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Engaging in discussions on the topic of social change, ***the special volume of RSC*** *explores the processes and strategic insights that occur while* ***EU Grand Strategies (Agenda 2030 and its Sustainable Development Goals****, in particular) are implemented. It also aims to better understand the role of* ***institutions, social networks, and cognitive frames*** *in this process. The volume pursues the contribution of* ***interdisciplinary expertise on European Union*** *scientific papers from* ***sociology, political science, economics, law, regional studies, and other related fields.***

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INSPIRINGLY INTERTWINED: LEADERSHIP FRAMEWORK FOR DIGITAL AND SOCIAL TRANSFORMATION

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Abstract: Leadership that integrates the intentional creation of positive social change through digital transformation can also influence social transformation. This conceptual paper aimed to provide a leadership framework relevant to the intertwined digital and social transformation. For this purpose, a literature review has been conducted. The method of theory synthesis was used to draw on the propositions of transformational leadership theory, stakeholder theory, and integrative framework of leadership competencies for digital transformation. The proposed leadership framework consists of the following dimensions (components): initiation (vision, purpose); intervention (collaboration, inclusion); and implementation (multiple intelligences). This paper extends the existing literature by providing a leadership framework that can be utilised to inspire the development, demonstration, and further research of digital and social transformation leadership across private, public, and non-profit sectors. It can be of practical value to current and aspiring leaders, leadership development specialists, and educators. Future research could be directed at examining the perceptions of both leaders and followers in different sectors regarding the influence of each of the dimensions and components of the leadership framework on outcomes at the individual, organizational, and societal levels. The interdisciplinarity of the leadership phenomenon calls for the collaboration of scholars from the fields of management, sociology, and psychology to advance future empirical research on the role of leadership in the intertwined digital and social transformation.

Key-words: leadership, leadership framework, digital transformation, social transformation, social change

1. Introduction

Leadership is a fundamental, multi-level, socially constructed process central to the human condition, interaction, and experience (Gardner et al. 2010; Wren 2013). According to the integrative definition proposed by Winston and Patterson (2006), it refers to one or more people who select, empower, and influence one or more followers, causing them to willingly and enthusiastically devote their time and energy to contribute to realizing the vision and fulfilling the purpose. As an interdisciplinary phenomenon, leadership is researched and developed by integrating ideas, insights, and concepts from various fields, including philosophy, anthropology, sociology, psychology, history, economics, political science, ecology, and education (Bloomquist

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and Georges 2022; Sowcik and Allen 2013). In its formal and informal, as well as direct and indirect forms, leadership exists globally, even though its function may vary depending on the culture. Based on empirical evidence, Bass (1996, 747) claimed that "in whatever the country, when people think about leadership, their prototypes and ideals are transformational". Increasingly digital environments and contemporary stakeholder demands for creating a positive social and environmental impact emphasize the essential role of leadership in both digital transformation and social transformation.

Digital transformation affects individuals, organizations, and societies (Gimpel and Röglinger 2015). According to a definition suggested by Gong and Ribiere (2021, 12), it represents a "fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources and capabilities, aiming to radically improve an entity (an organization, a business network, an industry, or society) and redefine its value proposition for its stakeholders". Leadership that demonstrates a broad behavioural complexity is critical to mastering the challenges related to digital transformation (Weber et al. 2022). Prior research on digital transformation leadership indicates that leaders need to recognise the necessity of digital transformation, create an environment and the organization's culture that facilitates the process of digital transformation, and empower followers through autonomy and development support to transform the vision and purpose of digital transformation into new practices (Cortellazzo et al. 2019; Frick et al. 2021; Imran et al. 2020; Müller et al. 2024; Nielsen et al. 2024). While a number of factors are relevant to the effectiveness of digital transformation on multiple levels, competent leadership is considered to have the most significant influence (El Sawy et al. 2020; McCarthy et al. 2022).

Social transformation implies shifts in the cultural, political, economic, demographic, and technological foundations of societies (de Haas et al. 2020). It is defined as a "fundamental change in the way that societies are organised and resources are distributed" that affects the value systems, deep structures, and organization of the society (de Haas et al. 2020, 15). On the other hand, social change refers to "day-to-day and cyclical changes that occur all the time" (de Haas et al. 2020, 16). Although social change and social transformation are considered distinct constructs in theory, de Haas et al. (2020) argued that in practice they are interconnected, since micro- and meso-level social changes could lead to macro-level social transformation. Such social transformation is possible through leadership that is authentic, relational and genuinely committed to the continuous creation of social impact (Samwel Muguna 2022). Social impact refers to "beneficial outcomes resulting from prosocial behavior that are enjoyed by the intended targets of that behavior and/or by the broader community of individuals, organizations, and/or environments" (Rawhouser et al. 2019, 83). These outcomes can be related to health and social well-being, quality of the living and work environment, economic and material well-being, gender relations, etc. (Abbas et al. 2022; Vanclay 2002). To inspire transformations on the global level aimed at prosperity for people and the planet, in 2015 the United Nations Member States adopted the 2030 Agenda for Sustainable Development which includes 17 Sustainable Development Goals (SDGs) (Global Reporting Initiative, UN Global Compact, and World Business Council for Sustainable Development 2015). Translating the sustainability agenda into measurable social and environmental outcomes requires a behavioural transformation on the individual, group, and organizational levels (Zivkovic 2022).

While digital transformation is recognised nowadays as one of the key drivers of social transformation, the transformation of society reflected in the changed demands of employees, customers and other stakeholders also drives the digital transformation of certain organizations and industries (Van Veldhoven and Vanthienen 2022). Although digital transformation can positively influence social transformation by increasing the access to knowledge, education and health services, improving global connectivity, providing more flexible and diverse work opportunities, and resolving certain environmental issues (Frendiana and Soediantono 2022; Jadertrierveiler and Santos 2019), it can also have a negative impact through reducing human interaction, endangering certain jobs, and increasing inequalities (Kirchschlaeger 2019; Komarčević et al. 2017; Nadoleanu et al. 2022). Leadership that integrates the intentional creation of positive social change through digital transformation can influence its outcomes to be beneficial from the aspect of social transformation.

A growing body of research in recent years has focused on leadership competencies and characteristics specifically related to digital transformation (Klein 2020; McCarthy et al. 2022; Müller et al. 2024; Porfirio et al. 2021; Schiuma et al. 2022; Weber et al. 2022). However, there is a lack of studies that take into consideration both digital and social transformation leadership. Therefore, this conceptual paper aims to provide a leadership framework relevant to the intertwined digital and social transformation. For this purpose, a literature review has been conducted. The method of theory synthesis (Jaakkola 2020; Schick-Makaroff et al. 2016) was used to draw on the propositions of transformational leadership theory (Bass 1985), stakeholder theory (Freeman 1984), and integrative framework of leadership competencies for digital transformation (Živković 2022). Conceptual papers contribute to the literature by integrating existing knowledge, offering a novel perspective, and enabling researchers and practitioners to understand and utilise concepts in a new way (MacInnis 2011).

This paper is structured as follows. After the introduction, Section 2 provides the theoretical background. Section 3 describes the proposed leadership framework for digital and social transformation. Finally, the conclusion highlights the paper's main contributions, practical implications, and avenues for future research.

2. Theoretical Background

2.1. Transformational Leadership Theory

Transformational leadership can be tailored to the specifics of situations, settings, and social systems, while it is also universally applicable in initiating and implementing different types of transformations. Bass (1985) developed the transformational leadership theory based on the works of Burns (1978) and House (1977). In the literature, transformational leadership is also referred to as a paradigm, construct, or concept. The transformational leader was originally defined in connection to her or his followers "as someone who raised their awareness about issues of consequence, shifted them to higher-level needs, influenced them to transcend their self-interests for the good of the group or organization, and to work harder than they originally had expected they would" (Bass 1985, 29). Articulating and accomplishing inspiring, long-term objectives is central to the philosophy of transformational leadership (Bass and Avolio 1994).

Bass's transformational leadership consists of four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Table 1). Besides the direct influence of transformational leadership on followers, both formal and informal transformational leadership can also have an indirect downward, upward, and horizontal influence on others through leading by example and creating a culture that supports fulfilling the purpose of multiple stakeholder groups (Bass and Avolio 1994). The conceptualization and prior empirical examination of Bass's transformational leadership indicate its applicability in research and practice within groups or organizations across private, public, and non-profit sectors.

Table 1: Dimensions of Bass's transformational leadership

Idealized influence	**Inspirational motivation**
Forward-looking	Visioning
Creating a shared purpose	Evoking enthusiasm and optimism
Risk taking	Communicating clearly
Role modelling	Expressing confidence
Leading by example	Raising followers' aspirations
Intellectual stimulation	**Individualized consideration**
Bringing new perspectives	Diagnosing followers' needs
Questioning values and beliefs	Adapting approaches
Stimulating creative processes	Coaching and mentoring
Supporting followers' ideas	Providing socio-emotional support
Finding innovative solutions	Developing followers to their potential

Source: Adapted from Antonakis (2012); Avolio et al. (1991); Bass (1996); and Bass and Riggio (2006)

2.2. Stakeholder Theory

Stakeholder theory, also referred to as stakeholder approach (Freeman 1984), implies a holistic and multi-way perspective on an organization's responsibilities toward all stakeholders. It offers an alternative to traditional economic theories by embedding ethics into business, connecting business purpose to all organizational stakeholders (Table 2) and not only shareholders, and considering stakeholders as "whole human beings, rather than purely economic beings" (Freeman and Ginena 2015, 16). To advance understanding of the emphasis on the human in stakeholder theory, Painter et al. (2021, 219) argued that "emotional and broader affective elements constitute relationships and enable action".

The stakeholder value creation framework (Freudenreich et al. 2020) and the stakeholder model of organizational leadership (Schneider 2002) provide a basis for leadership that integrates the creation of positive economic, social and environmental impact with and for all relevant stakeholders. Long-term, simultaneous creation of positive changes leading to transformation at multiple levels requires leadership committed to stakeholder engagement, which refers to a process that implies reciprocal commitment, contribution, influence, interaction, and respect (Andriof et al. 2017; Manetti and Toccafondi 2012). Clarkson (1995) indicated that propositions of stakeholder theory can be applied on the individual (managers and their relationships with stakeholders), organizational (organization and its stakeholder groups), and institutional (business and society) levels.

Table 2: Types of organizational stakeholders

Employees	Non-managerial and managerial staff
Customers	Target users, markets or segments
Business partners	Suppliers, operations providers, consultants
Financial stakeholders	Equity and debt capital providers such as shareholders, investors, and creditors
Societal stakeholders	Communities, governments, nongovernment organizations, media, academia, the natural environment

Source: Adapted from Freudenreich et al. (2020)

2.3. Integrative Framework of Leadership Competencies for Digital Transformation

Leadership competencies refer to certain values, beliefs, knowledge, skills, personal traits, and behaviours. The purpose of developing research-based leadership competency frameworks is mainly to contribute to enhancing the effectiveness on the level of a leader, group, and organization (Gigliotti 2019; Kim and McLean 2015). In recent years, the improvement of the well-being of employees and other stakeholders influenced by leadership has become an increasingly important purpose of such frameworks. Leadership competency frameworks can be developed for specific occupations, organizations, and areas of practice (Kragt and Day 2020) and utilised in the processes of leadership assessment, selection, and development.

Živković (2022) developed an integrative framework of leadership competencies for digital transformation by conducting a systematic literature review that offers greater objectivity, reproducibility, and reliability of the findings compared to other, non-systematic methods of literature analysis (Donthu et al. 2021; Satalkina and Steiner 2020). The search of journal articles and conference papers in the Web of Science Core Collection and Scopus databases encompassed all research areas due to the interdisciplinarity of both digital transformation and leadership. Table 3 includes Živković's (2022) definitions of leadership dimensions tailored to the context of digital transformation and provides information on the identified leadership competencies within each of the dimensions. Except to a certain extent the competency of "understanding digital technologies" and in some more regulated sectors and industries the competency of "experimentation", all other competencies included in this integrative framework can be considered universally important in leadership. This also applies to leadership aimed at intentionally creating positive social change and transformation. The universality of the dimensions and competencies of this integrative leadership framework, as well as its basis on a systematized, objective review of publications included in the most prominent scientific bases, are the reasons why this framework was chosen in this paper as the basis for the development of the leadership framework for digital and social transformation.

Table 3: Leadership dimensions and competencies in the context of digital transformation

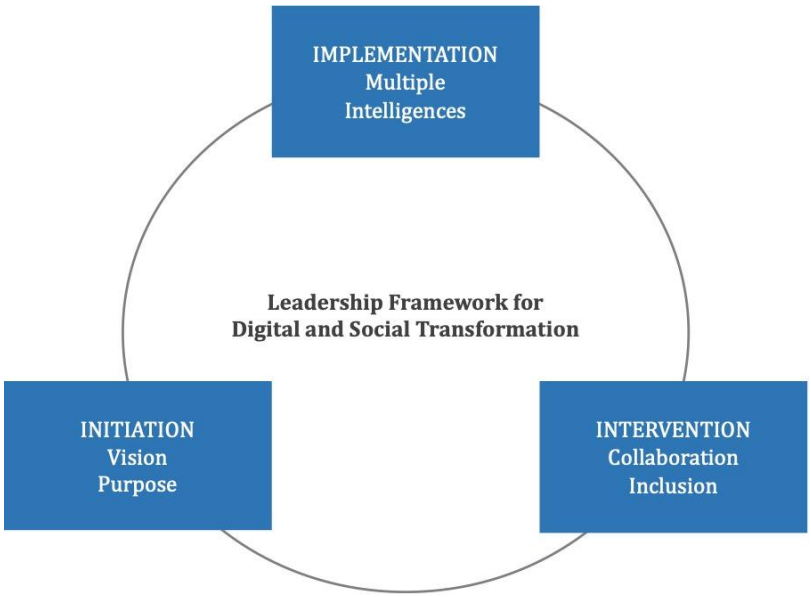
Leadership dimension	Definition	Competencies
Why	Values and beliefs answering why leadership drives and leads digital transformation.	Vision Innovation Flexibility
What	Knowledge and skills answering what is needed to implement digital transformation processes.	Understanding digital technologies Empowerment Collaboration
How	Personal traits and behaviours answering how digital transformation could be approached and led.	Multiple intelligences Experimentation Continuous learning

Source: Živković (2022)

3. Leadership Framework for Digital and Social Transformation

Drawing on transformational leadership theory (Bass 1985), stakeholder theory (Freeman 1984), and the integrative framework of leadership competencies for digital transformation (Živković 2022), this paper proposes a leadership framework for digital and social transformation (Figure 1).

Figure 1: Leadership framework for digital and social transformation



Source: Author's work

The development of this framework began by forming its three dimensions: initiation, intervention, and implementation. For each of these dimensions, one key, universal competency reflecting transformational leadership and/or stakeholder approach was first selected from each of the three corresponding dimensions of Živković's (2022) integrative framework for digital transformation leadership: initiation - why (vision); intervention - what (collaboration); and implementation - how (multiple intelligences). After that, one additional competency was added to the initiation and intervention dimensions (purpose and inclusion). The dimensions of the proposed leadership framework are interconnected and reflect leadership as a cyclical process.

While both the initiation and intervention dimensions imply implementation, their separate conceptualization can be beneficial from the perspective of leadership research and development.

3.1. Initiation

The initiation dimension referring to vision and purpose is essential not only to cause the beginning of activities that contribute to digital and social transformation but also to facilitate and sustain them. Leaders can influence the outcomes of digital and social transformation by creating a sense of shared vision and purpose that integrates the intentional creation of positive social change. Highlighting the vision is most important at the beginning and in critical phases of the leadership process, while the purpose needs to be regularly communicated to followers to inspire their efforts toward creating positive transformations.

3.1.1. Vision

Vision as the mental image of the future is the starting point of any transformation (Kantabutra and Avery 2010). Articulating an appealing vision is an integral part of the inspirational motivation dimension of transformational leadership (Bass 1985; Bass 1996). Visioning makes followers feel involved in imagining and creating intended future outcomes (Bass and Riggio 2006). A vision that is clear, concise, and inspiring can contribute to leadership effectiveness, since it helps both leaders and followers to move forward in critical times and thus establishes a longer-term commitment needed for creating positive social change.

As one of the most important leadership competencies for driving digital transformation (Jardim 2021; Remus 2016), vision is described more specifically as transformative (Philip and Gavrilova Aguilar 2021; Remus 2016), digital (Imran et al. 2020), and cross-dimensional (Noonpakdee et al. 2020). Transformative vision mainly refers to utilising the potential of followers to contribute to organizational advancement (Remus 2016). Digital vision is related to a forward-looking approach regarding markets and trends and requires leadership that envisions the digital future of an organization (Imran et al. 2020; Philip and Gavrilova Aguilar 2021). As digital transformation affects multiple groups of stakeholders and multiple levels within the organization, the vision should be cross-dimensional to encourage the efforts of all relevant stakeholders. While the vision of making a positive impact on the wider society is inherent in leadership focused exclusively on social transformation, digital transformation leadership should incorporate the intention of creating positive social change into its vision in addition to beneficial economic outcomes on the level of an individual organization. Such positive change could be targeted at a wider community of individuals, stakeholder groups, industries, and/or environments.

3.1.2. Purpose

Purpose refers to the perception of activities and events as related to goals and fulfilment (George and Park 2013). According to the stakeholder approach, the organization's purpose "embeds the economic, social, and environmental value creation in the core business of an organization, creating meaningful impact for all stakeholders" (Jimenez et al. 2021, 2). Leaders therefore need to ensure that the purpose of an organization or group is one that most stakeholders can relate to (Coulson-Thomas 2016) and lead by example by genuinely caring for social and environmental issues, which is consistent with the idealized influence dimension of transformational leadership (Bass 1985; Bass and Riggio 2006).

Contributing to the creation of a positive social and environmental impact has become an important purpose of a growing number of employees and other stakeholder groups. Many organizations have redefined their purpose to meet this stakeholder requirement. Stakeholder value creation framework implies the existence of a shared purpose and reciprocal value creation between the organization and its stakeholder groups (Freudenreich et al. 2020). Transformational leadership has a key role in creating a sense of shared purpose in what needs to be done (Bass 1996). Freeman and Ginena (2015) argued that purpose is a key source of inspiration for followers as it is hardly accomplished in full. When leadership is committed to creating a sense and regularly communicating that the higher purpose of digital transformation is to contribute to the betterment of society, it can result in increased engagement and well-being of employees, customers and other stakeholders and, consequently, be a driver of positive social change and transformation.

3.2. Intervention

The intervention dimension focuses on collaboration and inclusion that can improve the processes and outcomes of digital and social transformation, and can also represent positive social change when introduced where they were previously not practiced by leadership. Collaboration and inclusion are both integral parts of stakeholder engagement activities and can be applied as interventions that contribute to the intentional creation of positive social change in the form of programs, projects, and practices.

3.2.1. Collaboration

Collaboration refers to coordinated activities involving two or more individuals and/or organizations that share and combine their resources and efforts to solve a problem or accomplish common goals (Child and Shaw 2016). The increasingly important shared purpose related to contributing to the creation of positive social change requires leadership committed to establishing and nurturing collaboration with multiple stakeholder groups. Freeman et al. (2021) suggested that the "resource-based view of the firm" and associated emphasis on "sustainable competitive advantage" (Barney 1991) should be complemented by stakeholder theory and "sustainable cooperative advantage". The capability of organizational leadership to "develop cooperative elements in a firm's economic relationships" (Freeman et al. 2021, 1761) can also turn competitors into partners and result in the co-creation of value and collective impact, thereby representing a positive social change.

The interdisciplinary nature of digital transformation makes collaboration its core enabler (Camarinha-Matos et al. 2019). Collaboration of stakeholders with diverse backgrounds fosters mutual learning and increases collective capacity for transformation (Verhoest et al. 2024). Leaders need to collaborate with employees from multiple departments and levels within the organization, as well as with different stakeholders across sectors, industries, and countries to gain and share knowledge, use resources more efficiently, introduce innovations, and achieve a level of integration needed for the implementation of digital transformation (Abbu et al. 2020; Philip and Gavrilova Aguilar 2021). Collaboration across private, public, and non-profit sectors is necessary to accomplish the beneficial outcomes of digital transformation not only on the organizational but also on the societal level, as well as to address complex social challenges. The capability of leadership to establish, increase and nurture cross-sectoral collaboration through iterative and adaptive cycles of learning, initiating and implementing can be considered crucial for

the continuous creation of positive social change (De Montigny et al. 2019) leading to social transformation.

3.2.2. Inclusion

Inclusion implies the degree to which a person perceives that she or he is valued as a member of the group through experiencing treatment that contributes to helping meet her or his needs for belonging and uniqueness (Shore et al. 2019). Fostering inclusion is connected to both the individualized consideration and intellectual stimulation dimensions of transformational leadership (Bass 1985; Bass and Riggio 2006). Individualized consideration is more related to the followers' need for belonging and implies that transformational leaders accept individual differences and adapt their approaches accordingly, provide emotional support by expressing empathy and interest for the follower's needs and aspirations as well as social support by advocating their inclusion in training, development, and networking. Intellectual stimulation mainly contributes to fulfilling the followers' need for uniqueness since transformational leaders are involving them in finding innovative solutions by supporting their creative expression and ideas. Although transformational leadership implies inclusion to accomplish shared purpose and goals, inclusive leadership additionally aims to ensure justice and equity (Randel et al. 2018).

Leadership that fosters the inclusion of employees and other relevant stakeholders in the processes of digital transformation primarily positively influences outcomes on the individual level, which, in turn, could lead to positive outcomes on the group, organizational, and societal levels. Inclusive leadership is related to improved well-being, creativity, engagement, knowledge sharing and innovative behaviour of employees, team innovation, performance, and effectiveness as well as inclusive culture and business model innovation of the organization (Korkmaz et al. 2022). When the vision and purpose of digital transformation integrate the intentional creation of positive social change, leadership efforts to ensure inclusion that results in multi-level innovation could also contribute to social transformation. The inclusion of individuals and groups which previously had no opportunity to be included, as well as the improvement of their well-being through inclusion, can in itself be considered positive social change.

3.3. Implementation

The implementation dimension referring to multiple intelligences is relevant throughout the leadership processes related to digital and social transformation, including the initiation and intervention dimensions of this leadership framework. The multifaceted approach to intelligence is based on identifying its multiple forms and taking environmental factors into account (Gardner 1983; Sternberg 1985). Multiple intelligences are required in transformational leadership (Bass 2002) and stakeholder-oriented organizational leadership (Schneider 2002). While general intelligence is considered a foundation for the emergence and effectiveness of leadership (Antonakis et al. 2019), this framework focuses on emotional, cultural, and adaptive intelligence as capabilities that can be continuously developed and demonstrated to enhance the effectiveness of digital and social transformation leadership.

3.3.1. Emotional Intelligence

Transformations imply uncertainty, volatility, and adaptation, all of which are emotionally demanding and challenging. Thus, emotional intelligence can be considered a core competency for enabling leaders to continuously initiate and implement activities required for digital and social transformation. It refers to the capability to recognise, understand, manage, and express emotions

appropriately (Goleman 2006; Mayer and Salovey 1993; Salovey and Mayer 1990). Such a capability is needed in transformational leadership to instil a sense of shared vision and purpose in followers, which entails evoking and managing emotions. Along with emotional self-control, empathy is a key emotional intelligence competency of leaders needed for establishing and maintaining relationships (Goleman 2006; Goleman 2007). It therefore represents a foundation of leadership effectiveness in promoting collaboration and inclusion at multiple levels and with multiple stakeholder groups. Developing leaders' emotional intelligence has the potential to contribute to positive social change because it is considered key to humanizing leadership in the digital age (Harvard Business Publishing, 2024).

3.3.2. Cultural Intelligence

The growing interculturality of business and work environments leads to shifts in the cultural foundations of society and currently can be considered a significant factor of social transformation. Cultural intelligence has therefore become crucial in leadership, not only to deal with and adapt to such a transformation of society but also to create positive social change by leveraging cultural differences through collaboration and inclusion for multi-level development. It refers to the capability to function effectively in intercultural contexts and not just in a specific culture (Ang and Van Dyne 2008; Earley and Ang 2003) and encompasses metacognitive, cognitive, motivational, and behavioural dimensions (Ang and Van Dyne 2015; Ang and Van Dyne 2008). Although cultural intelligence is a subset of social intelligence and partially overlaps with emotional intelligence, individuals who are highly socially and emotionally intelligent in one cultural setting, such as a country, organization, or professional group, do not necessarily behave in such a manner in other cultural or intercultural settings (Crowne 2009; Earley and Peterson 2004). Therefore, cultural intelligence in leadership is critical for effectively initiating and implementing digital and social transformation processes in culturally diverse environments.

3.3.3. Adaptive Intelligence

Human intelligence led to significant technological advancements, but it has also contributed to negative changes in society and the environment (Sternberg 2021a). To reframe the concept and purpose of human intelligence, Sternberg (2021b, 1) conceptualized a construct of adaptive intelligence as the capability "to adapt to current problems and anticipate future problems of real-world environments" that implies "not only promoting one's own ability to survive and thrive, but also that of others in one's own generation and in future generations". Adaptive intelligence encompasses four dimensions: creative intelligence (having original and interesting ideas); analytical intelligence (ensuring that the ideas are reasonable and coherent); practical intelligence (translating the ideas into practice and convincing others of their value); and wisdom (attempting to ensure some kind of common good) (Sternberg 2021b). While creative, analytical and practical intelligence can be considered prerequisites for leading digital transformation, wisdom as a dimension of adaptive intelligence is crucial in leadership that aims for digital transformation to result in positive outcomes on the societal level. It is also at the heart of leadership focused exclusively on creating positive social change and transformation.

4. Conclusion

This conceptual paper builds on and extends the existing literature by providing a leadership framework for digital and social transformation that consists of the following dimensions (components): initiation (vision, purpose); intervention (collaboration, inclusion); and

implementation (multiple intelligences). It contributes to the advancement of understanding of how leadership that integrates the intentional creation of positive social change through digital transformation can also influence social transformation. The proposed leadership framework can be utilised to inspire the development, demonstration, and further research of digital and social transformation leadership across private, public, and non-profit sectors. Current and aspiring leaders of digital and social transformation processes could use this framework for self-assessment and self-development. It can provide a foundation for leadership development specialists in designing and implementing programs aimed at improving the effectiveness of digital and social transformation leadership. This framework could also be useful to educators specializing in leadership, digital transformation, or social transformation. Future research could be directed at examining the perceptions of both leaders and followers in different sectors regarding the influence of each of the dimensions and components of the leadership framework on outcomes at the individual, organizational, and societal levels. The interdisciplinarity of the leadership phenomenon calls for the collaboration of scholars from the fields of management, sociology, and psychology to advance future empirical research on the role of leadership in the intertwined digital and social transformation.

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INDUSTRY 4.0 TEACHER AWARENESS: AVCILAR DISTRICT EXAMPLE

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Abstract: This research aims to determine the level of awareness of teachers working in public schools affiliated to the Ministry of National Education regarding Industry 4.0. In this context, it aims to determine whether teachers' Industry 4.0 awareness levels differ significantly according to their gender, age, school level, professional seniority, branch, educational status and class size of the school they work in. The research was designed according to the single survey type, one of the general survey models. The population of the study consisted of 2468 teachers working in public schools in Avcılar district of Istanbul province. The sample of the study consisted of 1697 teachers selected from purposeful sampling in the maximum diversity model. Industry 4.0 Awareness Scale (Yelkikalan et al. 2019) was used as a data collection tool. In the analysis of the data, descriptive statistical analysis was used by using a ready-made statistical package programme. Some of the research results are as follows: Teachers' awareness of Industry 4.0 is at a high level. In addition, there are statistically significant differences in teachers' Industry 4.0 awareness levels according to their gender, age, educational status, class size of the school where they work, while there is no significant difference in terms of their branches and school levels. According to the results obtained, the following suggestions are given: Training programmes should be organised to increase teachers' awareness of Industry 4.0. In order for teachers to access up-to-date information about Industry 4.0, cooperation should be established with universities, industrial organisations and technology companies, and training seminars and field visits should be organised.

Key-words: Industry 4.0, awareness, 4th industrial revolution, teacher training.

1. Introduction

The industrialization process started at the end of the 18th century with the introduction of mechanical production equipment. This transformation was followed by a second industrial revolution that started in the 20th century and involved mass production of goods based on the division of labor and powered by electricity (Kagermann et al. 2013). These developments were replaced by the use of information and communication technologies to increase the automation of production processes with the third industrial revolution that started in the early 1970s and continued until today (Bauernhansl 2014). With the transformation of the third industrial

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revolution into the fourth industrial revolution, technology integration in production and logistics, the Internet of Things and the use of services in industrial processes come to the fore (Hermann et al. 2015).

Industry 4.0 was first introduced at the Hannover Fair held in Germany in 2011 and stated that a new industrial revolution is taking place by adding an innovative, digital and technological dimension to production processes (Kafa 2021).

Industry 4.0, as the basic concept of transformation, includes strategic activities and technological applications for digitalization worldwide. It is seen that this transformation is effective not only in the field of industry and economy, but also in many areas of social life, including education. The adaptation of education systems to this digital transformation necessitates the restructuring of teachers, students and educational processes. In this context, it is important to examine the awareness levels of teachers towards the concept of Industry 4.0. This study aims to reveal teachers' Industry 4.0 awareness levels and to examine whether these awareness levels differ according to demographic variables such as gender, age, school level, professional seniority, branch, educational status and class size. In this context, the study reveals that increasing teachers' awareness of Industry 4.0 technologies directly contributes to the development of digital competencies within the scope of SDG 4 - Quality Education. In addition, this awareness paves the way for the innovation-oriented transformation of education systems in line with SDG 9 - Industry, Innovation and Infrastructure, and makes teachers key actors in the process of raising individuals suitable for the requirements of the digital industrial age. In this respect, the study overlaps with the science, technology and innovation (STI) based development approach emphasized in the Stakeholder Engagement & The 2030 Agenda (UN DESA 2020) for Sustainable Development and provides a concrete roadmap for transformation in education.

2. The Theoretical Framework

Industry 4.0 encompasses strategic activities focusing on digital technologies across the world in this transformation process, which is also known as the “Industrial Internet” and referred to as the “Fourth Industrial Revolution”. For example, China's “Made in China 2025” strategic plan is one of the main policies guiding digital transformation activities developed within the scope of Industry 4.0. However, there are various problems on a global scale today, such as depletion of natural resources, global warming, economic inequalities and security threats. In order to overcome these problems, it is necessary to produce knowledge by establishing connections between the physical and virtual worlds, to develop solutions to social problems through information technologies and to ensure sustainable economic growth. In this context, a common vision of the future can be created by addressing digitalization processes within the framework of Industry 4.0 (Fukuyama 2018). With the acceleration of technological developments, traditional production and training methods are being replaced by new paradigms offered by Industry 4.0. There have been three major industrial revolutions, Industry 1.0, 2.0 and 3.0, and each of them aimed to increase production efficiency. In the 2000s, rapid advances in technology have changed the needs and expectations of individuals, and interdisciplinary studies have gained importance in order to adapt to these changes. Especially with the proliferation of internet and network technologies, the concept of Industry 4.0 has emerged, where objects can communicate and interact with each other. Industry 4.0 focuses on production processes that identify needs and minimize waste by analyzing data through sensor-based communication systems. In this context,

innovative solutions such as smart factories, cyber-physical systems, internet of things and cloud technologies are widely used (Avcı and Candan 2023; Jędrzejczyk 2021; Zalozhnev and Ginz 2023).

The impacts of Industry 4.0 on education can be listed as (1) transforming the educational mission, (2) updating educational goals, (3) expanding education and research activities for new professional fields, (4) strengthening interdisciplinary integration, (5) increasing competencies in research and human resource development, (6) expanding digital and smart school applications, and (7) developing creative innovation capabilities (Bich 2025). The increasing need for professionals with the skills to adapt to Industry 4.0 requires education systems to keep pace with this transformation. Accordingly, educational institutions are expected to restructure their basic educational principles in line with Industry 4.0 methodologies. In this process, it is critical to equip teachers and students with the knowledge and skills to adapt to technological changes.

Today's students are able to adapt more flexibly to technological changes thanks to their upbringing in the digital ecosystem and acquire the skills required by the digital age at an early age. This makes it possible for students to quickly integrate into new systems without experiencing major difficulties when stepping out of their comfort zones. In this context, as future professionals, students need to develop cognitive skills such as critical thinking, analytical thinking, computational thinking, complex problem solving, innovation, creativity, originality and initiative in their academic processes. In addition, soft skills such as teamwork, leadership, reasoning, and idea generation have an important place in educational processes (Pinto and Reis 2025; Svitek et al. 2022). Restructuring education systems in order to provide these skills is of great importance in terms of raising individuals with the competencies required by Industry 4.0.

Industry 4.0 applications are now widely used in many sectors such as health, economy, security and banking (Novak et al. 2021; Vetiška et al. 2020). However, research in the field of education mostly focuses on Industry 4.0 awareness levels of K12 and university level students (Neaga 2019; Özkoç and Karalar 2019; Torun and Cengiz 2019). However, in order to adapt to the requirements of the digital age and meet the educational needs of students, teachers need to be equipped with digital skills (Furtak et al. 2012). In this context, the need for innovative teaching strategies such as transforming educational environments in formal education and lifelong learning processes and developing interdisciplinary education programs supported by virtual simulations is increasing day by day (Efe et al. 2010). In order to effectively implement Education 4.0, Industry 4.0 technologies and innovations should be integrated into every stage of the education process, students should be trained as individuals ready for this transformation, and teachers should continue their professional development with lifelong learning strategies (van der Vorst and Jelicic 2019).

3. Method

This study was designed in accordance with the single survey type, one of the general survey models based on quantitative research approach. Survey models are research approaches that aim to describe a past or present situation as it exists (Karasar 2016).

3.1. Sample and Population

The population of the study consists of 2468 teachers working in public schools affiliated to the Ministry of National Education in Avcılar district of Istanbul province. The sample consists of 1697 teachers in Avcılar district who participated in the research in the maximum diversity sampling model within purposive sampling. The maximum variation sampling method, which is used within the scope of purposive sampling, aims to find and identify basic themes that include some differences (Patton 2014). In this direction, it was aimed to ensure diversity among the school levels (kindergarten, primary school, secondary school, academic high school and vocational high school) where teachers work and the sample was formed to reflect this diversity. Demographic information of the teachers participating in the study is given in Table 1.

Table 1. Demographic information of the teachers participating in the study

		f	%
Gender	Male	488	28.8
	Female	1209	71.2
	Total	1697	100
Age	25 years and under	114	6.7
	26- 30 years	377	22.2
	31- 35 years	375	22.1
	36- 40 years	298	17.6
	41- 45 years	269	15.9
	46 years and over	264	15.6
	Total	1697	100
School Level	Preschool	112	6.6
	Primary school	441	26.0
	Secondary school	645	38.0
	Academic high school	130	7.7
	Vocational high school	369	21.7
	Total	1697	100
Professional Seniority	1- 6 years	594	35.0
	7- 12 years	445	26.2
	13- 18 years	255	15.0
	19- 24 years	261	15.4
	25 years and above	142	8.4
	Total	1697	100
Branches	Preschool teacher	133	7.8
	Class teacher	366	21.6
	Branch teacher	1019	60.0
	Vocational teacher	179	10.5
	Total	1697	100
Educational Status	Associate's degree	37	2.2
	Bachelor's degree	1416	83.4
	Master's degree	235	13.8
	Doctorate	9	.5
	Total	1697	100

According to the data presented in Table 1, a total of 1,697 teachers participated in the study. 71.2% of the participants were female teachers and 28.8% were male teachers. This gender distribution reflects that female teachers are generally in the majority in the education sector. The fact that male teachers scored higher on Industry 4.0 awareness than female teachers indicates that the majority of women in the sample may have an impact on the generalization of the results and gender-based interpretations.

In terms of age distribution, the participants show a homogeneous distribution: Teachers aged 25 and under constitute the lowest proportion with 6.7%, while other age groups were represented at similar rates. The findings revealed significant differences in Industry 4.0 awareness between age groups ($p < .05$). This shows that age is a determining factor in technology awareness and adaptation and that the attitudes of different age groups towards technology can diversify the results.

In terms of school level, middle school teachers have the highest representation (38%), while academic high school teachers are relatively underrepresented (7.7%). Increasing the number of relatively underrepresented levels may yield more comprehensive results in future research.

In terms of professional seniority, there are different levels of experience, with a particularly high proportion of teachers with 1-6 years of experience (35%). In the findings, significant differences were observed in the sub-dimensions of perceived usefulness and usage behavior depending on professional seniority ($p < .05$). This shows that teachers' level of experience is effective on technology perception and intention to use.

In terms of branch distribution and education level, the fact that the majority were branch teachers (60%) and undergraduate graduates (83.4%) supports that the findings represent a wide range of teachers. The fact that there was no significant difference in awareness levels between branches ($p > .05$) suggests that different teacher branches exhibit similar attitudes towards Industry 4.0 awareness. On the other hand, the significant differences between the level of education and awareness levels ($p < .05$) indicate that technology awareness may change as academic qualification increases. As a result, these differences and variations in demographic structure have a critical importance in the interpretation of the findings of the study on Industry 4.0 awareness.

3.2. Data Collection Tool

The data were collected with the help of "Industry 4.0 Scale" (Yelkikalan et al. 2019). This scale is a 5-point Likert-type scale consisting of 15 items developed to measure teachers' perceptions of their tolerance tendency levels towards Industry 4.0. In addition, the scale consists of four sub-dimensions: perceived usefulness, perceived ease of use, intention to use, and usage behavior. The development process of the scale and important information about the scale are given in Yelkikalan et al. (2019). In order to analyze the data, the items in the scale were evaluated by giving 1 point for "strongly disagree", 2 points for "disagree", 3 points for "undecided", 4 points for 'agree', and 5 points for "strongly agree". In this context, the findings obtained as a result of the analysis were interpreted as 4.21-5.00 completely agree, 3.41-4.20 strongly agree, 2.61-3.40 moderately agree, 1.81-2.60 slightly agree and 1.00-1.80 strongly disagree. In this study, the internal consistency (α) reliability coefficient of the Industry 4.0 Scale was 0.88. Karasar (2016) states that the reliability is high as the value of the scale used approaches one (1.00), and Özdamar (1997) states that the Cronbach Alpha internal consistency coefficient of the scale is reliable if it is between 0.80 and 1.00. Therefore, it is possible to say that the scale is reliable.

3.3. Data Collection Process

During the data collection process, the Industry 4.0 scale and the link to the online questionnaire form of the research were shared through the common school communication groups of the public schools at the level of kindergarten, primary school, secondary school, academic high school and vocational high school in Avcılar district. The communication groups consisted of institutional

communication groups actively used by school administrators and teachers. Along with the questionnaire form, a text informing that participation was voluntary was also provided and teachers were asked to participate in the survey and fill out the form completely. A total of 1,697 teachers completed the questionnaire within the specified time period and were included in the data set. As a matter of fact, the survey feature of an international search engine was utilized in this study. Internet-based online data collection tools are not only time- and cost-efficient for researchers, but also offer the opportunity to store data, visualize and analyze data, and access to participants distributed over a wide geographical area (Lefever et al. 2007). In this respect, the online survey application provided considerable savings in terms of labor, time and cost, and convenience in terms of reaching the sample. With the online data collection tool, maximum diversity was achieved by reaching all teachers in the district and reaching schools at different socioeconomic levels with different professional seniority working at different levels.

3.4. Data Analysis

As the first stage of the data analysis, data cleaning was performed to identify and correct errors and inconsistencies in the demographic data included in the scale. After data cleaning, a reliability analysis was conducted with the data collected for this study.

As a result of the analysis, the internal consistency reliability coefficient for the whole scale was calculated as 0.88. After the reliability analysis, the frequency and percentage values of the data entered by the participants according to the 5-point Likert-type scale for the frequency of encountering problems were calculated. The data collected in the study were analyzed using IBM SPSS Statistics 20 for Windows program. In the interpretation of the obtained scores, descriptive statistical information such as frequency and percentage distributions, arithmetic mean and standard deviation, as well as Mann-Whitney U Test, Kruskal-Wallis Test significance test were used. In addition, the Kolmogorov Smirnov test was used to test whether the data were normally distributed and it was determined that the data were not normally distributed. The test results are given in Table 2.

Table 2. Kolmogorov Smirnov Test Results

	Statistics	p
Perceived benefit	. 18	.00
Perceived ease of use	.15	.00
Intention to use	.13	.00
Usage behaviour	.53	.00
Industry 4.0 scale	.05	.00

When Table 2 is examined, according to the results of the Kolmogorov-Smirnov test, the p values of all variables in the study were found to be less than .05 and it was determined that they did not fit the normal distribution. In particular, the fact that the usage behavior sub-dimension (D = 0.53) has a higher test statistic compared to other variables indicates that there is a significant deviation in the distribution of this variable. Accordingly, it is necessary to use nonparametric tests in the analyses.

4. Findings

In this section, the awareness levels of students towards Industry 4.0 were determined. At the same time, it was also examined whether the teachers' Industry 4.0 awareness levels differ

significantly according to their gender, age, school level, professional seniority, branch, educational status and class size of the school they work in. When $p > 0.05$, it is accepted that there is no statistically significant difference between the groups and the observed differences may be coincidental. $p < 0.05$ means that there is a significant difference between the groups and this difference is not coincidental.

4.1. Teachers' Awareness Level of Industry 4.0

In Table 3, teachers' awareness levels of Industry 4.0 in terms of four sub-dimensions and in general are presented.

Table 3. Teachers' Industry 4.0 Awareness Levels

Survey items	$\bar{X}$	Ss
1. Using Industry 4.0 technologies improves my performance in lessons.	4.12	.91
2. Using Industry 4.0 technologies increases my productivity.	4.14	.89
3. Using Industry 4.0 technologies increases my effectiveness.	4.14	.87
4. I find it useful to use Industry 4.0 technologies.	4.21	.85
5. Using Industry 4.0 technologies is clear and understandable.	4.10	.92
6. Using Industry 4.0 technologies does not require too much mental effort.	4.16	.88
7. It is easy to use Industry 4.0 technologies.	4.13	.92
8. It is easy to do what I want using Industry 4.0 technologies.	3.90	.97
9. I intend to use Industry 4.0 technologies in the future.	3.49	.94
10. I plan to use Industry 4.0 technologies in the future.	3.18	1.05
11. I expect to use Industry 4.0 technologies in the future.	3.72	.91
12. I can use Industry 4.0 technologies frequently.	3.59	.89
13. I cannot work efficiently without Industry 4.0 technologies.	1.88	1.14
14. I do not use Industry 4.0 technologies.	2.41	1.14
15. I rarely use Industry 4.0 technologies.	2.75	1.14
Perceived benefit sub-dimension	4.15	.83
Perceived ease of use sub-dimension	4.07	.85
Intention to use sub-dimension	3.46	.80
Usage behaviour sub-dimension	2.66	.66
Industry 4.0 scale	3.60	.59

In Table 3, the item of the scale showing 'very high' Industry 4.0 awareness is the statement 'I find it useful to use Industry 4.0 technologies' ($\bar{X}$ = 4,21). On the other hand, the item indicating 'low' awareness is the statement 'I cannot work efficiently without Industry 4.0 technologies' ($\bar{X}$ = 1,88). In addition, it was determined that the level of awareness was 'high' in the sub-dimensions of 'perceived benefit', 'perceived ease of use' and 'intention to use'. It is seen that the level of awareness in the 'usage behaviour' sub-dimension is at 'medium' level. In general, it was concluded that the level of teachers' awareness of Industry 4.0 is 'high'.

4.2. Industry 4.0 Awareness Level of Teachers According to Gender

In Table 4, Industry 4.0 awareness levels of teachers according to their gender are presented.

Table 4. Mann-Whitney U Test Results of Industry 4.0 Awareness Levels of Teachers According to Their Gender

	Gender	n	Rank Mean	Rank Sum	U	p
Perceived benefit	Male	488	882.27	430547.00	278761.00	.06
	Female	1209	835.57	1010206.00		
Perceived ease of use	Male	488	887.09	428021.50	281286,50	.12
	Female	1209	837.66	1012731.50		
Intention to use	Male	488	879.72	429303,50	280004,50	.09
	Female	1209	836.60	1011449,50		
Usage behaviour	Male	488	868,19	423678,00	285630,00	.30
	Female	1209	841,25	1017075,00		
Industry 4.0 scale	Male	488	890,70	434662,00	274646,00	.02
	Female	1209	832,17	1006091,00		

p >.05: When p > 0.05, it is accepted that there is no statistically significant difference between the groups and the observed differences may be random. p < 0.05 means that there is a significant difference between the groups and this difference is not random.

According to Table 4, the awareness levels of teachers about Industry 4.0 were measured according to their gender in terms of 'perceived benefit' (U=278761.00, p=.06>.05), 'perceived ease of use' (U=281286.50, p=.12>.05), 'intention to use' (U=280004.50, p=.09>.05) and 'usage behaviour' (U=285630.00, p=.30>.05). However, when awareness levels were compared according to gender, it was determined that male teachers (Median=890.70) had higher Industry 4.0 awareness than female teachers (Median=832.17).

4.3. Industry 4.0 Awareness Level of Teachers According to Their Age

In Table 5 presents the Industry 4.0 awareness levels of teachers according to their ages.

Table 5. Kruskal-Wallis Test Results for Industry 4.0 Awareness Levels of Teachers According to Their Ages

	Age	n	Rank Mean	sd	χ^2	p	Significant Difference
Perceived benefit	1. 25 years and under	114	1000.85	5	19.12	.00	1>2 1>3 1>4 1>5 1>6 2>3 2>4 2>5
	2. 26- 30 years	377	893.35				
	3. 31- 35 years	375	819.98				
	4. 36- 40 years	298	821.43				
	5. 41- 45 years	269	816.23				
	6. 46 years and over	264	825.82				
Perceived ease of use	1. 25 years and under	114	1019.00	5	20.47	.00	1>2 1>3 1>4 1>5 1>6 2>6
	2. 26- 30 years	377	879.32				
	3. 31- 35 years	375	838.61				
	4. 36- 40 years	298	828.22				
	5. 41- 45 years	269	824.89				
	6. 46 years and over	264	795.08				
Intention to use	1. 25 years and under	114	945.39	5	7.04	.21	-
	2. 26- 30 years	377	867.19				
	3. 31- 35 years	375	829.49				
	4. 36- 40 years	298	821.20				
	5. 41- 45 years	269	832.58				
	6. 46 years and over	264	857.23				
Usage behaviour	1. 25 years and under	114	798.69	5	14.17	.01	1>6 2>6 3>6
	2. 26- 30 years	377	827.82				
	3. 31- 35 years	375	839.19				

	4. 36- 40 years	298	853.42				4>6 5>6
	5. 41- 45 years	269	813.36				
	6. 46 years and over	264	946.21				
Industry 4.0 scale	1. 25 years and under	114	986.96	5	13.73	.01	1>2 1>3 1>4 1>5 1>6
	2. 26- 30 years	377	881.20				
	3. 31- 35 years	375	823.73				
	4. 36- 40 years	298	821.18				
	5. 41- 45 years	269	818.56				
	6. 46 years and over	264	841.76				

p >.05

In Table 5, the Kruskal-Wallis test was applied to determine whether the awareness levels of teachers regarding Industry 4.0 differed between age groups. As a result of the analysis, a statistically significant difference was found between age groups (X^2=13.73, p=.01<.05). As a result of multiple comparisons made with the Mann-Whitney U test, it was determined that this difference was between the 25 and under age group and the 26-30, 31-35, 36-40, 41-45 and 46 and over age groups.

4.4. Industry 4.0 Awareness Level of Teachers According to School Levels

In Table 6 presents teachers' awareness levels of Industry 4.0 based on school levels.

Table 6. Kruskal-Wallis Test Results on Teachers' Industry 4.0 Awareness Levels According to School Levels

	School Level	n	Rank Mean	sd	χ^2	p	Significant Difference
Perceived benefit	1. Preschool	112	877.96	4	1.29	.86	-
	2. Primary school	441	859.91				
	3. Secondary school	645	847.85				
	4. Academic high school	130	849.39				
	5. Vocational high school	369	829.04				
Perceived ease of use	1. Preschool	112	867.51	4	2.45	.65	-
	2. Primary school	441	859.09				
	3. Secondary school	645	854.06				
	4. Academic high school	130	868.99				
	5. Vocational high school	369	815.43				
Intention to use	1. Preschool	112	825.09	4	5.77	.21	-
	2. Primary school	441	883.27				
	3. Secondary school	645	827.28				
	4. Academic high school	130	801.05				
	5. Vocational high school	369	870.16				
Usage behaviour	1. Preschool	112	865.47	4	1.22	.87	-
	2. Primary school	441	863.41				
	3. Secondary school	645	846.13				
	4. Academic high school	130	814.96				
	5. Vocational high school	369	843.80				
Industry 4.0 scale	1. Preschool	112	864.71	4	2.11	.71	-
	2. Primary school	441	874.44				
	3. Secondary school	645	842.58				
	4. Academic high school	130	838.98				
	5. Vocational high school	369	828.58				

p >.05

As shown in Table 6, the Kruskal-Wallis test was conducted to determine whether teachers' awareness levels of Industry 4.0 differed across school levels. The analysis results indicated that

there was no statistically significant difference in Industry 4.0 awareness levels among school levels (X^2=2.11, p=.71>.05).

4.5. Industry 4.0 Awareness Level of Teachers According to Their Professional Seniority

Table 7 presents the Industry 4.0 awareness levels of teachers according to their professional seniority.

Table 7. Kruskal-Wallis Test Results on Industry 4.0 Awareness Levels of Teachers According to Their Professional Seniority

	Professional Seniority	n	Rank Mean	sd	χ^2	p	Significant Difference
Perceived benefit	1. 1- 6 years	594	893.88	4	13.33	.01	1>2 1>3 1>4 5>3 5>4
	2. 7- 12 years	445	833.24				
	3. 13- 18 years	255	798.89				
	4. 19- 24 years	261	795.90				
	5. 25 years and above	142	898.22				
Perceived ease of use	1. 1- 6 years	594	876.91	4	7.17	.12	-
	2. 7- 12 years	445	868.58				
	3. 13- 18 years	255	815.49				
	4. 19- 24 years	261	799.80				
	5. 25 years and above	142	821.49				
Intention to use	1. 1- 6 years	594	857.28	4	5.72	.22	-
	2. 7- 12 years	445	847.74				
	3. 13- 18 years	255	821.33				
	4. 19- 24 years	261	817.45				
	5. 25 years and above	142	926.01				
Usage behaviour	1. 1- 6 years	594	853.13	4	11.57	.02	1>5 5>2 5>3
	2. 7- 12 years	445	805.74				
	3. 13- 18 years	255	837.12				
	4. 19- 24 years	261	863.92				
	5. 25 years and above	142	961.20				
Industry 4.0 scale	1. 1- 6 years	594	883.53	4	9.33	.06	-
	2. 7- 12 years	445	837.65				
	3. 13- 18 years	255	804.26				
	4. 19- 24 years	261	803.68				
	5. 25 years and above	142	903.76				

p >.05

As seen in Table 7, the Kruskal-Wallis test was applied to determine whether the awareness levels of teachers regarding Industry 4.0 differ according to their professional seniority. As a result of the analysis, a statistically significant difference was found between the Industry 4.0 awareness levels depending on professional seniority in the perceived benefit sub-dimension (X^2=13.03, p=.01<.05). As a result of multiple comparisons made with the Mann-Whitney U test, it was determined that this difference was in the groups of 0-6 years and 7-12 years, 0-6 years and 13-18 years, 0-6 years and 19-24 years, 25 years and above and 13-18 years, and 25 years and above and 19-24 years.

In addition, a statistically significant difference was found between the Industry 4.0 awareness levels depending on professional seniority in the usage behavior sub-dimension (X^2=11.57, p=.02<.05). It was determined that this difference was in the groups between 0-6 years and 25 years and above, 25 years and above and 7-12 years, and 25 years and above and 13-18 years.

4.6. Industry 4.0 Awareness Level of Teachers According to Their Branches

Table 8 presents the teachers' Industry 4.0 awareness levels according to their branches.

Table 8. Kruskal-Wallis Test Results on Industry 4.0 Awareness Levels of Teachers According to Their Branches

	Branches	n	Rank Mean	sd	χ^2	p	Significant Difference
Perceived benefit	1. Preschool teacher	133	864.61	3	2.18	.53	-
	2. Class teacher	366	863.03				
	3. Branch teacher	1019	835.84				
	4. Vocational teacher	179	883.64				
Perceived ease of use	1. Preschool teacher	133	859.56	3	1.68	. 64	-
	2. Class teacher	366	866.50				
	3. Branch teacher	1019	836.92				
	4. Vocational teacher	179	874.14				
Intention to use	1. Preschool teacher	133	859.24	3	5.03	. 16	-
	2. Class teacher	366	877.61				
	3. Branch teacher	1019	828.66				
	4. Vocational teacher	179	898.66				
Usage behaviour	1. Preschool teacher	133	882.19	3	.92	. 81	-
	2. Class teacher	366	855.15				
	3. Branch teacher	1019	841.69				
	4. Vocational teacher	179	853.35				
Industry 4.0 scale	1. Preschool teacher	133	869.32	3	3.85	. 27	-
	2. Class teacher	366	875.76				
	3. Branch teacher	1019	830.21				
	4. Vocational teacher	179	886.15				

p >.05

As seen in Table 8, the Kruskal-Wallis test was applied to determine whether the awareness levels of teachers regarding Industry 4.0 differed between branches. As a result of the analysis, no statistically significant difference was found between the branches of teachers and Industry 4.0 awareness levels (X^2=3.85, p=.27>.05).

4.7. Industry 4.0 Awareness Level of Teachers According to Their Educational Status

Table 9 presents the teachers' Industry 4.0 awareness levels according to their educational status.

Table 9. Kruskal-Wallis Test Results on Industry 4.0 Awareness Levels of Teachers According to Their Educational Status

	Educational Status	n	Rank Mean	sd	χ^2	p	Significant Difference
Perceived benefit	1. Associate's degree	37	930.72	3	4.20	. 24	-
	2. Bachelor's degree	1416	840.77				
	3. Master's degree	235	877.45				
	4. Doctorate	9	1065.61				
Perceived ease of use	1. Associate's degree	37	890.43	3	8.09	. 04	2>1
	2. Bachelor's degree	1416	835.75				
	3. Master's degree	235	912.23				
	4. Doctorate	9	1111.56				
Intention to use	1. Associate's degree	37	1043.96	3	12.38	. 00	1>2 2>1 2>4
	2. Bachelor's degree	1416	832.96				
	3. Master's degree	235	907.84				
	4. Doctorate	9	1035.17				

Usage behaviour	1. Associate's degree	37	1139.72	3	20.57	. 00	1>2 1>3 1>4
	2. Bachelor's degree	1416	851.87				
	3. Master's degree	235	799.50				
	4. Doctorate	9	495.06				
Industry 4.0 scale	1. Associate's degree	37	1022.50	3	9.75	. 02	1>2
	2. Bachelor's degree	1416	834.81				
	3. Master's degree	235	899.86				
	4. Doctorate	9	1040.94				

p >.05

As seen in Table 9, the Kruskal-Wallis test was applied to determine whether the awareness levels of teachers regarding Industry 4.0 differ according to their educational background. As a result of the analysis, a statistically significant difference was found between the education levels of teachers and their Industry 4.0 awareness levels (X^2=9.75, p=.02<.05). As a result of multiple comparisons made with the Mann-Whitney U test, it was determined that this difference was between teachers with an associate degree and a bachelor's degree.

4.8. Industry 4.0 Awareness Level of Teachers According to Class Size of School Where They Work

Table 10 presents the teachers' Industry 4.0 awareness levels according to class size of school where they work.

Table 10. Kruskal-Wallis Test Results on Industry 4.0 Awareness Levels of Teachers According to Class Size of School Where They Work

	Class Size	n	Rank Mean	sd	χ^2	p	Significant Difference
Perceived benefit	1. 1-10 students	48	864.83	5	12.95	.02	6>1 6>2 5>3 5>4 6>5
	2. 11-20 students	172	885.00				
	3. 21-30 students	431	806.80				
	4. 31-40 students	822	843.64				
	5. 41-50 students	200	897.86				
	6. 51 and above students	24	1093.73				
Perceived ease of use	1. 1-10 students	48	830.11	5	12.55	.02	6>1 2>3 6>5
	2. 11-20 students	172	907.86				
	3. 21-30 students	431	803.33				
	4. 31-40 students	822	855.09				
	5. 41-50 students	200	847.73				
	6. 51 and above students	24	1087.13				
Intention to use	1. 1-10 students	48	907.21	5	4.97	.41	-
	2. 11-20 students	172	899.13				
	3. 21-30 students	431	815.50				
	4. 31-40 students	822	855.85				
	5. 41-50 students	200	834.45				
	6. 51 and above students	24	861.50				
Usage behaviour	1. 1-10 students	48	962.67	5	4.10	.53	-
	2. 11-20 students	172	851.72				
	3. 21-30 students	431	846.38				
	4. 31-40 students	822	835.39				
	5. 41-50 students	200	875.54				
	6. 51 and above students	24	894.08				
Industry 4.0 scale	1. 1-10 students	48	900.46	5	11.98	.03	2>3 5>4
	2. 11-20 students	172	905.26				
	3. 21-30 students	431	804.43				
	4. 31-40 students	822	845.57				

	5. 41-50 students	200	871.16				
	6. 51 and above students	24	1076.00				

p >.05

As seen in Table 10, the Kruskal-Wallis test was applied to determine whether the awareness levels of teachers regarding Industry 4.0 differ according to the class sizes in the schools they work. As a result of the analysis, a statistically significant difference was found between the class sizes and the Industry 4.0 awareness levels (X^2=11.98, p=.03<.05). As a result of multiple comparisons made with the Mann-Whitney U test, it was determined that this difference was between the groups of 11-20 students and 21-30 students and between the groups of 41-50 students and 31-40 students.

5. Conclusion

In this study, it was concluded that teachers' level of awareness about Industry 4.0 is 'high'. In addition, teachers rated the item 'I find it useful to use Industry 4.0 technologies' at a very high level. Male teachers' awareness of Industry 4.0 is higher than female teachers. Teachers aged 25 and under have higher awareness of Industry 4.0 than other age groups. There is no significant difference between the Industry 4.0 awareness of teachers with different school levels. There is no significant difference between the Industry 4.0 awareness of teachers with different branches. It was concluded that teachers with associate degree have higher Industry 4.0 awareness than teachers with bachelor's degree. Teachers with a class size of 11-20 students have a higher level of Industry 4.0 awareness than teachers with a class size of 21-30 students. These findings emphasize the need to increase teachers' digital skills in line with SDG 4 - Quality Education, and contribute to the innovative transformation of education systems in line with SDG 9 - Industry, Innovation and Infrastructure. Therefore, strengthening teachers' awareness of Industry 4.0 is critical for a sustainable transformation in education in line with the 2030 Agenda for Sustainable Development's vision of science, technology and innovation-driven development (UN DESA 2020).

6. Discussion

Education plays a central role in preparing individuals for society and working life by providing them with competencies appropriate to the workforce demands of revolutions such as Industry 4.0 (Ananiadou and Claro 2009). Productive and innovative approaches in education are seen as an important opportunity in the light of Industry 4.0 (Fisk 2019). In this respect, especially teachers are in a critical position in the education system and their perceptions, competencies and behaviors in teaching-learning processes are a determining factor in students' academic success (Soenarto et al. 2020). The findings show that Industry 4.0 awareness differs depending on certain demographic variables. This suggests that teachers' individual characteristics affect their adaptation to technological transformation processes. In particular, it was determined that teachers' awareness levels on Industry 4.0 were generally high. While the highest awareness was observed in the item "I find it useful to use Industry 4.0 technologies", the lowest awareness was observed in the item "I cannot work efficiently without Industry 4.0 technologies". These results overlap with the findings of Avcı and Candan (2023).

According to the gender variable, male teachers' awareness levels were found to be higher than female teachers. While this finding supports the studies of Avcı and Candan (2023), Doğan and Baloğlu (2020) and Yelkenalan et al. (2019), it contradicts Özsakarya (2022) and Torun and Cengiz

(2019). When the age variable is analyzed, the awareness levels of young teachers are higher than other age groups. Especially the fact that young teachers have higher awareness can be explained by the fact that they have been raised in the digital age. Although this result is compatible with the study of Ekizce et al. (2022), no significant difference was found in Özsakarya's (2022) study.

While school level and branch variables did not make a difference, professional seniority and educational status created significant differences in awareness levels. Especially significant differences were observed between teachers with 0-6 years of seniority and other groups. There was also a difference between associate degree and bachelor's degree graduates. There was also a difference between certain groups in the class size variable. In addition, Industry 4.0 presents new opportunities and challenges in education as one of the main dynamics of the information society. Industry 4.0 and digitalization create great opportunities for educational institutions by offering new teaching possibilities. This is leading to the emergence of complex, multifaceted and interdisciplinary challenges that affect all fields of knowledge, as well as promoting progress at a global level. While Industry 4.0 brings significant innovations to schools, universities and industry, it also requires students to be trained with the skills, competencies and equipment appropriate to this transformation. In this context, it is crucial that educational institutions adapt to Industry 4.0 and undergo a systematic development process (Neage 2019).

Toth et al. (2020) state that teachers are not adequately equipped to develop students' digital skills. In order for teachers to acquire these skills, they need to perceive the benefits of Industry 4.0, be willing to use related technologies, embrace ease of use, and integrate these technologies into their teaching processes. Therefore, it is a critical requirement for teachers to have a high level of Industry 4.0 awareness.

Equipping students with 21st century skills is only possible if teachers are competent enough to provide these skills. At this point, teachers' perceptions of digital technologies, their motivation for professional development and their participation in learning communities will be decisive. In this context, the integration of Industry 4.0 into education systems should not be limited to technological infrastructure; teachers' perceptions, attitudes and competencies in using these technologies should also be taken into consideration. In order for teachers to contribute to digital transformation, it is important that their awareness in this field is high and then they are supported in pedagogical integration.

7. Recommendation

Based on the findings of the study, the following recommendations were developed:

- Education Policies: The Ministry of National Education and the Council of Higher Education should make strategic plans to integrate Industry 4.0 components into all levels of education. In particular, content that raises digital awareness at an early age should be added to pre-school education programs.
- In-Service Trainings: Teachers should be included in continuous professional development programs to enable them to use Industry 4.0 technologies pedagogically. In particular, practical trainings to improve teachers' competencies on perceived benefits and ease of use are recommended.

- Applied Projects: Collaborative projects should be developed between vocational high schools and industry; university students should be provided with Industry 4.0 experience through interdisciplinary projects.
- Research: It is recommended to conduct validity and reliability analyses of the Industry 4.0 Awareness Scale in different age groups, branches and country samples; and to conduct comparative studies with mixed methods.
- Social Awareness: In order to train teachers who can grasp the opportunities offered by digitalization and lead this transformation, not only individual efforts but also institutional and systemic transformations are necessary.

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INTERNATIONAL DISTANCE COURSES: CAN THEY PROVIDE PERSONALIZED EDUCATIONAL OPPORTUNITIES?

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Abstract: This paper describes experience of the distance sociology courses that functioned for students from Belarusian State University and State University of New York. The joint distance course included studying texts and extensive discussions via the students' chats organized within the classes that reflected the student-led learning methods proposed by Dewey and developed for distance learning by modern scholars. Students' evaluation of the class was based on their personal interviews and written feedback on the courses. Due to the careful design of the teaching methods a level of students' satisfaction was high. The students especially liked a possibility to communicate with professors any time, an option to discuss with other students any questions and express their individual viewpoints, a chance to learn material asynchronously without physical participation in regular classes abroad. Students highly assessed such features of the distance class as a combination of formal and informal tools of communication, freedom to learn the sources that are not prescribed, accounting the individual educational interests, etc. This way the students could develop their personal abilities and personality. The long term effects of the international distance course included a better understanding of each other, a broader world outlook, a deeper knowledge on foreign countries and different nationalities. Such courses provided enlargement of the students' cultural potential on the basis of digitalized educational technology.

Key-words: International Distance Courses, Dialogical Approach in Leaning, Joint Courses, Intercultural Communication, Personal Development

1. Introduction[2]

The role of distance education is commonly recognized. This form of education became especially important during the Covid-19 pandemic, when people in many countries had to stay at home and study/work online for several months. Distance forms of education also provided a necessary access to higher education for young people from the countries that lost an access to the universities due to the political and military conflicts. However, even before the period of the COVID-19 pandemic and the years of deterioration of international situation in the world, there

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[2] This culturally oriented paper is based on a description and analysis of the successful features of an international distance course as a joint teaching project and does not contain any quantitative methods and measurements of the students' performances. The data of this course cannot be applicable to other cases due to its originality: the results only demonstrate the cultural opportunities for the students' development during the online teaching.

was a sustainable tendency to develop joint distance courses for the university students from different countries. Such courses were numerous between the EU and the US universities. Due to the existed educational cooperation they also became available for the advanced universities in Russia and Belarus.

Internationalization of the higher education is a well-known fact that attracts the scholars' attention (Brandenburg et al. 2019). This is a tendency that meets the global demand in the high quality specialists in the economy, cultural sphere, and political relations. Modern technology contributed to this tendency providing distance forms of education and making them popular in most countries (Ward 2016).

International distance courses have become a reality since the end of the 20th century due to the spread of the Internet (Youssef 2014). They gave a possibility for many students to collaborate online (Palloff and Platt 2005). From the beginning they were available for the students in the western countries as an addition form of collaboration to the real educational exchanges between the universities from different countries. Surely, many students from the European and Asian universities wanted to go for study abroad to the universities in the US or Canada. However, due to the broad development of the educational cooperation between many countries, supported by the professional educational organizations in the late 1990th and after, a new option appeared: distance exchange courses. This kind of educational cooperation was cheap (students did not pay for travel and staying in foreign countries), - distance classes did not assume any extra cost (Baldassar and McKenzie 2016). It is also important to mention the availability of such courses for the universities from quite different countries – western and eastern, advanced and developing. A significant help was provided for international collaboration from the State University New York Office of International Programms that implemented dual-degree programs with higher education institutions in Turkey, Russia, China, Mexico and other countries: the staff of this Office followed the concept of common interests beyond the borders (Ryder 2010).

To start the distance cooperation it was enough to sign a formal agreement about such kind of cooperation between the universities, so that many universities from the eastern countries could join this practice and participate in the international distance learning courses. Belarusian State University – number 1 in the Republic of Belarus, according to the international ratings – signed several agreements on the cooperation with the universities from the foreign countries in the 1990s, so that the faculties and the staff interested in the international cooperation could participated in the international conferences, seminars, trainings, conduct the joint research and the like. From the beginning of the 2000s, due to the spread of the internet educational tools and methods, the distance courses were organized, some of them with the foreign participation. Department of Sociology established the working contacts with the Department of Sociology and Anthropology from the SUNY (Cortland). Both sides were interested in such cooperation as the members of the American Universities for Democracy (AUDEM) – a non-state organization strongly promoted East-West universities civil cooperation and delivered western learning methods of education as well as democratic rules within the universities' communities. This organization was open as a part of the American Democracy Project in which more than 300 universities collaborated to deepen the impact public higher education (American 2024).

There were two professors teaching distance class together. The author of this paper represented Belarusian State University and professor Craig Little, a Chair of the Department of Sociology and

Anthropology from SUNY (Cortland), was the key figure in the arrangement of distance cooperation. Twice another American professor who worked at Moscow State University also participated in the distance courses with Russian students (Little et al. 2005). Professors decided to take a course "Social Control": it was a selective course for both universities, and those students who were interested in this topic and international cooperation could be enrolled in it. From the very beginning it was agreed that professors will teach the course together and discuss all the methodological and practical issues during the personal meetings that happened three or four times or online.

SUNY (Cortland) provided all the necessary technological conditions for the international course. First, SUNY shared the technological platform (Blackboard) making it available for Belarusian university so that all the students could use it within the learning process. Second, SUNY provided Belarusian students with three textbooks for this course and allowed free access to other resources necessary for participation in this course. Third, Belarusian professor participated in a special training delivered by the SUNY IT specialists on how to use the technological platform for running a distance course. As the expertise level of the SUNY international distance cooperation was high there were many scholars from several countries who took this two-days training to gain competences for further teaching distance courses together with the SUNY staff.

This unique experience of teaching this course has been gained during 2001- 2017, when the students of two above-mentioned institutions of higher education participated in this international distance class. Twice some students from Australia also participated in it making the international nature of the course even broader. In the end of each class students assessed the course following the different criteria (level of personal interest, atmosphere of the course, teachers' level of knowledge, satisfaction of the results, etc.). The average assessment grade of the class was high (more than 4 on a scale from 1 to 5 where 1 was low and 5 was the highest).

This experience in the international teaching process stopped when an American professor retired, and nobody from SUNY agreed to substitute him for several reasons. Soon the COVID-19 pandemic made hopes to restore this course unrealistic. However, as this experience was successful, it makes sense to discuss the special features of this distance course and its unique design as a case of successful international educational cooperation. That is why the research question for this paper is to assess and interpret the factors that made this course attractive for all the students and ensured its success, as well as interpret the cultural impact of this course on the students.

2. The Research Design of the International Distance Course

2.1 Brief Description of a Design and Model

First of all, it might be useful to remind about the different opinions on the usefulness of distance education format as they have been popular before the COVID-19 pandemic. There are some international surveys that discovered no significant difference in the student performance between those who study online and in traditional classes as they could be organized only before the COVID-19 pandemic and the waves of sanctions related to the Russian-Ukrainian military conflict (Ananga and Biney 2017). According to these surveys both motivation and student evaluations of teaching quality of distance courses did not depend on the mode of education. According to the earlier studies, good traditional teachers and good distant instructors are among

the best in both cases (Kelly et al. 2007). Distance methods and IT tools are not widespread and it might be neither necessary and nor useful in some cases: it depends on the discipline, the instructors, their willingness to use ICT and develop of new materials (Atkinson and Medina 2016). Finally, with the broad use of new technological forms of education, "we are on the verge of an educational revolution" (Murphy 2019). Two of the most powerful developments which are driving education forward are virtual learning environments and e-Libraries (Hughes 2019).

The forms of international distance classes that fit the goal of internationalization have to take into account such criteria as the countries from which students enroll, their level of training, educational psychology, and different pedagogical methods. The literature discusses several issues related to the specifics of international distance education such as the language of instruction, the availability of teacher support, and technical platforms (Baldassar and McKenzie 2016. Ward 2016). For international distance e-learning including students from linguistically diverse countries, the language of instruction can be more extremely important. Therefore it is recommended to enroll only students with good level of English so that they can adjust themselves to these classes more easily (Youssef 2014).

There are few studies in Russia and dedicated to this topic because of the complexity of organizing such courses. Few cases of international distance classes including ex-soviet countries have been mentioned in papers devoted to regionalism or international education in general (Higher Education 2019). In Belarus there were no publications of such character because of a very small number of cases where the US and Belarus collaborated in the running of international distance classes.
The discussed case of a distance class was a new form of international education organized on the basis of distance teaching methods and technology. Carefully selected teaching methods and technological tools help construct an atmosphere for online learning, including cross-cultural communication, the exchange of experiences with international peers and support from instructors. This design and methods differ from many other forms of international teaching (Youssef 2014). At the same time it used the experience already gained in this field.

The specific aspect of this international distance course was the topic - social control within the sociology curriculum. This topic is closely tied with the political field and the different state regulations on criminals so that it was a concern whether the students would agree to openly discuss the topic. It is not usual for the field, where most international distance courses are focused on languages (Helm and Guth 2016). However, all the students expressed their views in the open manner on the topic. Sociological education is a part of the global process of internationalization. New technology can be used in teaching sociology to increase student engagement and improve their motivation as well as a level of international knowledge.

However, it is not easy to create and sustain an effective distance-learning course in sociology when the students enrolled represent different countries, with their own culture, teaching traditions and expectations for grading. Offering international courses is useful for those students who cannot afford a semester abroad or even a shorter exchange visit, but who need international experience and have a good knowledge of English.

Being a part of an international distance classroom creates a feeling of international engagement and provides opportunities to learn about the outside intercultural world and to discuss the

similarities and differences of students' lives with a minimum of financial stress. A distance-learning sociology class with an international component is inclusive for students: first, it provides an opportunity for all the students to take a desirable course online outside the constraints of an established university program; second, it gives them a chance for virtual travel abroad and virtual communication with their international peers.

The model of the discussed distance class was primarily focused on the internationalization of higher education. The goal was to create an example of how to realize this goal. In such process the course design always matters, therefore, it has to be based it on the best experience from the field. Within this framework the successful SUNY experience in asynchronous distance education suggested that this form of learning was the most suitable for students living in different countries (Aviv 2001). Following the suggestions of the specialists from the SUNY Learning Network, it was decided to use Blackboard because this Learning Management System was provided by SUNY. The university always provided technical support for running the course because this technology belonged to SUNY. This regular and sustainable support was necessary to make the running of the class successful.
The design of the course assumed that the students have to (1) offer global comparisons and perspectives on the problems of social control, (2) pose questions to one another from an outsider's perspective, (3) respond to questions that frequently challenge what is "taken for granted", and (4) take a reflective attitude toward their own society, culture, and politics. Overall, all the students, regardless of the country of origin, fulfilled these tasks.

2.2 Major Features of the Course Design

It is important to stress that an innovative design for an international online course greatly contributed to its success (it was organized several times during about 15 years). The key factors (or the special design features) that stimulated the high level of student involvement in online dialogue and the high level of satisfaction have been outlined as follows:

(a) Asynchronous method of teaching: all students could communicate online and contribute to the course 24/7. It was extremely convenient due to the time zone differences and class schedules of students in different countries. This method is well-known in the field, and its benefits are well described in the literature (Hiltz and Goldman 2005).

(b) Existence of *Students Forum* for regular communication on the topics of the course (each student had to make at least six comments on three main topics of the course). Students Forum was a form of realization of the student-led learning strategy (Baran and Correia 2009). Except for the class topics, students discussed their countries, hobbies, life events, so that they became knowledgeable about the countries involved, their everyday life, and culture. Each student had to post a minimum of six times per module on the Student-led-discussion forum. This forum was a central point in the class: one third of a module grade depended on grades for posts—their quality, quantity, and regularity. On average, each post contained 300–350 signs; some posts were three times longer, depending on the topic and the student. The enhancement of cross-national knowledge and understanding was the essence of the course.

(c) Method of student' oriented teaching (personal communication of the professors with each student, sometimes – arrangement of individual deadlines for home assignments, explanation of course details, discussion of any personal problem in case a student asked for help, etc.). This

method was extremely productive in a course where professors did not have face-to-face contacts with the students. As a result, a unique learning environment was constructed (Hanewicz 2017) that stimulated mutual interests and desire to learn more.

(d) Availability of all course materials online – there were three books, several mini-lectures, additional articles to read and discussed in the *Students Forum*. All the students had open access to all the materials. It was convenient for them. In case of some difficulties with English, Belarusian students could use dictionaries (all materials were only in English).

(e) Transparency of the students' assessment (students' grades). The system of grading has been provided from the beginning, and the results depended on the quality of written assignments and the number and quality of comments in the *Students Forum* for each student. This way every student could know what is his/ her level in class and could improve his or her performance before grading.

(f) Friendly atmosphere in an international distance class. There was no competition between the students, while all of them wanted to have good results on the basis of their new learning experience. In their post-class notes to professors the students especially admitted friendship that motivated them to participate and the high level of openness in the expression of their views.

The online asynchronous technology and online dialogue in the form of student-led discussions organized for regular interaction among the students and between students and lecturers seemed to be the most important key factors for the course's successful design. An additional factor that contributed to the course success was the regular technical and pedagogical support: it highly motivated the students in their individual work. Technical support was provided by the American IT specialists, while pedagogical support was provided by the professors. Perhaps, in other cases not all these factors can be so important, while in this particular class their combination played a decisive role in making this class successful.

3. Theoretical Basis of the Distance Course

The modern societies have a high demand for professionals and many young people want to receive an international degree to have better chances for employment, or a chance at better employment. These demands create a challenge for higher education: to teach more students and use educational technology to make the process of education inclusive, creative and attractive. Higher education can be assisted in meeting this demand with the methods and tools for teaching online, both domestically and internationally.

The major theoretical basis of the discussed international distance course was an educational theory constructed by the American educator and philosopher John Dewey (Dewey 1920). This theory highly promotes a dialogical form of learning and argues for the methods of education oriented to the students. Dewey's approaches and methods meet the goals of the international class. It is also called "an experiential learning theory" (Kolb 1984, 20) because it emphasizes the central role of personal experience in the learning process. Each individual obtains the new knowledge and feelings and combines the perception of knowledge, cognition and behavior.

However, in order to make Dewey's ideas fully applicable for the distance form of education, modern theories of distance learning developed by M. Moore (1991) and J. Hill (Hill et all. 2009) were used. This theoretical basis made it possible to systematize and analyze the new empirical data received from the students' assignments and their comments from the Students Forum, as well as interpersonal discussions between the professors.

It is necessary to mention that information related only to one long-lasting case study, therefore, it is not possible to distribute the results to other online courses. However, the empirical support of practicability of the selected design and features of this course made it possible to stress its teaching and learning effective and sustainability.

It also makes sense to add that the students in all the above-mentioned universities belonged to one digital generation: all the young persons whether - from Belarus or Russia or the US – wanted to get good knowledge and later to be employed in the knowledge-based economy (Commission 2018). Therefore, they try to get new knowledge and cultural experience from their international communication that can be of practical use for their future employment.

4. Research Results and Discussion of the Effectiveness of the Class

One of the major positive result of the course that greatly contributed to the personal development of each student was an intercultural dialogue arranged on the basis of implementation of Dewey' and Moore' theories.

Dialogue in different forms was at the center of our pedagogical approach in distance teaching. It was a key tool to organize cross-cultural international communication between the students. This tool was selected due to the recommendations of the theory of distance learning developed by Moore (1991). It is possible to describe dialogue as a means of exchanging information and opinions among the students and teachers. Through forum dialogue students and teachers participated in constant discussion making this class interactive and knowledge-enhancing. Moore stated that online learning can be viewed as a dialogue, i.e. as "the interaction between the teacher and learner when one gives the instructions and the other responds" (Moore 1991, 3). Within this theoretical framework a three-part pattern of cognitive dialogue was developed: (1) between the student and instructor; (2) among the students themselves; and (3) between instructors, as they also communicated online. The results of this class demonstrated the importance of all three kinds of dialogue. This three part pattern of dialogue differs from Moore as it included the communication between the instructors themselves, while Moore focused on the dialogue between the students and instructors. The results provided evidence of importance of a student-oriented approach in online teaching as it allows space for online interaction between the students that successfully replaces face-to-face interaction. Additionally, there was a regular communication between the teachers and students who were in need of technical help or help with the content of the course. This kind of communication was mutually beneficial: it helps us to improve the course and it contributes to the students' understanding of the subject and course technology. According to the students' post-class surveys, this helped to keep the students' interest in this class and motivated them to learn and compete with others. Overall, despite the free enrollment in the course, there were always enough students from all the countries. This result was in line with Garrison and Cleveland-Innes' statement (2005, 133) that course design significantly influences the nature of the interaction.

The dialogue was mainly student-oriented: both teaching and learning was directed by student motivation and curiosity. The pedagogical focus was on the students' forum because it was a major tool for their personal cultural development: the students posted online questions asking foreign peers about their countries and national cultures, discussing the details of social control in a particular country, or expressing their own opinions on difficult issues and therefore promoting discussion between the classmates. For example, American and Australian students wondered why capital punishment still existed in Belarus, and how Belarusians evaluate this phenomenon. Students also raised questions about the fact why many prisoners in Scandinavia are allowed to wear bracelets and live at home instead of in prison, whether cameras can be used for total surveillance, whether security is more important than personal freedom, and whether these can be balanced in a society. All of them shared information about the modern tools of control they knew. During such discussions students always followed ethical norms and expressed respect to the opinions of others regardless of whether they agreed. Ethical norms were described in the course materials provided online in the beginning of the course, and teachers carefully checked students' online communications from this criterion. Overall, the pedagogical tools were chosen to provide the students with the means for open dialogue among the participants to make every student feel like an independent or self-directed learner.

All the mentioned features of the course design, its model and the students' performance itself contributed to the success. A significant impact of distance class for each student was a participation in the open communication between the foreigners and the deep cultural knowledge of countries and people gained on the basis of communication, the atmosphere of mutual engagement maximize the students' involvement in the group.

According to the students' messages during the performance of the class assignments, they appreciated international communication very much. They reflected a feeling of satisfaction in their positive comments after the end of the class. Here are few examples of such comments that reflect the common feelings of the students:

Belarusian Student: "Taking part in an international distance course is always a unique experience. A person can see something from somebody else's point of view, learn a lot and meet people from absolutely different cultures. What attracts me the most is that through this experience a person can see and break the wall [between cultures], understand why people from different cultures act that way, why they think that way."

American Student: "This course was so interesting and gave us the chance to share experiences and cultures, and I think that it is amazing and I personally feel so blessed that I was able to be a part of such a phenomenal international class."

Russian Student: "It was very good to meet the students from the other countries, learn about their experiences and despite all the differences, find out that there are also many similarities between us."

Australian Student: "Initially I assumed that Australia would be similar to the US and quite different from Belarus and Russia but how wrong I was. It's been an enlightening experience which has expanded my appreciation of other cultures and accompanying social controls. Political and historical walls no longer separate us, as in the past and I think that's a good thing of it opens doors such as this course has, in making networks with peers across the globe."

Overall, more than 50% of the students expressed their full satisfaction with the course which is in line with the level of satisfaction in traditional classes (Driscoll et all. 2012). Therefore the discussed experience of teaching this international distance class can be viewed as an example of successful practice that would be useful for teachers planning similar international distance courses on sociology. These students notes allow to say the following. The model's effectiveness was confirmed by the students' level of satisfaction with this class and the high level of student engagement. It enables students from different countries to equally communicate online and freely exchange ideas among themselves and with the teachers. Student-oriented teaching methods and the careful design of the course were also significant for success.

5. Conclusion

The received findings showed that a combination of technological, pedagogical, cultural, social and psychological aspects of international distance teaching makes it effective. It is assumed finally that an asynchronous university e-learning course focusing on the regular participation of international students in discussion forums can be a useful model for online collaboration where students from several countries are involved. The discussed practice confirmed that the selected technology is more appropriate for an international distance course as it makes it more flexible for students to work online, while dialogue provides space for students' creativity and for a feeling of social presence. Such methods of learning differ from the recent methods based on the Artificial Intelligence that less focused on developing students' creativity and communication and therefore do not contribute to students socialization and critical thinking (Chaudhary 2024).

The received results also showed that during the positive international atmosphere and existence of the universities' agreements on the international cooperation it is possible to organize the courses that can touch upon the political and legal issues of the countries without making the discussion impossible for the students from the ex-socialist countries. In total, a global political atmosphere that allows cultural exchanges on the different levels between the advanced and developing countries and the people combined with the friendly learning atmosphere between the students and between students and teachers in the class can be extremely successful for individual development of each person involved in this process. Therefore, the investigation of research question of this paper, that was focused on the selection of the effective conditions for a successful online international class, provided a descriptive support for the statement that only under the certain conditions (both external and internal) the international distance classes can contribute a lot to the personal development of the students and stimulate their individual human potential. In case of the unfriendly political situation not only international agreements on the university cooperation become useless; the very existence of the international distance classes with the students from the countries that are in conflict are not at all possible. As a result, the new young generation living in such conflict conditions will be excluded from the international distance cooperation and lose a potentially important tool for the personal development in the global world. This conclusion refers not only to the classes in sociology: under the conflict political conditions any distance classes and exchanges of such kind are not possible. This is also a loss of a possibility to learn new distance technology for the students from the developing countries as such technology is usually provided by the advanced countries.

The current political situation that made impossible to organize international distance classes as described above also makes evidence of the importance of such classes in the past years.

For the beginning of the 2000s the discussed class was a new form of international education organized on the basis of distance teaching methods and technology. Carefully selected teaching methods and technological tools helped construct a friendly atmosphere for online learning, including cross-cultural communication, the exchange of experiences with international peers and support from instructors. The proposed design and methods differ from many other forms of international teaching. The discussed case provides the evidence that there are many approaches and teaching methods in distance education that can provide significant learning results together with the important cultural contribution to the personal development of the enrolled students. It is expected that such experience can be very useful for the future employment of the young people enrolled in such classes, especially in their possible communication with foreign countries as they broke the political stereotypes about each other and understood that all countries differ from each other but all people deserve mutual respect regardless of their differences and cultural originality.

The most innovative cultural aspect of this distance class was a student-led-discussion forum arranged as a part of each educational module to stimulate learning and intercultural communication.

The university international distance course need not replace or compete with any other forms of distance or traditional learning. The discussed class had specific objectives and it was focused on international collaboration. Only highly motivated English-speaking students voluntarily subscribed for this class as it was not a part of the official curriculum. MOOC classes are usually aimed to help students either with limited resources get a particular certificate. Blended classes meet the interests of a virtual generation preferring to use ICT in their education. International distance courses cannot be organized on the same scale as other forms, focused on educational tasks within a particular university and functioning in the native language of the country. They are primarily oriented to the internationalization of higher education, i.e. to bringing benefits not only to students involved but to the university or a broader group of students or stakeholders. They provide a good practical pattern for university administration and teachers interested in expanding international cooperation in higher education.
The discussed long-term experience shows that the setting of such international university distance courses requires several conditions be present to increase the level of success and students' satisfaction with the course.

The landscape of the international distance teaching and learning in a country has to be scrutinized, taking into account the historical, theoretical, cultural and pedagogical differences between the students/countries involved in a such model. As the discussed experience and research showed, regardless of differences between the Americans and Russians, or Australians and Belorussians who were involved in our course, the model has proven effective for over the years of its successful operation.

A major limitation is that the discussed distance course was a single case study, although it was repeated several times with the same organizers and environment. Not all the universities and students could be involved in such class due to institutional barriers. The level of academic, linguistic and digital literacy of many students might be not enough for successful integration in global higher education, as well as the level of their motivation. However, the constructed model can be useful for other teachers as an example, although it might be difficult to replicate it in full

even under the positive conditions. Currently it can be considered only as a case study organized in the 2000s.

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GLIGOROV AND EUROPEAN PREVENTIVE DIPLOMACY

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Abstract: This paper examines the political and historical role of Kiro Gligorov in the making of Macedonian statehood through a sociological lens. Focusing on the decisive period of the early 1990s, it analyses how Gligorov's leadership intersected with broader processes of social change, state-building and identity formation in the post-Yugoslav context. The study draws on Piotr Sztompka's sociology of social change, as well as broader debates on agency and structure, to conceptualise Gligorov as an individual actor operating within a dense web of institutional, geopolitical and cultural constraints. The paper pursues two main aims: first, to analyse the role of Gligorov in the political development and consolidation of the Republic of Macedonia; and second, to explore how his presidency interacted with wider socio-economic and socio-cultural transformations in Macedonian society. Methodologically, the paper is designed as a qualitative case study based on interpretive analysis of primary and secondary sources, including political speeches, interviews, constitutional documents and existing historiographical and political science literature. The analysis suggests that Gligorov combined moderation, legalism and pragmatic international engagement in ways that contributed to the peaceful emergence and consolidation of Macedonian statehood in a highly turbulent regional environment. At the same time, his public role helped to shape patterns of democratic culture, conflict avoidance and political discourse that extended beyond his formal mandates. By linking an individual-centred analysis of political leadership with a sociological reading of historical change, the paper contributes to broader discussions on the role of political actors in critical junctures and processes of state formation.

Key-words: Macedonian statehood, social change, political leadership, Yugoslav dissolution, transition

1. Introduction

The historical setting of President Gligorov's political career has been widely discussed in historiography and political science (Glenny 1996; Ramet 2006; Woodward 1995; Denitch 1996). Seen from a broader historical angle, Kiro Gligorov emerges as an important actor in one of the most unstable phases of twentieth-century Europe, shaped by the breakup of multinational states, sudden border changes, and new struggles over identity in the post-socialist region (Malcolm 1994; Bose 2002; Brown 1994; Woodward 1995). In these circumstances, political decisions were inseparable from institution-building, economic and social disruption, and an international battle

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for recognition and legitimacy (Linz and Stepan 1996; Huntington 1991; Rustow 1970; Skocpol 1979).

From the outset, this "battle" was primarily diplomatic. Gligorov's long experience in federal Yugoslav institutions and his preference for legalistic argument equipped him to frame independence as a negotiated, internationally legible process – one that relied on recognition, multilateral engagement, and carefully managed relations with neighbours rather than coercion or symbolic escalation.

Periods of transition and "critical junctures" make leadership especially consequential, because choices taken then can determine a society's direction for decades (Huntington 1991; Rustow 1970; Linz and Stepan 1996). Gligorov is analytically distinctive because his political experience stretches across two different state contexts: the federal system of the Socialist Federal Republic of Yugoslavia (SFRY) and, later, the independent Republic of Macedonia. That continuity likely gave him both practical knowledge of governance and heightened sensitivity to the dangers associated with state collapse and nationalist mobilisation.

Against this background, the paper has two linked aims. First, it examines Gligorov's role in the political development and consolidation of the Republic of Macedonia through the lens of the "individual in historical context". Second, it explores how his presidency connected with wider social and socio-cultural transformations in Macedonian society during the 1990s. Existing research often presents him as a leader associated with continuity, moderation, and pragmatic decision-making at a time when many neighbouring settings were marked by radicalisation, conflict, and polarisation (Danforth 1995; Ramet 2006; Roudometof 2002; Poulton 1995). Building on this view, the article asks: (1) how Gligorov's leadership supported the consolidation of Macedonian statehood, and (2) how his public role influenced, mirrored, or interacted with the changing social fabric of the country in a period of deep transformation.

The analysis is grounded in Piotr Sztompka's sociology of social change, which stresses the mutual shaping of structural conditions and human agency in moments of historical rupture (Sztompka 1994). Related theoretical debates similarly argue that individual action is always situated within institutional and cultural settings that simultaneously open possibilities and impose limits (Giddens 1984; Archer 1995). From this perspective, Gligorov's historical significance is approached not only through personal qualities, but also through the domestic and international environment that framed his options. The article contributes empirically by offering a systematic sociological account that moves beyond biography and diplomatic history, and theoretically by applying Sztompka's sociology of social change and the agency/structure debate to the concrete challenges of post-Yugoslav state formation.

2. Geopolitics, Identity and Interethnic Tensions

This section reports the main empirical findings of the qualitative case study. It draws on an interpretive reading of presidential speeches, constitutional and diplomatic documents, and key scholarship on the breakup of Yugoslavia and the early politics of independent Macedonia, using the theoretical lens presented earlier. The focus is on the ways geopolitical pressures, disputes over identity, and interethnic relations influenced the establishment and early stabilisation of Macedonian statehood.

Macedonia's independence was shaped by a wider regional environment marked by instability, shifting alliances, and competing national agendas. As the SFRY collapsed, the institutional and security framework that had previously structured political life disappeared, and the successor states had to define their own survival strategies under uncertain conditions (Bose 2002; Woodward 1995; Glenny 1996). This broader reordering can be connected to interpretations of nationalism that treat it as a modern, historically produced phenomenon grounded in particular institutions and cultural narratives (Anderson 1983; Gellner 1983; Brubaker 1996).

In Macedonia, the state-building process immediately collided with external challenges that questioned or constrained national identity. The dispute with Greece over the name, Bulgarian arguments about the Macedonian language and nation, and unclear relations with the newly formed Federal Republic of Yugoslavia placed Macedonian diplomacy under exceptional strain (Danforth 1995; Roudometof 2002; Poulton 1995). As a result, building new institutions and securing international acceptance unfolded alongside efforts to defend identity claims – two tasks that progressed together and often made each other harder.

Gligorov's response was to treat these disputes as problems to be managed through sustained diplomatic work: building credibility with international organisations, keeping channels open with all neighbours, and presenting Macedonia as a predictable partner committed to international law. This approach aimed to "buy time" for internal institution-building while pursuing incremental breakthroughs – recognition steps, confidence-building measures, and pragmatic arrangements that reduced the risk that identity disputes would translate into security crises.

Externally driven pressures also intersected with domestic tensions in a vulnerable multiethnic society. The Republic of Macedonia entered independence with a large Albanian minority and other communities whose rights, political status, and representation became central issues of negotiation and contestation. The political leadership therefore faced overlapping challenges of democratisation, institutional consolidation, and interethnic accommodation (Bieber 2005; Daskalovski 1999). The constitutional settlement was expected to uphold civic equality while also acknowledging collective identities, at a time when regional memories of violence and conflict were still very present.

The transition was further complicated by the legacy of Yugoslav federalism, which combined a level of republican autonomy with strong centralised decision-making, and by the fact that many citizens still felt connected to the wider Yugoslav social and cultural space. For some, Yugoslavia's collapse was experienced as a painful break; for others, it created an opportunity for long-awaited national affirmation.

In this context, liberal-democratic values were not just abstract ideals. Equality of citizens, pluralism, and human rights became concrete benchmarks by which the new state's democratic legitimacy would be measured both internally and by international actors (Linz and Stepan 1996; Huntington 1991). A society emerging from a one-party socialist order was expected to institutionalise political competition and resolve disputes through formal procedures rather than coercion. Whether this worked depended not only on constitutional arrangements but also on political behaviour – especially the readiness to compromise, restrain nationalist rhetoric, and accept limits shaped by international norms.

Gligorov's political role can be understood as an ongoing effort to manage conflicting demands: calls for stronger national assertion on one side, and the need to avoid war and internal fragmentation on the other. His preference for peaceful disengagement from Yugoslavia, dialogue with neighbouring states, and step-by-step institutional strengthening was a way of operating within a narrow and risky strategic space (Ramet 2006; Woodward 1995). At the same time, Macedonia had to define its place within a broader regional security environment: it bordered countries involved in active conflicts and was part of a Balkan setting where NATO, the European Union, and other actors were invested in preventing further destabilisation. In that setting, Gligorov's stress on good neighbourly relations, multilateral engagement, and strict respect for international law functioned both as practical security policy and as a signal that Macedonia aimed to anchor itself in the emerging European security order rather than rely on unilateral military assertiveness.

3. Socioeconomic Transformation and Internal State-Building

Gligorov's presidency began at the moment when the new state entered a deep political and economic transition. After arguing for economic reform while Macedonia was still part of the SFRY, he now had the space to pursue an economic transformation agenda in an independent setting. The move away from a socialist, self-managed economy toward a market-based model was only one element of a much wider shift that touched almost every area of social life (Bornarova 2011; Trajkovski 2013; Daskalovski 1999).

Within roughly two decades, Macedonia went through strong, overlapping changes across several social subsystems: the economy (privatisation, liberalisation, new labour-market dynamics), social and welfare policy, politics (the establishment of multi-party democracy), the legal order, health care, education, culture, and broader value orientations. Research on post-socialist transitions shows that when multiple subsystems change at once, societies often see new forms of inequality, new lines of stratification, and new kinds of social risk (Skocpol 1979; Giddens 1984; Bourdieu 1998; Archer 1995). In Macedonia, these shifts were fast and difficult, producing uncertainty and frequent recalibration, alongside resistance from parts of society.

A key consequence was a visible reshaping of social stratification – what classical sociology would describe as changes in the "class structure" (Skocpol 1979; Bourdieu 1998). New property relations, altered employment security, and unequal access to resources contributed to the emergence of new economic elites, while other groups lost the protections they previously relied on. For many citizens, rising unemployment, insecurity, and emigration became everyday realities (Bornarova 2011; Trajkovski 2013). These dynamics are also reflected in labour-market indicators: unemployment increased from roughly 24.5% (1991) to around 38.8% (1996) and remained very high in the late 1990s (World Bank Open Data, n.d., SL.UEM.TOTL.NE.ZS).

At the same time, Macedonia had to replace a broad but imperfect system of social protection with a more targeted welfare approach, precisely when state resources were limited. The situation was made harder by external shocks, including sanctions on the Federal Republic of Yugoslavia and the Greek embargo, which further narrowed the country's development options (Woodward 1995; Ramet 2006). Macroeconomic instability further constrained policy choices: consumer-price inflation was extremely high in the mid-1990s (e.g., 126.6% in 1994) before falling sharply in subsequent years (World Bank Open Data, n.d., FP.CPI.TOTL.ZG). At the same time, real output

pressures are visible in the trajectory of GDP per capita in constant prices, which captures the broader pattern of contraction and gradual recovery shaping living standards and social expectations during the transition (World Bank Open Data, n.d., NY.GDP.PCAP.KD). Political leaders were therefore forced to navigate between budget limits and strong public expectations for fairness, protection, and redistribution. In this setting, Gligorov's leadership unfolded under pressure from conflicting demands.

In his public framing, difficult reforms were often presented as a necessary price for long-term stability and eventual integration into European structures, providing a storyline that could help citizens interpret hardship. This did not remove dissatisfaction, but it supported the tendency for social tensions and protests to remain mostly contained within institutional and political procedures. As Sztompka argues, large-scale transformations are never purely structural; they also rework cultural meanings, expectations, and everyday practices (Sztompka 1994). In Macedonia, democratisation, market reform, and identity redefinition moved forward in parallel, and Gligorov's influence was expressed not only through formal decisions but also through how the transition was narrated and politically managed.

Even though the country faced serious problems and visible injustices, Macedonia avoided war and maintained basic institutional continuity in a region where state breakdown and violence were common. This cannot be explained solely through one individual, but Gligorov's style and choices contributed to keeping the transformation inside institutional boundaries and lowering the risk of a radical break. His public persona – calm, restrained, and oriented toward reason rather than emotional mobilisation – also shaped political expectations and offered a model of conduct during a period of uncertainty, becoming part of the broader context in which Macedonia did not descend into large-scale political violence or institutional collapse.

4. Leadership Style, Democratic Culture and International Positioning

It is important to note that Gligorov did not act in a vacuum. His leadership style was shaped and constrained by domestic political pluralism, by regional dynamics and by the expectations of international actors. He cultivated a style of communication that was measured, legalistic and oriented towards argument rather than emotional mobilisation. In a context where nationalist rhetoric elsewhere in the region often escalated tensions and legitimised violence, this approach can be seen as a deliberate choice to keep political conflict within institutional and discursive limits (Danforth 1995; Ramet 2006).

One of the elements that clearly reflects his capacity for strategic thinking is his use of international law and multilateral institutions. Having long experience within the Yugoslav federal structures and exposure to international diplomacy, Gligorov understood that Macedonia, as a small and newly independent state, could not rely on military power or coercion. Instead, it had to build its security through international recognition, legal agreements and participation in multilateral frameworks (Bose 2002; Woodward 1995).

In practice, this meant an explicitly diplomatic state-building strategy: prioritising membership and active participation in international organisations, seeking third-party mediation where bilateral talks stalled, and using formal agreements to stabilise Macedonia's external environment. His public messaging repeatedly linked sovereignty to responsibility – minority

protections, non-interference, and commitments to peaceful dispute settlement – because these were the "credentials" that made recognition and external support politically feasible for larger actors.

Although EC and later EU diplomacy could not stop the wars in Croatia and Bosnia and Herzegovina, the European framework remained central to Macedonia's external strategy. Gligorov treated the European track not only as crisis management but as a long-term anchoring strategy: he framed Macedonia as a cooperative European partner, insisted on negotiated solutions, and used EU-led legal and diplomatic mechanisms to strengthen the country's international position even when recognition and integration were slowed by regional disputes.

At the operational level, Gligorov's team maintained regular communication with European envoys and capitals, aligning Macedonian positions with EC mediation steps and seeking to avoid being absorbed into the logic of wartime bargaining among the larger republics. This was especially visible in his emphasis on preventive international presence and confidence-building measures, as well as in the careful sequencing of independence, referendum legitimacy, and requests for recognition.

A key instrument of the EC effort was its legal-arbitration track: the Arbitration Commission of the Peace Conference (widely known as the Badinter Commission). The Commission's opinions on the status of the federation and on recognition criteria reinforced Gligorov's preference for legal argumentation and institutional 'proof' of statehood. Macedonia's diplomacy therefore focused on demonstrating constitutional continuity, commitment to minority rights, and readiness to comply with emerging European standards that were being used as benchmarks for international recognition.

Within this framework, Gligorov positioned Macedonia as a 'case for prevention'. He consistently communicated to EC representatives that Macedonia's strategic priority was a peaceful and legally orderly exit from the collapsing federation, without territorial claims and without provoking neighbouring states. In the Carrington-led talks and related diplomatic contacts, he supported proposals that would keep channels open for a consensual transformation of the federation (for example, looser associations or confederal arrangements), while at the same time preparing for full sovereignty if a common framework proved impossible.

An important, and often underlined, dimension of Gligorov's statecraft was his sustained engagement with the European Community (later the European Union) as the main external mediator in the early phase of the Yugoslav crisis. When armed conflict escalated in 1991, the EC launched a diplomatic initiative to prevent wider war, convening the Peace Conference on Yugoslavia under the chairmanship of Lord Carrington. The EC process relied on negotiated principles (ceasefires, protection of minorities, and respect for republican borders) and sought a political settlement that would allow the republics to redefine their relationship without violence.

5. EU and European Community diplomacy during the breakup of the SFRY

His foreign policy also shaped the country's stability. Preventive deployment in Macedonia began in 1992 under UNPROFOR, and in 1995 it was reconfigured as a distinct UN mission, UNPREDEP. This development is often treated in the literature as an important precedent for preventive

deployment and an example of how multilateral mechanisms can help manage insecurity in fragile settings (Gow 1997; Stefanova 1997; Ackermann 1999; Lund 1996; Özçelik 2006; Ekinci 2010). Rather than offering direct security guarantees, the mission's contribution lay primarily in monitoring border areas, deterring potential spillover, and supporting confidence-building measures, thereby lowering the risk of escalation in a potentially volatile environment (Ackermann 1999; Stefanova 1997; Lund 1996). Gligorov's support for these arrangements reflects his awareness that, as a small newly independent state, Macedonia needed to rely on international law, diplomacy, and multilateral frameworks – an approach that aligns with broader debates on conflict prevention in post–Cold War Europe (Bose 2002; Woodward 1995). UNPREDEP is frequently cited in the literature as a rare example in which preventive diplomacy contributed to reducing the risk of conflict escalation in a potentially volatile environment (Ackermann 1999; Stefanova 1997; Lund 1996).

A second important aspect of his leadership concerns economic and social policy. While he supported market reforms and privatisation, he also insisted on the need for social cohesion and preservation of basic social protections. In a period when many other countries in the region experienced dramatic social fractures, including hyperinflation, mass unemployment and open conflicts around privatisation, Macedonia's trajectory was relatively more gradual, although by no means free of problems (Trajkovski 2013; Bornarova 2011; Brown 1994).

Moreover, Gligorov was aware that democratisation cannot be reduced to the introduction of elections. He emphasised the importance of parliamentary procedures, constitutionalism and the development of a political culture in which opponents are seen as legitimate competitors rather than enemies. This view resonates with broader theoretical understandings of democratic consolidation, which stress the internalisation of democratic norms by political actors and citizens (Linz and Stepan 1996; Huntington 1991; Rustow 1970).

One should also highlight his subtle but important influence on the media and public discourse. While the media system in Macedonia remained plural and often sharply polarised, Gligorov's refusal to engage in inflammatory rhetoric and his constant reference to the constitution and institutions set certain expectations about the tone and content of political communication. In this sense, his public persona contributed to the development of a more professional and responsible media practice, even if structural problems in the media sector persisted.

His role in building Macedonia's foreign policy was not limited to the early recognition of the state. He set long-term guidelines that emphasised good neighbourly relations, European integration and active participation in international organisations such as the United Nations, the OSCE and the Council of Europe (Bose 2002; Ramet 2006). A distinctive feature of this diplomacy was balance: maintaining dialogue with immediate neighbours while simultaneously anchoring Macedonia in wider European and transatlantic political spaces. By keeping the focus on rules, procedures, and multilateral norms, Gligorov sought to limit the leverage of maximalist identity claims and to prevent domestic polarisation from being amplified by external pressures.

A crucial moment for understanding Gligorov's leadership style is the assassination attempt on 3 October 1995 in Skopje. The attack, in which Gligorov was seriously injured and his driver killed, had the potential to fuel political radicalisation, conspiracy narratives, or retaliatory measures against perceived enemies. Instead, the immediate official response – shaped in part by Gligorov's

own public stance – emphasised calm, reliance on institutional procedures, and caution against speculation that could inflame tensions. Although the perpetrators were never officially identified and the event remains controversial, the publicly articulated approach after the attack prioritised restraint and institutional continuity rather than emergency-driven escalation. This episode therefore illustrates how, at a moment when leaders sometimes seek exceptional powers, Gligorov's rhetoric and conduct signalled a preference for procedural order and political self-limitation. In comparative perspective, this places Macedonia in contrast with some other post-Yugoslav cases where violence and political crises were followed by the concentration of power in the hands of charismatic or nationalist leaders.

6. Gligorov and European (EC/EU) Diplomacy during the Yugoslav Crisis

A central strand of Kiro Gligorov's international activity in 1991–1992 was sustained engagement with European Community (EC) diplomatic initiatives that sought to prevent the escalation of violence and to create an agreed framework for Yugoslavia's transformation. While the dominant conflict theatres were elsewhere, Gligorov treated European mediation as decisive for Macedonia's security: he aimed to "internationalise" Macedonia's position early, anchor it in European legal-political processes, and reduce the probability that Macedonia would be pulled into a wider war.

In his London Conference statement (26 August 1992), Gligorov framed European mediation as a form of preventive security: "There are great expectations in the Republic of Macedonia that this Conference will … create preventive conditions for surpassing new potential foci of crisis." He warned that otherwise "violence and war … will be an introduction into a wider … Balkan and European war," and linked regional instability to the fact that "for more than six months, the international recognition of the Republic of Macedonia is continuously being postponed" (Gligorov 1992).

Within the main EC-led mediation track – the Conference on Yugoslavia under the chairmanship of Lord Carrington – Gligorov's approach combined principled restraint with tactical clarity. He consistently argued for solutions that avoided coercion and preserved inter-republic dialogue, at various moments favouring a reconfigured association or confederal formula as a non-violent exit from the crisis. At the same time, he signalled that Macedonia would not accept a settlement that subordinated its political will to decisions taken through force, nor one that would endanger its multiethnic balance or territorial integrity.

Carrington's conference principles were also directly compatible with Gligorov's legalistic approach. At the tenth plenary session in Brussels (9 March 1992), Carrington reiterated that the Conference was grounded in "no change of borders unless achieved by peaceful means and by agreement" (Carrington 1992). Earlier, as the republican presidents attempted to keep negotiations alive in 1991, the joint initiative associated with Gligorov and Alija Izetbegović was recognised as a serious compromise option: at the Stojčevac meeting (6 June 1991), the presidents agreed that "The proposal by Presidents Alija Izetbegović and Kiro Gligorov constitutes a solid basis to resume talks on regulating the relations between the Yugoslav republics" (HINA, as cited in Tuđman 2015).

Gligorov also followed closely the institutional-legal work that the EC attached to the diplomatic process. The establishment of the Arbitration Commission of the Conference on Yugoslavia (commonly referred to as the Badinter Commission) mattered for Macedonia because it translated political negotiations into legal opinions on statehood, borders, and recognition. Gligorov's strategy was to align Macedonia's decisions and constitutional steps with the emerging European criteria – including commitments to democratic governance, minority protections, and the inviolability of borders – so that Macedonia could be treated as a "legal case" rather than a military problem.

Gligorov repeatedly treated the Badinter Commission not only as an advisory body, but as a mechanism that could translate political deadlock into legal recognition. In the same 1992 statement, he invoked the Commission's report of 15 January 1992, noting that "only the Republic of Slovenia and the Republic of Macedonia fulfil the conditions to be internationally recognized" and that the "name 'Macedonia' does not imply any territorial claims" (Gligorov 1992). A contemporaneous UK parliamentary record similarly states that, after constitutional amendments and additional internationally binding statements, "Mr. Badinter … then concluded that Macedonia did meet the 16 December conditions" (Macedonia - Hansard - UK Parliament 1992).

This European track was not purely technical. It was shaped by competing preferences among member states, shifting proposals for ceasefires and political formulas, and contentious debates over recognition. Gligorov's diplomacy therefore required continuous dialogue: communicating Macedonia's non-belligerent stance to European interlocutors, responding to successive European proposals, and managing the external sensitivities that affected Macedonia's pathway to recognition – most notably the disputes that delayed or complicated European acceptance of Macedonia's international status despite the republic's comparatively peaceful transition.

Taken together, Gligorov's engagement with EC/EU diplomacy illustrates a core feature of his state-building method: combining domestic restraint with external legitimacy-building. By investing in European mediation forums, legal arbitration mechanisms, and recognition debates, he sought to secure Macedonia's independence through negotiation, norms, and institutional guarantees rather than through confrontation. In this sense, European diplomacy was not an "add-on" to his leadership, but one of the main instruments through which Macedonia's independence project was made credible and internationally defensible.

7. Legacy, Public Memory and Ongoing Debates

The legacy of Kiro Gligorov in contemporary Macedonian society remains contested and changeable. He is often recognised as the first president of the independent state, linked to moderation, continuity and the avoidance of war in a highly risky regional context. At the same time, political and ideological actors advance different interpretations of his decisions – especially on relations with neighbours, the management of the name dispute, and the direction and speed of economic reforms (Vankovska 2010; Koneska 2014). Sociologically, these disagreements reflect broader struggles over how the recent past should be understood and what it should mean for present-day politics. For some, his readiness to compromise on symbols and formulations was a realistic strategy to secure peace and international recognition; for others, it was excessive accommodation that weakened the state's later negotiating position. These tensions mirror wider divides between pragmatic and maximalist national-policy approaches.

External assessments from the EC-led process contribute to the public image of Gligorov as a legalist and a restraint-oriented leader. Carrington's insistence that the Conference proceed on the basis of agreed rules – especially "no change of borders unless achieved by peaceful means and by agreement" (Carrington 1992) – closely matched the principles Gligorov articulated for Macedonia's policy. Likewise, the Badinter Commission's finding (as Gligorov quoted it) that Macedonia fulfilled recognition conditions reinforced later narratives that Macedonia's comparatively peaceful transition rested on deliberate constitutional and diplomatic positioning (Gligorov 1992).

Public memory of Gligorov is also shaped by generation. Those who lived through the 1990s often connect him to concrete experiences – referendum campaigns, speeches, the assassination attempt, and the wider atmosphere of uncertainty – while younger citizens encounter him mainly through textbooks, commemorations and periodic media retrospectives. Greater historical distance can encourage idealisation, but it also creates room for more nuanced academic readings that foreground both achievements and constraints.

Another part of his legacy lies in institutional patterns associated with his presidency. Emphases on constitutionalism, multilateralism and cautious reform influenced how elites later framed Macedonia's options, even when subsequent developments diverged. The continued prominence of "stability" and "European integration" in political discourse suggests that this basic orientation helped shape what counts as legitimate political goals.

These institutional patterns also shaped how later elites justified Macedonia's international trajectory. In debates about "pragmatism" versus "maximalism," the EC recognition record is often treated as evidence that Gligorov's approach worked in practice: a UK parliamentary account of the period notes that, after Skopje's constitutional amendments and additional statements, "Mr. Badinter … then concluded that Macedonia did meet the 16 December conditions" (Macedonia - Hansard - UK Parliament 1992). For supporters, this supports the view that restraint and legal compliance expanded Macedonia's room for manoeuvre; for critics, it highlights the limits of legalistic strategies when political vetoes and neighbour disputes remained decisive.

At the same time, persistent unresolved issues – prolonged disputes with neighbours, recurring interethnic tensions, and ongoing problems of corruption and clientelism – have encouraged criticism and counterfactual claims about whether a different strategy in the 1990s might have produced better outcomes. While such alternatives are hard to assess, it is clearer that Gligorov's leadership contributed to a specific combination of outcomes: international recognition, avoidance of war, and the establishment of a democratic institutional framework that, despite imperfections, endured.

Overall, his legacy is best seen not as a fixed record but as an arena of continuing interpretation, where politicians, intellectuals, citizens and external observers negotiate what the 1990s should signify for Macedonia's present and future.

8. Conclusion

This paper has examined the role of Kiro Gligorov in the making and consolidation of Macedonian statehood from a sociological perspective. Situated at the intersection of historical analysis and

sociological theory, the study has shown how his decisions and leadership style interacted with broader structural processes – geopolitical reconfiguration, socio-economic transformation and identity politics – during a critical juncture in European history.

Across the analysis, diplomacy emerges not as a secondary arena but as a core mechanism of state consolidation: recognition-seeking, multilateral security arrangements, and negotiated management of identity disputes formed the practical repertoire through which Macedonia reduced risk and expanded its room for manoeuvre.

Methodologically, the article applies a qualitative case study design focused on the formative phase of independence (1991 to the end of Gligorov's presidency). The empirical base draws on a defined corpus of primary and secondary sources: selected speeches and public statements, interviews and memoir material, constitutional and legal documents, and records of international organisations (UN/OSCE) related to Macedonia and the UN preventive presence (UNPROFOR/UNPREDEP), complemented by scholarship on Yugoslav dissolution, Macedonian politics and preventive diplomacy. Sources were selected based on relevance to critical turning points, the presence of institutional or normative justifications, and public or institutional salience. The analysis uses historically informed close reading and thematic coding to trace recurring frames (constitutionalism, international law, civic equality, restraint, compromise) across key episodes – the 1991 referendum and Constitution, early recognition obstacles, early interethnic tensions, and the evolution of the UN preventive presence – within an agency/structure approach (Sztompka 1994; Giddens 1984; Archer 1995). Claims about leadership effects are therefore presented as conditional and mechanism-based, supported by textual evidence and weighed against alternative structural explanations.

The first research aim concerned Gligorov's role in political consolidation. The analysis suggests that his emphasis on peaceful separation, constitutionalism and negotiated solutions with neighbours supported the emergence of an independent state that avoided war despite strong pressures (Glenny 1996; Woodward 1995; Ramet 2006). His support for preventive deployment and active engagement with international organisations strengthened Macedonia's security and international standing (Gow 1997; Stefanova 1997; Ackermann 1999; Lund 1996; Özçelik 2006; Ekinci 2010).

The second research aim addressed the interaction between his presidency and wider social change. The argument is that his moderation and legalistic style contributed to a political climate in which conflict was more often channelled through institutions rather than violence, even as inequalities and tensions persisted. In this respect, Macedonia contrasts with post-Yugoslav cases where nationalist mobilisation and institutional breakdown escalated into war (Bose 2002; Denitch 1996; Malcolm 1994).

Theoretically, the paper uses Sztompka's sociology of social change and the agency/structure debate to interpret Gligorov as an individual actor operating within constrained opportunities: not as a moral category, but as a way to connect leadership choices to decisive historical processes (Sztompka 1994; Giddens 1984; Archer 1995). Here, the emphasis is on restraint and the capacity to prevent worst-case scenarios rather than dramatic confrontation.

The article contributes by linking political, socio-economic and symbolic dimensions of leadership to sociological theories of historical change. Its main limitation is the selective nature of the primary corpus and the reliance on secondary literature; further work could extend the evidence base through archival research, comparison with other regional leaders, or studies of generational memory of Gligorov. Nonetheless, the case illustrates how leadership can shape not only formal outcomes such as independence, but also the tone of public life and the institutional management of conflict in periods of profound transformation.

Although the paper focuses on the political leadership of Kiro Gligorov and the making of Macedonian statehood, his approach can also be regarded through the lens of Agenda 2030 and its SDGs, which currently serve as one of the main frameworks for development at both the EU and global levels. Therefore, Gligorov's focus on institutional stability, incremental reforms, and constructive public diplomacy helped establish the foundations upon which long-term development, innovation governance, and international cooperation – principles that strongly align with contemporary sustainability agendas – could take root. In this sense, the Macedonian experience of state-building demonstrates how political innovation, diplomatic credibility, and cross-sector coordination function as important preconditions for sustainable modernisation. (United Nations - Department of Economic and Social Affairs 2016)

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Engaging in discussions on the topic of social change, ***the special volume of RSC*** *explores the processes and strategic insights that occur while* ***EU Grand Strategies (Agenda 2030 and its Sustainable Development Goals****, in particular) are implemented. It also aims to better understand the role of* ***institutions, social networks, and cognitive frames*** *in this process. The volume pursues the contribution of* ***interdisciplinary expertise on European Union*** *scientific papers from* ***sociology, political science, economics, law, regional studies, and other related fields.***

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FROM RISK TO RESILIENCE: PUBLIC READINESS FOR DISASTER RISK FINANCE IN NORTH MACEDONIA

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Abstract: Natural disasters, in particular earthquakes and floods, pose an ever-increasing financial and social threat to North Macedonia, in the same way as other countries in the region. Despite this, the penetration of natural catastrophe (NatCat) insurance among households remains low. Therefore, the aim of this paper is to assess the willingness and perceptions of Macedonian households to secure financial protection against disaster risk, and to identify the underlying reasons for low uptake. A structured survey was conducted across all municipalities, capturing information on past disaster experience, existing insurance coverage, risk perception, and disaster coping mechanisms. Attitudes towards insurance, acceptable annual premium ranges, price sensitivity, and trust-enhancing factors were also explored. The results emphasis that in order to boost the use of disaster insurance, specific public awareness efforts, straightforward product design, and legislative tools – like mandatory programs or subsidies – are required. Moreover, the results underscore the importance of shifting from reactive post-disaster assistance to proactive risk-financing measures, ensuring that households are better prepared before disasters strike. This paper can serve as a valuable resource for policymakers, insurers, and stakeholders in disaster risk management in creating widely available, reasonably priced, and reliable catastrophe insurance solutions tailored to the specific needs and perspectives of the Macedonian population.

Key-words: North Macedonia, disaster risk finance, insurance, household risk perception, natural disasters, public awareness

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1. Introduction

Global warming, along with urbanization and the degradation of the environment, has been the main factors that have led to increased worldwide natural disasters in both their occurrence and strength. This phenomenon has had a dual impact on the world, human life being the first and economy the second, as the largest disasters ever reported have taken place in the last decade. Nevertheless, the growing trend has facilitated the emergence of the Disaster Risk Finance (DRF) concept not only as a means of coping but also as a part of resilience-building strategies. According to UNDRR (2023), DRF is a term for several financial instruments and institutional arrangements through which the quick mobilization and allocation of resources after a disaster are assured. It is, thus, a conjoined effort in queueing up resources for intervention in faces of disasters with the adoption of modern technology in the management of DRMs through the provision of support types that are less than dependent on post-disaster humanitarian aid. The worldwide acceptance of DRF has been transformed from a mere consideration in the area of emergency management to a strategic support system of national and regional policy frameworks. The Sendai Framework for Disaster Risk Reduction 2015-2030 states very clearly the necessity to reinforce financial protection systems as one of the main things in discerning risk governance (UNDRR 2015). Under the DRF roof are risk pooling, catastrophe bonds, parametric insurance, contingency funds, and microinsurance for households and businesses as tools of increasing access to finance. The global focus on the concept of "financial resilience" mirrors the change in thinking from responding to the disaster after it has occurred to preparing for the risk beforehand, thus acknowledging that the sustainability of development is inextricably linked to the existence of mechanisms that absorb and transfer the financial shocks related to the disasters (OECD 2022). In addition, international evidence shows that one of the fundamental barriers to expanding disaster insurance in emerging economies is the persistent lack of reliable, high-quality data on hazards, exposure, and vulnerability, which limits accurate risk assessment, pricing, and ultimately the availability and affordability of NatCat coverage (IDF 2025). Indeed, countries that have good DRF systems are able to recover more quickly, and their economies are less affected by disasters. A classic example is the FONDEN fund in Mexico, as well as Turkey's TCIP; they are often referred to as successful cases of public and private sector cooperation (World Bank 2013; World Bank 2011; Gurenko et al. 2006). Nevertheless, the benefits are known, still, numerous developing and transition economies – in Southeast Europe, in particular – are relying mostly on ex-post aid, fiscal reallocation, and donor support which are inefficient and unsustainable approaches.

Despite the growing research and literature on disaster risk finance (DRF), little is known about household-level perspectives in the Western Balkans, particularly in North Macedonia. Instead of focusing on public attitudes, risk perception, or behavioral aspects, the majority of research concentrate on national budgetary risk management. Households' perceptions of disasters, their willingness to pay for insurance, and the significance of trust and socioeconomic factors in financial preparedness are all little understood. Through a quantitative survey, this study fills this vacuum by offering data to guide customized plans for increasing catastrophe insurance and assisting in the transition from post-disaster response to resilience-building.

As highlighted in earlier research by Jovanovska Boshkovska and Sekulovska (2020), persistent low insurance penetration combined with strong expectations of government compensation

creates structural dependence on the state and undermines the development of sustainable risk-transfer mechanisms—a pattern also evident in the household disaster-insurance context.

2. Theoretical Background

2.1. Disaster Risk and Natural Hazards in North Macedonia

The natural disasters in North Macedonia have grown over the years. The initial stages of the research focused mainly on catastrophic events like earthquakes or floods, which were mainly defined by the extent of their impacts. Among the most significant contributions is done by Milevski (2017), who pointed out that North Macedonia besides earthquake, flood, and landslide, was also susceptible to natural disasters like soil erosion and wildfires. Milevski (2017) highlighted that the combination of the country's mountainous topography, the existence of active tectonic faults, and the mixed continental–Mediterranean climate are the reasons that North Macedonia is especially prone to calamities. Moreover, his paper provided the 2016 flood and earthquake in Skopje as an illustration of how multiple hazards might affect one area within a very short period.

Following that, the latest investigations began to apply contemporary technologies such as GIS (Geographic Information Systems) and computer simulations for the purpose of mapping and forecasting hazards. For instance, Milevski et al. (2019) developed a national map of landslide risk for North Macedonia. Their work enabled to move from localized studies to a widespread nationwide comprehension of hazard exposure. In the following years Aleksova et al. (2023, 2024) conducted a comprehensive review of the various hazards, namely, but not limited to, erosion, floods, and landslides occurring in the small regions of Makedonska Kamenica and Kratovska Reka through the application of GIS techniques. The research indicated land use, slope, and precipitation as the factors that exert the most significant influence on the disaster-prone areas. Additionally, it pointed out that careful consideration of the location of settlements would be the most effective way to reduce the risk. At the same time, international organizations including the World Bank (2024) have issued alerts about the dire impacts of climate change, which are now characterized by extreme weather conditions such as floods, droughts, and fires. Studies on North Macedonia's forest fire and climate risks have documented that fire incidents are not only getting more frequent but also more destructive. Besides that, past studies, particularly the ones conducted after the 1963 earthquake in Skopje, are still highly relevant as they show the country's disaster response and reconstruction situations. Today's researchers usually connect those lessons with contemporary problems, such as poor urban planning or lack of proper drainage systems, which aggravate floods and landslides (Lozanovska and Martek 2019; Icev 2024). Therefore, in terms of disasters, North Macedonia has transformed from a country where research merely confirmed the occurrence of events to a place where precise mapping and modelling have been applied, but at the same time, there are still shortcomings in disaster prevention and planning at both national and local levels; also, there is a lack of inter-institutional coordination.

Moreover, recent studies emphasize that the interaction between climatic hazards and socioeconomic vulnerability is becoming increasingly important for understanding disaster impacts in the Western Balkans. In North Macedonia, factors such as aging infrastructure, rapid

urbanization, and uneven municipal capacities worsen the consequences of extreme events and increase households' exposure (World Bank 2024). These findings suggest that hazard mapping alone is insufficient and must be integrated with social and economic vulnerability assessments to fully capture the drivers of disaster risk in the country.

2.2. The Role of Insurance in Building Financial Resilience

Insurance remains one of the most tangible DRF instruments available to individuals and households. By transferring part of the risk to insurers, households can stabilize income, reduce uncertainty, and recover more quickly from disasters (OECD 2022). From a macroeconomic perspective, higher insurance penetration is associated with faster post-disaster reconstruction and smaller fiscal deficits (Melecky et al. 2011).

Nonetheless, catastrophic (NatCat) insurance use has constantly been very low in the majority of third world widely spread countries. According to research, one reason contributing to low acceptance is a combination of factors such as poor financial literacy, high perceived cost, mistrust in insurance companies, and non-clarity of disaster probabilities (Surminski and Oramas-Dorta 2014). Among factors accounting for low uptake are also psychological and behavioral biases. People usually do not take into account the risk of rare but devastating events. This behavior is called probability neglect and they often give more weight to immediate costs than to long-term benefits (Kunreuther et al. 2013). Empirical evidence consistently shows that prior disaster experience increases willingness to insure, though the effect is temporary (Kousky 2017). Gallagher (2014) found that flood insurance uptake rises immediately following a flood event but declines within a few years as memories fade, a pattern known as the "disaster memory decay." Moreover, trust in insurance providers and perceived fairness of claims processing play decisive roles in shaping demand (Dexe et al. 2021). In situations where insurance providers are regarded as indifferent or driven by profits, even households with a sufficient budget will think twice before getting coverage.

Insurance has a broader societal role along with redistributing losses and strengthening community containment. With transparent regulation, government support, and efficient public-private partnerships (PPPs), insurance can play a role in balancing local economies, maintaining social capital, and preventing the disparity in disaster recovery (Surminski and Oramas-Dorta 2014). These concepts are crucially applicable to transition economies such as North Macedonia, where the public sector is still becoming established and the population's trust in the market is gradually growing.

In addition, empirical research increasingly shows that insurance demand in emerging markets is shaped not only by affordability and risk perception but also by broader cultural norms, expectations of state assistance, and low general trust in financial institutions (Elango and Jones 2011; Panda et al. 2020; Sihem 2024). These dynamics are particularly evident in transition economies, where decades of state-led disaster response have created an expectation of post-disaster compensation, reducing the perceived need for private insurance. This behavioral inertia means that even well-designed products may struggle to achieve widespread uptake without complementary awareness campaigns and institutional reforms.

However, recent global analyses emphasize that low catastrophe-insurance penetration in emerging economies is driven not only by behavioral or socioeconomic factors, but also by deeper structural barriers that constrain insurability. The Insurance Development Forum (IDF) highlights weak regulatory environments, limited hazard and exposure data, underdeveloped distribution channels, high levels of informality, and insufficient actuarial capacity collectively hinder insurers' ability to design accurate, affordable, and sustainable NatCat insurance products (IDF 2025). These systemic constraints reinforce the affordability, trust, and information gaps identified in the Western Balkans, underscoring the need for disaster risk finance strategies that integrate household-level behavioral insights with broader market and regulatory reforms.

Furthermore, the IDF (2025) highlights that closing protection gaps requires a dual approach: improving household-level understanding of insurance benefits while simultaneously strengthening market mechanisms and regulatory governance. This perspective is particularly relevant for North Macedonia, where low insurance literacy, limited product diversity, and structural weaknesses in the domestic insurance market jointly reduce the availability and accessibility of NatCat coverage. Therefore, any effort to improve financial resilience must address both behavioral and systemic constraints.

2.3. Disaster Risk Finance in the Macedonian Context

The Western Balkans, suffering from droughts, earthquakes, and floods on a regular basis, are considered as the most disaster-stricken regions of Europe. Even though these countries have small areas, the impact of disasters is still quite large compared to EU averages in terms of economic losses as a proportion of GDP (UNDRR 2021). Major floods in 2015 and 2016 as well as frequent earthquakes in North Macedonia exposed serious weaknesses in household preparedness, infrastructure, and government.

Less than 5% of Macedonian households have any kind of property insurance, and only a small percentage of those have coverage for natural disasters, according to the World Bank (2020). The insurance industry is still in its infancy, with little competition and little product diversity. There is little public knowledge of insurance as a resilience strategy, and disaster relief is mostly anticipated from the state budget or foreign donors (World Bank 2020).

The historical legacy of centralized governance shows that disaster response was seen as a state responsibility. This has led to an "aid dependency" mentality, and many households expect to receive compensation or relief after a disaster. Recent empirical research also confirms that when people are aware of generous government aid provided after disasters, their expectations of future assistance increase and this influences how they perceive risk-sharing mechanisms (Garbarino et al. 2025). Similar tendencies have been observed across a number of post-socialist countries. As a result, citizens have little motivation to get private insurance. They view it as unnecessary or too expensive. The lack of teamwork between ministries, local governments, and the insurance industry makes it hard to put effective disaster risk financing policies into place. These structural and market constraints influence not just who can access insurance but also how households assess risk, trust institutions, and make the choice to engage with formal mechanisms of disaster risk finance.

In line with global findings, North Macedonia faces several structural barriers that directly affect the insurability of natural catastrophe risks. As highlighted by the IDF (2025), many emerging economies lack reliable hazard, exposure, and vulnerability data, which undermines accurate pricing and risk modelling. This challenge is evident in North Macedonia as well, where limited loss data, fragmented information systems, and inconsistent data-sharing practices between institutions continue to constrain the development of sustainable DRF instruments.

The IDF further notes that weak regulatory enforcement and underdeveloped insurance distribution channels are common obstacles in emerging markets, limiting insurers' capacity to offer inclusive catastrophe-risk products. North Macedonia reflects similar patterns: low competition in the insurance sector, limited product diversification, and inconsistent enforcement of existing insurance obligations all contribute to low market penetration and hinder the scaling of DRF solutions.

Analysis of how people behave with respect to disaster insurance must incorporate lessons from the behavioral economics and psychology of risk. Risk perception is not purely rational; rather it is affected by emotions, social norms, cultural values and prior experiences (Slovic 2000). Those who have experienced disasters directly are more likely to believe in the risk and to purchase insurance, whereas those without experience will significantly underestimate their loss (Kunreuther et al. 2013). Facilitating factors including family help, savings or the support of a community-based system are most prominent in North Macedonia. While helpful on a short-term basis, such networks do not address the needs of mass casualties. The strong reliance on informal risk sharing is due to both cultural norms as well as mistrust of the formal financial sector. Confidence, in this case, does not only apply to insurers but also to the state and regulatory bodies. Where people doubt whether claims will be paid, or believe they cannot negotiate a bureaucratic process, they may opt out of formal responses altogether (Botzen and van den Bergh 2012). Aligned with the IDF's conclusions, trust deficits and limited insurance literacy remain among the most significant contributors to low insurance demand in EMDEs. The IDF (2025) highlights that mistrust in claims settlement, low understanding of policy terms, and perceived unfairness of insurance processes suppress demand even when products exist. These barriers are clearly reflected in the Macedonian context, where households express uncertainty about benefits, limited familiarity with coverage options, and strong reliance on post-disaster government assistance or informal coping mechanisms.

Furthermore, the IDF emphasizes that improving insurability requires coordinated action among governments, insurers, regulators, and development partners. For North Macedonia, this means that strengthening DRF must go beyond household-level interventions: it requires improving data governance, aligning regulatory frameworks with risk-based principles, incentivizing risk-reduction investments, and fostering public–private partnerships capable of pooling risks and expanding affordable catastrophe-insurance solutions nationwide.

3. Research Design and Methodology

In order to assess the willingness and perception of Macedonian households regarding natural catastrophe (NatCat) insurance, the study employs a quantitative research approach using a

structured 21-questions survey through which systematic collection and statistical analysis of data related to disaster experiences, insurance coverage, risk perception, and coping mechanisms, are provided.

A quantitative survey design was chosen because it allows for the systematic comparison of household attitudes, behaviors, and preparedness levels, which are essential for disaster risk finance (DRF) analysis.

A convenience sampling method was used due to the online distribution of the questionnaire, and the data was collected from 177 households within Macedonian borders. Convenience sampling was selected because no national sampling frame of households with insurance-related characteristics exists, and online data collection is common in exploratory DRF studies. Although this method limits representativeness, it provides meaningful indicative insights for results formulation. The questionnaire consisted of 21 closed-ended questions grouped into four thematic sections: (1) past disaster experience, (2) existing insurance status, (3) risk perception, and (4) financial preparedness and trust factors. This structure ensured alignment with the study's objective of understanding drivers and barriers of catastrophe-insurance uptake. The majority of the respondents were aged 36–45 (58.86%), followed by those aged 46–55 (22.86%), 25–35 (13.71%), and 55+ (4.57%). In terms of gender, 68.57% were female and 31,43% were male participants. Most of the respondents were married (78.29%), followed by respondents who are single (13.14%), divorced (6.29%), cohabiting in an unmarried union (1.71%), or widowed (0.57%). Regarding the education, 57.14% held a bachelor's degree, 23.43% a master's degree, 11.43% had completed high school and 6.29% of the respondents hold doctorate. In terms of employment status, majority were employed full-time (85.14%), 8.57% were self-employed, while part-time employed, retired, and unemployed respondents each represented 1.71%. Income levels showed that 36.57% earned more than 1500 euros per month, 28% earned 1001–1500 euros, 25.71% earned 601–1000 euros, and 9.71% earned 301–600 euros.

Participation in the survey was voluntary and anonymous, and respondents completed the questionnaire at their own discretion.

The collected data was analyzed using descriptive statistics to identify patterns in disaster experience, insurance ownership, affordability preferences, and trust in insurance institutions.

To enrich the research, the authors investigate correlations between important variables, inferential statistical studies, in addition to descriptive statistics. In particular, relationships between categorical variables including catastrophe experience, insurance ownership, income level, age group, and risk perception were evaluated using chi-square tests of independence.

Given the sample size and non-probability sampling method, the findings cannot be generalized to the entire population of North Macedonia; however, they provide reliable exploratory insights that complement existing DRF studies and inform targeted recommendations.

4. Research Results

The research results provide a significant insight about the disaster experience, risk perception and financial readiness within Macedonian households. According to Table 1, 76% of the respondents' state that they have not experienced any disaster at all. In addition, it is shown that there is a limited awareness or confidence when it comes to understanding disaster risks. These findings are in line with the previous studies (World Bank 2020), while risk perception still exists on a moderate level, despite the increased frequency of extreme weather and seismic activity. People believe that floods can more likely occur home damage in comparison with the earthquakes. Age also played a role in risk perception. Respondents aged 46+ perceived both earthquake and flood risks as more likely compared to those aged 25–35, who selected "I don't know" at much higher rates. This supports the behavioral literature that younger individuals tend to underestimate low-frequency risks or have lower disaster awareness. This perception may have "cause and effect relationship", with the people's experience; or in other words, people experience seasonal flooding in urban and rural areas, especially in regions along major rivers and the city of Skopje.

Furthermore, age-related patterns were observed: respondents aged 46+ perceived both earthquake and flood risks as more likely, whereas younger respondents (25–35) showed significantly higher rates of "I don't know." This suggests that younger demographics may underestimate hazard risks or have lower disaster awareness.

Table 1. Disaster Experience & Risk Perception

Topic	Answer	%
Ever experienced flood, earthquake, or landslide	No	76.00%
	Yes	18.29%
	Not sure	4.57%
Home insured	Yes	48.00%
	No	45.71%
	Don't know	5.14%
Likelihood of serious earthquake damage	Very likely	12.57%
	Likely	32.00%
	I don't know	35.43%
	Unlikely	14.86%
	Very unlikely	4.57%
Likelihood of serious flood damage	Very likely	6.86%
	Likely	30.86%
	I don't know	28.00%
	Unlikely	22.86%
	Very unlikely	10.86%

Source: authors' calculations based on survey data.

These results in Table 1 indicate that most households have limited direct disaster experience, which likely contributes to the moderate levels of risk perception observed. The high share of "I don't know" responses suggest uncertainty about actual hazard likelihood, reinforcing the need for better public awareness and risk communication.

Table 2. Relationship Between Disaster Experience, Insurance Ownership and Risk Perception

Variable	No Disaster Experience	Experienced a Disaster	Interpretation
Home insurance ownership	44%	62%	People with disaster experience insure more.
Risk perception – earthquake (likely/very likely)	38%	57%	Experience increases perceived risk.
Risk perception – flood (likely/very likely)	30%	49%	Flood risk is especially higher among experienced respondents.
"I don't know" responses (risk questions)	High (37%–40%)	Low (12%–15%)	Lack of experience increases uncertainty.

Source: authors' calculations based on survey data.

This comparative view highlights how past disaster exposure directly influences risk perception and insurance behavior, reinforcing the behavioral patterns identified in the literature.

Additional analysis further shows a clear relationship between disaster experience and insurance behavior. Respondents who had previously experienced a flood, earthquake, or landslide were significantly more likely to have home insurance (62%) compared to those with no disaster experience (44%). They also expressed higher perceived likelihood of future hazards. This aligns with behavioral evidence that prior exposure increases willingness to insure, although the effect remains limited due to low trust and affordability barriers. Similar behavioral patterns were documented in the agricultural sector in North Macedonia, where very low insurance penetration, strong expectations of government assistance, and mistrust in claim settlement processes significantly undermined the development of sustainable risk-transfer mechanisms (Jovanovska Boshkovska and Sekulovska 2020).

The research results also provide evidence that financial preparedness is a critical issue. Even though almost half of the respondents (48%) have home insurance, almost all of them (92%) are not sure (answered with "maybe") that it is beneficial. Therefore, one can say that although people consider insurance as a tool for risk mitigation, still they do not use it because of cost barriers, lack of trust or limited knowledge for insurance products. A notable insurance-literacy gap was identified. The extremely high share of "I don't know" responses across multiple questions (risk perception, benefit of insurance, and coping mechanisms) indicates limited understanding of policy coverage, exclusions, and claims processes. This uncertainty significantly weakens trust in insurance institutions and reduces the perceived value of protection products.

In case of disaster, most of the respondents would depend on either their personal savings or the insurance money, which is a sign that traditional self-reliance and formal financial mechanisms are mixed up. According to the results, affordability is a key factor of having home insurance, with people being ready to pay a reasonable price of €31- €50 for home insurance on annual basis. Income-level differences confirm this pattern: households earning above €1,500 per month were far more willing to pay above €50 annually, while lower-income households (below €1,000) overwhelmingly preferred the €11–€30 range. This reflects strong affordability constraints

among lower-income groups and indicates that premium subsidies or tiered pricing could significantly improve access and uptake.

Yet, reduction of insurance cost by 50% will result in 91% increased willingness to purchase is a proof of insurance being very much sensitive to price.

Moreover, trust in insurance plays a fundamental role. When it comes to trust in insurance, respondents look on reputable company, product simplicity, good past experience and connection with a government program. This is very much in line with broader difficulties faced in the Macedonian insurance industry, where low penetration rates are partially due to the general public's lack of trust in and limited interaction with insurance companies. Therefore, it is suggested that the trust of consumers be built up through practices such as clear products, good communication, and state-supported programs, which in turn would lead to greater adoption.

Table 3. Financial Preparedness & Insurance Attitude

Topic	Answer	%
Cover repair costs if disaster occurs	Personal savings	20.57%
	Insurance payout	16.57%
	Don't know	14.86%
	Savings + Insurance	6.29%
	Savings + State/municipality support	5.71%
Believe insurance is good for home repairs	Yes, definitely	51.43%
	Maybe	41.71%
	Don't know	4.00%
	No	2.86%
Reasonable annual spending for home protection	>50€	21.14%
	31–50€	49.71%
	11–30€ + 31–50€	2.29%
	11–30€	24.00%
	Would not pay	1.71%
Willingness if insurance costs half	Definitely more willing	59.43%
	Maybe more willing	32.00%
	Definitely + Maybe	0.57%
	No difference	6.29%
	Would not join	1.71%
Factors increasing trust in insurance	Trusted company	13.14%
	Good past experience	9.14%
	Part of national program	9.14%
	Easy to understand	8.00%
	Easy to understand + trusted company + good past experience	10.29%

Source: authors' calculations based on survey data.

The findings in Table 3 show that while many households believe insurance could help with disaster recovery, actual financial preparedness remains weak. The strong price sensitivity and the large share of respondents relying on savings or unsure about coverage options highlight affordability concerns and low confidence in the insurance system. These patterns confirm that trust and cost remain key barriers to insurance uptake. The results also show that people still tend to rely on the state when a disaster happens. Although only 5.71% explicitly selected "savings + state/municipality support," many respondents in the "I don't know" category noted

in comments that they expect some level of government assistance after disasters. This indicates that post-disaster aid still functions as a psychological safety net, reducing the urgency to purchase private insurance.

A cross-variable review of the dataset shows three important patterns: (1) respondents with prior disaster experience or higher income display higher insurance uptake; (2) those with higher education levels express greater trust in reputable companies and clearer policies; and (3) younger and lower-income respondents have the highest uncertainty ("I don't know"), indicating that targeted awareness and educational measures could significantly strengthen preparedness.

Table 4. Chi-square test results

Variables tested	χ^2	df	p-value	Result
Disaster experience × Home insurance ownership	0.84	1	0.359	Not statistically significant
Income level × Home insurance ownership	10.74	3	0.013	Statistically significant
Disaster experience × Earthquake risk perception (likely/very likely vs. other)	0.00	1	1.000	Not statistically significant
Age group × Disaster risk perception (likely/very likely vs. other)	8.62	3	0.035	Statistically significant

Source: authors' calculations based on survey data.

To further investigate the relationship between disaster experience, income, age, and insurance uptake or risk perception, Chi-square tests of independence were used (Table 4). With this, some hypothesised correlations were not supported. Although the observed rate of home insurance ownership was greater among respondents who had previously experienced a disaster, the chi-square test revealed that this link was not statistically significant at the 5% level. On the other hand, home insurance ownership and household income were shown to be significantly correlated ($\chi^2(3) = 10.74$, $p = 0.013$), indicating that households with greater incomes are more likely to have coverage. However, the anticipated likelihood of major earthquake damage was not significantly influenced by prior disaster experience ($\chi^2(1) = 0.00$, $p = 1.000$). Furthermore, the perception of disaster risk was strongly correlated with age group ($\chi^2(3) = 8.62$, $p = 0.035$), with older respondents being more likely than younger groups to consider natural catastrophes to be a major concern.

In summary, the results emphasized the challenges and opportunities for disaster risk management in the country. Although, the insurance and risk awareness exists, Macedonia disaster risk management is a mix of opportunities and challenges as per the results obtained. There is awareness of insurance and risk, yet there is lack of people preparedness. Therefore, in order to increase trust and accessibility, an education and affordable insurance options and policies are needed. In regions where floods are frequent occurrence, localized campaigns and initiatives would be useful to increase people awareness on disaster risk and preparedness.

5. Discussion

The findings of this study offer a comprehensive understanding of household-level readiness for disaster risk finance (DRF) in North Macedonia, revealing a complex interplay between disaster

experience, risk perception, financial preparedness, affordability considerations, and trust in insurance institutions. These results closely reflect the patterns identified in the literature and confirm that the challenges observed globally in emerging DRF markets are also present in the Macedonian context.

Although the literature emphasize that disaster experience strongly shapes willingness to insure, but its absence often leads to risk underestimation (Kousky 2017; Gallagher 2014), the research findings show no statistically significant association between disaster experience and home insurance ownership or earthquake risk perception. This implies that other factors, like trust or income, might be more important in determining insurance choices. Notably, households in North Macedonia perceive floods as more likely than earthquakes – a perception consistent with the more frequent seasonal flooding and localized events that directly affect daily life.

Second, the study confirms a persistent behavioral and psychological gap in disaster-risk understanding and insurance decision-making. Although nearly half of the respondents hold home insurance, most are unsure whether it would be beneficial in a disaster, indicating limited insurance literacy, probability neglect, and uncertainty about product value. These patterns strongly reflect behavioral theories presented in the literature (Kunreuther et al.2013; Slovic 2000), as well as findings from other emerging markets where immediate costs outweigh perceived long-term benefits. Furthermore, the strong reliance on savings or state assistance echoes the aid-dependency mindset described in post-socialist environments (Garbarino et al. 2025), reinforcing the need to shift from ex-post relief toward anticipatory financial resilience.

Third, income level was significantly associated with home insurance ownership, highlighting the affordability and trust in shaping demand for catastrophe insurance. Price sensitivity is extremely high – 91% of respondents are more willing to purchase insurance if costs are halved – confirming global evidence that affordability barriers remain one of the strongest determinants of low insurance penetration (Surminski and Oramas-Dorta 2014). Trust factors – including product simplicity, transparent claims processes, and affiliation with government programs—mirror the literature's recognition of mistrust as a major deterrent in emerging insurance markets (Dexe et al. 2021; IDF 2025). The finding that respondents prefer solutions connected to reputable insurers or state-backed schemes suggests that public–private partnerships could significantly strengthen market confidence.

In addition, age group was significantly associated with disaster risk perception. This suggests that different age groups may have varied levels of awareness or concern about hazards, which should guide focused educational initiatives. The environment for sustainable DRF expansion is further constrained by structural issues, such as poor competition within the Macedonian insurance industry, limited product diversity, weak distribution channels, and inadequate information-sharing (IDF 2025). The need for more extensive policy interventions, such as regulatory tightening, better hazard and exposure statistics, clearer policy phrasing, and incentives for risk-reduction investments, is highlighted by the poor fit between family requirements and current insurance products.

Finally, the results reinforce the structural challenges identified in the literature, particularly in the IDF (2025) analysis. Low competition within the Macedonian insurance sector, limited product diversification, weak distribution channels, and insufficient information-sharing between institutions all contribute to a constrained environment for sustainable DRF expansion. The weak alignment between household needs and existing insurance offerings highlights the necessity for broader policy interventions—such as regulatory strengthening, improved hazard and exposure data, clearer policy wording, and incentives for risk-reduction investments.

Overall, the findings indicate that North Macedonia is at an intermediate stage of public readiness for disaster risk finance: awareness exists, but practical preparedness, trust, and financial capacity remain low. The transition "from risk to resilience" requires a coordinated approach involving households, insurers, regulators, and the government. This includes targeted educational campaigns, simplified and affordable insurance products, subsidies or public support mechanisms, and a stronger enabling environment for DRF market development. By addressing both behavioural and structural barriers, North Macedonia can accelerate progress toward a more financially resilient society and reduce long-term dependence on post-disaster assistance.

6. Conclusion

This study examined household-level readiness for disaster risk finance (DRF) in North Macedonia and revealed clear gaps between disaster awareness, insurance attitudes, and actual financial preparedness. Although respondents recognize the growing threat of natural hazards, their willingness to engage with formal risk-financing tools—especially catastrophe insurance, remains limited by affordability barriers, low insurance literacy, and mistrust in insurance institutions. These findings partially support what earlier research has shown about behavioral, structural, and institutional obstacles to insurance uptake in emerging markets (Kunreuther et al. 2013; Botzen and van den Bergh 2012; Dexe et al. 2021). They are also consistent with regional analyses noting low insurance penetration and the continued reliance on post-disaster government assistance in North Macedonia (World Bank 2020).

Despite these challenges, the results also highlight meaningful opportunities. Households show moderate awareness of disaster risk, strong price sensitivity, and a positive response to simple products, reputable insurers, and government-backed schemes—patterns also reflected in global DRF findings (IDF 2025). This suggests that well-designed, affordable, and clearly communicated DRF instruments could substantially improve insurance uptake and strengthen national resilience. Overall, the shift from reactive disaster response to proactive financial preparedness will require coordinated action among government, insurers, and communities.

To support North Macedonia's shift from risk to resilience, the findings suggest that disaster risk finance should become more accessible, affordable, and easier for households to understand. Improving public awareness through clear communication, simplifying insurance products, and strengthening trust in insurers and government-backed schemes can encourage higher uptake, especially given the strong price sensitivity observed. In line with international guidance such as IDF (2025), better hazard and loss data, stronger regulatory support, and wider distribution channels would help insurers design fairer and more reliable catastrophe-risk products.

Together, these steps can create a more inclusive and effective DRF system that better meets the needs of households and strengthens national preparedness.

The results of this study are relevant both domestically and in relation to the Sustainable Development Goals (SDGs) and the European Union's larger development agenda. The EU and the 2030 Agenda for Sustainable Development place a high priority on sustainability, resilience, and catastrophe risk management, all of which North Macedonia is expected to strengthen as an EU candidate nation. Increasing financial resilience and efficiency, strengthening disaster risk financing mechanisms – especially at the household level – directly supports Goals 1 (No poverty), 11 (Sustainable cities and communities), and 13 (Climate action). Furthermore, the EU's commitment to mainstreaming disaster risk into development planning and public financial management is shown in the alignment of disaster risk finance with frameworks on civil protection, climate adaption, and fiscal resilience. In this regard, the Macedonian experience provides insights that go beyond a purely domestic viewpoint and could be instructive for other transition economies and EU candidate nations dealing with comparable difficulties in creating inclusive and sustainable disaster risk financing systems (United Nations 2015).

While the findings provide useful insights for disaster risk finance and preparedness in an EU and EU-accession context, several limitations should be noted. The study is based on a non-probability household survey, meaning that the results cannot be fully generalized to the entire population or directly compared with official national or EU-level statistics. In addition, the analysis relies on self-reported perceptions, which may reflect differences in risk awareness and understanding of insurance concepts. The sample is also more concentrated in urban areas, potentially underrepresenting rural or highly hazard-exposed regions.

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