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Abstract

This study investigates how small- and medium-sized enterprises (SMEs) that innovate new business by utilizing data analytics techniques improve their future competitiveness and resilience. In particular, we want to understand how these SMEs innovate their existing business models to support new business ideas and whether this leads to the decoupling of business models. In order to answer the research question, we conducted a ‘matched-pair’ case study of two Finnish SMEs. In this exploratory study, we applied an inductive approach and benefitted from data triangulation. We were able to follow the emergence of business model innovation in real time and to identify the focal factors that led the SMEs to decouple the novel business from the established one and to develop a parallel business model for the new offering. It was evident that in the case companies, decoupling was necessary for resilience building. The key contribution of this study lies in bringing forward companies’ strategies to manage multiple business models.

Keywords: *Business model, business model innovation, case study, data-driven services, decoupling, digitalization, Finland, internationalization, resilience, SME*

Introduction

Whether we like it or not, the world in which companies operate today is volatile, uncertain, complex and ambiguous (VUCA), and this forces them to continuously adapt and renew their activities in order to succeed (Schoemaker et al., 2018). This is reflected in companies' business models, which need to be flexible in order to survive strategic discontinuities and disruptions (Doz & Kosonen, 2010).

The impact of a turbulent environment is both direct and indirect, as international business is heavily interconnected via global value networks. The success of a global value network is dependent on its resilience to external shocks and particularly on small- and medium-sized enterprises' (SMEs) need to assure their position in global value networks by convincing the leading companies of their continuous resilience in the future (Kano & Hoon Oh, 2020). Unfortunately, our knowledge of SME resilience building and the capabilities needed for business model innovation is limited (Randhawa et al., 2021).

One strategy that SMEs have applied to improve their resilience is digitalization: the increased use and integration of digital technologies in products and services by including more functionalities and making better use of the data that the product or service already collects (Björkdahl, 2020). Adding a digital element to company activities is a major business model innovation and requires that the company reconfigure its resource base and develop novel dynamic capabilities, which are needed to coordinate and manage the renewed business model (cf. Wollersheim & Heimeriks, 2016).

This study investigates how SMEs that innovate new business by embedding data analytics into their products or services improve their future competitiveness and resilience. In particular, we want to understand how these SMEs innovate their existing business models to support new business ideas and whether this leads to the decoupling of business models.

We conducted a 'matched-pair' case study of two Finnish SMEs that have introduced new data-driven services to their customers. Based on various data sources, including semi-structured, in-depth interviews with key informants, we learned how the implementation of digital elements affected their business models and ecosystem constellations. We identified, for example, the focal factors that led the SMEs to decouple the novel business from the established one and to develop a parallel business model for the new offering. The key contribution of this

study lies in bringing forward the interrelatedness of business model innovation and strategic changes in the ecosystem.

Literature review

A business model is a widely accepted concept to describe the logic of how a company creates, captures and delivers value to its customers (Wirtz et al., 2016). Its core elements are value proposition, customer segments, revenue logic and organization of activities and resources. The business model of a company is not static, but in response to the changing environment or to expand its business, the company needs to innovate the element(s) of its business model to ensure its viability. This topic of business model innovation has been investigated widely during the past decade (Foss & Saebi, 2017; DaSilva & Trkman, 2014; Schneider & Spieth, 2013;), also with a focus on SMEs (Albats et al., 2021; Rissanen et al., 2020; Asemokha et al., 2019; Heikkilä et al., 2017; Sainio et al., 2011) and/or on data-driven business models (Eriksson et al., 2021; Bouwman et al., 2019; Müller, 2019). However, existing research often seems to ignore the role of digitalization in business model innovation (Ritter & Lund Petersen, 2020).

When a company is seizing a novel opportunity that involves digitalization and leveraging data for services or solutions, the need for business model innovation is evident. Recently, there has been a growing interest among SMEs to search for new business opportunities based on data generated in their or their customers' operations (Ulander et al., 2019). Data-driven innovations use data as a core ingredient (Jetzek et al., 2014) to produce value-added for a company's internal use or for its customers. From the viewpoint of this study, it is significant that data-driven innovations can potentially change the underlying value-creation mechanisms and, in turn, have a significant impact on business models (Huberty, 2015).

Exploitation of the identified digital business opportunities requires flexibility of the business model; the company may need to switch between business models, modularize business processes, switch between parallel models or decouple activities (Doz & Kosonen, 2010). Digitalization of business promotes decoupling and often results in changes in the company's value chains (Autio et al., 2018). On the other hand, it also requires novel capabilities to handle the challenges related to the decoupling and reorganization of existing value chains (Warner & Wäger, 2019).

To our knowledge, the concept of ‘decoupling’ was first introduced by Meyer and Rowan (1977), then referred to organizational buffering to protect the core of the company. Later, in organizational studies, it has been applied to describe the gap between company goals, institutional needs and organizational practices (Stål & Corvellec, 2018; Bromley & Powell, 2012). Inherently, the concept also includes the idea of separation or disengagement, in line with the colloquial use of the term. However, over the years, the concept has received more detailed definitions, and its interpretation varies considerably across disciplines (besides management, the concept has been used, for example, in environmental sciences, finance and information technology).

In this study, we examine decoupling as an element of business model innovation in which organizational resources and value chains are reorganized. In this process, activities are coupled with other activities to contribute to a firm’s value creation and capture (Stål & Corvellec, 2018). However, tight coupling may result in rigidity; therefore, the degree of coupling is ‘a trade-off between efficiency and resilience’ (Roberts, 2004, 68). Business model innovation requires flexibility of the organization and therefore too tight coupling may decelerate or even prevent business model innovation. Instead, it may be that decoupling is needed to secure the future resilience of the business.

In this study, we are interested in organizational resilience—that is, a company’s ability to return to a stable state after disruptive events and its tolerance for turbulence and discontinuities (Bhamra, 2015). Business model innovation is considered one way to build organizational resilience (Niemimaa et al., 2019). However, given our focus on SMEs, we do not ignore entrepreneurial resilience but acknowledge that it is conceptually distinct from the organizational resilience of the venture (Hartmann et al., 2022; Ayala & Manzano, 2014). For us, organizational resilience incorporates two characteristics: adaptability and robustness. They combine endurance, preparedness and recovery with identification of opportunities, innovation and continuous learning (Buliga et al., 2016). Business model innovation can boost all these characteristics.

Methodology

Research Strategy

Our exploratory study was set up to understand how innovative SMEs adapt their existing business models when exploiting novel business opportunities related to the adoption of data-driven business ideas. Our focus lies in particular in the potentially resulting decoupling of the business model. We adopted an inductive approach and conducted a qualitative case study. We focused on two firms to combine a deep understanding of the cases with the possibility of pattern matching between them (Eisenhardt, 1989). In this respect, our study can be labelled a ‘matched-pair’ case study (cf. Piekkari et al., 2009). The selection of appropriate cases was based on the study’s purpose—what the researcher wants to be able to say about the unit of the analysis—and access to information (cf. Fletcher et al., 2018). In this exploratory study, we searched for companies that aimed to increase resilience through business renewal with the help of digital technology.

Two suitable case companies were found through a business development programme that facilitated the development of data-driven innovations. Both are Finnish-based SMEs, but they also operate in international markets (for detailed information, see Table 1). One of them offers ICT services, and the other manufactures steel products. Both companies search for growth through diversification from international markets. The following quote illustrates their aims well:

“We search for new business with an open mind as well as value added to our current business to secure survival and resilience.”

Case Companies

HygieFix has over 70 years of history in industrial manufacturing. Its products include specialized metal furniture and fixtures, which can be used in spaces that require high hygiene and ease of maintenance, such as hospitals, marine catering and professional kitchens. At the start of the business development programme, the standard product line consisted of physical products, but for quite some time, the top management of the company had played with ideas

on how to increase the value added to their products as a response to fierce competition. Then, COVID-19 started to severely affect one of its product lines.

“COVID-19 has affected some of our business areas very severely, including the marine side, which has lost about 40% of its turnover this financial year. This has pushed us to find a new direction. While COVID was a strong driver, I guess that without the slowdown of the market we would not have had time even to think about new business model innovations.”

They decided to put an effort into developing a digital solution that adds data-driven service elements to physical products.

ITguru specializes in Apple-based technology maintenance services for business customers. Over the years, it has developed technology tools to be used internally for running its own operations based on this technology; the company gets information on customers’ computers, for example, on the usage patterns, configurations and status of updates. The owner of the company set the aim to grow internationally; thus, they were looking for ways to expand.

“We have the goal to grow quite aggressively and internationalize our business, but it is not possible with our current services and products. Therefore, we started to create our new internationally scalable business by building on our organization’s expertise and capabilities, instead.”

The company decided to develop its internal tools further into a product that could be offered to the customers because they saw the need on the market accompanied by a lack of solutions.

Table 1. Overview of the case companies

<i>Company</i>	<i>Established</i>	<i>Employees (2021)</i>	<i>Industry/Sector</i>	<i>Product/Service</i>
HygieFix	2007 (has a history of 70+ years)	44	Metal and engineering	Furniture and fixtures made of steel

ITguru	2004	19	Information technology	Information technology services
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Data Collection and Analysis

The operations of the case companies were monitored for two years. The selected SMEs applied to the business development programme shortly after the pandemic hit the world. They started business model innovation in the fall of 2020 and have continued their development since. We followed this development process in real time from the start of the programme in 2020, and different data sources were available to us throughout this period. Furthermore, we had access to the companies' applications to the programme, where they described their initial ideas and motivations. In addition, we had access to the business plan materials that they worked on during the programme. In addition, secondary materials from companies' web pages have been utilized to better understand the context in which they operate.

When applying to the programme, the companies had to describe their business model with a 'business model canvas' (Osterwalder & Pigneur, 2010). During the programme, the business model canvases were updated, and in the interviews, we asked them to evaluate how their business models changed. For the interviews, key informants (i.e. the most knowledgeable persons related to the expected business model innovation and its aims) from each company were chosen. Typically, these persons were also actively involved in the business development programme as participants; additionally, they were responsible for business development and data-driven innovation initiatives in their respective organizations.

The analysis started with systematic thematic coding of the data using NVivo software. The thematic codes were derived from the literature, particularly from the business model canvas (Osterwalder & Pigneur, 2010). Additionally, we used codes to analyse the motivation for business model innovation, the description of the data-driven innovation, the research context and the informants' perceptions of the relationship between the existing and the new business models. A list of the codes is compiled in Table 2.

Table 2 List of codes

Code	Description
Trigger for data-driven business model innovation	The reasons why the company has decided to embark on innovating on the use of data
Data-driven innovation	Description of the data-driven innovation the company has been working on
Value proposition	Customer value proposition
Customers, relationship & channels	Customer segments, what kind of relationship is formed with the customers and how the potential customers are reached
Earnings and revenue flows	Earnings logic of the data-driven innovation
Resources, processes, capabilities & costs	What new resources and processes the company needs to develop to deliver the new solution, what kinds of capabilities it needs, and what kinds of costs are related to the production
Networks	What kind of new partners the company needs to first develop the data-driven innovation and later on to deliver the expected customer value
The relationship between old and new business model	What is the role of the new business model in relation to the existing business model when the data-driven innovation is launched and what is the plan for the future

Findings

Business Model Innovation in the Case Companies

Although the integration of a physical product and data-driven service is considered necessary for the international growth of **HygieFix**, top management does not expect any major changes in the value proposition to the customer. High-level hygiene, safety and easiness of the fixtures and cabinets will remain at the core of the value proposition as the new services will be offered, for example, to hospitals, to provide better data on the material flows that are stored or passed through the cabinets. The data are utilized in monitoring the consumption of materials in the customers' processes. This information will help the customer to design their materials logistics better and to, for instance, make better estimates of future needs.

“The data is collected on the flow of materials which are passed through our products e.g. to the operating theatre. We gather data on the inflow and usage and are able to tell when there is a need for replenishment.”

This means that instead of “dumb” steel products, customer value is delivered through a clever cabinetry that plays an essential role in the customer's materials management process.

“In the new business model we are no longer the supplier of a single piece of steel or a wall element, but deliver something else to the customer's value chain, thereby bringing them cost savings and also increasing patient safety.”

The new business model differs significantly from the existing model in terms of how customers are reached and the relationships formed with them. In addition, the purchasing decision-maker is likely to be different, even though the end users remain the same. Whereas in the current business, the new deals are won by participating independently in the tendering processes of big building projects (such as hospitals), in the new model, the company needs to become part of an alliance that offers a more complete solution to the building. In addition, the new business model requires the company to become involved in the daily operations of the buildings, which means significant changes in the partner network. Earlier, it was enough to collaborate with specialized construction and engineering companies; now, it needs partners that are involved in material flow processes in hospitals. In principle, the company can either collaborate independently with multiple international partners or decide to make an exclusive agreement with a selected international solution provider.

“Now we can provide that data to either the hospital directly or its logistics companies who are taking care of daily material supply. If the information is utilized to the fullest extent they can save unnecessary work effort and improve their supply processes.”

The new data-driven solution requires additional resources and capabilities, as some completely new activities in the domain of software development are crucial parts of customer value creation. On the one hand, the company needs to perform some new activities when its solution is integrated into the daily material flows of the user organization. In addition, the company needs to coordinate and manage the activities acquired from its partners. This requires a sufficient level of technological understanding that the company does not yet have, but it is developing. In addition, the new kind of collaboration with sales or delivery partners challenges the company in developing new capabilities in the area of partnership management.

“If we start with the key partners, key activities and resources, so in the same way as [name of the managing director] mentioned that we’re moving from welders to coders, so the domain of software and apps becomes even more important. And the question of how we integrate with the customers’ logistics systems. So in that sense our whole approach towards accessing the hospital changes.”

Furthermore, although the end users of the new solution may at least partly be the same as the users of existing physical products, customers may acquire the new solution in multiple alternative ways, as hospitals are being built with different contract models. In addition to the variety of new construction productions, there is the potential to retrofit existing buildings. As a result, the company will have several parallel sales channels to reach potential customers. In the future, independent of the sales channel, customer relationships are expected to become more stable and long lasting, thus gradually replacing existing transaction/project-based customer relationships. This will hopefully result in more continuous and predictable revenue streams, which will improve the resilience of the company.

ITguru is developing a new business model to first diversify and eventually replace the current business model built around the use of its technology. In essence, the novel data-driven service will build on the same core technology that has been the key resource in the earlier business model, but its user base has expanded beyond the internal users within the company, and the service has become more holistic; instead of offering a specific IT service, the company will provide an outsourced IT management function.

“We have been developing tools to support our own work processes and have noticed that there are no similar tools available anywhere in the world.”

The data-driven service solution will be applied in multiple ways, in what will eventually be a platform solution around the core technology and tools that are offered to customers. The company is seeing multiple different use cases for the technology, and in the first phase, it is focusing on a data-driven service in which the customer gets access to specific tools and data that partially replace what the services the company has been offering.

In the earlier business model, they used the technology to produce outsourced technology management services for one customer group: companies using Apple computers. By developing a new user interface, the company is able to broaden the potential user base since the user does not have to have deep technological expertise.

“Opening the use of the technology to customers necessitates a different kind of user interface... But the fact that it [technology] could be exploited by someone else means that tool needs to be rebuilt and similarly also the business model around it.”

Further development into a platform solution opens doors to a larger customer base, and it can be expected that this will broaden the customer base of the case company in the end. The customers can be individual Apple users or information technology staff at the company level. **ITguru** also recognized some user groups outside customer organizations that would find the data valuable. However, to enable this, the company needs to combine, analyse, enrich, aggregate and anonymize the data to meet the needs of each customer group. There are multiple potential revenue streams to be realized in the future, but the value creation logics differ.

“This is a platform business, i.e. a technology platform where end-users can access services either free of charge or for a small fee. And a company customer pays a monthly fee for having data covering the entire organization. Moreover, differing service providers also pay for the use of the platform. The platform also provides an easy way to order for example maintenance, i.e. a button to order maintenance. It tells you where the nearest Apple service is and provides cost estimates. These service providers pay us when we pass on to them customers.”

The addition of data-driven services and platform operating logic increases the complexity of the business. The company is expecting to operate through multiple distribution channels—

alongside the existing one—and there will also be parallel revenue streams from various customer groups, some of which are very different from existing customers. Besides current organizational customers, the company is also preparing to serve individuals and, at the same time, to serve very different kinds of organizational customers with quite a different use for the data. Overall, the complexity of the business model will increase considerably.

This also implies the need for additional resources and capabilities, as well as refined or even completely new processes. Customer service processes are a focal process to be developed when the company grows internationally with data-driven services.

“We are changing our processes so that as we begin to attract international users, so that we are capable of offering support and to do selling and marketing internationally. We have been building that platform for a while now. When we launch the product, it needs to be done so that the users get support, we have means to support our internal operations, we invoice and so on.”

The company needs to broaden and further develop its existing capabilities. To serve a multitude of different customer or user groups, there is a need for diversity in the use of key resources.

Cross-Case Analysis

When comparing the companies, there are many similarities but also significant differences. Starting with the technology that is the basis for the data-driven solution, and hence a focal resource, there is a considerable difference in the newness of technology. **ITguru** is leveraging an existing technology with which it is very familiar. On the contrary, **HygieFix** is adopting many new technologies; therefore, there is a considerable need for new capabilities and partners, which would enable a new kind of customer relationship. However, neither company has sufficient data to build the data-driven innovation at the moment, so both are facing a new situation in that sense. Nevertheless, compared to **HygieFix**, **ITguru** is not expecting to develop many new processes and capabilities, but it needs to put more emphasis on developing already existing ones further. For example, the availability of customer support for **ITguru** customers necessitates that the support language selection be broadened, whereas **HygieFix** has not even provided customer support for the ongoing customer relationship.

Due to the introduction of a data-driven service, *HygieFix* needs to restructure its business network significantly, as it needs to integrate into a more comprehensive solution. In other words, to reach customers and become part of new building projects, the company needs to collaborate with new partners. On the other hand, *ITguru* does not need to expand its partner network; instead, it needs to broaden its customer base.

Both companies will need to renew their earnings logic. *ITguru* already has monthly subscription-based invoicing, but *HygieFix* is now preparing for it. Then again, *ITguru* expects multiple revenue streams from different kinds of customer groups, which is a more complex setup than the present arrangement. In parallel with the changing earnings logic, customer relationships are also changing. *HygieFix* strives to build partnerships with its customers, and these partnerships will be enabled by the ongoing value delivery of the data-driven service. *ITguru* is preparing for a gradual increase in the different types of customers but acknowledging that not all possible customer groups are realized.

Management of Parallel Business Models

While the innovative new data-driven business model provides potential for international growth in both companies, they also pointed out that as the new business model radically differs from the original business model, the complexity within the organizations' operations has increased. At the same time, markets are also changing. All this creates challenges in managing the business and maintaining the resilience of the company.

HygieFix, which originally served two industry segments, began offering a new business model in only one of the segments: hospitals. One of the reasons for the selection of this specific segment was that new building projects are increasingly adopting the alliance model. In the alliance model, the parties—contractors, architects, structural designers, civil engineering designers, building consultants and clients—work much more closely together than in the contract model projects. Consequently, smaller parties, such as HygieFix, can have more voice, get a better understanding of customer's challenges and have a better possibility of introducing innovations into hospitals.

“Surely the changes [in our business model] will take place in stages, and the development will continue all the time... But there will certainly be a gradual transition,

the old operating models will disappear and be forgotten, but some small hospitals will certainly still want certain old-fashioned cabinets for smaller units.”

However, in autumn 2021, after one year of business model development, the company announced that its business had been divided into two parallel companies. The new company focuses on demanding health care fixtures, and the original company continues its operations with marine catering and professional kitchen furniture. By decoupling the two business segments, the company is securing its resilience, particularly the adaptability of operations and the ability to develop business models in the future.

“The division will strengthen the identity of both companies and create better opportunities for both companies to focus on developing their own business areas.”

Moreover, there are some differences in the resources and capabilities needed to run the operations of the new business compared to the old business, which may also be an important driver in separating the two units. The company is preparing to operate the new business model in domestic and international markets. The market niche in the domestic market does not offer the growth potential that the company is looking for, so international growth appears necessary to reach its goals.

ITguru continues to operate as one company. Based on the similarity of customer needs, the solution can be offered in the home market and for international customers; the needs seem to be similar across the world. The company does not have experience in operating with international customers, although some of its domestic customers do have overseas operations. Despite similar customer needs across markets, the company has decided to provide the platform-based service only outside its home markets to avoid competing against the company’s current offering.

“In fact, we have made a decision that we will probably not launch the service in Finland, due to the fact that we would be cannibalizing our own current business.”

Thus, in the home market, the company will continue operating the existing business model for now. It is actually treating the domestic market as a testbed for the functioning and development of technology.

Discussion and Conclusions

This study responds to the call for a better understanding of digitalization in business model innovation (Ritter & Lund Petersen, 2020). In particular, we want to understand how SMEs innovate their existing business models to support new business ideas and whether this leads to the decoupling of business models. We followed the emergence of business model innovation in two SMEs for two years and identified the focal factors that led the SMEs to innovate new data-driven business models and how the adoption of the new business model resulted in the decoupling of organizational activities, even affecting the organizational structure of the companies.

The companies examined in this study have embarked on a journey towards new kinds of business models for data-driven innovations. The development of data-driven innovation and the parallel development of the business model were motivated by the companies' need to grow internationally and develop their resilience. Similar needs for increased resilience, international growth and resilience building have also been noted in other studies during the COVID-19 pandemic (see e.g. Fath et al., 2021).

Our analysis of the case companies suggests that the motivations behind the decision to seek international growth via data-driven services may be different for each company. On the one hand, *HygieFix* was facing multiple challenges: declining market in one business area, fierce competition from low-cost international providers in another business area and the changing purchasing models related to how hospitals are being built. On the other hand, *ITguru* was seeing opportunities in globally similar customer needs that could be solved with its technology and with the potential of creating a platform solution around it.

Both companies bring forward interesting insights from the viewpoint of decoupling. Although the same physical product is the core of both business models of *HygieFix*, the business model innovation calls for substantial renewal in resources, processes, capabilities, customer channels and relations, as well as partners. The new business model is therefore developed as an independent organization, and the other business areas continue operating the old model. Thus, *HygieFix* is decoupling the novel business model from the existing business model, mainly because adding data-based services to its offering adds too much complexity to its current organizational structure. For *HygieFix*, the aim of decoupling the business models—separating the new business model into an independent company—is to find a way to manage complexity.

Top management believes that the management of two different businesses parallel to each other is simpler than the management of one very complex business. In other words, with decoupling, it is increasing the fluidity of its resources and decreasing inertia due to existing structures (cf. Doz & Kosonen, 2010).

On the other hand, the starting point for decoupling in the case of *ITguru* is quite different. Its aim in decoupling was to better meet the needs of the markets and customers. It has decided to decouple the home market business model from the one it applies to international markets. Interestingly, top management plans to serve all international markets with one business model without any adaptations. However, when the plans materialize, it is possible that although the business models in different markets may appear similar at first glance, a closer look may reveal minor differences (cf. Sainio et al., 2011). In the case of *ITguru*, decoupling seems market- or customer-driven, as both models serve similar customer needs, but the role of the company is different in the models; therefore, it is possible that one cannibalizes the other.

In addition to organizational or customer-related factors, it is possible that the core technology leveraged in data-driven innovation may play a role in explaining the need for decoupling business models. Building on the use of technologies with which the company is familiar allows the company to utilize its existing capabilities. On the contrary, the novelty of the core technologies for the company entails that the company needs to develop new capabilities to be able to at least collaborate with technology providers (cf. Cohen & Levinthal, 1990, on absorptive capacity).

In our opinion, this study provides an interesting new perspective for scientific discussion on the role of business model innovation as a means to increase the resilience of internationally growing companies. Earlier literature on resilience and continuity management has studied and even provided tools to analyse how resilient existing business models are with respect to market uncertainties and which elements of the business model should be adapted for incremental innovation (Haaker et al., 2017). However, this study deviates from prior research, as it makes it explicit that companies can increase resilience by radically innovating their business models and this may result in a decision in which the existing and new business models are decoupled.

Our exploratory study offers interesting insights into a topic that has received relatively little attention thus far. We were able to shed some light on data-driven business model innovation and decoupling from the viewpoint of resilience building in international markets. However,

we must admit that we have only scratched the surface and that the phenomenon would definitely deserve more attention. We hope that in the future, scholars will conduct further studies on the topic, addressing, for example, the question of when a new business model is needed. An interesting approach could be to link organizational resilience and business model innovation with serial entrepreneurship and to study what kind of reasoning serial entrepreneurs use when making decisions on the (de)coupling of organizational activities. For example, how much resilience or changes in the business model drive their decisions to establish a new company. We think that introducing insights from the entrepreneurship literature to this discussion would offer fruitful avenues for further discussion on the emergence of serial entrepreneurship, for example.

References

- Albats, E., Podmetina, D., & Vanhaverbeke, W. (2021). Open innovation in SMEs: A process view towards business model innovation. *Journal of Small Business Management*, 1-42. <https://doi.org/10.1080/00472778.2021.1913595>
- Asemokha, A., Musona, J., Torkkeli, L., & Saarenketo, S. (2019). Business model innovation and entrepreneurial orientation relationships in SMEs: Implications for international performance. *Journal of International Entrepreneurship*, 17(3), 425-453.
- Autio, E., Nambisan, S., Thomas, L. D., & Wright, M. (2018). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12(1), 72-95.
- Ayala, J. C., & Manzano, G. (2014). The resilience of the entrepreneur. Influence on the success of the business. A longitudinal analysis. *Journal of Economic Psychology*, 42, 126-135.
- Bhamra, R. (Ed.). (2015). *Organisational resilience: Concepts, integration, and practice*. CRC Press/Taylor & Francis Group: Boca Raton.

Björkdahl, J. (2020). Strategies for digitalization in manufacturing firms. *California Management Review*, 62(4), 17-36.

Bouwman, H., Nikou, S., & de Reuver, M. (2019). Digitalization, business models, and SMEs: How do business model innovation practices improve performance of digitalizing SMEs? *Telecommunications Policy*, 43(9), 11-18.

Bromley, P., & Powell, W. W. (2012). From smoke and mirrors to walking the talk: Decoupling in the contemporary world. *Academy of Management Annals*, 6(1), 483-530.

Buliga, O., Scheiner, C. W., & Voigt, K. I. (2016). Business model innovation and organizational resilience: towards an integrated conceptual framework. *Journal of Business Economics*, 86(6), 647-670.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152.

DaSilva, C.M. & Trkman, P. (2014). Business model: What it is and what it is not. *Long Range Planning*, 47(6), 379–389.

Doz, Y. L., & Kosonen, M. (2010). Embedding strategic agility: A leadership agenda for accelerating business model renewal. *Long Range Planning*, 43(2-3), 370-382.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.

Eriksson, T., Heikkilä, M., & Nummela, N. (2021). Crafting SME business model for international expansion with data-driven services. In: *Business Models and Firm Internationalization*, eds. Christian Nielsen, Svetla Marinova & Marin Marinov, Routledge, 137-151.

Fath, B., Fiedler, A., Sinkovics, N., Sinkovics, R. R., & Sullivan-Taylor, B. (2021). International relationships and resilience of New Zealand SME exporters during COVID-19. *critical perspectives on international business*, 17(2), 359-379.

Fletcher, M., Zhao, Y., Plakoyiannaki, E. & Buck, T. (2018). Three pathways to case selection in international business: A twenty-year review, analysis and synthesis. *International Business Review*, 27(4), 755-766.

Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come and where should we go? *Journal of Management*, 43(1), 200-227.

Haaker, T., Bouwman, H., Janssen, W., & de Reuver, M. (2017). Business model stress testing: A practical approach to test the robustness of a business model. *Futures*, 89, 14-25.

Hartmann, S., Backmann, J., Newman, A., Brykman, K.M. & Pidduck, R.J. (2022) Psychological resilience of entrepreneurs: A review and agenda for future research, *Journal of Small Business Management*, DOI: [10.1080/00472778.2021.2024216](https://doi.org/10.1080/00472778.2021.2024216)

Heikkilä, M., Bouwman, H. & Heikkilä, J. (2017). From strategic goals to business model innovation paths: an exploratory study. *Journal of Small Business and Enterprise Development*, 25(1), 107-128.

Huberty, M. (2015). Awaiting the second big data revolution: From digital noise to value creation. *Journal of Industry, Competition and Trade*, 15(1), 35-47.

Jetzek, T., Avital, M., & Bjorn-Andersen, N. (2014). Data-driven innovation through open government data. *Journal of Theoretical and Applied Electronic Commerce Research*, 9(2), 15-16.

Kano, L., & Hoon Oh, C. (2020). Global value chains in the post-COVID world: Governance for reliability. *Journal of Management Studies*, 57(8): 1773-1777.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340-363.

Müller, J. M. (2019). Business model innovation in small-and medium-sized enterprises: Strategies for industry 4.0 providers and users. *Journal of Manufacturing Technology Management*, 30(8), 1127-1142.

Niemimaa, M., Järveläinen, J. Heikkilä, M. & Heikkilä, J. (2019). Business Continuity of Business Models: Evaluating the Resilience of Business Models for Contingencies, *International Journal of Information Management*, 49, 208-216.

Osterwalder, A., & Pigneur, Y. (2010). Business model generation: a handbook for visionaries, game changers, and challengers (Vol. 1). John Wiley & Sons.

Piekkari, R., Welch, C., & Paavilainen, E. (2009). The case study as disciplinary convention: Evidence from international business journals. *Organizational Research Methods*, 12(3), 567-589.

Randhawa, K., Wilden, R., & Gudergan, S. (2021). How to innovate toward an ambidextrous business model? The role of dynamic capabilities and market orientation. *Journal of Business Research*, 130, 618-634.

Rissanen, T., Ermolaeva, L., Torkkeli, L., Ahi, A. & Saarenketo, S. (2020). The role of home market context in business model change in internationalizing SMEs. *European Business Review*, 32(2), 257-275.

Ritter, T. & Lund Pedersen, C. (2020). Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*, 86, 180-190.

Roberts, J. (2004). *The modern firm: Organizational design for performance and growth*. Oxford, UK: Oxford University Press.

Sainio, L. M., Saarenketo, S., Nummela, N. & Eriksson, T. (2011). Value creation of an internationalizing entrepreneurial firm: The business model perspective. *Journal of Small Business and Enterprise Development*, 18(3), 556-570.

Schneider, S. & Spieth, P. (2013). Business model innovation: towards an integrated future research agenda. *International Journal of Innovation Management*, 17(1), 1–34.

Schoemaker, P. J., Heaton, S., & Teece, D. (2018). Innovation, dynamic capabilities, and leadership. *California Management Review*, 61(1), 15-42.

Stål, H. I., & Corvellec, H. (2018). A decoupling perspective on circular business model implementation: Illustrations from Swedish apparel. *Journal of Cleaner Production*, 171, 630-643.

Ulander, M., Ahomäki, M. & Laukkanen, J. (2019). *The future of European companies in data economy*. Helsinki: Sitra.

Warner, K. S., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326-349.

Wirtz, B.W., Pistoia, A., Ullrich, S. & Göttel, V. (2016). Business Models: Origin, Development and Future Research Perspectives. *Long Range Planning* 49(1), 36–54.

Wollersheim, J., & Heimeriks, K. H. (2016). Dynamic capabilities and their characteristic qualities: Insights from a lab experiment. *Organization Science*, 27(2), 233-248.