

UNIVERSITY 5.0 FOR RESILIENCE - A SYSTEMIC APPROACH

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Abstract Within this study the author discusses Industry 4.0 and Industry 5.0 concepts. The author tries to prove that the achievement of resilience is given a special role. Achieving resilience itself has many challenges and is highly dependent on the effectiveness of the education system. The author notes that the educational links should be established between HEIs of developed and less developed countries. Resilience cannot be achieved without international efforts. This means that the joint initiative of several countries will not yield the desired results if this action does not take on a global character. Due to this, the technologies corresponding to Industry 5.0 will only give the desired results to the world when the technologies from the inventing countries are successfully introduced in the receiving economies. According to the author, close ties between the universities of the inventing and receiving countries ensure the achievement of the desired results in the shortest possible time. In this process, the author assigns a special role to the formation of the University 5.0 model. At the end of the paper, the author will schematically present systemic links between the inventing and receiving countries' universities in order to achieve resilience.

Keywords:

Industry 4.0,
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resilience,
education,
system

JEL:

A19, A29, I25

1 Introduction

The Fourth Industrial Revolution conceptualizes rapid change to technology, industries, and societal patterns and processes in the 21st century due to increasing interconnectivity and smart automation. The discussion about Industrial Revolution 5.0 has recently started and has already become an active debate. Regarding this term, Muller (2020) argues that several of the ideas of Industry 4.0 seem to be revitalized under a new terminology. As is mentioned in the documents for the European Commission, Industry 5.0 complements the existing Industry 4.0 paradigm by highlighting research and innovation as drivers for a transition to a sustainable, human-centric and resilient European industry. Researchers predict that Industry 5.0 will help the formation of Society 5.0. This kind of big transition will require a number of policy actions in many areas, such as digitalization, education, taxation, energy, industrial policy, etc.

To respond to the title of the study, the author discusses the main challenges for building resilience, provides arguments for the role of education, and the possibility of educational systemic links. The author has developed a new approach to connect educational links from the new technology inventing countries to the receiving economies, with the self-designed graphical image. The paper ends with a number of brief conclusions.

2 Resilience – Brief Literature Review

In the Industry 4.0 paradigm, businesses have been forced to cope with increased uncertainties and adapt to cope with change (Potočan et al., 2021; Gagnidze, 2022; Sepashvili, 2020). That's why Industry 5.0 bolsters resilience for companies looking to balance man and machine.

Resilience is discussed in the scientific literature firstly as one of the main directions of economic development in the future and secondly, as the challenges of individual companies to achieve resilience. Traditionally 'resilience' meant cutting costs and preserving capital. According to the World Economic Forum and McKinsey & Company (2022) for the economy, resilience should be seen as the ability to deal with adversity, withstand shocks, and continuously adapt and accelerate as disruptions and crises arise over time. Grant et al. (2022) discuss the geopolitical risks at the level of companies.

As a response to the challenges of Industry 5.0, ‘the Recovery and Resilience Facility (RRF) has become the cornerstone of the European Union’s future-oriented strategy, as national Recovery and Resilience Plans set the investment and reform agenda to boost an inclusive and sustainable growth for the coming years’ (EUR-Lex, 2022, 30). The RRF will advance large-scale investments and reforms in education that have the potential to make an impact in the medium to long-term.

The literary analysis on resilience shows that in order to effectively overcome the challenges, it is necessary to find such links that contribute to the achievement of resilience at the level of the economy, individual industries, and organizations. The author considers the education system in general and the modern model of universities to be one of these tools.

3 Methodology

During research on this topic, the author reviewed the relevant literature and studied documents, reports, surveys, and reviews from the European Commission and other international organizations and established research centers. In addition, synthesis and analogy, as well as descriptive and correlative methods were employed. In this case, under the term ‘university’, the author theoretically allowed a combination of scientific research, and higher and professional education, with effective dialogue with public authorities and business at local and international levels. Accordingly, they are a kind of connecting bridge in the implementation of goals set at the macro- and micro-levels of the economy to build resilience. Such an effective space to overcome resilience challenges can only be achieved in the University 5.0 model. This theoretical assumption is due to several reasons:

1. It is clear that all levels of science and general education must contribute their roles to the challenges of Industry 5.0, however, a detailed analysis of the issue is impossible since the format of this study is limited;
2. The paper will focus on the concept of University 5.0;
3. The descriptive model of the systemic approach describes the process in general, and considering the additional details, would have complicated it.

The author has developed a new approach to connect educational links from the new technology inventing countries to the receiving economies, with the self-designed graphical image.

With these foundations, this study aims to answer the following research question – Can University 5.0 play a systemic role in the process for building resilience?

4 Why Universities for Resilience?

Why University 5.0? ‘University 5.0 is an integrated news, information, research, and consulting resource that explores the ways in which online education is fundamentally changing higher education. Its mission is to contribute to the national and international conversation about the pros and cons of online education in higher education, and to consult with relevant stakeholders in their efforts to effectively respond to the changing environment in higher education’ (Alperstein & King, 2020).

This definition shows that the possibilities of the University and their sphere of influence are expanding significantly. Therefore, for the three reasons mentioned above in this study, it was assumed that the term ‘education’ is equated with the University 5.0 model. Accordingly, by education we mean all the processes that take place in the University 5.0 model.

It is important to note that the transition to the University 5.0 model will not be an easy process in many countries, because the formation of even the University 4.0 model in most countries is associated with great challenges. These problems are indicated by: Audretsch (2014), Etzkowitz and Zhou (2008), Dominici and Gagnidze (2021), Kharadze et al. (2021), Seturidze and Topuria (2020), Sobolieva and Harashchenko (2020), and Vesperi and Gagnidze (2021a). There are many studies that discuss the problems related to the change of the university model of individual countries, including: Sperrer et al. (2016), Vesperi and Gagnidze (2021b), Lekashvili (2019), Papachashvili et al. (2021), Gogorishvili & Zarandia (2021), and Kharashvili et al. (2022).

Acquaintance with these works will convince the reader that a great effort in the direction of education will be necessary to achieve the goals of Industry 5.0.

5 A Systemic Approach

Resilience cannot be achieved without international efforts. This means that the joint initiative of several countries will not yield the desired results if this action does not take on a global character. Due to this, the technologies corresponding to Industry 5.0 will only give the desired results to the world when the technologies from the inventing countries are successfully introduced in the receiving economies. That is why it is important for building resilience to form systemic links between countries.

The main reason for presenting the systemic approach to the reader in the presented study is the properties of the system. One of them is the synergy effect. The interest of many actors participating in the system strengthens their own efforts, helping to create a solid network. By utilizing synergy and consistency, resilience can be achieved relatively easily. This is especially noticeable as a result of the establishment of effective international links of education and science (Gagnidze, 2018). This was the main reason to develop a systemic approach in the paper.

From Figure 1, which shows systemic links between inventing and implementing countries' universities, it can be seen that in the process of building resilience, international effort is very important. Accordingly, in the author's opinion, the attention should be focused on several aspects, namely:

- Inventing countries need to introduce and operate new technology themselves as well. Because of this, they also need to train people with scientific, higher, and professional education. The developed and less developed countries have the same goals in implementing technology. In this regard, systemic educational links should be implemented at least at three levels: scientific research, higher, and professional education. Accordingly, it is necessary for universities involved in the system to switch to the 5.0 model and harmonize educational programs. This process should start in the early stages of implementing a resilience plan. The potential of universities should be selected carefully;
- The effectiveness of the international educational system is determined by the strong connection and feedback between all participating universities. The accumulation and exchange of experience plays a critical role in minimizing errors and quickly achieving the desired goal;

- It is necessary simultaneously to start the activities in several countries to build the system. This should be planned well in advance, since any mistakes made will lead to a lot of time and money wasted.

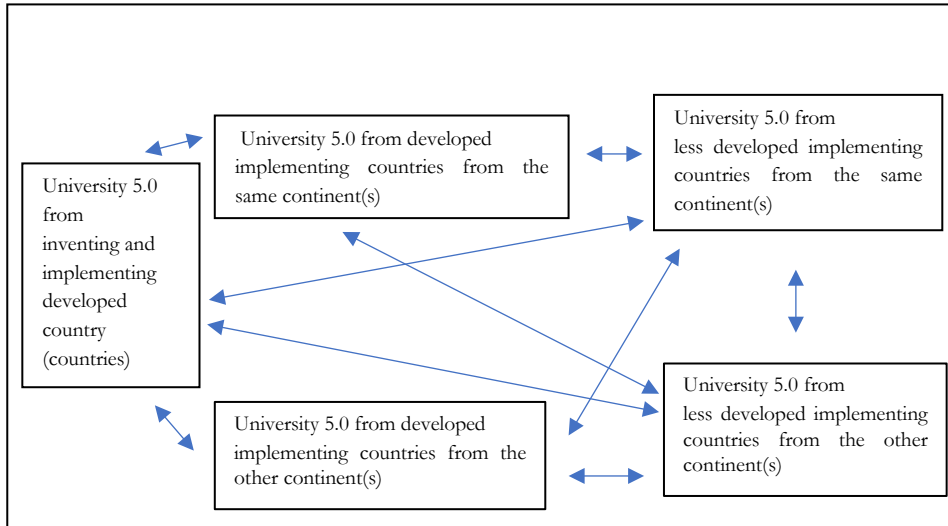


Figure 1: Systemic educational links between inventing and implementing countries' universities

Source: Author's elaboration.

Thus, by establishing international educational links and considering the above-mentioned emphases, the challenges for building resilience will be relatively easy to overcome. Based on all the above-mentioned issues, it can be concluded that the answer to RQ is positive, and University 5.0 can play a systemic role in the process for building resilience.

6 Discussion and Conclusion

The paper concentrates on Industry 4.0 and Industry 5.0 concepts. The author discusses the challenges of resilience. Building of resilience is one of the three directions of Industry 5.0. Its provision is connected with a number of difficulties. For building resilience, the author places great importance on education. To simplify the systemic model, the main actors are the universities of the participating countries. In the author's opinion, it is necessary to establish the University 5.0 model in all participating countries. The possibilities and sphere of influence of such

Universities are very large. By combining them in the system, an effective network will be created. With a properly written plan, they can effectively promote and accelerate the building of resilience processes. The author also notes that the formation of such a university model will be associated with many difficulties.

The opinions given in the paper allow that the answer to the Research Question is positive. Given the scope of this paper, which represents limited desk research, it proves difficult to analyze the multifaceted picture of all levels of the educational system. In this regard, the Author made a theoretical assumption, according to which education is understood as such a university (University 5.0) where research, study, commercialization, and a high level of digitalization are in the same space. It should be noted that the commitment of the entire society is necessary to reach resilience, and therefore, all levels of education must contribute to it. Focusing attention on these and other challenges of resilience will be further developed in our future studies.

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