

Digital Entrepreneurial Ecosystems of Traditional Companies – A Case Study

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Abstract

Purpose: The paper aims to answer the question of how the digital entrepreneurial ecosystem (DEE) shapes the activities of companies from highly traditional industries. In particular, we want to identify different types of actors from the DEE and how they foster the entrepreneurial activities of very traditional companies with a high proportion of manual labor, as well as to identify the kinds of entrepreneurial activities fostered by the DEE.

Methodology: This paper applies a case study method based on the analysis of highly traditional companies in the confectionery industry that cooperate through a digital platform to sell their products. The analysis is based on in-depth interviews with key informants from three companies in the confectionery industry, as well as with the provider of the digital platform, the IT supplier and a final B2B customer.

Findings: The concept of DEE needs to be extended to include an analysis of two settings – digital and traditional – as both interfere with and influence entrepreneurial activities. Digital actors within the DEE play a key role in both the digital and the traditional entrepreneurial activities of highly traditional companies. Traditional actors, meanwhile, play a supporting role in the process. Additionally, the study determines the unique characteristics of the DEE, in which traditional companies are active.

Originality: The paper develops the concept of the digital entrepreneurial ecosystem. The originality of the paper lies in the analysis of the DEE from the perspective of companies from a highly traditional industry. This is a novel approach towards the DEE that has not been proposed in the literature to date.

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Keywords: entrepreneurship, ecosystem, digitalization, digital entrepreneurial ecosystem, traditional industry.

JEL: D22; L26; L81

Cyfrowy ekosystem przedsiębiorczości tradycyjnych przedsiębiorstw – studium przypadku

Streszczenie

Cel: celem artykułu jest odpowiedź na pytanie, w jaki sposób cyfrowy ekosystem przedsiębiorczości (CEP) kształtuje działalność przedsiębiorstw z branży wysoce tradycyjnych. W szczególności chcemy zidentyfikować aktorów składających się na CEP oraz sposób, w jaki wspierają oni przedsiębiorczość wysoce tradycyjnych przedsiębiorstw bazujących na dużym udziale pracy ręcznej. Ponadto wskazujemy typy aktywności przedsiębiorczych wspieranych przez CEP.

Metodyka: w artykule zastosowano metodę studium przypadku opartą na analizie wysoce tradycyjnych przedsiębiorstw z branży cukierniczej, które współpracują za pośrednictwem platformy cyfrowej w celu sprzedaży swoich produktów. Analiza opiera się na wywiadach pogłębionych z kluczowymi informatorami z trzech przedsiębiorstw z branży cukierniczej, a także z dostawcą platformy cyfrowej, dostawcą IT oraz klientem końcowym B2B.

Rezultat: badanie pokazuje, że koncepcję CEP należy rozszerzyć tak, aby obejmowała analizę dwóch środowisk – cyfrowego i tradycyjnego – ponieważ oba wpływają zarówno na siebie, jak i na działalność przedsiębiorczą aktorów. Aktorzy cyfrowi w CEP odgrywają kluczową rolę w cyfrowej i tradycyjnej działalności przedsiębiorczej wysoce tradycyjnych przedsiębiorstw. Natomiast tradycyjni aktorzy odgrywają w tym procesie drugoplanową rolę. Dodatkowo nasze wyniki określają autorską charakterystykę CEP, w której działają tradycyjne przedsiębiorstwa.

Oryginalność: artykuł rozwija koncepcję cyfrowego ekosystemu przedsiębiorczości (CEP). Oryginalność artykułu polega na analizie CEP z perspektywy przedsiębiorstw z wysoce tradycyjnej branży. Jest to nowatorskie podejście do analizy CEP, które do tej pory nie było proponowane w literaturze przedmiotu.

Słowa kluczowe: przedsiębiorczość, ekosystem, cyfryzacja, cyfrowy ekosystem przedsiębiorczości, przemysł tradycyjny.

1. Introduction

Digital platforms are gradually becoming an important instrument in companies' development, mainly due to advances in digital technologies that facilitate the creation of new ventures and the monetization of innovative solutions (Muzellec, Ronteau, & Lambkin, 2015). They also play a major role in establishing and developing business relationships (Tian, Vanderstraeten, Matthyssens, & Shen, 2021) and entrepreneurial activities (Cenamora, Parida, & Wincent, 2019) aimed at increasing innovativeness, productivity and efficiency (Buła & Schroeder, 2020; Rostek & Skala, 2017). Such relationships, cooperation and entrepreneurial activities in turn facilitate the creation of ecosystems around the digital platforms. In the existing literature, these ecosystems are analyzed through the prism of the concepts of platform ecosystems when focused on management of a platform by a hub company (Hoch & Brad, 2021; Roma & Vasi, 2019), or innovation

ecosystems when addressing the focus on offering new solutions within the virtual environment (Luo, 2018; Xie & Wang, 2021). When focusing on cooperation and direct and indirect value creation, the analyses tend to adopt the concept of business ecosystems (Jocevski, Arvidsson, & Ghezzi, 2020; Möller & Halinen, 2017), while if the focus is on creation of new economic activities and new ventures the concept of the entrepreneurial ecosystem is employed (Autio, 2017; Franco-Leal & Diaz-Carrion, 2020).

In this paper, we refer to the concept of the digital entrepreneurial ecosystem (DEE) (Song, 2019; Sussan & Acs, 2017), which addresses “the role of technology in general and digital technology in particular in relation to the entrepreneurial ecosystem” (Song, 2019, p. 584). This concept constitutes a useful framework for the analysis of entrepreneurial activities undertaken in a digital setting. These entrepreneurial activities include “activities undertaken to explore and discover new products, services, raw materials, and markets” (Song & Jing, 2017, p. 993). We believe that the DEE may constitute a valuable tool that can help to expand knowledge and understanding of digital entrepreneurship by taking into account the context of digital platforms, institutions and users (Song, 2019). The DEE incorporates two concepts: the entrepreneurial ecosystem and the digital ecosystem (Sussan & Acs, 2017). The entrepreneurial ecosystem “comprises a set of interdependent actors and factors that are governed in such a way that they enable productive entrepreneurship” (Stam & van de Ven, 2021, p. 809), while the digital ecosystem is seen as “business environments shaped by a network of interdependencies specifically generated through digital technologies” (Kopalle, Kumar, & Subramaniam, 2020, pp. 114–115).

Existing research on DEE is still scarce and focuses mainly on the conceptualization and operationalization of DEE (Song, 2019; Sussan & Acs, 2017), which highlights the need for empirical analyses to test the concept itself and the DEE framework.

For some companies, especially those from traditional industries with high involvement of manual labor, operating through a digital platform and developing entrepreneurial activities within the DEE may constitute a challenge, and sometimes even a hindrance for further development (Tian et al., 2021). These companies concurrently perform traditional activities and operate in a digital platform setting even if they lack experience. It is important to examine how these traditional companies are managed in demanding digital settings, and whether their entrepreneurial activities can be facilitated by the DEE. Meanwhile, the literature on the DEE tends to analyze its emergence and operation in technologically advanced external settings, e.g. China’s Silicon Valley or IBM’s Innovation Jam (Du, Pan, Zhou, & Ouyang, 2018; Elia, Margherita, & Passiante, 2020; Li, Du, & Yin, 2017). There is no research that investigates the involvement of highly traditional companies in the DEE (Elia et al., 2020). To advance research on the DEE and fill the above-mentioned research gap, the paper aims to answer the

question of how the DEE shapes the activities of companies from highly traditional industries. In particular, we want to identify different types of actors from the DEE and how they foster the entrepreneurial activities of very traditional companies with a high proportion of manual labor, as well as to identify the kinds of entrepreneurial activities fostered by the DEE. Our research responds to calls by Sussan and Acs (2019) for more research on the behavior of actors in the DEE who are not from a digital setting. This is of crucial importance, as according to Elia et al. (2020, p. 1), “there is a limited literature discussion on the real impact of digital technologies and collaboration on the entrepreneurial process”.

The main contribution the paper offers is a framework that shows how the DEE (embracing both digital and traditional actors) enhances the entrepreneurial activities of highly traditional companies. In particular, we underline the importance of digital actors for the digital entrepreneurial activities of companies from highly traditional industries. Along with digital actors, end-users’ experience gained both in the digital and traditional settings also stimulates the entrepreneurial activities of traditional companies within the DEE. Moreover, the results of our research show that companies from traditional industries are unable to transform completely to digital activities as some activities need to be conducted only in the traditional manner. Finally, the most important result of our study is the impossibility of separating the digital and traditional settings in the case of the DEE – the DEE does not function without the traditional entrepreneurial ecosystem.

To the best of our knowledge, this is the first study that analyzes the DEE with an emphasis put on actors that represent a highly traditional industry involved in such an ecosystem. To understand the specifics of these actors and have the possibility to observe the phenomena in detail, we apply a case study method (Yin, 2009). We analyze traditional companies from the confectionery industry that use a digital platform to sell their products. We have intentionally chosen the confectionery industry as the processes involved in the manufacturing of products (e.g. cakes) require extensive manual labor and time. Moreover, two out of three analyzed confectioneries had not used IT-driven technologies before the implementation of a digital platform. Therefore, these can be seen as good examples for an in-depth analysis of the entrepreneurial activities of traditional companies within the DEE. To obtain a wider spectrum to the analysis, we conducted in-depth interviews with key informants from three companies in the confectionery industry, as well as the digital platform provider that the confectioneries cooperate with, the IT supplier and a final B2B customer of the platform.

The paper is structured as follows. First, we discuss the concept of the DEE. Then we present the method, followed by the analysis and discussion of the results. In the final part of the paper, avenues for further research and limitations are discussed.

2. Theoretical Background

More and more companies are running their business using digital platforms (Tian et al., 2021), which are defined as a tool and an intermediary between at least two distinct groups of business actors (Mukhopadhyay & Bouwman, 2019). Digital platforms play an important role in leveraging companies' entrepreneurial activities (Cenamor et al., 2019). First of all, this is the result of cooperation and collective intelligence (Elia et al., 2020). Companies may exploit the entrepreneurial opportunities offered by digital platforms, for example in terms of leveraging relationships with final customers (Weill & Woerner, 2015) or diminishing the financial barrier in participation and cooperation via such platforms (Cavallo, Ghezzi, & Sanasi, 2021). By cooperating through a platform, entrepreneurial processes become more collective (Cavallo et al., 2021). Second of all, as a result of information management (Cenamor et al., 2019), digital platforms have "created new foundations for industry leadership and ecosystem innovation" (Elia et al., 2020). The use of digital tools allows companies to implement business model innovations or test new business solutions at a relatively low cost (Autio, 2017).

Through their enabling role in the creation of relationships and cooperation as well as entrepreneurial processes, digital platforms facilitate the formation of ecosystems (Kenney, Rouvinen, Seppälä, & Zysman, 2019). Such ecosystems are seen as groups of interdependent actors performing different and complementary activities aimed at producing value (Czakov, 2016; Scaringella & Radziwon, 2018). A digital platform becomes one of the leading actors of such an ecosystem aiming at the orchestration of the ecosystem (Cutolo & Kenney, 2021).

When analyzing ecosystems formed around digital platforms, no unanimity nor single conceptual approach can be identified. If a study focuses on digitalization and technological aspects, then the concepts of platform ecosystems (Hoch & Brad, 2021; Roma & Vasi, 2019), digital ecosystems (Kopalle et al., 2020) or innovation ecosystems (Luo, 2018; Xie & Wang, 2021) tend to be applied. Platform ecosystems are based on a digital platform and managed by a hub company to facilitate exchanges and value creation. The particularity of these platforms lies in the simultaneous interaction between different groups of users (suppliers, buyers and final customers), their influence on the platform's operations and their impact on its success (Roma & Vasi, 2019). The concept of the digital ecosystem points out the importance of users (and the interactions between them) and the digital infrastructure (Sussan & Acs, 2017). The basis for cooperation within the digital ecosystem is a "peer-to-peer distributed technology infrastructure that creates, disseminates and connects digital services over the Internet" (Senyo, Liu, & Effah, 2019, p. 53). Therefore, the digital ecosystem operates mainly as a tool for customers looking for new solutions, products or services

(Weill & Woerner, 2015). Innovation ecosystems, in turn, underline the empowering role of actors, technologies and institutions in the innovation process (Aarikka-Stenroos & Ritala, 2017). Such ecosystems' distinguishing features are the existence of purposeful actions and the importance of governance (Oh, Phillips, Park, & Lee, 2016). These elements allow actors from an innovation ecosystem to focus on its core activities, that is the development of technology and innovation (Aarikka-Stenroos & Ritala, 2017; Oh et al., 2016).

When focusing on entrepreneurial processes, ecosystems facilitated by digital platforms can be analyzed with the use of business ecosystems or entrepreneurial ecosystems concepts. Business ecosystems are seen as networks of different actors who are focused on cooperation as well as direct and indirect value creation (Jocovski et al., 2020; Möller & Halinen, 2017). Entrepreneurial ecosystems are understood as a specific environment made of private and public actors who foster “the emergence and growth of new businesses” (Aarikka-Stenroos & Ritala, 2017, p. 25). Therefore, successful entrepreneurial ventures are not only a function of company-specific elements, but are also influenced by the wider context of the ecosystem in which these ventures operate (Brown & Mason, 2017). According to Ratten (2020, p. 449), “[t]he emphasis in entrepreneurial ecosystems is on business activities that can be facilitated by a knowledgeable community interested in progress”. To this end, an entrepreneurial ecosystem requires a manager to have specific capabilities, e.g. in terms of searching for and exchanging resources in order to improve competitiveness (Stam & van de Ven, 2021), or developing business relationships and forming coalitions with other network actors (Acs, Stam, Audretsch, & O'Connor, 2017).

An emerging concept that integrates the two concepts of entrepreneurial ecosystems and digital ecosystems, is the DEE (Song, 2019; Sussan & Acs, 2017). This provides a promising framework for the analysis of entrepreneurial activities in a digital setting (Song, 2019). According to Sussan and Acs (2017), the DEE is an ecosystem composed of entrepreneurs, digital companies and innovative products or services aimed at end-users in the digital economy. In turn, Elia et al. (2020) argue that the DEE builds on four main component concepts: entrepreneurship, digital entrepreneurship, digital ecosystem and entrepreneurial ecosystem. Although the views on DEE components differ, entrepreneurship remains common to both. The core of entrepreneurship is the exploration, evaluation and exploitation of opportunities to create value in terms of new goods or services (Cavallo et al., 2019). As underlined by Sussan and Acs (2017, p. 56), “in some sense, entrepreneurship research has ignored both the role that digital technologies play in entrepreneurship and the role that users and agents play in digital entrepreneurship”. The limited number of studies on DEE confirms this statement. In the paper, we define DEE as entrepreneurial ecosystems

facilitated by digital solutions, where digital platforms play a central role in entrepreneurial activities and collaboration.

Two main streams relating to the DEE may be identified. In the first, the research focuses on the characteristics and operationalization of the DEE (Elia et al., 2020; Song, 2019; Sussan & Acs, 2017). Sussan and Acs (2017) propose a framework for investigation of the DEE comprising four main concepts: digital infrastructure governance, digital user citizenship, digital entrepreneurship and digital marketplace. These concepts are further discussed, criticized and reconfigured in research on the DEE by Song (2019). The results of this study shed more light on the analysis of the DEE by recognizing the role of users, that is the demand side of the DEE. In turn, by referring to the DEE as a form of collective intelligence system, Elia et al. (2020) propose a framework for DEE analysis embracing four dimensions: digital actors (who), digital activities (what), digital motivations (why) and digital organization (how).

The second stream of analysis of the DEE takes the perspective of technology-intensive industries in a specific country context (Du et al., 2018; Li, Du, & Yin, 2017). In this stream, Du et al. (2018) investigate the DEE in China's Silicon Valley. The authors explore how the DEE emerges and how it forms a meta-organization in which roles and processes are divided among different network actors. Li et al. (2017) also focus on the DEE in the context of China's Silicon Valley, however they point to the importance of stakeholders (such as ecosystem architects or policymakers). The digital context is also present in research by Elia et al. (2020), who investigate the DEE of IBM Innovation Jam – an IBM platform for strategic internal and external purposes. Their results show the importance of digital technologies and cooperation for entrepreneurial processes.

Although analyses of the DEE tend to focus on innovative products (Sussan & Acs, 2017), empirical analysis shows that among the actors involved in the DEE, both the highly innovative companies representing new technology sectors, as well as traditional companies with a high involvement of manual labor are present. As Tekic and Koroteev (2019, p. 691) underline, the “main characteristic of these [traditional] companies is that their key products are valued by customers because they are analog: handmade, human inspected, and/or built exclusively or in very small batches”. This presence of traditional companies in DEEs is evident due to the increasing popularity of various digital platforms. However, operating in a digital setting in general, and operating through platforms in particular, can constitute a challenge for companies from highly traditional industries which simultaneously have to carry out manual labor-intensive traditional activities alongside digital ones (Tian et al., 2021).

3. Method

Following calls by Aarikka-Stenroos and Ritala (2017) for more extensive case studies on ecosystems addressing differentiated contexts, we applied a case study method (Yin, 2009) to our research. This method is also specifically advised for analysis aimed at understanding ‘how’ actions occur (Marschan-Piekkari & Welch, 2004), which corresponds with the main aim of our study.

We base the analysis on a case study of traditional companies from the confectionery industry selling cakes via a digital platform which allows the online ordering of products. Two main rationales formed the basis for the intentional choice of the confectionery industry for the analysis. First of all, the processes involved in the manufacturing of products (e.g. cakes) require extensive manual labor and time. Often, the preparation of a cake cannot be completed overnight. This is because of the need to purchase fresh ingredients from different suppliers (e.g. fruit), work in stages (e.g. a sponge cake is first made and then soaked for many hours) or time-consuming hand-made decoration. These processes require a high involvement of manual labor that cannot be accelerated. Moreover, two out of three analyzed confectioneries had not used IT-driven technologies before the implementation of a digital platform. Therefore, this industry in general, and the analyzed companies in particular, can be seen as a good example of a traditional industry. Secondly, cooperation with the digital platform resulted in new economic activities for all the companies, even though they had a different level of digital expertise and experience before starting their cooperation with the digital platform. This makes them good examples for analyzing how the DEE shapes the activities of companies from highly traditional industries.

The analysis is based on 13 in-depth interviews with key informants representing 6 companies (3 managers of confectioneries Delta, Gamma and Epsilon, two co-owners and a manager of digital platform provider Alpha, the co-owner of the platform’s IT supplier Beta and a final B2B customer – the owner of consultancy company Zeta). All key informants were directly involved in the process of joining the digital platform, and in the main entrepreneurial decisions. The interviews were held between March 2020 and April 2021. Although the interviews took place during the COVID-19 pandemic, the analyzed questions referred to the pre-pandemic situation. Each interview lasted between 20 minutes and two hours, with an average of 1 hour 20 minutes. All the interviews were recorded and later transcribed and coded. To analyze the DEE, we used questions relating to the identification of the most important actors for the focal companies’ activity, the specifics of exploration and exploitation of opportunities via the digital platform, as well as the effects of this cooperation. The latter gave rise to information on entrepreneurial activities.

To assure the maximum analytical generalizability, we applied data triangulation (Woodside & Wilson, 2003; Yin, 2009). To this end, we used additional secondary sources including the digital company's financial statements, internal documents on customer behavior, as well as the websites of the confectioneries and data on the confectionery industry. The data was analyzed using the constant comparative method, which helps to summarize the essence of the data and detect emerging themes which are then coded for the purpose of the analysis (Thomas, 2011). In the first step of the analysis we identified actors involved in the analyzed DEE. Next, we focused our analysis on the activities of the actors to see how actors in the digital entrepreneurial ecosystem foster the entrepreneurial activities of traditional companies. For the analysis we used the modified framework by Sussan and Acs (2017). As our analysis focuses on the DEE of traditional companies, in addition to the activities, motivation and organization of the digital actors, we also identified the activities, motivation and organization of the traditional actors.

4. Case Analysis and Findings

In this paper, we analyze three confectioneries, two of them (Delta and Gamma) are small and the third one (Epsilon) is large. These confectioneries work with a digital platform provided by company Alpha. The digital platform allows business-to-business (B2B) and individual customers (B2C) to buy cakes and other confectionery products and have them delivered to an indicated address in Poland. For many people who order cakes via the platform, these products are bought as a gift for family members or relatives for special events and not for their own consumption. Alpha is responsible for customer acquisition (e.g. through Internet positioning), marketing and communication, and then transfers orders from the platform to the nearest cooperating confectionery (in terms of the delivery destination) where it is processed. The end B2B and B2C users consuming the product often do not know the name of the confectionery preparing the order, because all communication, including the packaging and documentation, is carried out under the Alpha digital platform logo ("it is not strictly our customer, it is the digital platform's customer", Epsilon). In 2020, Alpha cooperated with 533 confectioneries. All the analyzed confectionery shops stress that working with the platform is very easy and intuitive. The IT infrastructure and digital platform IT solutions are provided by the IT supplier – a small company, Beta. Also, the payments between the confectioneries and Alpha are done through the platform.

The confectionery products sold on Alpha's platform are highly standardized, however no detailed recipes are provided by Alpha to the confectioneries responsible for manufacturing (the only indications concern the flavor, ingredients, weight or general type of the cake, e.g. a Sacher cake). This is why the cakes may differ locally. The production process must

comply with food safety and production regulations, passed and verified by the sanitary-epidemiological inspectorate. The products are delivered to end customers either by the confectioneries themselves or by external independent logistics companies.

An additional service offered by Alpha, the owner of the digital platform, to the confectioneries is the possibility to create their own online store based on Alpha's technology and hosted on the confectioners' webpages. Alpha does not see these online stores as competitors – on the contrary, Alpha provides the confectionery shops with the know-how on online selling, technology and assistance. As a result, the confectionery shops may sell their products via their own website, which constitutes a new distribution channel for which Alpha receives payment.

Table 1 presents an analysis of the DEE formed around the digital platform. We use the modified framework by Sussan and Acs (2017). Because the analysis includes highly traditional companies, we consider not only the digital setting of the DEE but also the traditional setting, as confectionery shops perform both traditional and digital activities. The analysis is conducted by taking the perspective of the confectioneries. In order to answer our research question on how the DEE shapes the activities of companies from highly traditional industries, we investigate not only the activities themselves, but also other parts of the framework (e.g. motivation).

Table 1

Case analysis using the DEE framework – the perspective of confectioneries

DEE framework – digital setting*	DEE framework – traditional setting*
<p>Digital actors</p> <ol style="list-style-type: none"> 1. Alpha – the digital platform. 2. Beta – the IT provider. 3. B2C and B2B customers buying the product online (not necessarily consuming it). 	<p>Traditional actors</p> <ol style="list-style-type: none"> 1. Confectioneries cooperating with the digital platform. Including the analyzed companies: <ol style="list-style-type: none"> A. Confectionery Delta (small), manufacturing and selling cakes (also artistic) and traditional pastries. Owns one traditional confectionery shop. B. Confectionery Gamma (small), manufacturing and selling mainly artistic cakes and traditional pastries. Owns one traditional confectionery shop. C. Confectionery Epsilon (large), manufacturing and delivering cakes and pastries to large B2B customers (e.g. hotels, supermarkets). Owns four traditional confectionery shops. 2. Logistics companies responsible for product delivery.

Tab. 1 – continued

DEE framework – digital setting*	DEE framework – traditional setting*
	<ol style="list-style-type: none"> 3. External suppliers of cake and pastry ingredients. 4. Sanitary-epidemiological inspectorate responsible for compliance with health and sanitary regulations. 5. End users (B2C and B2B) consuming the product.
Digital activities <ol style="list-style-type: none"> 1. Opening new selling channels (via the digital platform but also opening their own online shops – in the case of Delta, Epsilon). 2. Reaching new groups of customers (digitally oriented). 3. Development of employees' digital skills. 4. Acquiring knowledge on digital marketing and digital solutions. 	Traditional activities <ol style="list-style-type: none"> 1. Opening new selling channels (traditional shops with an offer for B2C customers – in the case of Epsilon). 2. Reaching new groups of customers (B2C – in the case of Epsilon). 3. Introduction of new traditional products. 4. Acquiring knowledge on traditional processes from other confectioneries.
Digital motivation <ol style="list-style-type: none"> 1. Willingness to catch up with the changes in the area of digitalization (in the case of Delta). 2. Willingness to attract new groups of customers (digitally oriented). 	Traditional motivation <ol style="list-style-type: none"> 1. Willingness to attract new groups of customers (B2C – in the case of Epsilon). 2. Willingness to provide a high-quality traditional product.
Digital organization <ol style="list-style-type: none"> 1. Contact between the digital platform and confectioneries via a dedicated panel (online). 2. Online payments via the digital platform. 3. Marketing and communication. 2. B2C and B2B customer acquisition. 	Traditional organization <ol style="list-style-type: none"> 1. Manufacturing of cakes. 2. Delivery to end-users.

* If not indicated otherwise, the answers concern all the confectioneries in the DEE.

Source: Own study.

The results of our analysis point to the co-existence of two different settings of the DEE for confectioneries as representatives of highly traditional companies. On the one hand, although confectionery shops are part of the DEE, they are still embedded in the traditional setting, especially in terms of their core competences (such as manufacturing cakes and maintaining personal contact with end users). On the other hand, the natural/immanent setting of the DEE is a digital one and by starting cooperation with the digital platform, the highly traditional companies have become part of the digital setting and conduct digital activities. If we want to identify the types of actors from the DEE and how they foster the entrepreneurial activities

of highly traditional companies with a high involvement of manual labor, as well as identify the kinds of entrepreneurial activities fostered by the DEE, we need to analyze both digital and traditional actors and activities.

Based on the analysis we can indicate the special importance of two key groups of DEE actors that foster entrepreneurial activities among traditional companies. These are digital actors: the digital platform provider, as well as B2C and B2B customers who buy the products online. The digital platform provider (with a supporting supplier of IT infrastructure) was an important catalyst to the initiation of digital entrepreneurial activities among traditional companies. The Alpha platform invited the analyzed companies to cooperate, which resulted in them entering the DEE. Therefore, the digital platform provider can be seen as the one who shapes the structure of the ecosystem and the key facilitator of entrepreneurial activities within the DEE. By being part of the digital platform, the confectionery shops were pushed into transforming some of their non-core activities (i.e. marketing and sales) into digital ones, developing new online sales channels and attracting new groups of digitally oriented customers. Without the incentive from the platform provider (Alpha), digital entrepreneurial activities such as opening to new business or new selling channels would not appear or would be postponed. This digital development took place regardless of the initial digital/IT level of advancement of the traditional companies joining the platform. For example, Gamma had a website, and its customers could write an email to order a cake online. However, agreeing to the platform cooperation offer entailed a need for more profound digital entrepreneurial activities, such as attracting new groups of digitally oriented customers or acquiring knowledge on digital solutions to process orders entirely via the platform. Starting cooperation with Alpha was treated as an opportunity to leverage both managers' entrepreneurial activities and digital skills, especially by smaller companies. The digital platform provider was treated as a source of key knowledge and know-how on digital marketing and digital solutions. As Delta's manager stated, "I will never have the knowledge that they [digital platform] have. I think I would have to spend a lot of money to develop a process and strategy comparable to Alpha's".

The second group of digital actors within the DEE important for entrepreneurial activities among traditional companies are B2B and B2C customers who buy products online. Changes in customer behavior constitute an important source of motivation for traditional companies to start new digital activities. As this group of customers is growing rapidly, they have a profound impact on the activities performed by traditional companies by forcing them to transform some activities (such as ordering a cake) into a digital service. These customers also impact the entrepreneurial activities of Alpha by forcing it to offer more and more customer-tailored solutions. The importance of users in the DEE has been underlined by, for example, Sussan and Acs (2017). Similarly, in our research we found that in the

digital setting, customers who order cakes via the digital platform tend to have high expectations regarding user experience. They also transfer their expectations from other digital platforms and their online buying process (e.g. when buying shoes online) to traditional industries that require labor-intensive manual production. This means that they tend to expect immediate action even if some traditional processes cannot be accelerated. Information on their expectations is passed on both through the mediation of the platform in the digital setting, but also directly in the confectionery shop or when receiving an order delivered to their home. Therefore, to foster entrepreneurial activities it is important to provide a good user experience in both the digital and traditional settings.

When analyzing the actors that shape entrepreneurial activities within the DEE, one cannot forget about traditional actors. In our case, these include all confectioneries that are part of the DEE, external suppliers of cake and pastry ingredients, logistics companies and the sanitary-epidemiological inspectorate. Although they are traditional actors and perform strictly traditional activities, these actors impact the entrepreneurship and digital activities of the analyzed traditional confectionery shops by providing ingredients to produce cakes (suppliers), ensuring well-functioning logistics (delivery companies) or taking care of safety standards for manufactured products and facilities (sanitary-epidemiological inspectorate). However, we note that although it would not be possible for traditional companies to operate without these other traditional actors, they are a source of supporting activities within the DEE and not of new key entrepreneurial activities. The role played by traditional actors results in the need to adopt a broader perspective of the DEE also by considering traditional actors that play a supportive role in the ecosystem. One special group of actors that should be identified here are all the confectioneries that are part of the DEE. They know the industry, product and raw materials (“these are people who have years of experience, are confectioners, they do it every day by hand, with their own hands”, Alpha), and sometimes share that knowledge with the platform provider and other confectioneries (e.g. regarding solutions to problems encountered in production processes). Moreover, confectioneries sometimes want to start cooperation with the digital platform and be part of the DEE because they see that other competitors are already part of it, and that undertaking digital entrepreneurial activities was beneficial for other traditional actors. This knowledge about other confectioneries drives their entrepreneurial activities by creating a source of motivation for undertaking both digital and traditional activities.

The DEE shapes different kinds of both the digital and, surprisingly, traditional entrepreneurial activities among highly traditional companies. The DEE results in several digital entrepreneurial activities, particularly through cooperation with a digital platform. First of all, for all the analyzed confectioneries, cooperation with the digital platform provider resulted in

opening new selling channels. As Alpha co-owner 1 explained, “We give them specific orders [via the digital platform] that would not reach them otherwise because they come from a completely different channel.” Online sales can also take place via confectioneries’ own online shops. For example, after starting cooperation with the digital platform and acquiring experience and knowledge from the DEE, confectionery Delta opened its own online shop based on a solution provided by Alpha. In turn, in the case of confectionery Gamma, even though online sales had already started before the cooperation with Alpha (via the website and email correspondence), it was only the support of the DEE, and especially the digital platform, that made an increase in online sales possible.

Being involved in the DEE encourages firms to take other entrepreneurial activities aimed at reaching new groups of customers. Tech-savvy customers are used to smooth, quick and easy ordering when buying online, and they expect the same during the process of ordering cakes. As Delta’s manager underlines, without the platform they would not have reached so many digitally oriented customers who “want to order something even while stuck in a traffic jam.” In a similar vein, Gamma’s manager stresses the importance of Alpha’s experience and know-how in attracting groups of online customers, who are new to confectioneries.

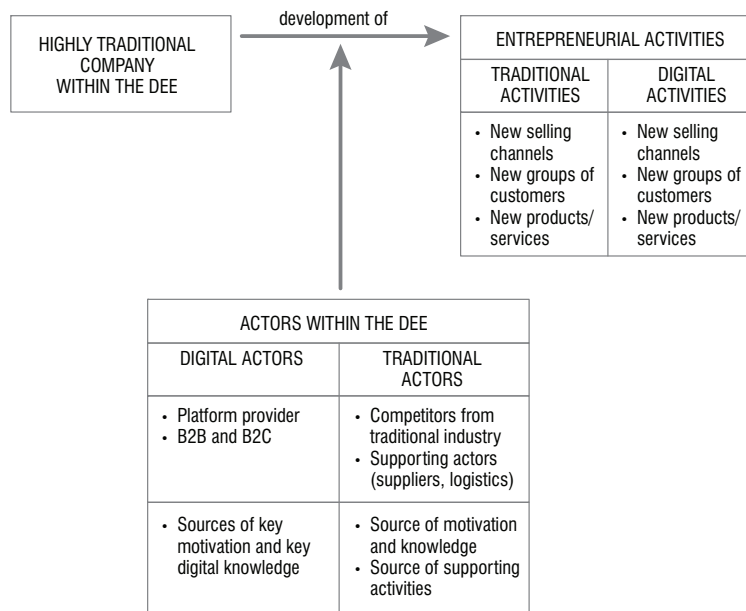
An interesting fact is that being part of the DEE also translates into entrepreneurial activities in the traditional setting. These include opening new selling channels, reaching new groups of customers and introducing new traditional products. In our case, confectionery Epsilon used to focus only on large B2B customers. Cooperation within the DEE has encouraged Epsilon managers to transform from a single focus on B2B customers to incorporate B2C customers and open traditional confectionery shops. As the Epsilon representative explains, “We didn’t work that much on individual orders. But, so to speak, the market wants it that way, it works like that, and we also adapt to its needs”.

Being part of the DEE also translates into other entrepreneurial traditional activities in the form of introducing new traditional products (e.g. vegan, gluten-free). All the confectioneries have introduced new traditional products that appear on Alpha’s platform. Sometimes it requires gaining new knowledge on traditional processes (e.g. production of vegan cakes) or buying new machinery (e.g. for cake decoration). The introduction of new products is due to Alpha’s willingness to be a leader (“it is particularly important for us that in the case of any innovation, we are the first to introduce it”, Alpha). Although it must be remembered that in introducing new products, Alpha uses knowledge obtained from the confectioneries that are part of the DEE.

Figure 1 presents how the entrepreneurial activities of highly traditional companies are shaped by other traditional and digital actors within the DEE. These digital and traditional actors from the DEE are an important source of

both motivation and knowledge. However, one can distinguish different types of knowledge and motivation that confectionery shops receive from DEE actors. The strategic knowledge, stimulating both traditional and digital entrepreneurial activities, comes mainly from the digital DEE actors, while knowledge obtained from the traditional actors in the DEE mainly has a supportive role in traditional and digital activities. The resulting entrepreneurial activities occur in both the digital and traditional setting, and include opening new selling channels, reaching new groups of customers and offering new products and/or services.

Figure 1
Entrepreneurial activities of highly traditional companies within the DEE



Source: Own study.

5. Conclusions

Our paper contributes to the scarce research on the concept of the DEE and is a pioneering work thanks to its investigation of the DEE that includes highly traditional companies. Our results confirmed the study by Tian (2021) which states that operating in a digital ecosystem may constitute a challenge for some traditional companies. The results show that for some of the analyzed companies, starting to operate via the digital platform while at the same maintaining traditional activities is difficult initially. Before

joining the DEE, these companies had been performing their activities in a traditional way for many years. When they entered the DEE, these activities had to be maintained (such as preparing traditional products and cooperating with logistic companies) while new activities with new digital actors had to be initiated and developed. The opposite situation may also occur in which new digital activities encourage the development of traditional business. In our case, a confectionery shop operating online with B2B customers was encouraged by sales via the digital platform and opened a traditional confectionery shop.

The main takeaway of this paper in terms of how the DEE shapes the entrepreneurial activities of highly traditional companies relates to four main aspects and therefore can be seen as a contribution to the entrepreneurship theory. Firstly, entrepreneurial activities, both digital and traditional, are developed simultaneously and reciprocally through the support of actors from the two settings – traditional and digital. Secondly, we have found that digital actors in the DEE are the source of more strategic key digital knowledge, which, as it is new, is sometimes demanding for highly traditional companies to put into practice. Traditional actors play a supportive role in entrepreneurial activities. Thirdly, both digital and traditional actors from the DEE stimulate the entrepreneurial activities of traditional companies by being an important source of motivation. Without this impulse coming from digital actors of the DEE, the entrepreneurial activities would not take place or would be postponed. Finally, the manifestations of entrepreneurial activities of traditional companies from the DEE take place in both the traditional and digital settings.

We have shown that some traditional companies cannot perform all their activities digitally. What is more, performing them in a traditional way makes them unique and is the basis for their competitive advantage. This confirms the previous research by Tekic and Koroteev (2019) that in the case of highly traditional companies with a high intensity of manual labor competitive advantage comes from being traditional. Although the analyzed companies operated in the DEE, they kept the most important activities in their value chain traditional (related to manufacturing traditional products).

To conclude, based on our analysis we can propose features of the DEE, which incorporate highly traditional companies:

- the importance of digital actors, especially digital platforms for entrepreneurial activities,
- the importance of the end-user experience provided both in the digital and traditional setting,
- the inability to transform completely to digital activities, some activities need to stay traditional, but most importantly the impossibility of separating the digital and traditional settings in the case of the DEE – the DEE does not function without the traditional entrepreneurial ecosystem.

In terms of theoretical contribution, we may conclude that although the DEE focuses on digital technologies, the concept should also include traditional ecosystem actors and activities. Only then does it enable a complex analysis of the entrepreneurial activities of traditional companies in the digital ecosystem. This is even more important as the results of our study show that ‘digital’ and ‘traditional’ activities, in general, are not separate, but are interconnected. The same concerns entrepreneurial activities. This is also related to the importance of the end-user experience provided both in the digital and traditional setting. Our results confirm research by Song (2019) on the importance of users and the demand side in the DEE. This entails the necessity for companies in the DEE to offer innovative products or services aimed at meeting end-users’ expectations (Sussan & Acs, 2017). However, in the case of traditional companies, these do not have to be highly innovative products. The user experience can be provided by high quality traditional yet non-innovative products, as well as high-quality activities in a traditional setting (e.g. on-time delivery). This shows that the DEE does not function without the traditional entrepreneurial ecosystem.

There are some limitations to the study. First of all, the case study method does not allow general conclusions to be drawn. Although the method provided more profound results through the in-depth analysis of the DEE actors, especially the confectionery shops, the conclusions are limited to this specific case study. More qualitative and quantitative results on the DEE would be beneficial for further development of the concept of the DEE among highly traditional companies. This would not only expand the scarce knowledge on other DEEs, including actors from other traditional industries, but also allow the results to be compared. Secondly, the case study was conducted in Poland, which may have an impact on the results obtained. It is possible that in a different digital environment (less or more developed), managers would be required to undertake different entrepreneurial activities. Therefore, as research on the DEE is still limited, further investigation should also focus on companies from other traditional sectors (like flower shops) and investigate the entrepreneurial activities required in this DEE. To expand the existing field of research, it is important to conduct a comparison of entrepreneurial activities in a DEE consisting of companies from the same traditional industries but operating in different cultural contexts.

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