

THE PHOENIX EFFECT – RISING FROM CRISIS THROUGH DIGITAL COLLABORATION – HOW CRISIS AFFECTS SOCIAL ENTERPRISES' DIGITALIZATION FOR VALUE CO-CREATION?

A FŐNIX-EFFEKTUS – KIEMELKEDÉS A VÁLSÁGBÓL A DIGITÁLIS EGYÜTTMŰKÖDÉS SEGÍTSÉGEVEL – HOGYAN BEFOLYÁSOLJA A VÁLSÁG A TÁRSADALMI VÁLLALKOZÁSOK DIGITALIZÁCIÓJÁT AZ ÉRTÉKTEREMTÉS ÉRDEKÉBEN?

Crisis and market turbulence can cause changes in digitalization and value co-creation of social enterprises. This paper aims to identify how crisis and market turbulence affect the way social enterprises employ digitalization to enable value co-creation. To achieve this, the authors conduct Retrospective Case Studies by interviewing ten social entrepreneurs from developing countries and synthesizing their findings from primary and secondary data. Their findings reveal that social enterprises that use digital collaboration can be more resilient in the face of crises. Simultaneously, crisis affects how social enterprises use digitalization for collaboration through new phenomena which they call Crisis-Resilient Digital Ecosystem, Transformative Resilience Network, and Synergistic Economic Resilience. Finally, the authors propose the Interconnected Resilience Framework to illustrate the relationship between market turbulence and social entrepreneurship's digital collaboration. This model and event-ordered matrix represent the main theoretical contributions to the literature on social entrepreneurship and crisis.

Keywords: digitalization, value co-creation, social entrepreneurship, crisis, market turbulence

A válság és a piaci turbulencia változásokat okozhat a társadalmi vállalkozások digitalizációjában és értékteremtésében. Ez a tanulmány azt kívánja meghatározni, hogy a válság és a piaci turbulencia hogyan befolyásolja a társadalmi vállalkozások digitalizációs alkalmazását az értékteremtés lehetővé tétele érdekében. Ennek eléréséért retrospektív esettanulmányokat végeztek a szerzők tíz fejlődő országbeli társadalmi vállalkozó megkérdezésével, és eredményeiket elsődleges és másodlagos adatokból szintetizálták. Eredményeik azt mutatják, hogy a digitális együttműködést alkalmazó társadalmi vállalkozások ellenállóbbak lehetnek a válságokkal szemben. Ezzel egyidejűleg a válság hatással van arra, hogy a társadalmi vállalkozások hogyan használják a digitalizációt az együttműködésre azokon az új jelenségeken keresztül, amelyeket válságálló digitális ökoszisztémának, transzformatív ellenálló képességi hálózatnak és szinergikus gazdasági ellenálló képességnek neveznek. Végül az összekapcsolt ellenállóképeségi keretrendszert javasolják a piaci turbulencia és a társadalmi vállalkozások digitális együttműködése közötti kapcsolat szemléltetésére. Ez a modell és az eseményrendezett mátrix a társadalmi vállalkozással és válsággal foglalkozó szakirodalom fő elméleti hozzájárulásait képviseli.

Kulcsszavak: digitalizáció, közös értékteremtés, társadalmi vállalkozás, krízis, piaci turbulencia

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Techniques of social effect have drawn the attention of policymakers and professionals, explicitly in the social business field (Scheuerle & Schmitz, 2016; Bauwens et al., 2019; Maseno & Wanyoike, 2022). Social entrepreneurs foster plans of action to resolve social issues, which can have a social effect (Selsky & Parker, 2010). Social entrepreneurship is an enterprise type which is aimed to benefit society instead of only maximizing profits of individual shareholders (Roberts & Woods, 2005; Dacin et al., 2010), and it elaborates the ways of fostering innovative solutions to tackle the problems of our world (Wu et al., 2020).

While social enterprises are on the rise, digitalization is also radically changing business operations. Digitalization is the increased use of digital technology by an organization, industry, or country (Brennen & Kreiss, 2016). Even though it has benefits like value co-creation (Lin et al., 2019), allowing social enterprise and its customers to jointly shape the product or service experience to align with their needs (Pralhad & Ramaswamy, 2004), there can be digitalization's negative consequences in social and ecological sides (Elia et al., 2020). Digitalization can empower or hinder both social and economic value co-creation. For example, virtualization decreases costs but may exclude those lacking digital access, and similarly, data usage can develop efficiency but may risk mission drift (Xiao & Beckmann, 2024). Additionally, recently, AI has been a significant shift in reshaping the enterprises (Dabija & Frau, 2024). Digitalization decreases compatibility when one benefit comes at the other's expense, economic gain over social exclusion, but increases it when helping one side without harming the other (Xiao & Beckmann, 2024). Digital communication channels also facilitate value co-creation by enabling interactive dialogue between customers and enterprises, where mutual information exchange and resource sharing drive collaborative outcomes (Molnár et al., 2025). Generally, social entrepreneurs must strategize on how digitalization is embedded, not just whether to adopt it, because it isn't hybrid goals' guaranteed enhancer; it can create conflicts if not properly aligned (Xiao & Beckmann, 2024).

The COVID-19 pandemic resulted in insufficient government response, which in turn spurred a rise in social initiatives and digital entrepreneurship for enhancing stakeholder satisfaction (Muñoz et al., 2022). By linking systematic literature review findings, it becomes clear that COVID-19 accelerated digitalization, and this digitalization positively impacted the performance of social and ecological enterprises (Mursalzade et al., 2023). However, COVID-19 was not the only crisis that affected social entrepreneurship, so, there is a need for research connecting crisis, market turbulence, and social entrepreneurship's digital collaboration. Other than COVID-19 Pandemic, to the Crisis category our interviewees also include the Karabakh War of 2020, the Wildfires/Forest Fires of 2021, the ongoing Legislative Barriers Crisis, and the Intellectual Property Rights Crisis.

The Crisis is an unwanted, unexpected, unpredictable situation, which causes disbelief and uncertainty (Milašinovic & Kešetovic, 2008). For example, a crisis

can be the COVID-19 pandemic or the war in Ukraine. Similarly, market turbulence is a state of volatility and uncertainty in the market, where prices and customers' needs fluctuate rapidly and unpredictably (Bakir et al., 2021). For example, after the pandemic, the local economies in developing countries were also affected heavily, and prices increased immensely.

There is a collaborative dynamic between social entrepreneurship, digitalization, and value co-creation, which amplifies the benefits of each: Digitalization streamlines communication, enabling social entrepreneurs to co-create value with various stakeholders. This interconnectedness has the potential to drive social change, while technologies help social entrepreneurs develop innovative solutions and respond to changing needs (Goyal et al., 2021; Aisaiti et al., 2021; Chandna, 2022). So, there is an obvious impact of digital collaboration on social and ecological entrepreneurship: Digitalization can stimulate sustainable endeavors (de Bernardi et al., 2019) and social entrepreneurial performance (Wan & Liu, 2021) while cutting costs (Aisaiti et al., 2019; Goyal et al., 2021). Digital collaboration empowers accessibility, inclusion of diversity (Srivastava & Shainesh, 2015; Muñoz et al., 2022) and tends to raise the importance of social entrepreneurship (Ratten, 2022).

Although there are several separate research on the topics of crisis and market turbulence; social enterprises' digitalization and the value co-creation, yet there is limited research investigating exactly crisis effect on social entrepreneurship's digital collaboration, and there is solely one study about social digital collaboration in the context of traditional manufacturing companies (Lenka et al., 2017). Additionally, from practical side, social entrepreneurs can think that after certain crisis event startup ecosystem or industry still isn't utilizing digital collaboration very well and can level up with their digitalization and value co-creation, however many still don't understand the interconnectedness of these phenomena. Therefore, further research is important to comprehend the effects of crisis and market turbulence from new perspectives with different social and ecological ideals. *Thus, we aim to tie crisis with social entrepreneurship's digital collaboration and analyze changes in social enterprises over time: before, during and after the crises. By highlighting this research aim, we try to answer the following research question: How does crisis affect the way social enterprises employ digitalization for collaboration?*

The applied methodology of retrospective case study had the phases of conducting the interviews, transcribing, translating, editing and analyzing them via NVivo software to create new theoretical concepts. Later, we used the Event Ordered Matrix to explain the changes in social enterprises over time for 10 years: How were certain new theoretical concepts within three different periods: before, during and after the crisis. To address the research problem, the research uses dataset of 10 in-depth interviews from developing countries to conceptualize five codes: Crisis-Responsive Entrepreneurial Mindset; Digital Transformation; Value Co-Creation

within Community; Agile Work Environments; Economic and Market Considerations. After revealing these five concepts, we came up with the new phenomena of Cridieco – Crisis-Resilient Digital Ecosystem, Transrenet – Transformative Resilience Network, and Synecesi – Synergistic Economic Resilience. Finally, we recommend the Interconnected Resilience Framework, which shows the relationship between crisis and social enterprises' digital collaboration, and which is the main theoretical contribution to the respective literature. Lastly, we recommend a research agenda on crisis and social entrepreneurship's digital collaboration.

Theoretical background

Importance of digitalization for social entrepreneurship

Scientific research on entrepreneurship can elaborate on the reasons individuals start their enterprises, which can have a crucial impact on the economy's progress and employment (Szabo & Aranyossy, 2022). Even though there is much research on social entrepreneurship and entrepreneurship education, their essential point is exploring the relationship between entrepreneurship and knowledge management (Jáki & Huszák, 2023). Naturally, there is research focusing on management students getting knowledge from digital enterprises on how to improve an entrepreneurial mindset (Beke et al., 2023). Simultaneously, there is research with startup founders as a different entrepreneurial category (Virágh et al., 2024). However, research with social enterprise founders is rare, especially the ones focusing on crisis and digital collaboration. Additionally, there is a need for more digitalization strategies and IT support for marketing is below the average of other company activities (Keszey, 2007). Digital tools that enable communication, knowledge management, and value co-creation between entrepreneurs and consumers have fundamentally transformed how people connect (Frau et al., 2023). Digitalization addresses societal challenges (Zahra, 2021) and enhances sustainability (de Bernardi et al., 2022). Additionally, digital financing serves as a key enabler for individuals tackling societal issues (Martin, 2020; Chadna, 2022) while reducing costs (Aisaiti et al., 2019; Goyal et al., 2021). In addition, with low digitalization levels, the lack of social enterprises may negatively impact national wellbeing (Torres & Augusto, 2020). Furthermore, digitalization particularly using big data, shows a positive relationship with employee performance in social entrepreneurship (Wan & Liu, 2021). It also enhances geographical accessibility, lowers costs, and promotes inclusivity in healthcare services (Srivastava & Shainesh, 2015).

Integration of value co-creation to digitalization in social enterprises

Social and ecological enterprises utilize value co-creation to help promote a more inclusive, accessible, and equitable society (Muñoz et al., 2022). For example, by integrating value co-creation into digitalization, OurCityLove social

enterprise and its digital application play a crucial role in addressing service gaps (Lin et al., 2019). During the pandemic, instances of value co-creation also rose, with collaborative efforts among government, social enterprises, and marginalized communities emerging, accelerating value co-creation and increasing the focus on social entrepreneurship (Ratten, 2022). In practice, there is often a collaborative dynamic among digitalization, value co-creation, and social entrepreneurship, which enhances the benefits of each: Digitalization streamlines communication, enabling social entrepreneurs to co-create value with various stakeholders, interconnection has the potential to drive social change, and technologies support social and ecological entrepreneurs in developing innovative solutions and adapting to changing needs (Loukopoulos & Papadimitriou, 2022; Chadna, 2022; Mursalzade et al., 2023).

The role of crisis and market turbulence

In addition to digital collaboration of social enterprises, it is also interesting to observe and analyze how crisis and market turbulence may affect them. Although the initial reference to turbulence originated in physics (McDonough, 2007), this initially narrow area of study quickly broadened and gained significant relevance for economics: For example, Glazer and Weiss (1993) defined turbulent environment as constantly dynamic, volatile, and exhibiting sharp discontinuities and uncertainties. This phenomenon is primarily characterized by three factors: sharp changes, information deterioration, and difficulty in prediction. Kotler (2009) attributes the increasing influence of changes in turbulent environments on firms to the new interconnectivity of actors in the global economy which he refers to as the butterfly effect. The main challenge arising from this type of environmental impact is the unsustainability of a reactive strategy; for companies in rapidly changing markets or industries, a shift toward a proactive approach has become increasingly necessary (Fan et al., 2013). For the deterioration of information, a significant number of changes occurring within a given time frame has long been a key factor (Dess & Beard, 1984), which undermines the reliability of forecasts. Subsequent researchers have aimed to frame this in terms of the time sensitivity of information (Glazer & Weiss, 1993), relating to how information loses value from one period to the next. Paradoxically, despite a decline in quality, information may still be more valuable to managers, as uncertain environmental factors heighten the stakes of decisions, such as prior to a potential price war (Dekimpe et al., 2011). Kohli and Jaworski (1990) identified two environmental moderators that can be viewed as types of turbulence for further exploration: Technological turbulence which is the "rate of change and the instability of technology in an industry" and Market turbulence which is defined as "a change in the composition and preferences of buyers", a factor that is directly related to the level of competition (Kohli & Jaworski, 1990, p. 14). There is limited research on crisis's impact on digital collaboration of social enterprises, thus, we decided to investigate how crisis and market turbulence can affect it.

Although separate research on crisis, market turbulence and social entrepreneurship's digitalization and collaborations exist, nevertheless empirical studies precisely research crises' impact on social enterprises' digital collaboration are rare. As a result, further studies are important to comprehend the impacts and the relationship between these concepts. Due to the gap between mentioned four literature streamlines, we try to investigate underlying mechanisms that tie these four together.

Methodology

Research had a Multiple-Case Study for theory building and Retrospective Case Study to analyze the change in social and ecological enterprises over time. Cases are examined for various hypothetical purposes, such as revealing unusual characteristics, replicating results from different cases, conducting contradictory replications, ruling out alternative explanations, and refining the evolving hypothesis (Eisenhardt & Graebner, 2007). To address the research question, first and foremost, we employ a multiple case study approach (Yin, 2009). This method facilitates a thorough analysis of complex social phenomena and enhances the generalizability of findings, as it permits the replication of results across multiple cases, thereby supporting theory development (Eisenhardt & Graebner, 2007).

Secondly, we used the methodology of Retrospective Case Studies, which are a form of research where all data such as personal narratives are gathered after the events have taken place, the incidents being analyzed have happened, and their results are already known: In this approach, we recreate a timeline of events and changes in variables that occurred during the period under review (Mills et al., 2010).

Case selection

Our research derives its conclusions from social enterprises, as focusing on social entrepreneurship is crucial for tackling the challenges society currently faces. We utilized a theoretical sampling strategy to choose cases that would likely enhance the existing theory (Eisenhardt & Graebner, 2007). For our study, we selected cases with specific pre-defined characteristics to eliminate any selection bias. To qualify for inclusion, firms had to 1) address social or ecological issues, making them social or ecological enterprises, and 2) provide access to key informants such as founders, co-founders, or chief managers. Furthermore, we determined the specific problems these enterprises address, their profiles, and target audiences. This method enabled us to construct a more thorough and precise theoretical framework while minimizing the potential for bias in our selection process (Eisenhardt & Graebner, 2007; Yin, 2009). From a list of 30 entrepreneurs, we ultimately conducted 10 in-depth interviews. We concluded our research after analyzing these cases, having reached theoretical saturation (Saunders et al., 2018).

We selected developing countries, especially Azerbaijan, as the primary area for case selection for two main reasons. First, Azerbaijan transitioned from a socialist to a capitalist regime, characterized by its oil-rich developing economy (Aliyev et al., 2016). Given the impact of the oil economy on social and ecological enterprises, this article emphasizes cases from Azerbaijan. Second, research indicates that social entrepreneurship tends to flourish in nations with developing economies and relatively low welfare levels (Torres & Augusto, 2020). However, it is important to note that the findings primarily based on Azerbaijan may present limitations and suggest directions for future research. Moreover, we can also

Table 1

Overview of the retrospective case studies

Profile of Social Enterprise	Solved Problem	Target Group	Primary data – Interview	Secondary Data – Description
Crowdfunding for Social Projects and Social Enterprises	Education and Finance	Social Enterprises and Events	59 minutes	Owned Social Media page, Website
Handcrafts; Comics	Environment, Social Inclusion	Youngsters, Young Adults	56 minutes	Owned Social Media page
Eco-friendly Reed Bags and Cultural Community	Unemployment, Cultural Preservation	Rural Women, Ethnic Minorities	53 minutes	Owned Social Media page
Comic Book Studio	Environment, Social Inclusion	Youngsters, Young Adults	78 minutes	Owned Social Media page
Digital Support Platform	Education and Finance	Social event and Enterprises	29 minutes	Owned Social Media page, Website
Rubik's Cube Competitions	Education, Social Inclusion	Youngsters, Young Adults	84 minutes	Owned Social Media page
Eco-friendly Reed Bags and Cultural Community	Unemployment, Cultural Preservation	Rural Women, Ethnic Minorities	87 minutes	Owned Social Media page
Cashback Donations, Support Packages	Support for Charity Events	Social Fundraisers, Companies	72 minutes	Owned Social Media page, Website
Traditional Socks	Unemployment, Cultural Preservation	Rural Women, Ethnic Minorities	35 minutes	Owned Social Media page, Website
Comics Studio; Digital Support Platform	Environment, Social Inclusion	Youngsters, Young Adults	36 minutes	Owned Social Media page

Source: own compilation

underscore the influence of the Azerbaijani cultural context on the adoption and effectiveness of digitalization in social enterprises, as cultural factors could offer valuable insights into why certain digital strategies succeed or fail in certain settings.

Data collection

To minimize the risk of disseminating inaccurate information, it is crucial to avoid retrospective sense-making; thus, we integrated data from multiple sources (Miles & Huberman, 1994; Eisenhardt & Graebner, 2007). We conducted interviews with knowledgeable individuals who were eager to share their insights on the subject matter (Kumar et al., 1993). Specifically, 10 out of 30 social entrepreneurs based in Azerbaijan agreed to participate in our research and engaged in the face-to-face interview phase. We utilized a semi-structured interview protocol to investigate how crisis affects the way social enterprises use digitalization for collaboration. The interviews were conducted online using the Microsoft Teams platform, which facilitated the recording of both video and audio. These interviews took place in April 2024 and lasted 59 minutes on average. After transcribing the interviews, we sent the transcripts to the informants for clarification, ensuring that the edited versions accurately reflect their intended meanings. 9 out of 10 interviews were conducted in English, while one was translated from Azerbaijani.

We collected data from multiple sources, including semi-structure interviews, the enterprises’ social media pages and their own official websites. By triangulating these data sources, we aimed to produce more reliable findings (Eisenhardt, 1989; Yin, 2008) (Table 1).

Data analysis

With a theory building approach, case summaries of social and ecological enterprises were used based on primary data as the foundation via NVivo 10 software to progress the data from specific to general through 4 coding steps (Moi et al., 2018; Saldana, 2015; Frau et al., 2022). We had inductive and deductive methods of analysis: We had a deductive approach with existing literature to interpret the qualitative data related to crisis, market turbulence, digitalization, value co-creation and social entrepreneurship, for example, some of the codes were used both by interviewees and literature; we also had an inductive approach to lay out main fundamental themes, from which we improved new theoretical concepts (Kennedy & Thornberg, 2018) by identifying reflective patterns of the key concepts.

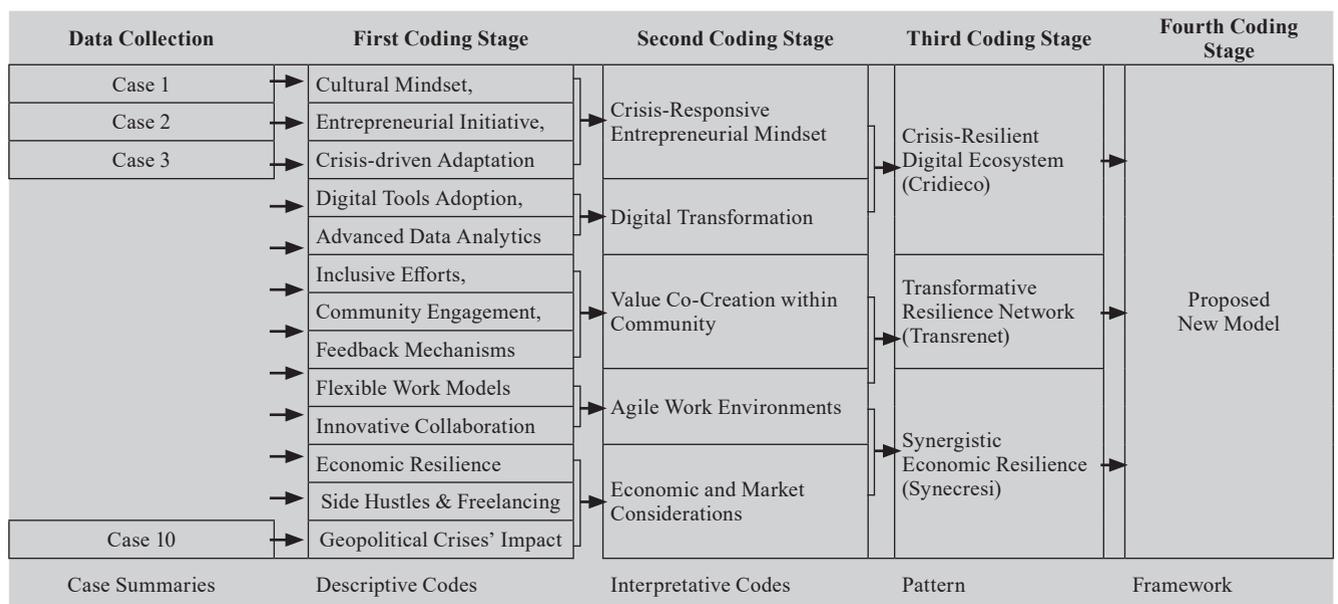
After our thorough analysis of the dataset, a detailed coding scheme has emerged out of face-to-face online interviews. By coding every relevant keyword and quote, we created initial codes. Considering our research question, subsequent analysis appeared from coding our dataset. Based on the most frequently used and peculiar quotes, insights and key results from 10 interview transcripts, we had subsequent analysis (Figure 1).

Key elements for resilience and recovery from crisis

In Detailed Coding Process, we reveal the summaries of multiple case studies from interview transcripts which present keywords and codes which are important for the qualitative analysis. After the qualitative analysis of case summaries, the first coding stage shows generic findings regarding the relationship between crisis, market turbulence, social entrepreneurship, digitalization,

Figure 1

Data analysis process for retrospective case studies in Social Entrepreneurship



Source: adapted from Saldana (2015), Frau et al. (2022) and Mursalzade (2024)

and collaboration. At the 1st coding stage, some of the mostly stated keywords are the basis of descriptive codes (Cultural Mindset, Entrepreneurial Initiative and others).

Since there is a gap between the four literature streams: crisis, social entrepreneurship, digitalization and collaboration, the next coding stages synthesize available knowledge and generic codes into more detailed summarizing codes. As an illustration, at the 2nd coding stage, they make up new interpretative codes such as Crisis-Responsive Entrepreneurial Mindset; Digital Transformation; Value Co-Creation within Community; Agile Work Environments; Economic and Market Considerations (Figure 1). Previous codes of Cultural Mindset, Entrepreneurial Initiative, Crisis-driven Adaptation can be combined under the theoretical code of *Crisis-Responsive Entrepreneurial Mindset*. Previous codes of Digital Tools Adoption, Advanced Data Analytics, Trust and Security can be linked under the code of *Digital Transformation*. Inclusive Efforts, Community Engagement Strategies, Feedback Mechanisms raw codes can be associated with *Value Co-Creation within Community*. Flexible Work Models, Innovative Collaboration Systems, Work-Life Balance naturally fit in with *Agile Work Environments*. Economic Resilience, Side Hustles and Freelancing, Impact of Geopolitical Crises on Markets can be associated with *Economic and Market Considerations*. By associating these raw codes into more detailed theoretical concepts, in-depth perception of underlying theoretical mechanisms and market turbulence dynamics in social and ecological enterprises, can be achieved. Thus, researchers and practitioners can investigate these phenomena in detailed ways, contributing to improvement of theoretical frameworks and managerial relevance.

Lastly, five concepts: Crisis-Responsive Entrepreneurial Mindset; Digital Transformation; Value Co-Creation within Community; Agile Work Environments; Economic and Market Considerations tailored new codes of *Crisis-Resilient Digital Ecosystem*, *Transformative Resilience Network*, and *Synergistic Economic Resilience* in the 3rd coding stage and contributed to the final proposed conceptual model – *Interconnected Resilience Framework* in the 4th coding stage.

After Multiple Case Study and its coding stages, we applied Retrospective Case Study's data analysis with the Event-Ordered Matrix (Miles & Huberman, 1994; Frau et al., 2020). We utilized a qualitative retrospective single-case study, which is appropriate for exploring "how" questions related to a series of events (Yin, 2008). The analysis spans from the social enterprises' founding in 2015 to 2025. This study utilized an event-ordered matrix (Miles & Huberman, 1994; Frau et al., 2020) to connect events suitable to the social enterprises' digital collaboration and crisis management strategies with each of three time periods: 2015-2019 – Before the Crisis: Pre-COVID, Pre-War, Pre-Wildfires; 2020-2021 – During the Crisis: COVID-19, 2020 Karabakh War, Wildfires; 2022-2025 – After the Crisis: Post-COVID, Post-War, Post-Wildfires (Table 2).

Findings

Analysis of primary findings

Firstly, Cultural Mindset, Entrepreneurial Initiative, Crisis-driven Adaptation combined under one code of *Crisis-Responsive Entrepreneurial Mindset*. Cultural Mindset is about attitudes towards adaptive solutions: after the crisis, there was more efficient navigation of challenges

Table 2

Summary of Identified Concepts

Concept	Definition	Illustrative Quotes
Crisis-Resilient Digital Ecosystem (Cridieco)	Crisis-Resilient Digital Ecosystem is an ecosystem where social and ecological enterprises thrive during and after crises by embracing crisis-responsive entrepreneurial mindset and digital transformation.	<p>Q1: "COVID gave us opportunity to digitalize... But it wasn't enough, we also had a problem with the mindset of our local people. There's one project – website and in the other part there's one donor, donor doesn't believe that: "What is this website? I will pay through this; the money will arrive at the account or the idea owners? Why should I spread my ideas with others? What if someone takes it and uses it?" So, lack of entrepreneurial mindset and cultural barrier in local community, especially when it comes to mistrust." (Case 1).</p> <p>Q2: "Overall, the integration of digital tools has transformed the dynamics of collaboration within our social enterprises. It made things more efficient, particularly during difficult times. These changes made us to navigate challenges more effectively and continue driving positive impact in our mission to create meaningful social and ecological change." (Case 2).</p> <p>Q3: "People prefer to work under someone's orders. To initiate something independently, to correspond, to take responsibility, to make something is hard, even though they would see it more profitable than to wait someone's order." (Case 3).</p> <p>Q4: "Crisis can impact social enterprises a lot. Social businesses are changing their mindsets and approaches slowly and reacting to tough times. So, we need to be innovative, use more digital tools and data analytics to stimulate operational processes. Digitalization helped a lot in our work during and after crisis, and it can also help others to be more resilient towards the crisis." (Case 5).</p> <p>Q5: "During the war we had a lot of social fundraising. Overall, people got affected by both development of technology and people's mind and approach. So, people are just trying to switch traditional charity to more technological one, which is more convenient, secure and easy... A crisis gives problems and, in our case, good chances: People start caring about other people by giving more charity, by becoming kinder to each other. Thus, it makes a situation better overall." (Case 8).</p> <p>Q6: "During COVID-19, social enterprises quickly adapted to more advanced digital tools such as video conferencing for remote work or social media for outreach and fundraising, and online project management tools for better coordination. So, this evolution enabled them to stay connected, continued their mission and growth despite the challenge they faced." (Case 10).</p>

Summary of Identified Concepts

Concept	Definition	Illustrative Quotes
Transformative Resilience Network (Transrenet)	Transformative Resilience Network is a phenomenon focusing on how social enterprises' networks transform challenges into opportunities through collective resilience and empowers value co-creation within communities while adopting agile work practices for navigating crises.	<p>Q7: "The evolution of digital tools influenced how we collaborate with others to create value within our social enterprises. For example, we started to have Focus group for proof-reading from youngsters before publication, increasingly relied on online platforms, such as project management software, collaborative document sharing tools, and communication apps, to facilitate teamwork and coordination." (Case 2).</p> <p>Q8: "We have remote work tradition kept from COVID-19. And collaboration is also enhanced including virtual meetings, training sessions and design collaboration. The skills have been enhanced and adapted to the new reality. Due to this COVID-19 issue, flexible work models also developed which you have find very useful and there is no need to come every day from 9 to 5 work in case you don't have any urgent tasks to complete." (Case 3).</p> <p>Q9: "COVID also raised the issues regarding physical health, but also mental health, life-work balance. It was a digital collaboration: You didn't see the people, but still you worked together, and it was a collaborative effort – more flexible, very easier. That's when people realized that it was possible to have flexible jobs, more task oriented, way less time-consuming jobs. And it would allow them to have more free time for themselves." (Case 4).</p> <p>Q10: "AI, exactly ChatGPT boomed in 2022 and stimulated lots of business. Although in our social enterprise it is difficult to adapt to this, still it can be used for designing content for social media, designing certificates for competitions and so on. So, it can be used somehow and can be useful to save time and financial costs. It can increase work-life balance, work quality more easily." (Case 6).</p> <p>Q11: "We saw that such a crisis can happen. We must be ready, every other company can face, it's important to stay proactive, stay agile and stay flexible" (Case 7).</p> <p>Q12: "Collaborating with other brands helped us to be more effective. Especially during the war. Even the diaspora got really excited about helping Azerbaijani brands. We connected with other brands with live streams. Since then, I've become more active on social media, where before I was just posting occasionally like "this is a sock". So, this taught me the value of community and using these digital things for that. I learned through COVID and war, that it's important to stay connected with our customers by telling the stories of the women and making sure that's one of the front parts of our company." (Case 9).</p> <p>Q13: "So, we will see remote collaboration and innovative solutions. We will witness the development of innovative solutions tailored to specific industries and challenges for their optimizing workloads and creating new avenues for value creation. The feature of using digital tools to work and create a valid direction. And continued innovation and adaptation and empowering individuals and organizations to overcome challenges in an increasingly digital world." (Case 10).</p>
Synergistic Economic Resilience (Synecresi)	Synergistic Economic Resilience is defined by a synergy between agile work environments and economic market considerations, suggesting that synergy is occurring where social enterprises are creating economic resilience in the market through digitalization and value co-creation: It implies that the social entrepreneurs having digital collaboration are more resilient against the crises, thanks to agile work environments and due to economic market considerations.	<p>Q14: "COVID caused lots of layoffs, crisis in the economy. And then because of this, remote work or working from home emerged. People realized that some of the things back then weren't necessary, and now they could do many things online. Well, maybe some didn't rely on online payment or maybe some didn't have the digital skills to do so, but overall, their digital skills increased, side hustles such as dropshipping, affiliate marketing increased, and at the same time within the business environment, the IT became more task-oriented and focus on AI raised." (Case 4).</p> <p>Q15: "With agility, companies can offer many new side products or services, there can be more growth, fast entry to market, faster import and production." (Case 5).</p> <p>Q16: "After the pandemic, we had war and post-conflict stress. Everyone was worried because we are in hot pot between Russia and Iran. So, geopolitics of crisis also impacting... People used digital tools to learn trading in the cryptocurrencies, digital trading methods like dropshipping. The people started to investigate this dropshipping, and they started to sell online. Basically, you buy products from China, and you open your account in the Shopify, sell in USA because in China it's cheaper while you don't have a warehouse, but just website" (Case 7).</p> <p>Q17: "We've learned to sell things digitally, create patterns of our socks. So, it's like an actual digital download that you buy: some women could sit at home working in America and Europe. It's a certain knitting pattern – digital items that have helped passive income: we've made cards and stickers like with a sock on them. And with Azerbaijan on it, so, it's like something kind of related. But it's also like a way that we're using digital things to support our business." (Case 9).</p> <p>Q18: "I believe that scheduling regular virtual meetings or check-ins with your team using video conferencing tools helps everyone stay connected, discuss progress and address this challenge together and encourage open communication. That creates channels for open communication and idea sharing using WhatsApp or Discord. It's encouraging everyone to share their ideas and concerns freely and using Google Documents, Microsoft Teams to collaborate on projects efficiently, and foster supportive inclusive virtual environment. Social interactions and activities that promote mental and emotional wellbeing." (Case 10).</p>

Source: own compilation

(Quote 2 in Table 2). Our respondents observed that while before the crisis there were low levels of Entrepreneurial Initiatives, and risk-seeking proactive behaviors; after the crisis, the number of social and ecological initiatives increased (Quote 1, 4). Crisis-driven Adaptation is about shifts in mindset of people due to external pressures like pandemics, or wars: there was increased awareness, donations, support, inclusive and human-centric focus after

war and pandemic in several social and ecological enterprises in our retrospective case study (Quote 5).

Secondly, the codes of Digital Tools Adoption and Utilization, Advanced Data Analytics are gathered under the code of *Digital Transformation*. Digital Tools Adoption is about increased reliance on remote work technologies, digital communication, online sales, and many others (Quote 6). Advanced Data Analytics refers to the usage

of advanced analytics for decision-making, performance monitoring, and engagement assessments, cost-benefit analysis, measuring community involvement and satisfaction (Quote 4).

Thirdly, Inclusive Efforts, Community Engagement Strategies, Feedback Mechanisms raw codes can be associated with *Value Co-Creation within Community*. Inclusive Efforts are about including all and giving value to everyone based on empathy, despite marginalization. So, the social values and inclusion are the basis: it can be about women empowerment initiatives, cultural awareness, representation, accessibility, corporate social responsibility emphasis, solidarity during crises, inclusion and diversity, as they've been mentioned in most of our cases. Community Engagement Strategies refer to the importance of creating long-term social connections, community bonds via collaboration platforms and feedback. Community Engagement Strategies play a crucial part in this: strategies for managing public relations during crises reveals that Storytelling – Emphasizing personal narratives to connect with audiences are powerful (Quote 12). Lastly, Feedback Mechanisms are about utilizing focus groups, regular check-ins for continuous assessments, adjustments, transparency, open communication channels in collaboration, establishing clear protocols, communication channels for information sharing and knowledge management (Quote 7).

Fourthly, Flexible Work Models and Innovative Collaboration Systems naturally fit in with *Agile Work Environments*. Flexible Work Models stand for remote work dynamics, fast experimentation, adaptability, encouraging creativity, agility, and hybrid work arrangements (Quote 8, 9, 11). Similarly, Innovative Collaboration Systems are about the usage of digital tools for collaborations, resilience through innovation, collaborative endeavors and community support (Quote 13).

Fifthly, Economic Resilience, Side Hustles and Freelancing, Impact of Geopolitical Crises on Markets can be associated with *Economic and Market Considerations*. According to our data analysis, Economic Resilience means Ability of social enterprises to adapt and thrive despite the economic instability, adaptation to post-crisis market changes, and growth of the digital startup ecosystem (Quote 18). Moreover, Side Hustles and Freelancing is growth of alternative income sources, entrepreneurial ventures and side projects (Quote 17). Lastly, Impact of Geopolitical Crises on Markets: Effects of war and economic instability on social enterprises has also been mentioned by our interviewees (Quote 14, 16).

Interconnected Resilience Framework

Concepts of Crisis and Market Turbulence

Crisis is defined as an unwanted, unexpected, unpredictable situation, which causes disbelief and uncertainty (Milašinovic & Kešetovic, 2008), while Market turbulence is defined as “a change in the composition and preferences of buyers”, a factor that is directly related to the level of competition (Kohli & Jaworski, 1990, p. 14). For

example, a crisis can be COVID-19 pandemic or the war in Ukraine and Market turbulence is a state of volatility and uncertainty in the market, where prices and customers' needs fluctuate rapidly and unpredictably such as local economies getting affected heavily after COVID-19 and prices increasing immensely (Bakir et al., 2021).

Digital collaboration in social entrepreneurship is simply utilization of digitalization which is defined as a rise in computers or digital technology usage by an organization, industry or country (Brennen & Kreiss, 2016) for value co-creation which is defined as the joint creation of value by the enterprise and the customers, interacting and integrating their resources to co-construct better products and services to adjust to their needs (Prahalad & Ramaswamy, 2004).

Our main research question of how Crisis and Market turbulence affect the way social enterprises employ digitalization for collaboration is answered with our first proposition (Figure 2): Crisis and Market Turbulence increased Digital Collaboration in Social Entrepreneurship: “COVID gave us opportunity to digitalize” (Quote 1 in Table 2).

Thus, based on our findings, we introduce our first proposition:

P_1 : Crisis and Market turbulence increased Digital Collaboration in Social Entrepreneurship (Figure 2).

Periods of crisis and market instability, such as COVID-19 pandemic or geopolitical conflicts such as wars, force social enterprises to adopt digital tools to maintain operations and stakeholder engagement. These disruptions accelerate the necessity for remote communication, digital fundraising, and online service delivery, leading to a marked increase in digital collaboration. As observed in the interviews, crises acted as catalyst for technological adoption and adaptation, enabling social enterprises to continue their missions under challenging conditions.

Concept of Digital Collaboration in Social Entrepreneurship

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According to our cases, there's positive relationship between Digital Collaboration in Social Entrepreneurship and Resilience: “Digitalization helped a lot in our work during crisis, and it can also help others to be more resilient towards the crisis” (Quote 4 in Table 2). “Overall, the integration of digital tools has transformed the dynamics of collaboration within our social enterprises. It made things more efficient, particularly during difficult times. These changes made us to navigate challenges more effectively and continue driving positive impact in our mission to create meaningful social and ecological change” (Quote 2 in Table 2).

Thus, based on our findings, we advance our second proposition:

P_2 : Digital Collaboration in Social Entrepreneurship increased Resilience related concepts of Cridieco, Transrenet and Syneresi. (Figure 2).

Digital collaboration fosters organizational agility and resource integration, allowing social enterprises to respond more effectively to crises. Through digital platforms, they co-create value with stakeholders, access broader support networks, and maintain continuity. The integration of digital technologies enhance adaptability, decision-making and coordination, thus reinforcing resilience related concepts of Crisis-resilient Digital Ecosystem, Transformative Resilience Networks, and Synergistic Economic Resilience. This finding is supported by empirical data where interviewees attributed operational stability and innovation to digital tools during and after crises.

Resilience-related Concepts of Cridieco, Transrenet and Syneresi

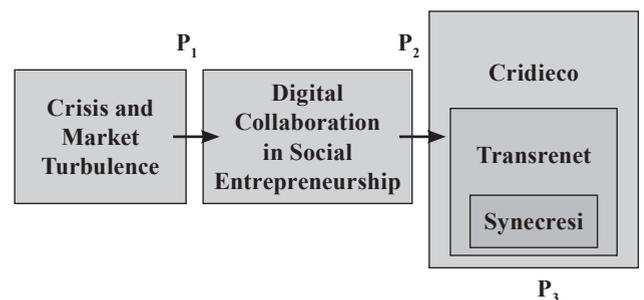
Firstly, *Crisis-Resilient Digital Ecosystem (Cridieco)* is an ecosystem where social and ecological enterprises thrive during and after crises by embracing crisis-responsive entrepreneurial mindset and digital transformation. This phenomenon can guide future research and practice in understanding how social and ecological enterprises can effectively respond to disruptions while enhancing their entrepreneurial efforts and digitalization strategies. So, Cridieco highlights the role of innovation in responding to crises. Metaphorically speaking, crisis-resilient digital ecosystem can be mentioned as *Resilience Nexus* where social entrepreneurial mindset meets digital connection in times of change or market turbulence and shows resistance towards disadvantages brought with the crisis.

Secondly, *Transformative Resilience Network (Transrenet)* is a phenomenon which is occurring within crisis-resilient digital ecosystem and is focusing on how social enterprises' networks transform challenges into opportunities through collective resilience. So, Transrenet is a network which empowers value co-creation within communities and adopts agile work practices for navigating business challenges and crises in general. Other than Transrenet being an internal part of Cridieco, the difference between them is that Transrenet implies the importance of fostering collaborations among social enterprises. It states that digitalization is not enough on its own, but rather transformative resilience requires collaboration, and in this regard, value co-creation is a must. Metaphorically speaking, Transrenet can be mentioned as *The Phoenix Network* where social and ecological enterprises are rising stronger from adversity thanks to agile work practices and value co-creation. Thus overall, metamorphosis of these enterprises is emerging through crises.

Thirdly, *Synergistic Economic Resilience (Syneresi)* is a type of resilience within transformative resilience networks and in general within crisis-resilient digital ecosystem and it is defined by a synergy between agile work environments and economic market considerations:

Syneresi suggests that synergy forge is occurring where social enterprises are crafting economic resilience within the markets through digitalization and value co-creation. Syneresi implies that the social entrepreneurs having digital collaboration are more resilient against the crises, thanks to agile work environments and due to economic market considerations. For example, during the COVID-19 pandemic, working from home with much more flexibility made it possible for many social entrepreneurs to start their side hustles or freelancing projects online both locally and globally, for thriving against the economic challenges and geopolitical crises.

Figure 2
Interconnected Resilience Framework depicting mechanisms connecting Market Turbulence and Social Entrepreneurship's Digital Collaboration



Source: own research

Overall, we have three propositions: P_1 : Crisis and Market turbulence increased Digital Collaboration in Social Entrepreneurship. P_2 : Digital Collaboration in Social Entrepreneurship increased Resilience. P_3 : There is an interconnected connection between Cridieco, Transrenet and Syneresi.

P_2 : We reveal that social enterprises using digital collaboration can have more resilience against the crisis. Thus, our main research question of how market turbulence and crisis affect the way social enterprises employ digitalization for collaboration is answered with these three phenomena or respective newly identified concepts (Figure 2): Crisis and Market Turbulence increased Social Entrepreneurship's Digital Collaboration (P_1) which resulted with increased Resilience (P_2).

P_3 : Additionally, a common feature of these three concepts as well as the main point of the Interconnected Resilience Framework is that digital tools and collaborative practices enhance the resilience of social and ecological enterprises in the face of adversity, crisis and market turbulence. Since social enterprises can rise from crisis through digital collaboration, we call the crisis's impact on them as the *Phoenix Effect*: Crisis and market turbulence can cause changes in digitalization and value co-creation of social enterprises. In this regard, we explore Cridieco, Transrenet and Syneresi – fundamental theoretical mechanisms that connect digitalization and value co-creation with each other for social enterprises within the context of crisis and market turbulence.

The conceptual constructs of Cridieco, Transrenet, and Synecresi collectively explain how digital collaboration and resilience interact in a systemic and progressive manner. These phenomena are interrelated components of the broader Interconnected Resilience Framework. Cridieco highlights the ecosystem level adaptation, Transrenet emphasizes collaborative transformation within networks, and Synecresi underlines the economic viability gained through digital innovation. Their interaction illustrates a layered process where digital engagement supports not only survival but also growth and transformation in response to adversity.

Simultaneously, analyzing these three phenomena reveals interesting peculiarities in social enterprises and how they gain more resilience over time, if they use digitalization and value co-creation during and after the crises (Table 3). Thanks to digital collaboration, we have three new concepts of Cridieco, Transrenet and Synecresi. These concepts underline the importance of using digital collaboration for social enterprises during crises, ultimately enhancing their resilience, network and overall ecosystem.

respective literatures by suggesting an Interconnected Resilience Framework (Figure 2).

Social entrepreneurship is empowered by digitalization (Goyal et al., 2021; Wan & Liu, 2021; Mursalzade et al., 2023), and value co-creation (Ratten, 2022; Mursalzade et al., 2023), yet crises' impact on social enterprises' digital collaboration is underexplored and practically, there is still need for social enterprises to increase their digital collaborations to have more resilience against the crises. We revealed that research on the relationship between market turbulence and social entrepreneurship's digital collaboration is rare and disjointed in the literature. Thus, literature has failed in its purpose of synthesizing and providing guidance to practitioners on the implementation of digital collaboration during crises. Therefore, our research has identified new concepts making social entrepreneurship more resilient during crises if they use digital collaboration: Crisis-Resilient Digital Ecosystem, Transformative Resilient Network, and Synergistic Economic Resilience. Analyzing these three phenomena reveals how social enterprises gain more resilience over time by using digital collaboration during crises. Moreover, due to crisis and

Table 3

**Event-ordered Matrix for Crises'
Impact on Social Enterprises**

Theoretical Concept	Period 1: 2015-2019 (Before the Crisis: Pre-COVID, Pre-War, Pre-Wildfires)	Period 2: 2020-2021 (During the Crisis: COVID-19, 2020 War, Wildfires)	Period 3: 2022-2025 (After the Crisis: Post-COVID, Post-War, Post-Wildfires)
Cridieco	Crisis-Resilient Digital Ecosystem may be existing only for traditional corporates and big companies which have the resources. While for social enterprises which are usually small and medium, Cridieco didn't exist.	With the arrival of several crises, there was an emerging need of Crisis-resilient digital ecosystem especially for social enterprises. Thus, Cridieco started to increase gradually.	Cridieco was empowered by digitalization & crisis-resilient entrepreneurial mindset which peaked in this period. Social enterprises in ecosystem showed resistance to crises' adversities.
Transrenet	Social enterprises and communities were loosely connected and didn't have many collaborations, which made them more vulnerable in front of the crises. Thus, Transrenet didn't have any existence in ecosystem.	The need for Transrenets and thus, for value co-creation among communities started to grow by increasing resilience in network, thanks to the agile work environments.	Social enterprises within Transrenets collaborated with each other, had knowledge transfer and better work-life balance for this time. After the crises, this tendency continued to grow steadily.
Synecresi	Synergistic economic resilience didn't exist for social and ecological enterprises or rather it existed but only in low levels, thus making enterprise more financially dependent and considerably in weaker positions.	Synergistic economic resilience started to increase gradually with more and more social enterprises adopting agile work practices and considering economic market situations.	Social entrepreneurs using digital collaboration and having agile work environments became more resilient to challenges posed by crises and other geopolitical market considerations.

Source: adapted from Miles & Huberman (1994) and Frau et al. (2020)

Discussion of Findings

Theoretical Contributions and Managerial Implications

To meet research aims and reveal the relationship between crisis and social enterprises' digital collaboration, retrospective case study methodology is implemented. Thus, comprehensive analysis of 10 face-to-face in-depth interviews is conducted to address the key research question of "How crisis and market turbulence affect the way social enterprises use digitalization for value co-creation?" and detailed coding process is created. This research extends previous studies in

digital collaboration, we have new concepts of Cridieco, Transrenet and Synecresi which underline the necessity of digital collaboration usage in social entrepreneurship during crisis, ultimately empowering their resilience, network and overall ecosystem.

Our study contributes to social entrepreneurship literature by eliminating gaps in specific research areas, showing event-ordered matrix, and suggesting theoretical model. Interconnected Resilience Framework is the main theoretical contribution of this retrospective study. The relationship between crisis and social enterprises' digital collaboration wasn't empirically researched before, thus Interconnected Resilience Framework depicting

relationship between market turbulence and social entrepreneurship’s digital collaboration resolves inconsistencies.

Crises happened in the past and they will also happen in the future. They are inevitable. However, social entrepreneurs must be ready for those crises. Phenomena of Cridieco, Transrenet and Synecresi highlight transformative potential of digitalization and value co-creation in social and ecological enterprises, highlighting importance of digital tools adoption and collaboration in addressing difficult social and ecological problems, especially if these endeavors are happening during the crises and market turbulence. By using digital collaboration during turbulent times, social enterprises can be more resilient against the adversities brought by the crises, and they can unlock opportunities for innovation, partnerships and contribution to the solutions of social and ecological problems our communities face.

Limitations and Future Research

This retrospective case study provides an opportunity to investigate how crisis and market turbulence affects social enterprises’ digital collaboration. Nevertheless, the study also shows several limitations which should be addressed in the future. Our choice of methodology with retrospective case study and data collection area of Azerbaijan limits generalizability of the results of this study. However,

since newly identified concepts are about social entrepreneurship in general, it can be relatable to other social enterprises too. Thus, we suggest extending research to other countries and social enterprises as well. Additionally, as newly suggested phenomena, Cridieco, Transrenet and Synecresi can benefit from quantitative testing and validation with future research developing measurement scales and assess them rigorously. By validating these phenomena, researchers can support their theoretical base.

Our findings shed light on the role of digitalization in enhancing the resilience of social entrepreneurs during crisis, but several questions remain for future investigation. First, what determines whether social entrepreneurs adopt digitalization during crisis? While digitalization’s benefits are well-documented, not all entrepreneurs embrace it which raises concerns about the barriers such as lacking digital skills, limited access to infrastructure in rural areas, financial constraints, or cultural resistance to change. In the context of developing countries, it is necessary to examine whether all entrepreneurs were equally able to integrate digitalization into their operations, or whether regional, sectoral or educational disparities influenced their decisions. Second, entrepreneurs’ post-crisis behavior remains unclear for long-term or if they return to pre-crisis practices once stability returns. These behaviors could be influenced by perceived cost-benefit trade-offs, technological fatigue, or a lack of institutional support to maintain digital operations. Thus, these two questions

Table 4

Research Agenda exploring Digital Collaboration, Crisis and Resilience

Concepts in the Future Research	Research Aim of the Future Research	Research Questions in the Future Research
Ukraine-Russian war and Digital Collaboration	To explore the impact of geopolitical conflicts on social enterprises involving Ukrainian refugees as employees, examining how they adapt their strategies to leverage digital tools and foster collaboration in turbulent environments.	How Ukraine-Russian war influenced Digital Collaboration in Europe, particularly regarding the dynamics of social enterprises’ value co-creation and digitalization strategies in response to the migration crisis from employment perspective?
Ukraine-Russian war, Energy Crisis, and Ecological Entrepreneurship	To investigate effect of geopolitical conflicts on ecological enterprises focused on renewable energy solutions.	How has Ukraine-Russian war and Energy Crisis affected the dynamics of ecological entrepreneurship in the energy sector, particularly regarding value co-creation strategies?
Cyberwarfare, Cybersecurity, Resilience Strategies, Social Entrepreneurship’s Digital Collaboration	To explore intersection of cybersecurity and social entrepreneurship, emphasizing the need for valid strategies to decrease risks associated with cyber-attacks in a digitalized environment.	How does the threat of cyberwarfare influence the cybersecurity strategies and resilience planning of social enterprises that rely on digitalization and value co-creation during the crises?
Consumer Behavior Shift, Social Entrepreneurship	To research relationship between market turbulence, attitude towards branding (ATB), social and ecological enterprises with the role of digital marketing in shaping these perceptions.	How crisis and market turbulence influence customer behavior towards social and ecological enterprises with the role of digital marketing in shaping these perceptions?
Policy and Regulatory Frameworks	To study the relationship between digitalization of social entrepreneurship and regulatory frameworks.	How does digitalization influence the regulatory landscape for social enterprises? (Policy analysis and expert interviews with policymakers and social entrepreneurs for possible methodology)
Measurement of Social Impact	To develop framework for measure impact, followed by pilot testing.	What new metrics can be developed to assess the social impact of digitalized initiatives?
Cross-Sector Partnerships	To understand relationship between digitalization and cross-sector collaborations enhancing resilience, by studying successful cross- sector partnerships.	How do digital platforms facilitate cross-sector partnerships that empower resilience? What are the outcomes of such collaborations during crises?
Innovation in Social Service Delivery	To study social enterprises longitudinally to track service delivery changes over time.	What innovative service delivery models are emerging in social enterprises as a response to crises?

Source: own compilation

can be researched in future: What factors influence the decision of social entrepreneurs to adopt or resist digitalization during crisis? Do digital transformations initiated during crises become permanent, or are they temporary adaptations? Understanding these dynamics will help policymakers and support organizations tailor more effective interventions to promote sustainable digital adoption among social entrepreneurs, not only during crises but also as long-term strategy for resilience and growth.

Current literature lacks much research about crisis and social enterprises' digital collaboration. To bridge this gap between theoretical insights and practical realities, there is a demand for research agenda exploring above-mentioned concepts more. Moreover, since this retrospective study only covered 10 years of social enterprises, research with longer periods can benefit the respective fields of literature. Since our respondents in the in-depth interviews mentioned COVID-19 Pandemic, Karabakh War in 2020, Wildfires in 2021, ongoing Legislative Barriers Crisis, and Intellectual Property Rights Crisis, we could only include these types of crises in our research. However, we can suggest the exploration of other crises (Table 4).

Crises happened in the past and they will also happen in the future. They are inevitable. However, social entrepreneurs must be ready for those crises. Phenomena of Crisis-resilient digital ecosystem, Transformative resilience networks and Synergistic economic resilience highlighted transformative potential of digitalization and value co-creation in social and ecological enterprises, importance of digital tools adoption and collaboration in addressing difficult social and ecological problems, especially if these endeavors are happening during the crises and market turbulence. By using digital collaboration during turbulent times, social enterprises can be more resilient against the adversities brought by the crises, and they can unlock opportunities for innovation, partnerships and contribution to the solutions of social and ecological problems our communities face.

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