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The Trajectories of Digital Entrepreneurship: Disentangling the Digital

Short Paper

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Abstract

Recent advances in digital technologies have transformed various aspects of entrepreneurship, such as the locus of entrepreneurial agency, or boundaries of products and services. This has created new room for entrepreneurial activity, referred to as digital entrepreneurship. Despite the growing importance of digital entrepreneurship, our understanding of the digital component in digital entrepreneurship remains limited. Extant research offers limited guidance for addressing questions pertaining digital entrepreneurship, as underlying assumptions are increasingly being challenged. This short paper reports on a study with the intention to explore the role of digital technologies in shaping the trajectories and shifts thereof of emerging digital entrepreneurial firms. We intend to employ an exploratory design, drawing on several cases of digital entrepreneurship to develop a new theoretical perspective that regards the unique characteristics of digital technologies. In doing so, we seek to determine the mechanisms by which digital technologies shape entrepreneurial trajectories and shifts thereof.

Keywords: Digital Entrepreneurship, Entrepreneurial Trajectories, Digital Technology, Digitization

Introduction

Recent advances in digital technologies have transformed various aspects of entrepreneurship (Nambisan 2016; Svahn et al. 2017; von Briel et al. 2017). For instance, the decoupling of form from function, and media from content, afforded by digital technologies, allows for combination of formerly unrelated elements into new innovative products and services (Tilson et al. 2010; Yoo 2010). This, in turn, has created new room for entrepreneurial activity located at the intersection between digital technologies and entrepreneurship – referred to as *digital entrepreneurship* (Davidson and Vaast 2010; Huang et al. 2017; Lyytinen et al. 2016; Nambisan 2016; Porter and Heppelmann 2014; Tilson et al. 2010; Yoo et al. 2010). However, despite the growing importance of digital technologies for entrepreneurship, our understanding of the digital component in digital entrepreneurship remains limited.

Extant research acknowledges the important role of digital technologies in *supporting* the tasks of product and service innovation (Fichman et al. 2014; Nambisan 2013). However, as digital technologies become an increasingly important part of entrepreneurial processes and outcomes, novel questions and challenges arise at the intersection of digital technologies and entrepreneurship. For example, while digital technologies enable the convergence of heterogeneous and unrelated knowledge and information into new products and services (Dougherty and Dunne 2012), such as driverless cars (Stewart 2017), it is still largely undiscovered how entrepreneurial firms can manage product and service innovation by emphasizing the use of digital technologies (Lyytinen et al. 2016). Extant research offers limited guidance for addressing questions and challenges pertinent to digital entrepreneurship, as the infusion of digital technologies increasingly challenges assumptions underlying existing studies (Nambisan 2016; Nambisan

et al. 2017; Yoo et al. 2010). Specifically, extant research does not allow for incorporating the specific characteristics of digital technologies. This is problematic because all areas of emerging digital entrepreneurial firms are deeply impacted by digital technologies (Tumbas et al. 2015), including product development (von Briel et al. 2017; von Briel and Recker 2016) and organization design (Zammuto et al. 2007).

This situation calls for closer investigation of the *digital component* in digital entrepreneurship, that is, the specific artifacts enabled by information technology (IT). The present *short paper* reports on a study with the intention to address one of the most pressing questions pertinent to the digital component in digital entrepreneurship, namely, the role of digital technologies in shaping the trajectories and shifts of emerging digital entrepreneurial firms. A *trajectory* is an entrepreneurial firm's future path, aimed at developing new products and/or services (Dosi 1982; Garud and Karnøe 2003; Garud and Rappa 1994; Henfridsson and Yoo 2014). Accordingly, we understand a *trajectory shift* as the conception of a new trajectory during entrepreneurial emergence, which is consequently pursued (Garud and Rappa 1994; Henfridsson and Yoo 2014). Trajectories in entrepreneurship (Dosi 1982; Garud and Karnøe 2003; Garud and Rappa 1994) have been early on theorized as constituents of technological innovations and the "*co-evolution of beliefs, artifacts and evaluation routines*" (Garud and Rappa 1994, p. 346) that emerging digital entrepreneurial firms set out to explicate during emergence. Entrepreneurial trajectories form a critical antecedent of an emerging digital entrepreneurial firm's future evolution (Garud et al. 2014; Garud and Karnøe 2003; Sydow et al. 2009).

Digital technologies supposedly shape such entrepreneurial trajectories (Nambisan 2016). However, the working mechanisms of such trajectories in digital entrepreneurship remain unexplained, and research on the role of digital technologies in shaping trajectories is called for (Nambisan 2016). This leads to the research question guiding the present paper:

How do digital technologies shape the trajectories and shifts thereof of emerging digital entrepreneurial firms?

To answer our research question, we intend to develop a new theoretical perspective on digital entrepreneurship that explicitly regards the unique characteristics and properties of digital technologies. We aim to achieve this by (1) identifying the mechanisms by which digital technologies shape the trajectories and shifts thereof of digital entrepreneurial firms, and (2) conceptualizing the role of digital technologies in this context. Due to the limited guidance extant research offers, we will address our research question through an exploratory, predominantly inductive research design drawing on qualitative data from digital ventures (i.e., emerging entrepreneurial firms that develop products and/or services that are embodied in or enabled by digital technologies). We intend to collect data by conducting an in-depth multiple-case study (Eisenhardt 1989; Yin 2009) of digital entrepreneurship in the financial services sector. The exploratory, inductive research design will allow us to understand trajectories and their shifts as shaped by digital technologies, within their organizational and institutional context.

This paper proceeds as follows. First, we elaborate on digital entrepreneurship and the use of digital technologies in digital entrepreneurship. We then map out why extant research offers limited guidance for understanding questions and challenges pertinent to digital entrepreneurship. We conclude the theoretical dissection with an outline of the trajectories of digital entrepreneurship. Second, we provide a comprehensive account of our proposed research design and describe the research steps we intend to take. We conclude this paper with an outlook on our anticipated contributions.

Related Work

Digital Entrepreneurship and Digital Technologies

There is growing consensus that entrepreneurship is a "*process, through which new economic activities and organizations come into existence*" (Davidsson 2003; Davidsson 2015, p. 675; Gartner 1989; McMullen and Dimov 2013; Shane and Venkataraman 2000). The infusion of digital technologies into entrepreneurship heralds a new wave of entrepreneurship, referred to as *digital entrepreneurship* (Davidson and Vaast 2010; Lyytinen et al. 2016; Nambisan 2016). Digital entrepreneurship is expected to play an increasingly important economic and societal role in terms of source of innovation, job creation, and economic growth (European Commission 2015; Gimmon and Levie 2010; Grilli and Murtinu 2014;

Leong et al. 2016; Nambisan 2016). Policy makers have already begun to recognize the importance of digital technologies for entrepreneurship. For instance, with the *Entrepreneurship 2020 Action Plan*, the European Commission has launched an initiative to promote entrepreneurial activity within the European Union in general, and the use of digital technologies for such endeavors in particular (European Commission 2015).

Digital technologies, such as 3D printing, cloud computing, and electronic development platforms, change various aspects of entrepreneurial processes and outcomes (von Briel et al. 2017; von Briel and Recker 2016; Yoo et al. 2012). More specifically, in the context of digital entrepreneurship, digital technologies become an increasingly important part of entrepreneurial processes and outcomes (Lusch and Nambisan 2015; Nambisan 2013; Nambisan 2016; Nambisan et al. 2017), thereby changing both, their nature and content (Henfridsson et al. 2014; Lyytinen et al. 2016; Nambisan et al. 2017). In terms of processes, this means that digital technologies change *how* entrepreneurial firms innovate (e.g., develop new products and services). For example, through the integration of heterogeneous sources of knowledge and the advent of a whole string of digital tools and infrastructures (e.g., 3D printing, cloud computing, etc.) (Yoo et al. 2012), digital technologies can initiate entirely new forms of innovation in terms of processes and organizational routines, which cannot exist without digital technologies (Nambisan et al. 2017; von Briel et al. 2017). Consider a study conducted by Dougherty and Dunne (2012) an example, in which the authors demonstrated how digital technologies can transform drug discovery processes through the creation of new forms of knowledge (e.g., bioinformatics or genomics) which enabled product innovators to more effectively deal with complex innovation.

In terms of outcomes, the infusion of digital technologies into entrepreneurship implies an emphasize on products and services, in addition to processes (Svahn et al. 2017; Yoo et al. 2010). In this sense, entrepreneurial outcomes, in terms of products and services that entrepreneurial firms develop, are embodied in or enabled by digital technologies, and undergo radical reconfigurations afforded by digital technologies (Henfridsson et al. 2014; Lusch and Nambisan 2015; Nambisan 2013; Nambisan 2016; Yoo et al. 2010). Thus, digital technologies increasingly form an inherent part of the outcomes of entrepreneurship and enable new kinds of products and services. Consider e-book readers a case in point, which “replaced an old physical artifact with a new one with similar form factors”, enhanced by digital capabilities (e.g., memory and programmability) (Yoo et al. 2010, p. 725). To sum up, in the context of digital entrepreneurship, digital technologies are at the core of entrepreneurial processes and outcomes in terms of products and/or services (Nambisan 2016; Nambisan et al. 2017).

This digitalization of entrepreneurship poses new questions and challenges at the intersection between digital technologies and entrepreneurship (Nambisan 2016; von Briel et al. 2017). More specifically, the infusion of digital technologies into entrepreneurship has transformed the nature of and ways of dealing with uncertainty inherent in entrepreneurial processes and outcomes (Benner and Tushman 2015). In turn, this requires the careful consideration of the unique characteristics of digital technologies for addressing challenges pertinent to digital entrepreneurship in research (Nambisan 2016). However, past research on entrepreneurship offers limited guidance for addressing the challenges that arise through the digitalization of entrepreneurship, as extant research does not allow for incorporation of unique characteristics and properties of digital technologies (Benner and Tushman 2015; Nambisan 2016; Nambisan et al. 2017). Nambisan (2016) even asserts that digital technology has merely been treated as “context for empirical work” (Nambisan 2016, p. 2) in entrepreneurship research, rather than being subject to rigorous theorizing. One reason for the limited guidance extant research offers is that the digitalization of entrepreneurship increasingly challenges assumptions underlying the existing body of knowledge (Benner and Tushman 2015; Nambisan 2016; Nambisan et al. 2017; Yoo et al. 2012). We illustrate this claim based on three assumptions that are challenged by the digitalization of entrepreneurship and innovation.

First, the extant body of knowledge presupposes an individual-opportunity nexus of entrepreneurship and a primary role for the entrepreneur (Nambisan 2016; Nambisan et al. 2017). With the infusion of digital technologies, however, the locus of entrepreneurial agency becomes increasingly distributed across a constantly evolving set of actors with diverse goals (Aldrich 2014; Nambisan 2016). For instance, MakerBot open-sourced design details of their first generations of 3D printers and encouraged their customers to hack, manipulate, and reconfigure the 3D printers. Developments of the customer community were in turn incorporated into future generations of MakerBot’s products (West and Kuk

2016). Such distributed entrepreneurial agency in turn affects the way in which entrepreneurial activities are carried out, and poses new challenges to coordination and decision making. For example, entrepreneurial firms increasingly draw on crowdsourcing as a way of pursuing their entrepreneurial endeavor. Again, consider MakerBot and its affiliated online platform for sharing user-created digital design files, *Thingiverse*, a case in point. MakerBot drew on developments made by the community (or “the crowd”) to progress the development of its products. To do so, MakerBot made use of modifications uploaded as design files to Thingiverse for improving their 3D printers (e.g., to improve the printing accuracy of extruders) (West and Kuk 2016). Consequently, on the one hand, crowdsourcing as one kind of digital technology-enabled phenomenon facilitated the distribution of entrepreneurial actions across a diverse set of actors in the case of MakerBot, but on the other hand it imposed new challenges regarding coordination, communication, and collaboration.

Second, existing research presumes relatively stable product and service boundaries underlying entrepreneurial opportunities (Davidsson 2015; Nambisan 2016). However, most digital products and services nowadays remain intentionally incomplete and can be expanded and modified even after a product has been shipped (Lyytinen et al. 2016; Yoo et al. 2010). Such products and services are characterized by fluid and extendable boundaries, and are continually in the making (Garud et al. 2008; Kallinikos et al. 2013; von Briel et al. 2017). This in turn introduces a certain degree of generativity (Yoo et al. 2010), thereby directing entrepreneurial actions towards developing products and services that facilitate continuous evolution (Nambisan 2016). Consider cars by Tesla a case in point, where entirely new functions were rolled out even after the products had been shipped, for example, an autopilot function for the car (Stewart 2017).

Third, past research treated the processes and outcomes of entrepreneurship as distinct units of analysis, and either focused on one or the other (process or outcome), while ignoring the interdependencies between both (Nambisan et al. 2017). However, as digital technologies infuse into entrepreneurial processes and outcomes, these interdependencies grow more complex and dynamic, potentially leading to unintended effects (see, e.g., Dougherty and Dunne 2012; Lee and Berente 2012). For example, digital technologies can lead to shifting innovation foci, which also holds implications for entrepreneurial outcomes (Nambisan et al. 2017). Thus, research on the role of digital technologies in entrepreneurship needs to regard processes and outcomes as well as the intermingling of both (Nambisan et al. 2017).

In sum, digital entrepreneurship, both in terms of processes and outcomes, can be described as *effectual* (Arend 2015; Leong et al. 2016): through the infusion of digital technologies into entrepreneurship, entrepreneurial processes become more fluid and porous (Nambisan 2016), and entrepreneurial outcomes become increasingly malleable, extendable, and modifiable (Lyytinen et al. 2016; Yoo et al. 2012; Yoo et al. 2010). In this sense, emerging digital entrepreneurial firms seek to invoke effects to cope with the changed nature of uncertainty brought about by the digitalization of entrepreneurship (Sarasvathy 2001). To do so, emerging digital entrepreneurial firms focus on the resources they have at hand (i.e., expertise, human capital, financial resources, partnerships) and leverage digital technologies to readily respond to emerging contingencies, and to create continuously evolving products and/or services (Fisher 2012; Leong et al. 2016; Sarasvathy 2001). However, the exact nature of the *digital component* remains a black box and is under-conceptualized. This situation calls for closer investigation of the *digital component* in digital entrepreneurship, that is, the specific artifacts enabled by information technology (IT) – in both, entrepreneurial processes and outcomes.

The Role of Trajectories

One of the most useful ways to conceptualize and look at the digital component in digital entrepreneurship closely relates to one of the most pressing questions pertinent to the digital component in digital entrepreneurship: the role of digital technologies in shaping the *trajectories* and shifts thereof of emerging digital entrepreneurial firms (Nambisan 2016). Entrepreneurial trajectories have been of particular interest to scholars, for example, in terms of the progress of venturing efforts, or the creation of a functioning business (Dimov 2010; Levie and Lichtenstein 2010; Samuelsson and Davidsson 2009). As outlined above, a trajectory is an emerging (digital) entrepreneurial firm’s future path, aimed at developing new products and/or services (Dosi 1982; Garud et al. 2010; Henfridsson and Yoo 2014). Entrepreneurial trajectories encompass the exploration and exploitation of entrepreneurial *opportunities* (Davidsson 2015) and can be understood as a sequence of events through which new economic activity

(i.e., a digital venture) emerges (Davidsson et al. 2017). During emergence, emerging (digital) entrepreneurial firms focus their efforts on exploring and progressing ideas and thereby increasingly commit to a certain trajectory (Bakker and Shepherd 2017; Sydow et al. 2009; von Briel et al. 2017). While pursuing such a trajectory, emerging entrepreneurial firms discover and consider new, previously unavailable information, which lets them revise or reaffirm the decisions made thus far (Dimov 2010). As a consequence, entrepreneurial trajectories become an important antecedent of a firms' future survival and success (Dimov 2010; Gartner 1985; Marion et al. 2012; Schoonhoven et al. 1990; Zhao et al. 2015).

With the infusion of digital technologies into entrepreneurship, the trajectories of emerging digital entrepreneurial firms are supposedly shaped by these technologies (Nambisan et al. 2017). For instance, Lyytinen et al. (2016) took a first step towards demonstrating how digital technologies affect the way organizations innovate and can manage organizational innovation. Similarly, Nambisan (2016) claims that through digitalization, entrepreneurial trajectories potentially become fluid and variable, letting them “*unfold in a nonlinear fashion*” (Nambisan 2016, p. 6). Thus, entrepreneurial actions must purportedly entail greater degrees of trial and experimentation, and entrepreneurial firms need to brace themselves for pursuing more dynamic and shifting trajectories, afforded by digital technologies (Nambisan 2016). Consequently, as emerging digital entrepreneurial firms' trajectories are supposedly shaped by digital technologies, understanding exactly *how* digital technologies shape these trajectories is a central question for disentangling the digital component in digital entrepreneurship.

To analyze how digital technologies shape these trajectories, we aim to detect the *mechanisms* by which digital technologies afford and shape trajectories and shifts thereof in emerging digital entrepreneurial firms. In essence, mechanisms describe causal structures that explain a set of empirical events (Bhaskar 1998; Bygstad et al. 2015). In this sense, mechanisms are associated with both, phenomena observable in the real world, and the relations between them (Bygstad et al. 2015). Mechanism-based reasoning has gained popularity in technology-related research. For instance, mechanisms have been used to provide explanations of digital infrastructure evolution (Henfridsson and Bygstad 2013) and innovation in information infrastructures (Bygstad 2010). More recently, von Briel et al. (2017) employed mechanism-based reasoning to illustrate how new digital technologies can serve as external enablers for new venture creation. Specifically, von Briel et al. (2017) identified six enabling mechanisms (compression, conservation, expansion, substitution, combination, and generation) that digital technologies provide, thereby enabling new start-up activity in the IT hardware sector. Drawing on mechanisms as analytical construct will enable us to detect the processes underlying relationships between causes (e.g., digital technologies) and effects (e.g., trajectories) in digital entrepreneurship (Davidsson et al. 2017; von Briel et al. 2017).

There are several possible ways of operationalizing an emerging digital entrepreneurial firm's trajectories and shifts. For example, Garud and Rappa (1994) conceptualized the trajectories of new technology emergence as the co-evolution of *beliefs*, *artifacts*, and *evaluation routines*. In this context, beliefs form the developing entity's (i.e., an emerging digital entrepreneurial firm's) perception of the technological, historical, and institutional context it is embedded in; artifacts represent the constituent elements of an innovation (i.e., entrepreneurial outcomes); and evaluation routines are the values that underlie practices that legitimize an innovation (Garud and Rappa 1994; Henfridsson and Yoo 2014). Henfridsson and Yoo (2014) illustrate this point by operationalizing trajectory shifts as changes in at least one of the three constitutive elements and thereby describe how a new innovation trajectory is formed and enacted by institutional entrepreneurs. Consequently, since emerging digital entrepreneurial firms are concerned with developing products and/or services that are embodied in or enabled by digital technologies (Lyytinen et al. 2016), tracing the co-evolution of beliefs, artifacts, and evaluation routines serves to sketch emerging digital entrepreneurial firms' trajectories.

Another example includes von Briel et al.'s (2017) recent work: entrepreneurial trajectories are operationalized in terms of a model of new venture creation adopted from Bakker and Shepherd (2017), consisting of three process stages, namely *prospecting*, *developing*, and *exploiting*. Based on this, von Briel et al. (2017) conceptualize *how* and *when* several digital technologies (e.g., 3D printing and electronic development platforms) enable the formation and enactment of entrepreneurial trajectories in the IT hardware industry. The authors identified two conceptual dimensions that characterize digital technologies and their ability to shape entrepreneurial trajectories across the aforementioned stages in this context (von Briel et al. 2017): *specificity* and *relationality*. While specificity refers to the degree to

which digital technologies determine what kind of resources can serve as inputs for a given digital technology and how these inputs are transformed into outputs, relationality describes the set of relationships a given digital technology can establish and leverage to facilitate its functionality (von Briel et al. 2017). In analyzing the trajectories of digital entrepreneurship, drawing on the notions of specificity and relationality can aid in disentangling the digital component and its potential influence on entrepreneurial trajectories (von Briel et al. 2017).

The business model concept provides another alternative for operationalizing an emerging digital entrepreneurial firm's trajectories and shifts thereof. Broadly speaking, a business model refers to an organization's mode of conducting business (Amit and Zott 2010; Zott et al. 2011), and consists of several interrelated building blocks that express central organizational design elements (Casadesus-Masanell and Ricart 2010; Meyer et al. 1993; Miller 1996; Osterwalder and Pigneur 2002). This includes, for example *products and/or services offered, customer segments, resources and capabilities, and networks and partnerships* (Al-Debei and Avison 2010; Osterwalder 2004; Osterwalder et al. 2005; Wirtz et al. 2016). While pursuing a trajectory, entrepreneurial firms are in search for a scalable and repeatable business model by explicating the aforementioned design elements (Blank 2013). The business model concept could consequently serve as a sensitizing device and vehicle for operationalizing emerging digital entrepreneurial firms' trajectories as well as shifts. More specifically, the business model concept in terms of the aforementioned organizational design elements (Osterwalder and Pigneur 2010; Wirtz et al. 2016) 1) provides a framework for capturing and displaying emerging digital entrepreneurial firms' trajectories and 2) allows to trace the development of trajectories and shifts thereof over time. This, in turn, enables the detection of the mechanisms by which digital technologies shape entrepreneurial trajectories.

Proposed Research Design

Research Method

As novel theorizing is required for understanding challenges that arise in the context of digital entrepreneurship (Lyytinen et al. 2016; Nambisan 2016; Nambisan et al. 2017; von Briel et al. 2017), we aim to employ an exploratory, predominantly inductive research approach. In doing so, our aim is to explore and understand the role of digital technologies in shaping the trajectories of digital entrepreneurship in its socially embedded and organizational context (Miles et al. 2014; Myers 2009; Orlikowski and Iacono 2001). As a mode of inquiry, we will focus on an in-depth multiple-case study of emerging digital entrepreneurial firms for theory development based on empirical data collected (Eisenhardt 1989; Yin 2009). We intend to employ a multiple-case study, as drawing on several cases allows us to achieve higher generalizability and robustness of the emergent theoretical perspective (Eisenhardt et al. 2016). While the overall mode of inquiry will be exploratory and inductive in nature, several concepts and frameworks from the literature will inform the study and act as deductive lenses (e.g., conceptualizations of trajectories).

Data Collection

As our main objective is to develop a new theoretical perspective on digital entrepreneurship that explicitly regards the unique characteristics and properties of digital technologies, empirical data that allows us to derive insights on the role of digital technologies in shaping the respective case organizations' trajectories and shifts thereof forms the core for building such a perspective. We plan to draw on three primary data sources: (1) observation of emerging digital entrepreneurial firms; (2) interviews; and (3) reviewing of archival sources.

Observation will be used to develop a deep understanding of and become accustomed to the context in which the case organizations operate. In fact, we expect that observation will form a critical source of data to understand the nature and context of the case organizations' respective trajectories as well as shifts. Observation will include extended periods of time spent at the case sites, repeated interaction with members, or more generally, stakeholders of the respective case organizations, and participation in meetings and other working activities (e.g., workshops, sales pitches, etc.)

Semi-structured interviews with key personnel (i.e., founders and early employees) of emerging digital ventures are the second data source. In addition to interviewing key personnel of the respective case

organization, we will conduct semi-structured interviews with further stakeholders involved in the entrepreneurial trajectories. This includes, but is not limited to customers, venture capitalists, and external staff such as consultants or advisors. Interviews are expected to entail open-ended questions, using a predesigned guideline as a checklist. Questions will cover areas such as what technologies the entrepreneurial firms' products and/or services are embodied in or enabled by, how the founders came up with the idea for the entrepreneurial firm and how the products and/or services were developed, and, most importantly, what role digital technologies played in the formation of a trajectory, and when and why digital technologies afforded shifts of a trajectory during emergence. However, we intend to remain open towards new themes that emerge (e.g., during observation), and refine the interview procedure correspondingly. We do not intend to impose any fixed requirement regarding the number of interviews, but instead want to achieve theoretical saturation. Where possible, interviews will be audio-recorded and transcribed.

The third main source of data is documents and archival sources about the emerging digital entrepreneurial firm, such as reports, strategies, or technical specifications. We expect that documentation will provide further information on the case organization's entrepreneurial history and can be used for triangulation. Our intention is to broadly cover all areas that were shaped by digital technologies.

In the presented study, we intend to focus on "FinTech ventures" as one kind typical of emerging digital entrepreneurial firms. We define FinTech ventures as emerging digital entrepreneurial firms that use digital technologies (e.g., Blockchain technology; Yermack 2017) to offer products and services in the financial services sector (Leong et al. 2017). Our decision to focus on FinTech ventures as a particularly insightful phenomenon in the context of digital entrepreneurship rests on three arguments:

1. the financial services sector is highly regulated. This allows us to better demarcate *context* from *phenomenon*, enabling us to reduce the noise surrounding the focal phenomenon (i.e., the role of digital technologies in shaping the trajectories and shifts of FinTech ventures). This will yield a more accurate view on the role of digital technologies in shaping entrepreneurial trajectories.
2. FinTechs show the potential to overcome the burden of high regulation by leveraging digital technologies, and to disrupt the financial services sector – a sector that is considered to be among the sectors most resistant to technological disruption (McKinsey Company 2015).
3. A major part of the digitalization efforts within the financial services sector is driven by FinTech ventures. A case in point is the recent surge in venture capital investments directed towards FinTech ventures, which amounted to 12 billion US-\$ in 2014 and saw a growth of 205% compared to 2013 (McKinsey Company 2015).

Suitable cases have not been identified so far. Possible ways for identifying emerging digital entrepreneurial firms include:

1. The start-up firm incubators INC1* and INC2, two incubators located in two major university cities in Germany, where one of the authors already has a collaboration history;
2. the EXIT program: a program to support members of a major German university (faculty as well as students) in their endeavor of founding a start-up firm;
3. crowdfunding platforms such as *Kickstarter*, which provide a possibility for identifying and approaching further cases of digital entrepreneurship in the financial services sector.

In sum, we believe that FinTech ventures form suitable empirical instances to observe the role of digital technologies in shaping emerging entrepreneurial firms' trajectories and shifts thereof. With our focus on FinTech ventures, we expect to develop a robust and parsimonious theory of digital entrepreneurship in a highly topical domain.

* Names have been changed to preserve anonymity.

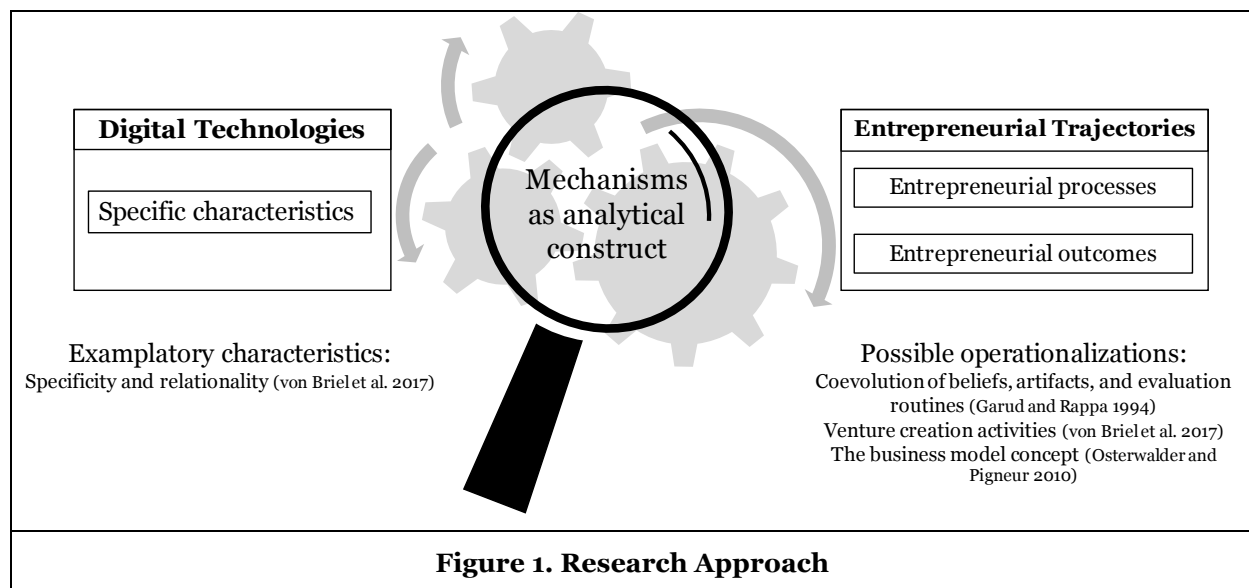
Data Analysis

All collected data (observation, interview data, documents, and other collected data) will be analyzed following established methodological case study guidelines. Data analysis will build on established guidelines for theory development and data analysis in exploratory research (Eisenhardt 1989; Miles et al. 2014). For example, we will apply grounded theory-inspired coding techniques to identify from the rich data theoretical concepts and their relationships (i.e., open, axial, and selective coding) (Strauss and Corbin 1998). The data analysis is expected to be carried out using the software NVivo.

The data analysis is intended to serve two main purposes. First, we will focus particularly on notions relating to trajectories, shifts thereof, as well as specific events and issues leading up to them. Second, we will focus on the key entities associated with the trajectories, with an emphasize on IT artifacts. In doing so, we regard multiple data sources to triangulate the findings. In addition, key informants will be asked to review draft case study reports and explanations. The insights derived from these initial steps will then be used to identify the mechanisms, which can serve to explain the relation between key entities (here: especially digital technologies) and the respective case organization's trajectories through retrodution and careful assessment.

The results from single cases will be generalized to go beyond single cases. This will be achieved by constant comparison between the emergent theory and data across individual cases. This will result in a theoretical model that describes and explains the mechanisms by which digital technologies shape the trajectories and shifts thereof of emerging digital entrepreneurial firms while explicitly regarding the unique characteristics and properties of digital technologies.

While our main objective is to develop a new theoretical perspective on digital entrepreneurship, prior theory and concepts (e.g., conceptualizations of trajectories) will serve as a sensitizing devices, guiding the analysis. We discussed several possible ways of operationalizing emerging digital entrepreneurial firms' trajectories and shifts thereof, but have not decided on the specific approach to employ just yet. Ideally, data collection and analysis will be carried out iteratively to regard emerging themes in the subsequent collection and analysis. Figure 1 summarizes our research approach.



Conclusion

This short paper intends to explore an important question pertaining digital entrepreneurship, namely the role of digital technologies in shaping the trajectories of emerging digital entrepreneurial firms. As assumptions accompanying extant research are increasingly being challenged, exploring the role of digital technologies in shaping entrepreneurial trajectories will enable us to develop a more accurate understanding of the phenomenon of digital entrepreneurship. With our focus, we intend to generate a

new theoretical perspective on digital entrepreneurship that specifically regards the unique characteristics and properties of digital technologies. By providing a differentiated view on specific characteristics and properties of digital technologies and the mechanisms by which they shape the trajectories of digital entrepreneurship, our research is intended to contribute to a disentanglement of the digital component in digital entrepreneurship.

With our research, we intend to heed calls for taking a digital technology perspective on entrepreneurship (Nambisan 2016), and for “more encompassing” theorizing of digital innovation in IS research (Lyytinen et al. 2016; Nambisan et al. 2017, p. 224), by demonstrating the nature of digital innovation in entrepreneurial contexts. Identifying the mechanisms by which digital technologies shape entrepreneurial trajectories will play a central role for this purpose. Further, we think that the coming findings will be valuable to organizations that seek to understand the role of digital technologies in shaping their entrepreneurial trajectories. Lastly, we think our findings can be valuable policy makers who seek to understand the conditions that enable digital entrepreneurship, and to maximize the impact of their respective digital agendas.

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