The Social Impact of Digital Transformation at the European Level

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Abstract

The profound societal effects resulting from the digital revolution in Europe have completely reshaped the fabric of everyday life. This revolution is characterized by the seamless integration of digital technology into all aspects of society, influencing the way people interact, businesses function, and governments operate. Notably, it has greatly improved connectivity and access to information, fostering both innovation and economic growth. The objective of this paper is to explore the complex connection between the Digital Society and Economy Index (DSEI) and the Social Progress Index (SPI), which together provide a holistic representation of societal progress. The main aim is to establish the correlation between these indices, shedding light on how digitalization impacts different dimensions of social advancement in European countries. Through this examination, the study aims to offer valuable insights into the implications of digital transformation on the well-being of society, economic stability, and overall social development throughout Europe.

Key words: digital transformation, social, Digital Economy and Society Index, Social Progress Index, European Union
J.E.L. classification: O15, O35, Q01

1. Introduction

The all-encompassing influence of technology in the realm of digital innovation has made its mark on various aspects of society, economy, and governance. Leading the charge in this digital revolution are European nations, known for their robust socio-economic frameworks. This study delves into the intricate interplay between digital advancements and social dynamics, with a specific focus on examining the correlation between the Digital Economy and Society Index (DESI) and the Social Progress Index (SPI). The aim of this research paper is to unravel the complexities of this relationship, shedding light on how the ongoing digital transformation is reshaping societal structures and contributing to the advancement of society in Europe.

The way societies function, communicate, and develop is being completely transformed by the multifaceted phenomenon known as digital transformation. In Europe, this transformation extends far beyond just technological advancements; it is a societal shift that impacts every aspect, from policy-making to individual lifestyles. The Digital Economy and Society Index (DESI), a tool used by the EU to assess the digital performance of member nations, plays a crucial role in measuring this transformation. It evaluates various factors such as digital connectivity, online activities, digital skills, integration of digital technology, and digital public services. Similarly, the Social Progress Index (SPI) provides a comprehensive framework for understanding social progress, encompassing basic human needs, wellbeing foundations, and individual opportunities within societies. The intricate relationship between these two indices serves as the foundation for our investigation, as we aim to uncover how advancements in the digital sphere are reflected in social progress.

The central argument of this paper is that the swift process of digitalization witnessed in European nations serves not only as an economic catalyst but also as a crucial element in promoting social welfare and inclusivity. The paper puts forward the hypothesis that there is a noteworthy correlation between a country's level of digital maturity, gauged by its DESI score, and its societal progress, evaluated through the SPI. Through an examination of these indicators, the research aims to provide a nuanced understanding of the impact of digitalization on diverse social aspects such as education, healthcare, environmental sustainability, individual rights, and inclusiveness.

In order to confirm this hypothesis, the research paper will conduct an extensive examination of the most up-to-date data for both indices. This analysis will be supplemented by in-depth case studies and insights from experts in the field. Additionally, the paper will explore the various approaches and policies that European countries have taken in their digital transformation efforts, assessing how these strategies align with or deviate from their objectives for social progress.

Therefore, the convergence of digital transformation and social advancement offers a distinct chance to assess the potential of technology in promoting societal welfare. As Europe forges ahead in the realm of digital innovation, this research seeks to offer valuable perspectives on how these technological advancements contribute to social betterment. By doing so, it aims to inform future policies and initiatives, guiding them towards fostering a more inclusive and progressive society.

2. Literature review

The integration of digital technologies into various facets of European society, known as digital transformation, has significant consequences for social structures and personal welfare. This transformative process not only fuels economic advancement and creativity but also reconfigures social dynamics and the very essence of communities.

The evaluation of Europe's digital competitiveness is made possible by the Digital Economy and Society Index (DESI), which acts as a crucial gauge. It encompasses five key elements: connectivity, human capital, utilization of internet services, integration of digital technology, and digital public services (Budde et al., 2022). Conversely, the Social Progress Index (SPI) provides a comprehensive measurement of societal well-being, going beyond GDP and considering essential human needs, the foundations of well-being, and opportunities (Zhang et al., 2022). The interplay between these indices offers a distinctive perspective to assess the correlation between digital progress and societal advancement.

Europe's socio-economic landscape has been profoundly impacted by the digitization of industries and public services. One notable example is the automotive sector, where the integration of emergent technologies is reshaping digital strategies and greatly impacting employment and skill demands (Chanias & Hess, 2016). Likewise, the healthcare sector is undergoing a digital transformation that holds the potential for improved service delivery, but also presents challenges in terms of workforce adjustment and managing public health (Velez-Lapão, 2019).

The utilization of digital technologies and the level of preparedness for their adoption show discrepancies across different regions in Europe, which in turn have diverse social implications. Northern European nations display a greater level of readiness in embracing digital advancements, while South-Eastern Europe lags behind at a slower pace. This disparity highlights a digital divide that significantly impacts social equality and inclusiveness, as noted by Huňady et al. (2022).

Digital transformation has a significant influence on local governance, as seen in the case of urban municipalities in Slovenia. The level of digital maturity in these municipalities demonstrates a multifaceted connection between digitalization and the effectiveness of public services. Interestingly, this relationship does not follow a simple pattern based on population size (Debeljak & Dečman, 2022). This underscores the intricate nature of the social impact of digital transformation, which varies depending on regional circumstances and governance frameworks.

The impact of digital transformation on the well-being of individuals and the advancement of society is a complex matter. Although technological advancements provide various advantages, such as enhanced access to information and services, they also present challenges like cybersecurity risks and the potential for greater social disparities. The correlation between technological development and societal welfare requires continuous examination and policy focus to guarantee that the advantages of digital transformation are distributed fairly and in line with broader objectives of social

progress.

3. Research methodology

To comprehensively explore the relationship between the Digital Economy and Society Index (DESI) and the Social Progress Index (SPI), and gain insights into the impact of digital transformation on social well-being, we adopted a methodological approach that incorporates data from both indexes.

Eurostat offers the DESI index, a comprehensive gauge of a nation's digital transformation.

This index takes into account multiple elements, such as internet accessibility, the education and digital proficiency of the populace, the integration of digital technologies, and the provision of online public services. These factors play a crucial role in evaluating the level of digital transformation within a country.

In conducting this study, our focus was on the utilization of the DESI composite index. The analysis of the effect of digital transformation on social well-being involved the examination of two essential elements within the database.

The average score of the European Union (EU) from 2017 to 2022 is captured by the Composite DESI Index. Sourced from the EUROSTAT database, this data offers yearly scores that demonstrate the EU's ongoing digital transformation.

The Social Progress Index (SPI) differs from the DESI in that it specifically examines social and environmental factors. It assesses a society's ability to fulfill the fundamental needs of its people, establish the necessary foundations for individuals and communities to improve and maintain their quality of life, and foster an environment where everyone can maximize their potential. To conduct a thorough analysis, we gathered SPI data for the same time period as the DESI data.

Through the correlation of data obtained from these two indexes, our objective is to uncover patterns and gain valuable insights into the connection between advancements in the digital economy and enhancements in social progress. Our approach entails conducting a comparative analysis of the annual scores derived from both indexes, providing us with the opportunity to delve into the relationship between digital transformation and social well-being within the European Union. Employing this methodology will allow us to ascertain whether there exists a noteworthy correlation between the level of digital transformation, as indicated by the DESI, and the overall social progress and well-being, as measured by the SPI.

4. Results

By initiating the initial phase of our examination, we successfully determined the mean values for the suggested indicators. This pivotal stage has afforded us a more lucid comprehension of the fundamental trends and patterns. The outcomes of this procedure are succinctly displayed in the table presented below, offering a comprehensive summary of the acquired average values (Table 1).

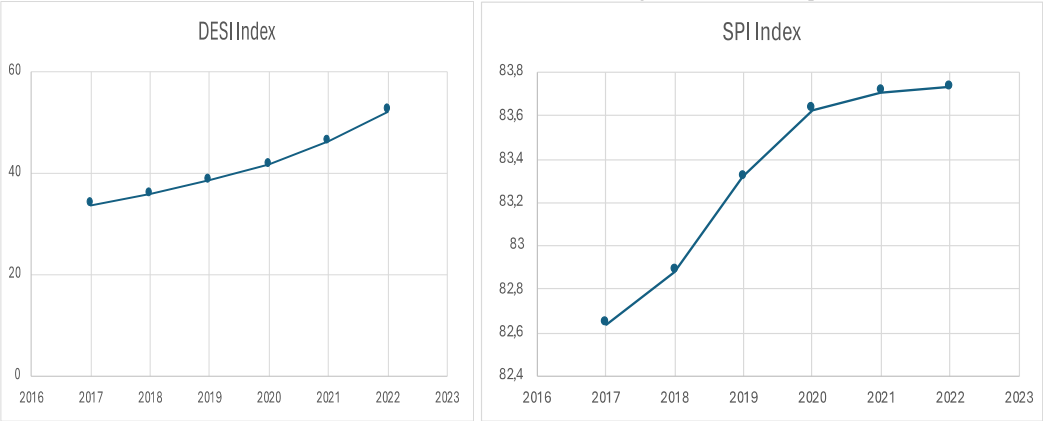
Table no.1. DESI Index and SPI Index average value of European Countries, as %.

Index	**Year**					
	2017	**2018**	**2019**	**2020**	**2021**	**2022**
DESI Index	33,70	35,90	38,60	41,70	46,20	52,30
SPI Index	82,64	82,88	83,32	83,63	83,71	83,73

Source: own processing

Upon analyzing the global social and digital environments, it becomes clear that the countries within the European Union distinguish themselves prominently. These nations exhibit remarkable advancements in social well-being, showcasing their dedication to improving the lives, education, and healthcare of their people.

Figure no. 1. Evolution of DESI Index and SPI Index (%, average value on European Countries)

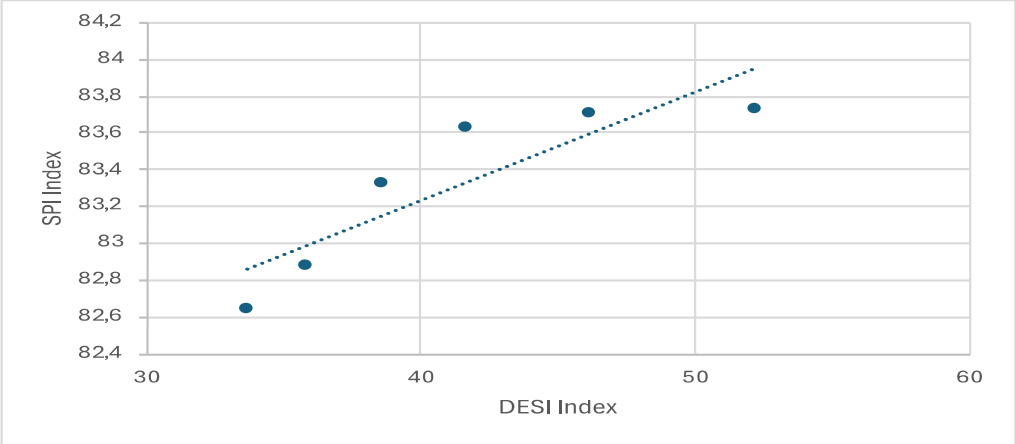


Source: own processing

Furthermore, these countries are actively making substantial progress in the field of digital innovation. This advancement surpasses global benchmarks, underscoring their commitment to digital infrastructure, technology integration, and digital competence. The European Union's comprehensive approach to both social and digital progress establishes its member nations as frontrunners in these critical domains. Therefore, a positive evolution is identified regarding the two analyzed indicators (Figure 1).

In order to quantify the impact of digital transformation on social progress at the EU level , we further used as variables the DESI composite index value and SPI composite index value for the 2017–2022 temporal interval.

Figure no. 2. Correlation between DESI Index and SPI Index



Source: own processing

To summarize, there appears to be a significant correlation between the advancement of digital transformation and social progress, as indicated by Figure 2. It is highly probable that the two are closely intertwined. As evidence of this relationship, the Pearson Correlation Coefficient stands at 0.88.

5. Conclusions and recommendations

To summarize, our examination has uncovered a noteworthy association between the Digital Economy and Society Index (DESI) and the Social Progress Index (SPI). This connection highlights the interconnectedness of digital development and societal advancement. Nevertheless, it is important to recognize the constraints of our study. Specifically, our analysis relied on the average measurements of these indicators, which may not fully encompass the intricate fluctuations and

distinct circumstances of various regions or nations. Consequently, while our discoveries are suggestive of a broad pattern, they may not accurately depict specific instances.

Moving ahead, there are numerous domains that necessitate further exploration. Conducting an intricate examination of every element comprising the SPI has the potential to yield more detailed observations on the interconnectedness between different facets of social progress and the process of digitalization. Moreover, delving into the specific consequences of digitization in sectors like education, healthcare, and governance could shed more light on the ways in which digital transformation impacts social progress. These comprehensive studies would not only enhance our existing knowledge but also provide policymakers with valuable insights to devise more precise and impactful strategies for digital and social advancement.

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