



Book review

Industry 4.0 and Regional Transformations, Lisa De Propris, David Bailey (Editors) Abingdon and New York: Routledge, 2020. ISBN 978-0-367-17841-3 (print), ISBN 978-0-429-05798-4 (eBook)

<https://www.routledge.com/Industry-40-and-Regional-Transformations/Propri-Bailey/p/book/9781032236629>

Technological progress has always been both helpful and disruptive to society, but its implications on today's society are probably different. In this sense, *Industry 4.0 and Regional Transformations* has on the cover an image that imitates the famous Michelangelo's fresco painting "The Creation of Adam" (XVIth century): the location of the creator (human) and its creation (robot) is identical to the Michelangelo's painting, but in this case, the implications of creation (technology) on the creator (society) are still far from being fully understood and foreseen.

The fears that technology will determine major social changes are justified, given the fact that although external factors such as globalization are considered the main causes for these changes, technological progress, and domestic policies are more important in this case (Camară, 2023). Moreover, the fears are justified anyway, because if we look at the evolution of economic cycles (Kondratiev's waves, discussed in Chapter 1), we will see that economic cycles (i.e., humankind eventually) were/are always challenged and designed by technology. Through theory and empirical cases, *Industry 4.0 and Regional Transformations* "explores the opportunities and the challenges that Industry 4.0 (smart manufacturing) is likely to pose for regions, firms and jobs in Europe" (p. i), by considering emerging issues like servitization ("the symbiosis between traditional manufacturing sectors with services", p. 6), innovation models for local production systems and the increase in reshoring.

In our interconnected world, regions, and cities have assumed "heightened significance as the interconnected nodes of economic, social and cultural production, and as sites of new modes of economic and territorial governance and policy experimentation" (p. ii); thus, it is not surprising that a book series concerning them was published. The *Regions and Cities* book series published by the Regional Studies Association and Routledge, of which *Industry 4.0 and Regional Transformations* is part, "brings together incisive and critically engaged international and interdisciplinary research on this resurgence of regions and cities" (p. ii); its audience

includes geographers, economists, sociologists, political scientists, and cultural scholars, and also policy-makers involved in regional and urban development.

The 19 contributors to this book have different backgrounds, coming from both academia and industry; they also have different degrees of expertise (from doctoral students to university professors, deans, heads of departments, and executive directors of firms), which enables different perspectives on the presented topics. All these attributes along with their affiliation to prestigious universities/research institutes and their research and industrial activities make this work an essential reading in a context where “a new wave of technological innovations has started to fundamentally alter how we make things, and it signals the start of an era of huge change” (p. 1). Their research interests are diverse and relevant to the subject of the book: Industry 4.0, technological change, service clusters/districts, creative industries, regional economic development, public policy for cities, job polarizations, industrial policy and EU cohesion policy, high-tech clusters, industrial and regional policy, the internationalization of firms, global networks, the economic analysis of global value chains, product-service innovation, demand chain management, drivers of firm’s boundaries choice based upon data-driven analysis, processes of knowledge creation and adoption, industrial districts and paths of local development in dynamic cities, local systems with embedded large firms, methodological issues of international business research, supply chain management, operations management, innovation and technological change, global innovation networks, national and regional innovation systems, and so on.

The content of the book is organized into 13 chapters, including the introductory and the conclusive chapters. Chapter 1, Disruptive Industry 4.0+. Key concepts could be useful for anyone who wants to understand the general topic and its concepts, because it provides an interesting overview of the dynamics of technological change, including the revised conceptualization of Kondratiev’s waves, the impact on the economy and society during the Fourth Industrial Revolution (FIR). Servitisation, a new strategy that bundles services and products together, is discussed in Chapter 2: it is seen as an opportunity to boost value creation and thereby the competitive advantage of European manufacturing firms. In Chapter 3, job vacancy data for the United Kingdom (UK), Germany, and Italy are used to identify how this wave of new technologies altered the balance between labour and capital, as well as the change of the skills, abilities, and competencies required in the workplace. The next five chapters unpack issues related to the local systems of

production of small and medium-sized firms, such as how will the system access new technologies, which actors will drive or hinder the necessary transformative process of adaptation, and so on, through novel conceptual propositions and relevant case studies (the regional transition towards a sustainable and innovative forest-based bio-economy in the Värmland Region of Sweden, firms' adoption of the latest digital technologies in the Veneto region, and others). The next chapters focus on de-globalization, related to the adaptation of a reshoring strategy (Chapter 9), the reshoring trends in three European regions, namely Veneto in Italy, Baden-Württemberg in Germany and the West Midlands in the UK change (Chapter 10), the direct link between reshoring and new digital production technologies, discussed under headings such as 'Industry 4.0 (I4.0)' or 'Industrial Internet of Things (IIoT)' (Chapter 11). Chapter 12 presents a perspective on the EU policy agenda for Industry 4.0 and discusses the underlying rationales of policies. The regional industrial policy implications of these issues are explored in the final chapter.

Given the fact that "technological change disrupts the organization of production and the use of production factors (labour and capital) and consumption" (p. 1), it is obvious that there is a conflict between fears and hopes. On the side of hope, Industry 4.0+, as the deployment of all the technologies of the FIR, "will trigger a transformational shift in the techno-socio-economic paradigm attuned to a green economy and society, [...] a key part of any effort to deliver inclusive socio-economic growth" (p. 1). On the side of fears, "changes in the labour market due to new skill requirements in the economy can cause a skills gap and skills obsolescence, leading to unemployment and polarised labour markets" (p. 3). Other researchers are also worried in a more concrete manner about the initial impact of technological change on society: "The consequences of the implementation of Industry 4.0 at the factory level on working conditions are negative for workers as it leads to an increase in work rhythms, an increase in workloads, a greater control over work performance and less autonomy for workers" (Gaddi, Garbellini & Garibaldo, 2021).

However, despite these (big) social issues, the tone remains optimistic in the book: "The social cost of the initial shock will flatten out when the socio-economic system starts a process of adaptation to the new technologies that culminates in all aspects of society embracing the myriad of incremental innovations that new technologies are translated into" (p. 3). The question (which needs further research) is whether society will accept and overcome this cost because the change is happening on an unprecedented scale, different from the other economic cycles of the past.

The book contains many relevant and interesting figures – graphics, maps, and conceptual figures – which greatly contribute to the accessibility of the text. Although the target audience of the book consists of advanced students, researchers, and policymakers in disciplines related to the topic of the book (regional studies, industrial policy, economic geography, innovation studies, operations management, and engineering), given the nature of the subject, this volume could be relevant for anyone who wants to understand the new and inevitable challenges that society confronts with.

References

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