

## G.5 Competencies Required for Entrepreneurs to Manoeuvre Successfully Through Digital Transformation

Research

*Maria Lucas Garcia, Matthias Murawski, Markus Bick  
ESCP Business School Berlin, Chair of Business Information Systems*

### 1 Introduction

Digital transformation typically means both game-changing opportunities and risks (Nadkarni and Prügl 2021), forcing entrepreneurs to develop essential competencies to remain competitive in a changing environment (Murawski and Bick 2017). Very few existing academic studies have evaluated and developed competency-based frameworks designed for entrepreneurs (Hayton and Kelley 2006; Mitchelmore and Rowley 2010), or examined entrepreneurial opportunities and implications caused by digital transformation (Berman 2012; Sebastian et al. 2017). Aside from these examples, the domain of entrepreneurship is still relatively under-explored in this context, and so it can be concluded that the topics “competencies required for the digital age” and “entrepreneurs” are yet to be integrated to any great extent by the academic community, even though gaining an in-depth understanding would be beneficial for different stakeholders (e.g., entrepreneurs and business schools). To address this gap, we formulate the following research question (RQ):

**RQ:** What are the required competencies an entrepreneur needs to master, in order to face the new challenges of digital transformation successfully?

Based on insights taken from a literature review, which we used to prepare interview guidelines, semi-structured interviews were conducted in 2020 with six experts in the field, who we selected through a convenience sampling approach. Our explorative study demonstrates that the development of basic technical skills and agility is an essential entrepreneurial requirement. Our results furthermore indicate that along with technological and soft competencies, social and emotional skills are crucial for entrepreneurs in the digital age.

The paper is structured as follows. After the introduction, section 2 includes a review of existing related literature and provides the theoretical background. The following section 3 contains the research approach applied to answer the research question. Thereafter, the fourth section presents the results gathered, and finally, the paper ends with a brief discussion and some concluding remarks.

## 2 Theoretical background

### 2.1 Competence and competency

A “competence” is defined as a work-related knowledge (i.e. a theoretical understanding of a concept), skill (i.e. a practical application of knowledge), or ability (i.e. innate attribute) held by an individual (Müller et al. 2016; Nordhaug 1993). Woodruffe (1991) notes that the term competence describes the functional areas through which a person is competent. The term is used extensively in UK academia, and it was first introduced by the MCI (Management Charter Initiative) “competence” standard framework, providing security requirements for occupational competences, and the NCVQ (National Council for Vocational Qualification), both of which were government-sponsored bodies (Cheng et al. 2003). They considered “competence” ‘a description of an action, behavior or outcome which a person should be able to demonstrate’ (Cheng et al. 2003, p. 529), thereby representing an evaluation of a performance in a given field or activity. Competences differ from knowledge, skills and abilities, since not only are they individual characteristics, but they also depend on context and social meaning.

Similarly, the term “competency” is defined in diverse ways in the literature. According to Strebler, Robinson and Heron (1997), cited in Mitchelmore and Rowley (2010), it has two central meanings: competency identifies ‘behaviours that an individual demonstrates’ (p.2), and thus competencies represent ‘minimum standards of performance’ (p.2). Woodruffe (1991) indicates that competencies relate to the capacity to do something, i.e. the aspects of behaviour underlying competent performance. Spencer and Spencer (1993), cited in Hayton and Kelley (2006), define it as ‘an underlying characteristic of an individual that is causally related to [...] superior performance in a job or situation’ (p.9). Other researchers suggest that competency is ‘who an individual is and what an individual knows and does’ (Brockbank et al. 1999, p.111). The term is used additionally in the United States to describe the characteristics and behaviours of individuals (including skills, knowledge and abilities), as a means to ‘distinguish superior from average management performance’ (Cheng et al. 2003, p.528).

### 2.2 Entrepreneurial competencies

Corporate entrepreneurship comprises different sets of activities that focus on ‘the discovery and pursuit of new opportunities through innovation, new business creation’ (Hayton and Kelley 2006, p.407). In the context of digital transformation, corporate entrepreneurs need to adapt to the fast-changing market in order to promote growth, innovation, competitiveness, etc. New competencies relating to corporate entrepreneurs, and which are ‘fundamental to companies’ ability to nurture and sustain innovation and new venture creation’ (p.408), should follow this adaptation.

Hence, these competencies essentially need to develop at the individual and the organisational level. Hayton and Kelley (2006) state that researchers consider an individual entrepreneur as having ‘individual characteristics associated with identification of entrepreneurial opportunities and the willingness to start a new venture’ (p.410). Hence, individual competencies represent ‘underlying individual characteristics involving specific combinations of knowledge, skills, and personality characteristics that are described in aggregate behavioral terms such as team player, [...] or simply a leader’ (p.410).

Despite the importance of additional research on entrepreneurial competencies, due to their relevance to economic, social and political factors, discussions around literature are still in the initial stage (Mitchelmore and Rowley 2010). Man et al. (2002) define entrepreneurial competencies as the complete entrepreneur’s capacity to fulfill an employment function effectively – in general, the traits, skills, personal characteristics and behaviours of individuals starting and transforming a business.

Mitchelmore and Rowley (2010) define an entrepreneurial competency framework as being part of the toolbox of all entrepreneurial competencies researchers, in that it acts as a foundation for additional empirical work on venture capabilities. Individual-level skills are clustered into four main categories, namely entrepreneurial competencies, business and management competencies, human relations competencies and conceptual and relationship competencies. This framework demonstrates the variety of competencies present in the existing literature.

A key characteristic of this scheme is that entrepreneurial and managerial skills are distinct. Entrepreneurial capability reviews the identification and utilisation of opportunities, whereas managerial capacities make reference to the acquisition and exploitation of resources to ensure coordination of a company’s activities and objectives. Hence, the literature suggests that in order to be a successful entrepreneur, entrepreneurial, managerial and technical roles must be mastered. Hence, having a technical role is deemed as having the capacity to use the tools or methods required in a certain industry. Moreover, the literature identifies valuable entrepreneurial skills as leadership, human relations and the ability to instill a culture within a company. Ultimately, an entrepreneur possesses conceptual and analytical competencies that integrate organisational and coordination capabilities, such as the ability to manage customers (Mitchelmore and Rowley 2010).

Overall, from all the competencies presented in their framework, Mitchelmore and Rowley (2010) identify a number of them as being the most significant by researchers: the ability to develop management systems and organisational and coordination skills; idea generation; conceptual and analytical competencies; the coordination of activities; customer management skills; delegation and motivation skills; recognition and the exploitation of opportunities; strategy development in accordance to a company's objectives; hiring skills; decision-making skills; leadership skills and commitment.

### 2.3 New requirements as a result of digital transformation

Given the digital transformation environment, further analysis follows the importance attributed to the speed, complexity and uncertainty of disruptive technologies (Hess et al. 2016; Verhoef et al. 2021). In this context, scholars identified different (soft and hard) competence areas required for working in the digital age in general (Murawski 2019; Murawski and Bick 2017).

Being able to adopt new business models and strategies, and identify emerging opportunities that are responsive to a continuously changing environment – bearing in mind evolving digital technologies – is a fundamental task in which entrepreneurs must engage in order to be successful (Sebastian et al. 2017). Therefore, entrepreneurs must accept the meaningful impact new technologies are having on society. Sharma and Meyer (2019, p. 82) mention in their literature review that 'digital technologies have transformed entrepreneurship forever', mainly through the creation of new opportunities as well as the development of data. Data play a key role in digital transformation, so entrepreneurs should be familiar with the potential of this information. Moreover, Chandler and Jansen (1992) state that in order to be technically well-versed, a leader must be able to use certain tools or have some background knowledge of their utilisation.

The literature does not identify the perfect set of competencies an entrepreneur in a digital environment should master; however, research has shown a number of patterns – defined, for instance, by Sharma and Meyer (2019), whose study implies that an entrepreneur in a technological environment should be a continuous learner, be coachable, have deep domain expertise and consider entrepreneurship as a team sport and as universal.

Curiosity and self-motivation are two essential traits an entrepreneur must possess to make a company succeed, and thus they need to adopt a constant learning process, in order to keep updated on new initiatives. Second, "coachable" refers to a person who is open-minded and accepts feedback from others to improve their service or product.

The importance of listening to experts, as well as to the customer, will guide the entrepreneur to provide client-focused solutions. Moreover, no matter in what industry an entrepreneur sees an opportunity, they should possess a deep understanding of their chosen domain, as being passionate alone is no longer enough to succeed. Furthermore, an entrepreneur may not initially work within a team of experts who together control a great amount of knowledge, so in the early stages, they must know their product or service. Besides, the concept of entrepreneurship as a team sport reflects the idea of a multi-founder company managed and created by several individuals who complement each other's competencies. For example, successful companies' founders who combined entrepreneurial and technical competencies include Steve Jobs and Steve Wozniak for Apple, Larry Page and Sergey Brin for Google and Bill Gates and Paul Allen for Microsoft. Research proves that 'most startups founded by a single investor or researcher did not increase in revenue beyond \$2–3 million, while a combo of a technology person and a businessperson did far better' (Sharma and Meyer 2019, p. 85).

### 3 Research design

The main objective of our study is to explore the essential competencies of entrepreneurs in a digital transformation environment and thereby enhance understanding in this research field. The work sets out to be as close to reality as possible, in order to enhance knowledge and provide a valuable contribution to the entrepreneurial domain. In contrast to a quantitative design, which is suitable for understanding relationships between variables, our intention is to explore deeply and describe a number of required competencies. We therefore selected a qualitative research design, focusing on individual semi-structured interviews.

In order to gain a more in-depth understanding of the topic, target participants should possess entrepreneurial experience or work in an environment such as a startup or an incubator. In addition, expert researchers on entrepreneurialism are considered relevant to conducting the study. Participants were selected based on search characteristics as well as the possibility of contacting them, using convenience sampling offered by personal networks.

Six semi-structured interviews were conducted and lasted, on average, 30 minutes each. Data were collected in March and April 2020 through phone and video calls using Facetime or Zoom. We applied an interview guideline with preformulated questions (e.g., *Which type of competencies do you think are of great importance for entrepreneurs to master?; Are there any specific competencies that may be given more importance than others?; Could you identify any major difference between experienced entrepreneurs who had to adapt to this new digital area and new entrepreneurs who recently entered the market?*).

Nonetheless, new questions arose and were integrated, and the order of questions changed during the interviews, in order to smooth the flow of conversation and follow a logical line of enquiry. The interviewees were clustered into two general categories defining their background and experience, which required some modification to the interview guidelines. The first cluster of participants was more experienced, on average finishing higher education 10 years previously, albeit some had continued to study on a part-time basis, in order to acquire additional knowledge. This category had previous experience of creating more than one company (mainly in the form of a start-up) and possessed deep scholarly expertise. In addition, some of them had worked in environments in which they needed to possess digital competencies, while for others this technological knowledge was not required. The second cluster of interviewees had the following characteristics: they were younger, had finished university studies one year previously and had built their own tech company, thereby reflecting their lack of knowledge in the academic aspects of entrepreneurialism. Empirical data were collected through voice-recording apps available on a personal phone or a laptop, with the prior consent of each participant.

Furthermore, in order to analyse the collected data, certain steps were taken. The usage of an online tool, *HappyScript*, helped transcribe the interviews and export them into a Word document for a more effective examination. Thereafter, a thematic analysis was used to identify common topics, ideas and patterns from the conversations, thereby allowing flexibility to interpret the data and cluster large amounts of information into broader themes. The data were analysed using an inductive approach, i. e., first examining the information and then defining the main themes, in addition to a semantic approach that looks at participants' explicit opinions and assumptions. Once familiarised with the overall data, a coding method was applied which highlighted sections of the transcripts and defined them into main topics, in order to optimise the data analysis process. The creation of general themes allowed for a more organised and accurate interpretation of the results collected through the interviews.

#### 4 Findings

In response to the request to define the competencies an entrepreneur requires in an environment of digital transformation; a recurring point of agreement was the essential need to possess *basic technological competencies*. Thus, it is important to have a basic understanding, to at least be able to communicate with individuals with a technological background. Also, participants mentioned the ability to be agile as an essential entrepreneurial competency, in order to adapt to a constantly changing and uncertain environment.

Moreover, most of the interviewees highlighted the fact that entrepreneurs cannot avoid changes in technology. “Digital” is nowadays omnipresent in society, and even though the focus of an entrepreneur’s activity does not constantly fall on the digital elements of a business, other types of technologies must be integrated into a company. One participant gave the example of a restaurant, the main activity of which obviously does not involve technology, but its owners must create a website or nurture an online presence to remain competitive.

On the question of the importance of possessing *emotional and social competencies* as part of digital competencies, the respondents reiterated their equal importance compared to more technical aspects. In this regard, two participants clearly stated their importance, even before digital transformation. One participant claimed that creativity should be a prime characteristic of any entrepreneur, no matter the environment in which they might find themselves: ‘The entrepreneur is always creative [...] an inherent part of entrepreneurship’. Another two interviewees indirectly stated that social and emotional competencies are essential for an entrepreneur, before and after digital transformation: ‘Of course, being an entrepreneur, you’re also likely to need to have, like, a bit of social smartness [...] I think that it makes sense also to replicate these competencies when it comes to digital’, and ‘You also need certain emotional skills where you need to understand, like, what being part of a distributed team with your teammates [feels like] [...] and to organise social cohesion among the team [...] to foster trust and empathy amongst your teammates’. Nonetheless, the participants highlighted three variations in social and emotional competencies compared to the previous digital transformation environment, namely the use of technology, a customer-centric focus and team coordination.

Interviewees identified the need to have some form of *logic capability*, i.e., the ability to use any type of technology. Moreover, one participant mentioned the vital obligation to understand customer behaviour, due to the physical disconnect between the seller and the buyer: ‘I think understanding the journey of the users [...] maybe wasn’t as necessary, as you weren’t just close to your users [...] the need to understand the emotional journey of your users has maybe just increased through digitalisation’. The same happens when working remotely in a team. One interviewee gave the example of Covid-19 being a special situation in which the team is more physically disconnected compared to before the crisis – and which caused him some difficulties in terms of coordination and understanding the thoughts and needs of his employees.

Moreover, all participants who were asked if they or any entrepreneur they knew had experienced *difficulties because they did not possess all the competencies* they would have needed as entrepreneurs replied that they had done so; however, they considered this a normal situation. The general consensus was that it is an ‘unavoidable’ learning process entrepreneurs and individuals in general go through whenever they experience something they have never done before. Moreover, the respondents highlighted the fact that this will continue, since it is not possible to do everything right the first time, no matter how many competencies one possesses or if someone has previously explained how to do it. People learn by making mistakes and through repetition – and this is a natural learning process entrepreneurs also have to go through, for example ‘burn a bit of money or resources, lose time and so on’. Furthermore, the participants noted that it is impossible for a single person to have all the skills, knowledge and attributes required for all types of task: ‘And I think this is normal. So, nobody possesses all the required competencies’.

Concerning *how to acquire the competencies* entrepreneurs lack, most respondents underlined the importance of combining people in the company or the founding firm with another member who complements the entrepreneur’s skills, for example a business-oriented entrepreneur a technology-oriented founder. The participants frequently mentioned the importance of ‘creating a good team’, in order to hold all ‘the appropriate competencies within the founding team’. Also, an important but less reiterated way is to acquire knowledge from a successful entrepreneur. In this regard, founders may contact experts who have already experienced a certain situation. One of the participants informed us that he ‘went to [...] higher education fairs [...] to talk to random people’ and therefore promote himself and his ideas as much as he could do. Moreover, the respondents stressed the impracticality of entrepreneurs possessing all competencies: ‘It’s not the objective [...] to have people who [...] possess 100 per cent of the required competencies’, and so they should instead ‘be able to identify [their own] strengths and weaknesses’. Finally, the interviewees considered it was more valuable for an entrepreneur to know what they are good and bad at, in order to identify people with complementing competencies.

Furthermore, in the course of the interviews, two participants highlighted the need to look at the required competencies of an entrepreneur in a digital transformation environment, depending on *specific factors: the industry, the occupation and the type of business created and its environment*. One participant expressed that ‘researchers [...] consider specific occupations, jobs [...] and tried to elaborate required competencies for this specific context’. Moreover, the participants highlighted the fact that not all industries evolve the same way when dealing with technology: ‘there are still industries going through this digital transformation’, and ‘it’s very much different among the industries’, for example in the construction industry, where management are more traditional and are slowly adopting digital.



## 5 Discussion and conclusion

Taking a look into the main outcome of our explorative study, an entrepreneur should possess basic technical knowledge and must be agile enough to tackle digital transformation successfully. Moreover, they need to have digital knowledge in line with the type of technology used, in order to accomplish an entrepreneurial activity. Entrepreneurs do not need to have a deep understanding of technology, contrary to the hypothesis of Sharma and Meyer (2019). In essence, they should have a basic understanding and be able to communicate with experts in the field. The most reiterated method stated within the literature and the results, in order to acquire these additional competencies, is through founding team members possessing complementary competencies. An entrepreneur should be capable of distinguishing his strengths and weaknesses and include people in the team who can bring the required competencies to compensate for the aforementioned weaknesses. Nevertheless, our results highlight the inevitable fact that entrepreneurs make mistakes – no matter their level of competency – since they all have to go through a learning curve. Moreover, entrepreneurs must be agile and capable of adapting to any situation according to the circumstances. The velocity of market dynamics, as well as uncertainty surrounding digital transformation, forces them to act quickly in reaction to rapidly changing environments. This can include the acquisition of knowledge, study programmes, publicly available technological tools, external feedback or building a complementary team as previously stated. Also, the entrepreneur has always required social and emotional competencies such as creativity and curiosity, among others, which are considered essential character traits. Thus, our results lead us to conclude that it does not matter in what environment an entrepreneur operates, since they should always have a certain degree of aptitude in terms of social and emotional competencies. Nevertheless, the study demonstrates that some additional social and emotional competencies should be acquired in the digital arena, such as understanding customer behaviour, developing team leadership skills and having a good degree of technological logic. Digital transformation triggers a shift in customer behaviour, preferences and knowledge; therefore, additional importance must be given to understanding customer experience and measuring customer satisfaction. This is also needed due to the presence of a disconnected environment in which sellers and buyers mainly do not come into physical contact. This physical disconnection also plays a role when managing a team in which employees do not work always close to each other, and so leaders must adopt some soft competencies to face this challenge.

The implications of our study mainly address entrepreneurs and people who intend to become entrepreneurs. The elaborated competencies could be taken for self-reflection and potential training needs, and help to improve the team composition. Also, educational institutions such as business schools can benefit from our findings, for instance, when designing and improving related teaching concepts and content.

Our study provides various connection points for further research activities. First, a reasonable step would be to extend the sample. Although we reached a general saturation between the answers, we admit that six interviews should be treated as a first explorative step in our research endeavour. Further insights from experts (e.g., clustered by different sectors) could strengthen our results. Second, the (extended) results could be put together in order to create an updated competency model for entrepreneurs. This would also lead to stronger “tangible” outcomes for the study. Third, it would be interesting to measure the relationship between the “competency level of entrepreneurs” and “success” in a quantitative research setting.

## Literature

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