


## Chapter 6

# The Integrity of the Manufacturing and Innovation Ecosystems With the Scope of University–Industry Collaboration

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### ABSTRACT

*Innovation-based manufacturing remains the key factor in the creation of growth and prosperity. The historical indicators point to the prominent contribution of technology-based manufacturing in boosting productivity. In this context, this chapter argues that successful and sustainable innovation is possible when skilled human resources, universities, R&D facilities, and factories are located in close proximity. This approach is discussed through the impact of the of deindustrialization and reindustrialization trends in the U.S. which began in early 1980s, when neoliberal policies speeded the tendency of relocating many manufacturing businesses overseas mainly to benefit from low cost labor. However, beginning from the past decade, the U.S. Government policies have been prominently shifting towards reshoring some of the manufacturing facilities to the U.S. soil. Consistently, the historical facts show that a stronger innovation capacity is linked with an intimately associated and efficiently functioning university-industry collaboration system..*

### INTRODUCTION

Both globally and in the United States, the deindustrialization period started with the world oil crisis in 1973 and became more prominent after 1980, at the time of neo-liberal policies, when some of the manufacturing industry has been continuously offshored to outside of the country, mainly to Asia. The

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re-shoring trend became more visible after 2008 and more prominent within the past few years when the U.S. Government has been generating public policies in favor of re-shoring some of the manufacturing industry sectors and encouraging manufacturing investments on the U.S. Soil. In the same context, the theory of industrial commons (Pisano & Shih, 2012) or the integrity of the manufacturing & innovation concept argues that innovation & technological progress is only possible, when factories, universities, R&D facilities and the skilled human power are in close collaboration and integrity with each other. Within the same context, it is also claimed that this system would only function properly if all these mentioned parties are located in close geographical proximity.

The United States is taken as the country case, because it has achieved exceptional economic growth since the second half of the 19<sup>th</sup> Century and through the course of the 20<sup>th</sup> Century. Especially, the period of fast growth in the manufacturing industry in America coincides with the time when the U.S. economy grew faster than the rest of the world during the first half of the 20<sup>th</sup> Century. The United States has been the world's largest economy since 1871 and it has reached the highest levels of economic standards in the world already at the beginning of the 20<sup>th</sup> Century. Also, many inventions or innovations of the 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> Century have either happened on U.S. soil or were firstly adopted by the manufacturing industry in America. Overall, the prominent role of manufacturing in making the United States the leading economic power and the most prosperous country in the world after the turn of the 20<sup>th</sup> Century, the pioneering role of America in the service sector and the leading role of the U.S. in information and communication technologies (ICT), are among the main viable reasons for analyzing the case through the U.S. (Imer, 2019).

From another standpoint, the COVID - 19 period may in fact, not convert the world into a brand-new phase in absolute terms, but it would instead act as a catalyzer to speed up or correct the unavoidable course of happenings. If it does nothing, it will increase the awareness of the society and the governments worldwide. This will naturally influence the manufacturing, service, and agricultural industries and will certainly impact the approaches to economy, education, innovation, national security, and health issues to an unknown extent. This could bring new perspectives on public policies in the following period.

In this respect, the science, technology, and innovation (STI) policies will also need to be revisited with a new perspective to readopting them to the new or next normal. Because the main goal of the STI policies has been to raise the prosperity of society by transferring the scientific and technological achievements into productivity. The fact that more value-added, and relatively more growth, being achieved by utilizing advanced technology, is obviously seen as one aspect of prosperity. Nevertheless, it strongly appeared once again in the COVID 19 period that the humans' well-being is the foremost priority, and health is among the highest valuable proponents within this regard. As a result, it could well be expected that more focus will be given on scientific breakthroughs and technology developments in the health and medical sectors.

Besides the many other manufacturing industry branches, the agricultural & food industries also appeared among the vital sectors. Most importantly, a strong industrial base and self-sufficiency in the essential goods' manufacturing capabilities reappeared as a critical factor to be re-considered for all nations.

Also, in line with all the aforementioned developments, a more proactive innovation policy may likely prevail since the COVID -19 crisis revealed the importance of commercialization of the scientific & technical knowledge once again. Meanwhile, the pace of "from labs to the market" has become much critical in serving the need of the society. These developments will even increase the university's expectations from the university- industry collaboration (UIC), while making it more essential to cor-

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