized by volatility complexity, uncertainty, and ambiguity. (Troise et al., 2022). The emergence of new disruptive technologies enables new ways of organizing the value creation of SMEs. A transformation from linear value chains with high vertical integration to shared value creation with agents in the ecosystem is taking place (Rong et al., 2021).

Within the digital economy firms, in particular, SMEs, are often confronted with problems such as scarce resources and cognitive limitations. Therefore, collaborations with a variety of stakeholders are considered a great opportunity to overcome these strategic constraints. Customers in particular, are seen as valuable stakeholders for joint value creation in the literature. (e.g. Merz et al., 2018; Füller, 2010) In this regard, advancements in technology like big data and customer analytics are considered great opportunities. (e.g. Alharthi et al., 2017; Wang and Wang, 2020). The underlying assumption of this approach is to collect as much data as possible from your customer in order to gain a strategic competitive advantage out of it (e.g. Gobble, 2013). But many studies so far show that it is very

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questionable if this approach is effective for SMEs to gain strategic knowledge and long-term competitive advantage out of it (Alharthi et al., 2017; O'Connor and Kelly, 2017).

Large companies are much better equipped in terms of resources to deal with big data strategies successfully (Tabesh et al., 2019). In contrast, SMEs often collect a lot of data but do not know what to do with it because there are not enough resources or knowledge to use the data effectively (Wang and Wang, 2020). According to strategic knowledge management theory, big data only collects data, not knowledge, which is the source of creating a sustainable competitive advantage (Zack, 1999). While information is perceived data, knowledge refers to the tacit or explicit understanding of people about relationships among phenomena (Gueldenberg and Helting, 2007). It has to be learned and is embodied in routines for the performance of activities in organizational structures and processes and in embedded beliefs and behavior. Knowledge implies an ability to relate inputs to outputs to observe regularities in information and codify, explain, and ultimately predict. In the development of knowledge we distinguish different levels: The first, know-what, is a result of learning and internalizing information. For example, knowing that a technology, product or service exists only creates value for an organization if a person is able to apply this information, i.e. know-what is transformed into know-how by means of application and experience. How difficult this transfer from know-what to know-how can be is experienced by many people who read the operating instructions, e.g., of a mobile phone, and want to apply the information to set specific functions (North and Gueldenberg, 2011).

In this paper, we follow a line of strategic knowledge management research in which the strategic use of external knowledge through collaboration with customers has emerged as an important issue in theory as well as in industrial practice (Füller, 2010; Martínez-Cañas et al., 2016; Mazurek and Małagocka, 2019; Merz et al., 2018; Pires et al., 2015; Roberts et al., 2014). This research stream argues that customer participation in knowledge exchange and value creation processes has become a vital source and key strength of SMEs to fulfill knowledge and resource gaps, which can, in turn, sustain and gain competitive advantages. Following this approach very little thought has been spent so far on the following three research questions:

(1) How do SMEs in a digital environment expand their limited resources through better collaboration and knowledge exchange with customers?
(2) Who are their relevant customers as knowledge partners independent of the business model?
(3) How can SMEs design interactive partnerships to intrinsically motivate customers to share their knowledge and co-create a win-win situation independent of the company's strategy?

2. Theory

2.1. Ecosystem theory

As economic activity transforms from dominantly stand-alone to interconnected economic actors forming a network economy, research on business strategy encompasses more dimensions to better understand the continuous interaction and relationship between different stakeholders. The paradigm of single actors competing in an external market is changing in a world where companies are embedded in networks of professional, social, and exchange relationships with other actors. (Gulati et al., 2000). The long-prevailing organization of companies as linear value chains with high vertical integration was transformed by the emergence of new digital technologies that enabled new ways of organizing value creation. This transition implies the move from individual value chains to (digital) business ecosystems (Valdez-De-Leon, 2019; Rong et al., 2021), considering sharing economy platforms, describe the new paradigm that different stakeholders in the business ecosystem working together to interact and co-create shared value. In this sense, we use ecosystem theory to explain the interaction between customers and SMEs.

The terminology of business ecosystems was originally noted by Moore (1993, 1996) and then further developed by several researchers with different emphases. In general, a business ecosystem consists of large, loosely coupled connections of entities. Common to the definitions of business ecosystems is the emphasis on the interconnectedness of economic actors and their dependence for success (Peltoniemi et al., 2005; Den Hartigh and Van Asseldonk, 2004). Companies are thereby seen as part of a larger environment that comprises a multitude of relationships between different actors (Moore, 1993, 1996; Iansiti and Levien, 2004). Due to increasing digitization, the term digital ecosystem has become established. Jacobides (2019, p. 14) describes digital ecosystems as “interacting organisations that are digitally connected and enabled by modularity, and are not managed by a hierarchical authority”. This represents a shift from value creation through the integrated value chain of a single company to value creation through many economic actors, enabled and orchestrated by a platform. This has been referred to as a “reverse enterprise” (Van Alstyne et al., 2016), which further enhances the overall value proposition.

A business ecosystem consists of a variety of different interconnected participants that interact competitively and cooperatively. Such actors include customers, suppliers, potential collaborators, public agencies, local business incubators, investors, and research institutes (Moore, 1998). In this sense, customers as knowledge partners can be considered as central economy agents in the ecosystem of SMEs drawing on the ecosystem theory as the contribution of customers as knowledge partners for SMEs is a typical behavior in shared value creation.

2.2. Self-determination theory

In order to increase the shared value within an ecosystem, it is crucial to create incentives and a vision for the members of the network to achieve a common goal. A distinction between intrinsic and extrinsic motivation is fundamental when dealing with motivation (Deci, 1975; Deci and Ryan, 1985; Frey, 1997). Intrinsic motivation emphasizes the aspects of direct satisfaction of needs. One of

Table 1
Overview of the analyzed SMEs.

	Medical Software Company (A)	Unique Technology (B)	Software Solutions (C)	Creative Clothing (D)	Plastic Design (E)	Expert for Durex Technology (F)	Synthetic Material (G)	Knowledge Company (H)	Construction Company (I)
Company	Owner-operated	Owner-operated	Owner-operated	Owner-operated	Owner-operated	Owner-operated	Owner-operated	Owner-operated	Associated Company
Location	FL	DE	FL	CH	DE	DE	DE	AT	CH
Employees	15	35	7	14	200	60	160	6	45
Business Field	Software	Machinery	Software	Textiles	Consumer goods	Durex and Composition	Plastic industry	Consulting	Plant engineering and construction
Growth Strategy	Market and product	Widen business field	Waterfall (Uppsala principle)	Market and product	Waterfall (Uppsala principle)	Waterfall (Uppsala principle)	Low growth (already capacity utilization)	Market opportunities	Continued growing
Customer Base	B2C; partially B2B	B2B, building B2C	B2C	B2B; partially B2C	B2B; partially B2C	B2B	B2B (standard business), B2C	B2C/Public Sector	B2B & B2C

the strongest intrinsic incentives is the activity itself (Deci, 1975). People value changing tasks, the scope of action, choice in terms of content, time and location of work, recognition, independence, self-control, autonomy and the opportunity for further development (Davenport et al., 2002; Despres and Hiltrop, 1996; Kochanski and Ledford, 2001; Sveiby, 1997). Intrinsic and extrinsic motivation are not independent of each other. This connection between intrinsic and extrinsic motivation is also known as the crowding effect. It occurs when intrinsic and extrinsic motivational stimuli appear one after the other (Frey and Osterloh, 2001; Witt, 1998).

Based on the necessity to transfer the available implicit customer knowledge to new knowledge and values, it is essential to analyze the intrinsic motivation of the customer more precisely (Osterloh and Frey, 2000). Furthermore, an understanding of the motivation of customers to collaborate enables firms to create interaction partnerships effectively (Roberts et al., 2014). Because customers as knowledge partners only volunteer their knowledge and experience if they consider collaboration to be rewarding. The intrinsic motivation of customers also has a positive effect on customers' interest in further collaboration, the extent of integration and time spent (Füller, 2010).

Deci and Ryan (2000) provide with the self-determination theory a good overview of the factors influencing autonomy, competencies and relatedness, which are responsible for the existence of intrinsic motivation: The internal locus of causality is decisive for the fulfillment of the psychological need for autonomy. Key aspects that foster the existence of an internal place of causality are choices and an acknowledgment of people's experiences and feelings. In contrast, when extrinsic rewards such as money are implemented to conduct an intrinsic action, people tend to feel controlled by the rewards, which causes a displacement in the perceived locus of causality from internal to external. Other aspects that cause a displacement in the location of causality include threats, evaluation and deadlines. Subsequently, intrinsic motivation decreases. The essential factor influencing competencies is feedback. Negative feedback that stimulates the perception of incompetence tends to undermine intrinsic motivation, whereas positive feedback that promotes the perception of competence tends to increase intrinsic motivation. For a positive influence of the perceived competence on the intrinsic motivation, people have to feel responsible for their performance. Furthermore, positive feedback has to be provided in a way that does not eclipse the feelings of autonomy. Therefore, the optimal circumstances for intrinsic motivation are those that enable the fulfillment of autonomy and competencies. Though it has turned out that autonomy and competence have the strongest influence on intrinsic motivation, theory and research indicate that relatedness also contributes to intrinsic motivation. Intrinsic motivation is more likely to arise in contexts characterized by a sense of secure relatedness (for example, dealing with warm-hearted and caring people) (Deci and Ryan, 2000).

3. Method

We conducted a multiple-case study with nine companies by relying on Eisenhardt's explorative research design. According to Eisenhardt (1989) between four and ten case studies are required to achieve significance in fundamental explorative research design. A multiple-case-study approach was used because single-case studies often lead to more complicated and overly determined theories. As a result, these theories are unable to be generalized enough to make them broadly applicable. Comparatively, multiple cases provide advantages by facilitating researchers' identification and sharpening of theoretically relevant construct definitions at an appropriate level of abstraction and are frequently able to debunk alternative explanations and overdetermined theories (Eisenhardt, 2021).

The aim of our multiple-case study was to interview nine international SMEs with 43 interviewees, because such firms are basically described as having a limited resource base, carrying out strategic decisions that make “opportunities” possible, and consequently implementing them (Hitt et al., 2001). Essentially, they are marked as having simple organizational structures as well as a firmly anchored company culture. A limited pallet of customers and products from smaller firms reduces the company's complexity and has a strong market and customer orientation through the named characteristics. Furthermore, the decision-making process is straightforward (Pelham and Wilson, 1996). Based on these criteria, companies falling into the category of SMEs seem especially suitable for answering the underlying research questions, as such firms can potentially enhance their resource base and create value through customer knowledge.

Table 1 offers an overview of the analyzed companies:

As the table shows, the selected firms offered excellent research units based on the chosen focus of smaller firms. It was essential to the authors to integrate various perspectives in selecting interviewees, such as different departments and positions within the firm, as well as points of view from the management/supervisory board, distributors and customers. The interview approach, in general, was to start with a member of the top management team asking them for possible customers. As a second step, we interviewed the customers while using the first results out of the top management interviewees. In a third step, after analyzing the data from the customer interviews, this data was summarized and sent for a final check back to the management team of the SMEs.

The interviews were recorded and subsequently transcribed and coded by Nvivo. These transcripts were then analyzed based on the inductive approach of Hsieh and Shannon (2005). This analysis technique allows the thematic and content of the survey to lie in the foreground. The analysis phase applied Miles' method (Miles and Huberman, 1994). This divides the data analysis into three distinct areas: (1) data reduction, (2) display of data and (3) data analysis and comparison with the available literature.

4. Results & discussion

It becomes apparent that customers as knowledge partners could contribute even more strategic knowledge than the firms currently demanded. Therefore, this paper analysis the form of collaboration from which both, customers as well as the companies could most benefit. Based on these findings, we have created an interaction framework. Our framework helps to understand better the interaction between customers as knowledge partners and firms and subsequently enables firms to actively manage the partnerships with their customers.

4.1. Who are relevant customers as knowledge partners?

Integrating data and knowledge from all its customers is not feasible nor desirable for SMEs as not all customers have important knowledge and can contribute to the value-chain of the companies. Therefore, it is necessary to identify customers as knowledge partners. Digital technologies offer comprehensive possibilities and support in this regard. Customer relationship management (CRM) systems capture detailed information about customers, conditions in the external market and in-house offers and thus provide a rich pool of information about customers (Goodhue et al., 2002). In addition, CRM systems offer sophisticated features for strategic decision-making. (Sundaram et al., 2007; Mackintosh, 2004).

Our study shows that all companies, whether technology companies or non-technology companies, use databases in the sense of a CRM system. The main purpose of this is to store information about customers in a central system. Companies realize that the risk of losing information in the case of employees retiring would otherwise be far too great. Nevertheless, our data show that the technological databases are mainly only used for operational purposes for example marketing purposes, collection of interview transcripts, or

Table 2
Definition and Identification of customers as knowledge partners.

	Definition from the company's perspective	Identification from the company's perspective	Identification from the customer's perspective
Medical Software Company (A)	The ordinary customer is a passive product receiver. The strategic customer becomes active, is intrinsically motivated, and provides a value-creating contribution.	Know-how, renowned expert, interested in research, intrinsically motivated, no lack of time, reputation and good image, customer acquires new customers, sales attributes, sustainability	Patient, technical affinity, innovative, experienced, contributing ideas, marketing-/sales activities
Unique Technology (B)	A strategic customer is an absolute profit-pusher from which regular feedback originates and valuable activities result.	Partner(ship) relationship, customer knowledge application, trust, personal contact, multiplier, communicator, reference customer, sustainability, word-of-mouth	Knowledge of the product, marketing-/sales characteristics, giving feedback, practical knowledge/experience, thinkers, activity
Software Solutions (C)	The strategic customer is ready to look for new ideas and solutions and does not simply try to optimize new processes but tries to change something. Those are strategic customers.	Reputation, reference character, sustainability, providing ideas, know-how in product development, sales-/marketing characteristics, process optimizer	Sustainability, exchange of information, reputation, partnership, knowledge transfer
Creative Clothing (D)	A strategic customer is certainly one with whom we can jointly develop ourselves in a sustainable and enduring way.	Sales-/marketing characteristics, exchange of information, sustainability, reputation, partnership, high level of trust, personal contacts	Partnership, friendly relationships, sales-/marketing characteristics
Plastic Design (E)	A strategic customer is a customer that presents our brand and products in a good way, […] I'm not saying that the customer needs to earn us a million in turnover, but that they represent the company in a good brand environment.	Feedback-loops, intensive relationships, supporters of decisions, image-customers, multiplier effect, intensive and trustful cooperation, long-term, building an image	Sales possibilities, marketing actions, exchange of information, positioning/product image (customer)
Expert for Durex Technology (F)	Strategic customers do not confront us with a competitive offer, but they see the bilateral position on a strategic level and help us develop together, because a strategic customer shares information with me that another – normal customer – would keep to himself.	Know-how, thinkers, continuous exchange of thought, honesty, partnership, levels of personality, very strong cooperation, activity, good interaction between company and customers	Not applicable[a]
Synthetic Material (G)	I think that I see a customer under the term strategic customer, which can be interpreted as having knowledge, know-how and is a thinking partner.	Openness, communicative, mutual trust, years of experience and longstanding relationship, sustainability, reference character, private relationship	Reputation, openness for product innovations, personal relationship, reliability, reference character, sustainability, partner, learning effect
Knowledge Company (H)	A strategic customer form is a customer that does not only bring profit, but also an extra value. Value insofar that I can learn something from the customer that one normally has in a partner relationship […] we have been working with the strategic customers for over five years now […] but I doubt that the strategic customers know that they are indeed strategic customers.	Learning effect from strategic customers, partnership (relationship), sustainability, creating value, trust base, personal level, help with positioning	Partnership, accessibility, personal partnership
Construction Company (I)	One must know oneself well and already have an intensive relationship. That is an elementary prerequisite for a strategic customer seeing as only then can they provide a structured flow if they discuss their experiences, problems and possible solutions.	Intensive relationship, communication of experiences (with problems), markets, openness, trust, technological knowledge, communicative, early warning indicator	Strong market position, partnership, similar value propositions, openness, trust

[a] Note. In this case, there was no customer obtainable.

exchange about new products and features. In some cases, face-to-face conversations between employees and the collection of tacit knowledge and experience through company visits to customers, which is difficult to make explicit in databases, are still preferred to the use of databases. One manager of the case Expert for Durex Technology (F) explains: "It's all in the system. I can't require him to read through the entire history of, let's say, 350 new customers every time he goes there. So he just asks me. Because there are simply a lot of things that don't interest him very much. What does interest him in principle is that he first asks me." In addition to operational efforts, technologically based databases can provide a wide range of statistical analysis and strategic decision support, such as the identification of knowledge partners. In this regard, our results show that in comparison to non-technology companies, technology companies [Medical Software Company (A, Unique Technology (B)], are more aware of the strategic potential and express the desire to exploit these opportunities in the future. The reason why technological functions have not been used so far for strategic concerns in these companies is due to their limited resources.

Although there is the possibility to use CRM systems for the identification of knowledge partners, this is not the case in all companies. Nevertheless, all companies are aware that identifying customers as knowledge partners is an essential step and describe their approach as follows. Our case studies describe that first it is crucial to have an overview of the complete diversified customer base in order to identify which customers are potential knowledge partners. This is sometimes a challenging task, because the purchaser and the consumer are not always the same person. For example, in Medical Software Company (A), the hospitals' doctors are consumers but not purchasers. In the next step, all nine cases distinguish normal customers from customers as knowledge partners according to the criteria: active behavior and availability of relevant knowledge. Knowledge partners are intrinsically motivated to interact intensively with companies, share knowledge, create value, provide feedback and experience required by the companies. Passive customers, on the other hand, are customers who act purely as buyers and consumers of products and services. Both customer groups (active and passive customers) are important for the companies, but value-adding activities can only be carried out with active customers as knowledge partners because only intrinsically motivated customers can enhance the knowledge and resource base of the firm. SMEs don't want to pay their customers as knowledge partners in order to activate them because many SMEs already suffer from limited financial resources. In one of the cases [Medical Software Company (A)], the majority of the customers were more active than passive, because the main business is geared towards individual customer projects and thereby requires customer knowledge for every assignment. In the other cases, only a small part of the customer base can be considered active.

Besides these general criteria, all nine analyzed companies have slightly different perceptions of what it takes for customers to be knowledge partners. The following table (Table 2) presents an overview of the customer's and companies' perceptions about customers as knowledge partners as well as their criteria to identify them.

As the table shows, in all nine cases, customers as knowledge partners were described as very knowledgeable and active customers, which a firm needs and with which it can grow. Furthermore, it could be observed that customers as knowledge partners represent a marginal percentage of the entire customer base. Additional criteria in order to identify customers as knowledge partners are, for example, sustainable, loyal and trustful partnerships, open communication, honesty, technological knowledge, innovativeness, a good network, market knowledge as well as various other capabilities that are independent of the planned value-adding activities.

4.2. What contributions do customers make?

The results of all nine cases supported the idea that customers could enhance the strategic growth process and fill perceived knowledge and resource gaps through integration in various activities. Customers as knowledge partners can take on various value-adding activities within the value chain but should primarily be deployed where resources are short. This is very important, especially for SMEs, because small and medium-sized firms are often confronted with scarce resources and cognitive limitations.

Our results show that in all nine cases, customers as knowledge partners are integrated into operative activities along the value chain. Customers as knowledge partners are inherently important when it comes to developing and improving products. This makes it possible to satisfy the customers' desire for better products and thus increase their motivation to share their knowledge. Customers as knowledge partners are also needed in marketing and sales in a further step as a form of support and indirect word-of-mouth advertisement. Word-of-mouth in our definition of knowledge can be considered as know-what because it is a result of learning and internalizing information. The integration of customers in marketing has already occurred in almost all cases. It was described in Software Solutions (C) as follows: "Software Solutions (C) lives from the word-of-mouth propaganda of their strategic customers, through which most new customers are gained. Simply because the strategic customer recommends the company and shares their experiences with others." [CEO, Software Solutions (C)]. Research & development is another important area for value creation and knowledge exchange with customers for three companies [Medical Software Company (A), Unique Technology (B) and Expert for Durex Technology (F)].

In six of the nine cases [Medical Software Company (A), Software Solutions (C), Creative Clothing (D), Expert for Durex Technology (F), Knowledge Company (H) and Construction Company (I)] customers as knowledge partners are also seen as a value-adding factor in organizational issues such as process improvements. The greatest organizational contribution in the Construction Company (I) was considered to be the optimization of internal processes. This was conducted through feedback sessions with customers concerning technical aspects in the company.

Customers not only serve an operative or organizational value-creation purpose for the companies. All nine companies recognize customers as knowledge partners as a sort of an early warning system for future events. This is based on the fact that these customers are often much closer to the market and the end-user than a company can ever be. Due to this, customers can offer help SMEs sensing various future trends. Gaining knowledge from the market reduces uncertainty for the companies while increasing their room for maneuver. Direct contact with end-users enables better feedback of existing products and services as well as information of specific needs of the end-users. It was especially clear for three companies [Medical Software Company (A), Software Solutions (C) and Construction

Company (I)] that the market is relatively dynamic, and individual adjustments are constantly demanded. Customers can identify and implement these changes before the market demands them. The CEO of the Construction Company (I) describes this as follows: "The customer is our market. If our strategic customer informs us that they are going to England, then we need to adjust our strategy so that we can go there with them." In addition, customers as knowledge partners are also of advantage for other strategic issues. Customers as knowledge partners are important for five companies [Software Solutions (C), Creative Clothing (D), Expert for Durex Technology (F), Synthetic Material (G) and Knowledge Company (H)] in the case of gaining a foothold in new markets. Customers as knowledge partners are capable of identifying and developing new business opportunities and support market expansion. For that reason, Creative Clothing (D) works with a local customer in each country to guarantee that the company prospers in new markets and successfully establishes itself in each of them. In the case of Expert for Durex Technology (F), one customer was responsible for a new plant to successfully implement the business strategy. They based this piece of advice on their knowledge of the insufficient capacity in the existing production site and the growth strategy of the company.

Summarizing the data, it becomes apparent that most companies, to a greater or lesser extent (except for Plastic Design E) integrate customers in various activities and have intensive collaboration with them. However, the analysis also shows that customers as knowledge partners, especially of Plastic Design (E)], could contribute even more than they do so far. The interviewees stated: "The company could have profited much more if they would have taken more effort in communicating with us." [Strategic Customer Plastic Design (E)] Therefore, firms need to be more aware of customers as knowledge partners motivation and their expectations of interaction partnerships to be able to manage their collaboration actively.

4.3. Why are customers willing to share their knowledge?

"Expectations of how an interaction should look are affected by one's motives" (Füller, 2010, p.100). Furthermore, the intrinsic motivation of customers has a positive effect on customers' interest in further collaboration, the extent of integration and time spent. In contrast, extrinsically interested customers are less interested in further projects. Because customers as knowledge partners only volunteer their knowledge and experience if they consider collaboration to be rewarding (Füller, 2010). Furthermore, Mazurek and Małagocka (2019) state that a relationship based on trust is essential. Therefore, awareness of customers as knowledge partners as well as an understanding of the factors that motivate customers to collaborate, enable firms to create interaction partnerships effectively (Roberts et al., 2014).

Personal partnerships that built trust serve as the basis for effective cooperation for all analyzed companies. One manager of the case Plastic Design (E) explains: "But on the other hand, I would say that one of the main motives is the personal partnership. Because, if we did not have a good personal partnership with them, we would not experience these things. I think, there must be a good personal partnership with the people. In other words, it must be a partnership that is not simply based on financial or profitable criteria, but on interest, as I said before, in working together." Other interviewees explained that trust and personal collaboration protect against abuse and unfairness with the gained data, enabling them to get very personal and honest information and experiences.

Apart from the need for trust and a personal partnership, our results show that customer differ in their motivational structure, which drives them to share knowledge and create value. In six of nine cases [Unique Technology (B), Software Solutions (C), Plastic Design (E), Synthetic Material (G), Knowledge Company (H) and Construction Company (I)] the customers want products or services which are adapted to their needs. In this way, customers as knowledge partners can create added value for themselves because a product will be developed that otherwise would not have been conceived without their knowledge. In addition to better products, customers are better informed about the products and functions, planned innovations or technologies, and digital advice through intensive collaborations. The exchange about new technologies and digital solutions motivates customers with a high digital affinity. Likewise, advanced information serves as a basis for their strategic decisions.

Furthermore, some customers [Medical Software Company (A), Creative Clothing (D) and Construction Company (I)] share knowledge in order to improve their own reputation and profiling. This shows that the main motivation of some is purely selfish and that their own benefit is the main priority. In contrast, customers of Software Solutions (C), Unique Technology (B) and the Expert for Durex Technology (F) the customers have a high affinity to the product and the company. Therefore, the customers identify strongly with the company.

In summary, the customer's motivation to actively collaborate with companies is particularly based on personal and trustful partnerships. In addition, personal reputation, impact on product configuration and access to information can be determined as one of the most important sources of motivation. This shows that not only the outcomes, but also the interaction experience itself are amply rewarding. This infers why it is important for companies to devote more attention to interaction design.

4.4. Design of the interaction framework

Simply identifying customers as knowledge partners is insufficient to attain the relevant customer knowledge in operative, organizational and strategic issues (Wilhelm et al., 2013). It is essential to proactively develop and manage the partnership with customers as knowledge partners. Interaction partnerships cannot merely be designed according to the companies' wishes because customers as knowledge partners only volunteer their knowledge and experience if they consider collaboration to be rewarding (Füller, 2010). Therefore, only an understanding of the factors which motivate customers to collaborate enables companies to create interaction partnerships effectively (Roberts et al., 2014). The design of the partnerships should be able to attract the envisaged customer as well to meet and even better to exceed their expectations (Füller et al., 2006). Taking this into account, we were able to identify four design parameters: temporal, social, methodical and local aspects.

The time aspect concerns the question of how often and how regularly customers interact with the companies. All nine cases show that long-term partnership between companies and their customers serves as the basis for a good interactive partnership, as this is the only way to build a trustful partnership, which is one of the main motives of the customers. One-off exchanges are also not economic, as the owner of case Software Solutions (C) explains: "It must absolutely be long-term. Once is almost never. There is no point in doing it once. You invest far too much in it." In all cases, the partnerships between the customers and the companies have existed for at least two years. In addition, our results show that instead of fixed planned meetings, in most cases, interactions take place situationally and spontaneously, but regularly.

The social aspect relates to the intensity of collaboration by focusing on a broad or narrow customer base. It could be observed that all analyzed companies focus on quality instead of quantity when designing the interaction partnership. This means companies have intensive contact with only a few relevant customers. Customers as knowledge partners represent a marginal percentage of the entire customer base of a company. In most cases, the percentage of customers as knowledge partners compared to the entire customer base is between 1 and 30%. Because only in this way is a personal and trusting partnership possible. Furthermore, this is the only way individual knowledge can be exchanged and the only way it is possible to work intensively on individual problems. Because of the intensive contact, some call and even consider the interaction partner as a friend. In some cases, the families of both parties also know each other.

The local aspect describes where the interaction takes place. This aspect is closely related to the method used. Our empirical analysis elicited that different methods and places were used for the interactions. The selection and deployment were situational. Interactions, for example, took place in restaurants, the companies themselves, hotels, trade fairs or even at the manager's home (so formal as well as informal locations). The used methods ranged from simple talks, telephone calls, dinners, workshops, presentations and company tours to even trips and meetings in their free time as friends. For example, the CEO of Medical Software Company (A) describes, "What we do, we invite the customer into the company, and he can have a look at the production at our company."

All in all, it shows that personal contact plays a major role in shaping interaction partnerships despite the many technological possibilities. Companies are well aware that digital technologies would make it much easier to regularly exchange information. Nevertheless, the companies rely on personal exchanges (face-to-face or telephonically) because they see this as the only way to build trust which is necessary to exchange secret information. The owner of the case Software Solutions (C) explains: "The moment you talk to him at the fair or in the shop and so on he starts babbling and tells all kinds of things. … Then there is another connection, then they see themselves personally responsible for us. Then they give us a tip, there is more discussion." Our results show that digital technologies, such as platforms or video conferencing, on the other hand, are already being used to stay in touch.

SMEs are embedded in a digital environment characterized by complexity, uncertainty, and ambiguity through the emergence of new, disruptive technologies, the need for digital transformation, and increased digitalization (Troise et al., 2022). The emergence of new disruptive technologies enables new ways of organizing the value creation of SMEs. A transformation from linear value chains with high vertical integration to shared value creation with agents in the ecosystem is taking place. The business ecosystem of companies

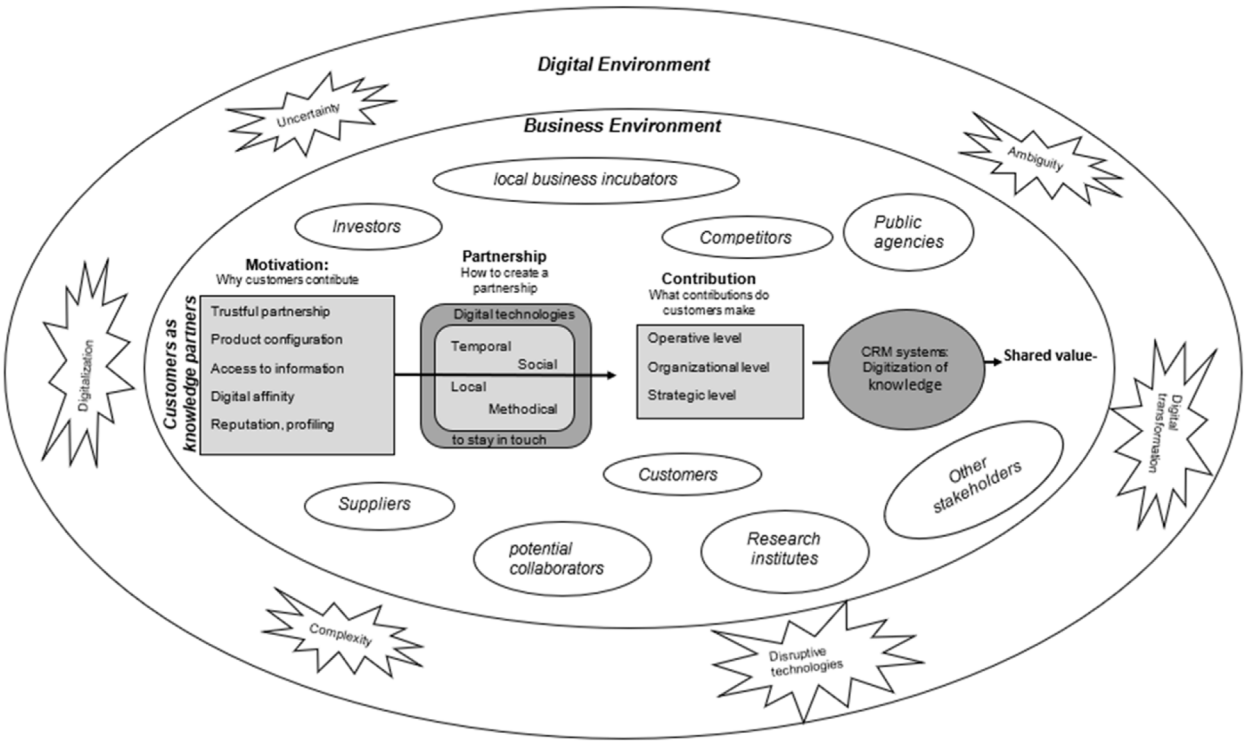

Fig. 1. Interaction framework of customers as knowledge partners in a digital environment.

consists of a wide variety of agents, such as partners, complementors, and competitors. Specifically, these include customers, suppliers, potential collaborators, public agencies, local business incubators, investors, and research institutes (Moore, 1998) In this regard, our results as well as other research show that customers, in particular, can make a valuable contribution to the success of SMEs. This requires active management of the interaction partners as customers only exchange their knowledge and experience if they consider collaboration to be rewarding (Füller, 2010).

Based on our findings and the work of Anderson et al. (1999) and Füller (2010), we have created an interaction framework. Our framework helps to better understand the interaction between customers as knowledge partners and firms and subsequently enables firms to actively manage their customers' partnerships in a digital environment. The expectations of these interaction processes are, to a large extent, influenced by the individual motivation of the customer. Only if customer motives are taken into account when designing the interaction partnerships can companies benefit from customers' knowledge in operational, strategic, organizational issues and subsequently sustainable competitive advantages. Our entire interaction framework is shown in Fig. 1.

5. Conclusion

5.1. Theoretical implications

SMEs are often confronted with scarce resources and cognitive limitations. Therefore, advancements in technology, like big data and customer analytics, are considered in research as a great opportunity to overcome these strategic limitations (Wang and Wang, 2020). However, strategic knowledge management theory shows that big data only collects data, not knowledge, which would be necessary to create a sustainable competitive advantage (Zack, 1999). Pure Data collection alone does not provide this additional strategic value. Therefore, we follow the line of research in which the strategic use of external knowledge through collaboration with customers has emerged as an important issue in academic research (Füller, 2010; Martínez-Cañas et al., 2016; Mazurek and Małagocka, 2019; Merz et al., 2018; Pires et al., 2015; Roberts et al., 2014). This research stream argues that customer participation in knowledge exchange and value creation processes has become a vital source and a key strength for SMEs in order to fulfill knowledge and resource gaps and, in furthermore, sustain or gain competitive advantages. In this context, very little thought has been spent so far on the motivational foundation of customers as knowledge partners and how to design interaction partnerships based on the intrinsic motivation of the customers. Based on this, we suggest that it is much more efficient to focus on building long-term partnerships with knowledge partners.

Concretely, this study contributes to the management literature in two ways:

We explain the motivational reasons of customers for participating in knowledge exchange and value creation processes by referring to insights from the self-determination theory (Deci et al., 1999). Our results show that intrinsic motivation could be increased and maintained through the fulfillment of all basic psychological needs according to the self-determination-theory: autonomy through access to information for better decision making, competencies in the form of product or service development and relatedness because of personal, trustful partnerships. In relation to the motivation through profiling and a better reputation, our empirical results as well as the work of Gibbert et al. (2002) pointed out that valuable customers already feel valued through their integration into the value creation and knowledge exchange process.

Advancements in technology like big data and customer analytics are considered as a great opportunity to overcome scarce resources and cognitive limitations of SMEs (Alharthi et al., 2017; Wang and Wang, 2020). However, many studies doubt the value of collecting as much data as possible from customers in order to gain a strategic competitive advantage out of is (e.g. O'Connor and Kelly, 2017; Alharthi et al., 2017). By contrast, personal relationships are seen as effective solutions to generate value through collaboration with customers. So far, little research has been conducted on how interaction partnerships between SMEs and customers should be designed. In this context, we can show that technical options do exist, but for SMEs and customers as knowledge partners, a trustful, long-term, and personal partnership is much more important. Trust is particularly important because customers, as well as SMEs, gain insight into corporate information, resources, behaviors and decisions. Furthermore, if an SME aims to integrate customers as knowledge partners into its resource base, the company is forced to create conditions that enable the customer to develop themselves and become an active part of the value creation and knowledge exchange process. The desire for trustful, long-term and personal partnerships as one of the main motivations reflects this. In this respect, we can contribute with four central design parameters for interaction partnerships: temporal, social, local, and methodical. In summary, it remains to be mentioned that the difference in the customer typology "B2B and B2C" happened emergently and the subdivision therefore only serves as a supplement. During the analysis, however, it became apparent that it does not make any difference in which customer typology one finds oneself, as it revolves around the individual.

5.2. Practical implications

In addition to the valuable contributions to the existing literature, we were also able to gain insights for practitioners.

Our paper shows a new perspective by looking not at the customer as a data provider but as a strategic knowledge partner. Because pure data collection does not provide any additional strategic value, this requires a complete mind shift in how SMEs deal with their customers.

Based on our findings from the nine cases, we have developed a three-step approach in order to identify the right interaction partners in our understanding customers as knowledge partners, because integrating knowledge from all its customers is neither feasible or desirable:

1. The first step is to get an overview of the complete diversified customer base of the SME, which may sound like an easy task, but often it is not. Because the buyer and the consumer, who give their strong recommendation to their purchasing department, is not always the same person, for example doctors of a hospital.
2. The second step is to filter out the passive customers and concentrate on the active ones. This is because only intrinsically motivated customers are able to enhance the knowledge and resource base of the firm. SMEs don't want to pay their customers for their data provided in order to activate them because many SMEs already suffer from limited financial resources. Instead, they want to profit from the knowledge and expertise of intrinsically motivated customers.
3. In the last step, it is important to select the customers who provide strategic value for the firm. Not everyone who is an active customer is relevant for the future value generation of the SME. For example, one SME may concentrate on the customer with the highest turnover, but perhaps this is a very traditional customer who does not have the relevant future knowledge or does not see the weak signals of change, especially in disruptive industries.

The paper has already very clearly illustrated that customer motivation to exchange knowledge and create value is an essential aspect for a successful interaction process. Interaction partnerships cannot simply be designed according to the companies' wishes, because customers as knowledge partners only exchange their knowledge and create value when they consider cooperation to be worthwhile. In addition, customer motivation influences their expectations regarding the design of the interaction processes (Füller, 2010). However, there is not only one dominating motivational aspect. The motivation of customers as knowledge partners ranges from improved products and services adapted to their needs, profiling and improved reputation, to access to information. In addition to these aspects, which vary from customer to customer, a long-term, personal, trustful partnership is essential for all customers as knowledge partners.

Due to the crucial effect of customer motivation, it was important for us to conclude on the basis of the results of our study, how these results could be useful for practitioners. Due to the different motives of the customers, it is relevant for practitioners to precisely analyze the motivational structures of the relevant customers (our three-step approach serves as an aid with the identification of customers) before designing the interaction partnership (particularly how and what). Before decisions about the design of the interaction partnership are discussed (how: temporal, social, local, methodical) and the relevant business areas (what) are made, it is important to create an appreciative, trusting, open atmosphere in order to create a trustful partnership. This increases the likelihood that customers will exchange their knowledge and create value. The next step is to make decisions about the how and the what. This means to design the interaction partnership temporally, locally, socially and methodically and decide in which company area the customers should be involved. However, there must be a fit between the motivation of the customers and the design of the interaction partnership. If all this is considered, SMEs can benefit from competitive advantages and a long-term business success through integrating customers into knowledge exchange and value creation processes. The size (quantity) of the customer base is in general larger for B2C than for B2B - but makes overall no difference for the selection criteria of strategic customers.

6. Limitations and further research

This study cannot be generalized to the complete SME sector because of the fact that nine companies were analyzed in the form of a qualitative case study. However, the fundamental explorative research design, according to Eisenhardt (1989) states that between four and ten case studies are required for this research design to have significance. The sample focused on SMEs independent of their business model and strategy, so it is possible that the integration of customers as interaction partners in larger and established companies is different (regarding their structure and organization). However, there was no claim to analyze interaction partnerships with customers as knowledge partners in large companies. In addition, we propose to investigate in more detail in future studies whether non-digital or digital business models have an impact on the number of potentially relevant customers as knowledge partners as more digital-related SMEs may profit from larger network effects. Further studies could focus on addressing the research question of whether different corporate strategies or B2B vs. B2C influence customer behavior and willingness to share knowledge.

The present multiple-case study already integrates a multitude of stakeholders, e.g., owners, supervisory board, employees and customers. Nevertheless, our research could be applied to a broader or more specific database by, for example, conducting a quantitative study. To remove these limitations, further research is needed. Likewise, the investigation of dependencies resulting from interaction partnerships as well as the danger of knowledge outflows, loss of competencies and competitive advantages to competitors would be of interest for further research.

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