Chapter 9

The Digitalization of Pakistan's Universities?
An Opportunity to Re-Focus and Re-Purpose Toward Hybrid Learning

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ABSTRACT

Higher educational institutes today need to focus on identifying the requirements of industry as well as the market, so that they can help students develop the necessary skills and enable them to work with intelligent machines in today's era of the 4th industrial revolution which is also termed digitalization. Digitalization has increased pressure on educational institutions to update their existing curricula and course contents. It is important to note that, while industry as well as educational institutions in the developed world are rather quick on embracing such trends, developing economies often lag behind. Universities in developed countries are mostly on the path towards a hybrid way of teaching, while those in developing countries, such as Pakistan, frequently struggle to make these changes. This chapter seeks to provide suggestions and recommendations for the higher education sector, including universities and policymakers. It identifies the role that the higher education sector must play in preparing and upskilling future employees for Pakistan's digital future.

INTRODUCTION

The adoption and usage of digital disruptive technologies, such as Artificial Intelligence, robotics, Virtual Reality (VR) and Internet of Things (IoT), are often referred to as the elements of the fourth industrial revolution (Lasi, Fettke, Kemper, Feld, & Hoffmann, 2014). The term 'Industry 4.0' is one that captures the profound causes and consequences of this revolution. The interaction and usage of internet of things (IOT) between the internet, man and machine and object constitute some of these profound changes (Webb, 2020b). Industry 4.0 is a broad, holistic concept, denoting the integration of internet and computers at the workplace, and as well a complete process involving data, processes, practices, and employee upskilling.

The fourth industrial revolution and digitalization have affected various segments of industry and the demands from various related sectors, such as the education sector, to embrace these latest trends and to produce a human resource that is skilled in digitalization have increased significantly.

The chapter uses two terms digitalization and digitization. The term digitalization refers to the process of using information technology (IT) and digital technology in business activities, thus it is not only employing IT tools, but a complete process of using digital tools for performing business (Verhoef et al., 2021). The term digitization refers to the action of converting analogue information into digital form (zero and one); thus, it is a conversion using technology, and it does create a value chain for the business (Verhoef et al., 2021).

The fourth industrial revolution has raised such demands from the higher education sector, while the existing education curriculum, particularly followed by universities in developing economies, is not sufficiently updated to meet the demands of the digital era. Universities in future may hence be encouraged to respond to this revolution and may actively seek to produce students with the required skills to meet the demands of the market now.

With the rise of digitalization, it can be assumed that intelligent machines may replace the majority of the existing workforce. Higher educational institutes need to focus on identifying the requirements of the industry and the market, so that they can help students to develop the required skills and enable them to work with intelligent machines. Thus, for universities to train the future workforce for hybrid working environments (involving human and machines), they need to emphasize digital and technological literacy as well as enhance the critical thinking abilities and digital leadership qualities of the future workforce (Yeung, 2020). The integration of hybrid model of teaching in education is of great significance for the training and development of the future workforce (Georgina & Olson, 2008).

As stated, the demands for new skills in digital revolution require firms and education providers to upgrade the existing workforce's skills; employees' skills may soon be seen as outdated. This has added a pressure on the educational institutions to update their existing curricula and course contents (Kornelakis & Petrakaki, 2020). Policy makers and educationist have also raised the issue of employee upskilling, and hence incorporating this latest advancement in the course content has become imperative for educational institutions (Boden & Nedeva, 2010; Small, Shacklock, & Marchant, 2018). Digitalization not only brings with it greater automation in industry, but also involves changing job requirements (Petrakaki & Kornelakis, 2016). Therefore, there is a need to develop the demanded skills among the future workforce from the bottom-up level.

It is important to note that industry as well as educational institutes in the developed world are rather quick on embracing such trends. Universities in developed countries are, for instance, mostly on the path towards a hybrid way of teaching. British and German universities are working closely with the

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