

# Chapter 11

## The Impact of Digital Labor on Global Value Chains: A New Era of Supply Chain Management

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### ABSTRACT

*This research looks at the influence of Global Value Chains (GVCs) and the growth of digital labor, especially with industrial and technological developments. With increased application of digital technology making it easier to run businesses still on the increase, the incorporation of artificial intelligence (AI) and automation within GVCs has had a colossal influence on defining the future of work. The rise of digital labor from deep learning models like Residual Networks (ResNet) has transformed labor traditionally performed by human laborers, including processing data, making decisions, and quality checks. The study discusses how the technologies enhance supply chain performance, resilience, and sustainability and struggle with the challenges they pose in terms of job substitution, skills gap, and economic inequality. In a mixed-methods design that combines qualitative interviews with quantitative questionnaires, the study explores the implications of digital labor on the future of work, global competitiveness, and supply chain management.*

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## INTRODUCTION

The Digital Thread is the connected flow of data throughout the product life cycle from design to manufacturing, operation, and end-of-life. As more value chains in the global economy are emerging and digital work is on the rise, this becomes all the more significant. Products of contemporary industries tend to be designed, manufactured, and consumed abroad, and hence end-to-end communication and exchange of data between all stakeholders has to occur. The Digital Thread accomplishes this by tracking, analyzing, and controlling information in real time, thereby producing quicker and more synchronized global value chains. With the growing complexity of GVCs, there is a need for an enhanced digital thread to make things visible, prevent delays, and provide greater productivity. Apart from that, remote and virtual digital employees or digital labor is the one that facilitates ease and promotes scalability in this contract.

The most precious objectives of the Digital Thread are some of the following:

Offering maximum coordination between industry groups throughout the product's lifetime. Classical manufacturing processes trace silo hierarchies through which it is challenging for different teams to view and modify information on a timely basis. A company with Digital Thread can correlate disparate design, engineering, production, and shipping teams operating across various geographically dispersed locations across the globe. This enhances the coordination and eliminates errors due to miscommunication or outdated information. The Digital Thread also makes it possible for companies to exchange knowledge and experience so that firms can innovate at a lower cost and greater speed. This seamless integration is most critical to third-party partners and providers to firms, particularly in the current globalized world.

The Digital Thread also makes possible the increasingly mainstream culture of product customization and personalization. As customers call for more personalized products, firms will have to respond to variation while producing on a moment's notice. A solid Digital Thread allows them the foundation upon which they can track all points of variation for every product through design and manufacturing so each process is exactly what the customer needs it to be. The manufacturers can then simply look at history of customization at every step by consolidating enormous quantities of information, and accordingly make the necessary changes as and when needed. This flexibility is the solution to achieving competitiveness in the international economy where products are needed to be customized to the requirements of individual customers, particularly for manufacturing industries like automotive, consumer electronics, and clothing. Aside from enabling customization, the Digital Thread also enables traceability and supply chain sustainability around the world. With the world still grappling with an ever-rising issue in the environment,

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