The social effects of digital transformation and its role in increasing social resilience

Seyed Mohammadbagher Jafari

Faculty of Management and Accounting, College of Farabi,
University of Tehran (sm.jafari@ut.ac.ir, Corresponding author)

Fahimeh Estiri

Student in Master of Information Technology Management, College
of Farabi, University of Tehran (fahimehestiri@ut.ac.ir)

Sepideh Rabiee

Student in Master of Information Technology Management, College
of Farabi, University of Tehran (sepideh.rabiee@ut.ac.ir)

Abstract

Digital transformation has become a critical path for enterprises to improve organizational resilience and has been widely considered by both academia and business practice. Social resilience based on digital transformation is being affected by threats. The amount of control, management, and coping an organization shows toward risks is called resilience. As the crises and social ills increase as risks, identifying the risks will be necessary. To overcome the identified risks, it is required to evaluate the indicators and dimensions of social resilience. This paper aims to identify the dimensions of social resilience affected by digital transformation. This study is a systematic review analysis of previous works conducted by the previous researchers on how digital transformation can foster resilience in society. The result showed that different criteria are available for expressing the term capacity as a dimension of social resilience that consists of coping capacity, compatibility capacity, and transformational capacity. Based on the result, the direction of recent research had been shifted from the

subject of digital transformation processes to the subject of developing a digital transformation strategy.

Keywords: Social Resilience, Digital Transformation, Social Effects

1. Introduction

The first, second, and third industrial revolutions gave humanity steam power, electricity, the Internet, and connectivity. The Fourth Industrial Revolution (4IR) is a seismic shift that brings with it a set of radically new technologies. Smart technology, artificial intelligence, robotics, algorithms, the Internet of things, 3D printing, bio printing, gene editing, and autonomous vehicles are transforming the world at an incredible speed (Oosthuizen, 2021)

Social resilience can be called the capacity for transformation, adaptation, and the ability to cope with social tensions and crises. Social resilience speaks to the specific capacity and ability of individuals and groups, families and communities, which will mainly involve learning and adapting to changes imposed, as well as the ability to adapt to circumstances and demands. In the simplest sense, it has a permanent beginning. Reviving kindness strengthens adaptation, flexibility-based power, capital, and social construction, and at the same time, promotes resilience. When a society is confronted with new needs, dangers or threats, it will suffer from disruption and crisis. Hence, many texts have called for a rapid return to pre-crisis conditions. Accordingly, resilience studies' main mission is to be reversible as quickly as possible, with minimal hassle and retention. The development of resilience ensures that social assistance and support are provided in a timely, coordinated, inclusive, and comprehensive manner.

Interestingly, resilience is relevant before, during, and after social crises. Therefore, it is not permissible to raise the issue of the precedence and latency of resilience and crisis because resilience is effective in reversibility, interventions, and prevention.

Resilience plays a major role in social crises, and the most well-known factor that is inversely related to social resilience is social vulnerability, so in any social system to deal with changes and threats, measures must be taken that can be optimized. Resilience psychology, however, oversees psychosocial processes that can involve the child interacting with family, peers, educational settings, and other adults outside the home. Therefore, combining resilience with clinical, educational, supportive, and counseling methods will be the bedrock and supporter of human growth and development, and it is the development of resilience that validates treatment protocols, interventions, and various empowerment methods.

This paper aims to contribute to research on how to unleash the full potential of digital transformation to provide effective solutions in addressing societal challenges and thus fostering resilience. To this end, identifying patterns allows understanding some of the social implications of the digital transformation, identifying value drivers and resilience effects, and related governance paradigms.

2. Digital transformation

Digital Transformation (DT) means the integration of digital technologies into all the different areas of a business that change the way customers work and deliver value. It is a cultural change that forces organizations to constantly challenge, test, and create a smooth path to company success and growth by dealing with failures. Digital transformation is essential for all businesses, from small to large, and this concept means dramatic change, not a gradual improvement. According to George Westerman, a leading researcher at MIT, digital transformation is about turning the organization's silkworm into a butterfly, not just a faster silkworm. (Velu, Mamun, & Kanesan, 2019).

Many experts in the field consider digital transformation to be more of a human challenge than a technological challenge for organizations. Numerous studies by leading management consulting firms showed that the most important obstacle to digital transformation success is digital "culture" and "skills" (Velu, Mamun, & Kanesan, 2019).

Digital transformation needs high-performance computer (HPC) devices, cloud, technology, big data, and other similar technologies, as infrastructure, administration, industry, and other research data to make a sustainable and resilient city (Eleftheriadou, D., Hartog, E., & Gkiaouri, N., 2021).

Another important point to note is that "digitization" is different from "electronization". The digital environment is not the same as the online and electronic environments. The digital environment is a desirable combination of online (information technology) and offline (physical) resources in order to create an engaging experience for external (such as customers) and internal (such as employees) stakeholders (Belhadi, Mani, & Kamble, 2021).

3. Social resilience

Social resilience is a skill suitable for overcoming life's problems even when there are unfavorable and difficult conditions. Social resilience is not a trait that some have, and some do not. In other words, social resilience represents the interaction between man and the environment. Social resilience refers to resisting danger, but it is a gradual phenomenon, and the accumulation of risk can overwhelm even the most resilient (Bauwens, 2014).

Also, it is being studied in several areas. Among others, the definition which is given by the resilience and policy committees of the National Academy of Sciences (NAS) defined resilience as the ability of a system to prepare and plan for absorbing, recovering from, or more successfully adapting to actual or potential adverse events" which is very pragmatic and much in line with operational need (Elvas, 2021).

4. Theoretical background of research

4.1. The social effects of digitalization

What effect does digitalization have on interpersonal relationships and personal lives, such as friendships, leisure, intergenerational relationships between children and parents, relatives, and the like? The spread of computers and the process of digitalization in all areas of home and family, educational and administrative institutions and society, what kind of culture or value and meaning system strengthens and what kind of value and meaning system weakens? In recent decades, global society has experienced many cultural, social, political, and economic developments. What is the relationship between these developments and digitalization, and to what extent has digitalization affected these developments?

Each of these questions is an important issue that needs to be carefully considered. Although we are still a long way from completing the scope of computer penetration and the process of digitalization in all areas of global economic, social and cultural life, but this process is expanding at every moment and over time all aspects of daily life and micro structures and it will encompass the social and cultural macro of global society (Kalleberg, 2009).

There is no doubt that the spread of digital tools, i.e., computer, Internet, telephone, and especially mobile phones and digital home devices, has affected the global society, namely culture, politics, kinship, social relations, and education, and the process of digitalization is underway. Of course, this does not mean that this is now perfect. Rather, it means shaping the process of transformation towards digital culture. At the same time, it is necessary to emphasize that although digitalization itself requires and produces a particular culture, this does not mean denying the possibility of using digital tools in the service of different values. Digital tools can promote individualism, democratic values, greater public participation, the strengthening of social freedoms, the expansion of consumption and capitalist values, the strengthening of civic institutions, the reduction of inequalities and discrimination based on ethnic, racial, cultural, religious, and multicultural values such as developing a spirit of tolerance, expanding dialogue and the like (Brown, Lauder, Ashton, 2010).

However, at the same time, digital tools can also serve to some extent undemocratic, authoritarian, conservative, and traditional values and structures. The important point in this regard is that the nature and cultural and technical structure of digital tools and media is such that it is more compatible with first-class values. Hence, using these tools in non-democratic, conservative, and traditionalist structures, although possible, will change and challenge these structures in the long run (Kalleberg, 2009).

4.2. Characteristics of resilient societies in the impact of digital transformation

Regarding the concept of resilience, a resilient society must have characteristics that cover all stages before, during, and after accidents and crises. In contrast to resilient societies, some societies are unable to endure the shocks, collapse in return to normal, and are unable to adapt to the new situation. The situation in these societies can be explained by concepts such as fragility, sensitivity, inability to change, vulnerability, weakness, inflexibility, lack of resistance, degeneration, failure, and passivity. Studies on the response of resilient systems to stress and crisis have been conducted by Chalak (2003), Brencho et al. (2003), Kim Hee and Shamai (2004), Sapphire Stein (2006), and Twig (2007).

Hence, a society that has high resilience in accepting digital transformation has the capacity to accept these characteristics. Of course, the notion of a "society resilient to change and crisis" is ideal, meaning that no society can ever be completely safe from natural and human hazards. Perhaps the idea of a disaster-resistant society is more useful as follows: These characteristics were used to achieve resilience. The importance of each of these features depends on its specific location, time, and circumstances (including the types of hazards). However, the turning point of the feature set is the goal of achieving the highest level of resilience, which is also achievable. A society with higher resilience has the capacity to prove each of these characteristics. In fact, in a continuous process, the resilient society predicts and absorbs the shock, reacts to it, recovers from it, and in response to the accident, innovates and progresses (Belhadi, Mani, & Kamble, 2021).

4.3. Digital transformation and social resilience

The recovery of damaged social structures, behaviors, and inherent mission of social resilience could be facilitated by increasing coping power. If we consider resilience as synonymous with flexibility, the society or organization that has been equipped with, has the constant power to face change and adapt to its new needs. In this sense, we are referring to capacities that ensure growth.

The amount of challenge that an organization or community can manage, control, or endure without compromising its performance may somehow represent the resilience of that community or organization. Of course, the power of reaction and recovery or adaptation and reversibility to the time before injury or after natural disasters, in addition to having knowledge of crisis management, depends on resilience. To deal effectively with social and economic change, turmoil, and social ills, resilience is essential, which can include self-organization, tolerance, and retention of competencies in difficult situations, and ultimately the ability to be observed and reversible (Schwab, 2016).

In this sense, we will find that social resilience will increase the power of anticipation and planning for the future. However, special attention has been paid to the resilience of societies to the extent of economic enjoyment and growth, maintenance and development of social capital, knowledge, and information, and access to communication and social cohesion. Diversity in economic and financial resources, citizen participation and social support, development of organizational links in the public sector and non-governmental organizations, and emphasis on (collective action) are very important points in this regard. Diversity in social and economic activities and… can be mentioned as a platform for developing creativity and increasing social capital and promoting resilience. It is also necessary to strengthen scientific attitudes and pay more attention to local facts and social requirements in each special situation, which in itself will provide a platform for optimal participation and will increase the population of stakeholders, and will lead to social inclusion (De La Porte, Heins, 2016).

Some changes cannot be fought but must be lived, many natural threats and social disasters can be placed in this category, some other

changes may not be reversible, resilience with an emphasis on prevention at all levels of social life. This aspect is of considerable importance and, on the other hand, can play a pivotal role in interventions. From this point of view, both in theoretical issues and in operations and implementation, it can be considered more and more by social workers (Schwab, 2016).

4.4. Dimensions of social resilience and the impact of digital transformation on it

Various researchers have concluded that three types of capacity are needed to be understood the concept of social resilience. There are four criteria for explicitly expressing these three terms (capacity):

- the first criterion is people's reaction to dangers and the recognition of activities before and after the accident;
- the second criterion is the time domain, which refers to the time horizon;
- the third criterion is the amount of change that social structures undergo; and
- the final output criterion is related to the trivia, which will be mentioned below.

Each of the three capacities can be placed in one of the forms of social resilience:

1. Coping capacity refers to reactive and absorption measures (absorption of change and digestion of events) that people know how to deal with and overcome immediate dangers with the help of directly available resources. The rationale behind this confrontation is to repair society's current level of welfare right after the crisis.

2. Compatibility capacity refers to preventive measures that people use to use past experiences, anticipate future risks, and adjust and adapt their livelihoods accordingly. Adaptation is the preparation for further change and the provision of the current state of well-being and health in the face of future risks. The main difference between coping and adjustment is the time range of the activities

in question. While coping is a tactical and short-term factor, adaptation is actually a strategic and long-term planning factor.

3. Finally, transformational capacities or participatory and collaborative capacities that include the individual's ability to access financial resources and socio-political assistance (from government agencies to civil society) to participate in the decision-making and creation process. Institutions aim to improve individual well-being and foster social empowerment in future crises (keck, 2013).

Here the key difference between adaptation and evolution depends on the degree of evolution and output it implies. Transformation is, in fact, a fundamental change that is not intended to provide but to increase one's well-being in the face of present and future dangers (Maduro, Pasi, Misuraca, 2018).

It should also be borne in mind that creating resilience requires a number of accesses and resources, including (Schwab, 2016):

1. sustainable human resources;
2. access to natural resources;
3. access to economic resources and their fair allocation;
4. comprehensive regulatory and governance structures and processes; and
5. strong and powerful environment and the degree of adaptation.

Social resilience has the potential to be analyzed into a coherent framework that can be built on a scientific knowledge based concept of social vulnerability, and offer a fresh perspective on today's challenges of global change (keck, 2013). It should pay attention to two types of applied planning in the field of social resilience and its impact on digital transformation, A) Strategic planning; B) Operational planning.

Strategic planning is related to more general and higher levels, and operational planning is related to more detailed and functional levels. In fact, strategic planning seeks the right things, and operational planning seeks the right things to do, and paying attention to this will lead to the development and implementation of programs that

motivate the community to participate in the implementation of programs or use the content of this program. It will make it more cultural. However, before planning, it is necessary to determine the vision and strategies that oversee general policies and organizational priorities, which are often neglected and most of the cultural institutions of the university (Giddens,1984).

Two very important points in planning the role of digital transformation on social resilience should be considered. First, for optimal and effective planning, which is a bridge between the current situation and the desired situation, all capacities must be considered and, second; in planning, it is better to consider the following working groups of each social institution while paying attention to development-oriented digital models, community work models that are based on their formation philosophy (Williams, T.A.; Gruber, Sutcliffe, 2017).

4.5. The multifaceted impact of digital transformation on social resilience

Resilience thinking is evident in sustainable life approaches. Instead of focusing on barriers to sustainable growth, these approaches focus on the capabilities, assets, and activities of individuals, as well as the evolution of structures and processes that lead to positive outcomes such as higher incomes, better welfare, and improved food security (Misuraca, Pasi, Viscusi, 2018).

While acknowledging that the poor are always on the brink of extreme and volatile insecurity, the sustainable living approach seeks to reduce these insecurities by creating resilience. In this approach, the five capitals of life and livelihood play an important role in creating resilience (Schwab, 2016):

> 1. human capital: the ability to do work, health, and knowledge;
> 2. social capital: networks, groups, and trust in each other;
> 3. natural capital: land, water, wildlife;
> 4. physical capital: transportation, shelter (housing), energy; and
> 5. financial capital: savings, credits.

All five capitals can be strengthened or limited by changing the structures and processes of the larger community. A sustainable living system enables people to pursue powerful livelihood strategies that create resilient layers to overcome the waves of disasters, and aims to empower people to cope with change, and even turn threats into opportunities (Schwab, 2016).

Here, social resilience is the capacity of individuals to access capital that not only copes with adverse conditions (reactive capacity) but also to seek and create other options (active capacity and dynamic) and build the ability (positive outcome) to deal with threats. According to this framework, resilience is examined by referring to threats and abilities, and different social areas emerge, each of which includes networks of actors (agents) at different levels of society. Economic, social, and cultural assets can be transformed to strengthen capacities. The ability to mobilize capital varies according to activists' position in the social sphere. It should be noted that this framework leads our analytical approach to the dimensions and dynamics of processes and resilience effects (Misuraca, Pasi, Viscusi, 2018).

As mentioned, social resilience based on digital transformation depends on the threat we consider. An important point for the empirical study is: What is resilience for? and what is the threat that is being investigated?

Risks can be environmental, personal, social, life events, or long-term threats. It is essential that individuals, groups and organizations be aware of the existing threats and deal with them. We need to learn ways to prioritize the various risks that people face. It should be practically examined (not merely assumed) what capacities are considered important in society to build the ability to deal with threats. It should also be borne in mind that perceptions and judgments related to the risk and capacity of society differ in different contexts, groups, and individuals (Brown, Lauder, Ashton, 2010).

Second, researchers must determine the desired results. Does the researcher seek public welfare, livelihood security, physical and mental health? Who defines these results, and what indicators are set to evaluate them? Because resilience is a process, it can also be unstable, and the focus on the apparent ability of individuals in the

context of significant threats or livelihood challenges can be seen as a visible and measurable result of resilience.

Third, in this study, a distinction is made between the process of creating resilience (before occurrence) and the effects of resilience (after occurrence). Resilience is beyond adaptation and minimizing the consequences of disasters, and managing vulnerabilities to ensure short-term survival. Social resilience, then, is the use of personal and past experiences of individuals and societies, subject to actions before they occur - not just after (Misuraca, Pasi, Viscusi, 2018).

4.6. The positive role of digital transformation on societal challenges

The digital revolution has sparked a heated debate among policymakers, economists, and business leaders about its social impact. As digitalization fundamentally transforms society, there is concern about affecting various issues, including jobs, pay, inequality, resource efficiency, and security (Bristow & Healy, 2015).

Here are six ways to increase resilience, suggested by the American Psychological Association to increase endurance and resilience in the face of adversity.

- Establishing interpersonal relationships; maintaining good relationships with family and friends is an important indicator of increasing resilience.

- Do not see crises as insurmountable situations; ups and downs of life are inevitable. Although we cannot change the truth of these problems, we can change our interpretation of these situations. The moment we see unfavorable life situations as unsolvable problems; the positive steps we can take to solve these problems are limited or prevented.

- Goal setting; having a goal in life and the ability to set goals is an important indicator of resilience. A person who attaches purpose to his life will increase the direction of his future and will strive to achieve it.

- Take decisive action; some people may wait for their own problems to be resolved when they encounter a problem. This kind of approach to issues indicates a lack of resilience. In contrast, the ability to act boldly in unfavorable situations to solve problems can be an indicator of resilience.

- Develop positive self-esteem; having self-confidence and self-confidence is an indicator of resilience. Before trying to solve problems successfully, one must believe in one's ability to do it. Without this belief, no one can take the necessary steps to solve problems.

- Self-care; self-care is an important indicator of resilience. This can be characterized by sensitivity to one's personal emotions and needs, spending time with oneself, maintaining physical health, and participating in activities that one enjoys. A person who can keep himself physically and psychologically fit will show more effort and desire to solve problems.

5. Conclusion

Digital transformation is an emerging phenomenon in the field of information technology and organization. In this research, using the systematic review method, research areas related to digital transformation were examined, and it was found that the process areas of this phenomenon have been highly considered by researchers in recent years. Benefiting from a step-by-step process is essential for the effective implementation of digital transformation. Also, according to the analysis, the direction of recent research has shifted from digital transformation processes to developing a digital transformation strategy.

This study shows that the application of digital transformation in social resilience is developing and expanding. Success in social transformation in social resilience is not possible without involving society in adopting a new approach. Hence, the emphasis is on creating the digital culture of the people of a community/company/customers/context, as well as integrating ICT into activities that were traditionally performed at a lower or more

mature level. According to researchers, the defect in corporate culture is one of the main obstacles to digital transformation; hence, the fourth stage places more emphasis on corporate culture.

Finally, it is emphasized once again that in today's world, risk management is one of the most important policies and strategies of any country, and according to many researchers in the field of the impact of digital transformation on resilience, following this literature can be one of the most important steps to achieve. As the risks and uncertainties of unforeseen developments, such as crises and social ills, increase, it will be necessary for researchers first to identify the risks, including the risks and social ills that plague the country has faced with it and in the next stage to evaluate the indicators and dimensions of social resilience to deal with various risks.

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