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The Interactive Roles of Digitalization, Knowledge Workers, and Work Ethics in Stimulating Innovative Capabilities in IT firms

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Abstract

The social distancing devoid the organizations and public in general to interact but through the use of technology, the human connection was revived to carry on the operations. Hence, the role of technology is pivotal in modern world which can't be taken out of the equation at any cost. There are concerns regarding the "New Normal" post Covid-19 and it will affect the availability, adoption and acceptance of new technology as well as the working environments, work ethics and productivity of the knowledge workers. Organizations are stuck in dual challenges of managing workforce through digitalization and also maintain the profitability and functioning of the organizations given the tough economic conditions. Under these circumstances, there is trade-off between the use of digitalization to run the businesses with minimum workforce requirement and at the same time using digitalization to effectively utilize the knowledge workers and manage workforce. The study addresses this gap and examines the influence of digitalization post-covid-19 and how it will affect the knowledge workers productivity and innovative capability of the organizations. It also examines how the work ethics will play a role in shaping knowledge workers' productivity and innovative capabilities. The study aims to draw a comparison between developing and developed countries that could guide the organization on adoption of technology highlighting the factors for improved work performance in terms of innovative capability as well as knowledge workers productivity.

Keywords: Innovative Capability, Digitalization, Knowledge workers, Productivity, Work Ethics, Developed Countries, Developing Countries, Post Covid-19

Introduction

Difficult post pandemic economic circumstances are major driving factor behind how organizations will manage their workforce and operations. On one hand, the use of technology has become imperative for the organizations to manage their workforce working from home (Beno & Hvorecky, 2021) and smoothly conduct the operations whereas on the other hand, there is considerable downsizing in the workforce due to reduced operations and mobility in the wake of Covid-19 (Jancenelle & Buccieri, 2022). The employees were also struggling with managing their productivity along with the stress of job unpredictability, dealing with Covid-19 and managing their families (Farooq & Sultana, 2021). Because of the restrictions imposed by governments, on one hand, there is fear of losing jobs and on the other hand, organizations were struggling with budget constraints and profitability. The use of technology has helped organizations to run their operations and also manage the workforce, however, with the unpredictable circumstances and the after effects of Covid, there is need to understand how digitalization will help organizations in managing the knowledge workers and their innovative capability (Kirchner et al., 2021). There is a point of conflict in the usage of digitalization to run the businesses with minimum workforce requirement and at the same time using digitalization to effectively utilize the knowledge workers and manage workforce. Recently, there is a great scholarly interest in the role of digitalization in

the post covid-19 pandemic as it has served as major “force” in embracing the emerging technological trends (Amankwah-Amoah et al., 2021).

Knowledge workers are the main source of competence in knowledge intensive organizations (Sumbal et al., 2021). The last decade has seen an immense growth in the digitalization (Kissmer et al., 2018) and knowledge workers are supposed to adapt to this environment. However, with the growth in digitalization and most of the work being automated in the organizations raises a question about the workforce challenges (Autor, 2015) in the future specifically in the wake of Covid-19. The extant literature indicates that although it is not possible to completely replace the human expertise with machines, still a lot of work could possibly be managed through AI in near future (Sumbal et al., 2017). On the contrary, digitalization has brought more connectedness and enabled better knowledge creation, sharing and application for knowledge workers as is evident from the recent Covid-19 situation when work from home became the “New Normal” (Ahmed, 2020) where digitalization played a crucial role. Thus, these two different paradigms are working in parallel in the extant literature and need further clarification. The role of digitalization in relation to knowledge workers in the Covid-19 context hasn’t been discussed in detail in the extant literature. Although digitalization has remained at the core of all the activities during Covid-19, there have been challenges under different organizational contexts. This study thus addresses these concerns. Moreover, work ethics also known as computer ethics, digital ethics, moral awareness etc, in era of digital world also have important implications on knowledge workers’ behaviour (Müller, 2022). Its importance accelerated especially when employees were doing working from home in COVID era (Jufrizen & Pratiwi, 2021) and are managing the hybrid setting in post-COVID new normal. In the light of above discussion, the objectives of this study is two-fold; first is to examine the impact of digitalization on knowledge workers’ productivity and innovative capabilities and second is to examine the moderating role of work ethics for the relationship between digitalization and knowledge workers’ productivity.

The outcomes of the project have implication for both researchers and practitioners. It will help to clarify the ambiguities related to use of digitalization as a replacement for knowledge workers or its effective utilization to enhance the productivity of knowledge workers. In order to improve the innovative capability, it is important to understand the linkage of digitalization and productivity of knowledge workers. In terms of managerial implications, the study will help organizations to understand the role of knowledge workers in enhancing the innovative capability of the organization and what measures are important to manoeuvre the digitalization activities in a ways to foster knowledge worker productivity.

Background of Research

Digitalization and Covid-19

The post covid-19 era has brought a lot of challenges because organizations have gone through a lot of transformation resulting in loss of jobs, changes in infrastructure, changes in the working patterns, workforce management, service delivery, product development etc (Kirchner et al., 2021). These changes have put unprecedented pressure on organisations in terms of sustaining

performance to remain competitive in the market (Bhatia, 2021). Moreover, it has become evident that organisations need to look back and revisit their work environment and practices in the wake of recent new normal brought by COVID-19. The digital landscape enables for data driven decision making and bringing efficiencies in operations delivery (Kavuri et al., 2020). Digitalization platforms can help in development of hard and soft skills to ensure the acquisition of new and relevant knowledge to perform the functional tasks (Amankwah-Amoah et al., 2021).

Digitalization, Knowledge workers' Productivity and Innovative Capabilities

The knowledge management systems are established using digital innovation creating value in the long term (Di Vaio et al., 2021). Availability of knowledge in organisations paves the way towards innovation providing organisations with significant competitive advantage (Adams & Lamont, 2003; Eerme & Nummela, 2019; Kriz & Welch, 2018; Mao et al., 2016). Innovation is a key aspect which is accomplished by organizations through effective utilization of knowledge workers (Ahmed et al., 2021). The development of modern digital societies is based on innovation encouraging the organisations to remain competitive through creation of unique products generating new ideas and their implementation to not only contribute towards their own well-being and performance but also towards the socio-economic systems of the respective country (Ahmed, 2020; Terziev & Klimuk, 2020). Based on these arguments, the first hypothesis of the study is:

H1: Digitalization has a positive impact on knowledge workers' innovative capabilities.

Employee productivity is a multi-dimensional construct and it is highly contextual according to an organisational operational need and working environment (Beno & Hvorecky, 2021). If knowledge workers are more productive, they can contribute more towards the organizational objectives related to product innovation and operational efficiency which are the key outcomes of innovation (Gil-Gomez et al., 2020). In the wake of Covid-19, the productivity of knowledge workers has significantly been impacted due to change in work arrangements (Irfan et al., 2022). It is evident that majority of the workers within organizations have gone through a period of huge stress and in a state of fear and unpredictability because of the downsizing carried out by the organisations (Jancenelle & Buccieri, 2022). Moreover, the work routines of the employees have got affected and productivity of employees specifically knowledge workers has remained an issue of concern (Farooq & Sultana, 2021). Because of the discontinuities in the work procedures and operations of the organisations due to pandemic and subsequent downsizing of employees (Jancenelle & Buccieri, 2022) as well as work from home policy has also impacted the innovative capabilities of the organisations (Bendor-Samuel, 2020) by reducing their productivity level. Working from home poses more challenges for organizations in terms of visibility, control and monitoring of employees (Scalerandi, 2020) and at the same time, it has been argued that employees spend less time on employment activities while working from home (Powell & Craig, 2015). However, this new work from home practice during Covid-19 brings the knowledge worker productivity to limelight in terms of its linkage to the of organizational performance, knowledge workers' productivity and innovative capability. These arguments leads to the following hypotheses:

H2: Digitalization has a positive impact on knowledge workers' productivity.

H3: Knowledge workers' productivity positively mediates the relationship between digitalization and knowledge workers' innovative capability.

Digitalization, Knowledge workers' Productivity and Innovative Capabilities and Work Ethics

Under certain circumstances, the work ethics could also become controversial because organisations on one hand need to handle the businesses and on the other hand handle the employees as well maintaining a balance between the two and at the same time employees, they need to also maintain a balance between their family and the work competing with the stress and challenges of work life balance. Ethical work environment and moral awareness of employees always have an impact of employee behaviour (Jufrizen & Pratiwi, 2021). The digital advancement and COVID multiplies its importance especially in shaping employees behaviours and attitude (Pusriadi et al., 2021). Hence, in this context there could also be concerns regarding the work ethics which are important to understand in relation to digitalization and knowledge workers' productivity and innovative capability. Based on these arguments, the study hypothesis is:

H4: High level of workers' work ethics strengthens the relationship between digitalization, knowledge workers' productivity and innovative capability.

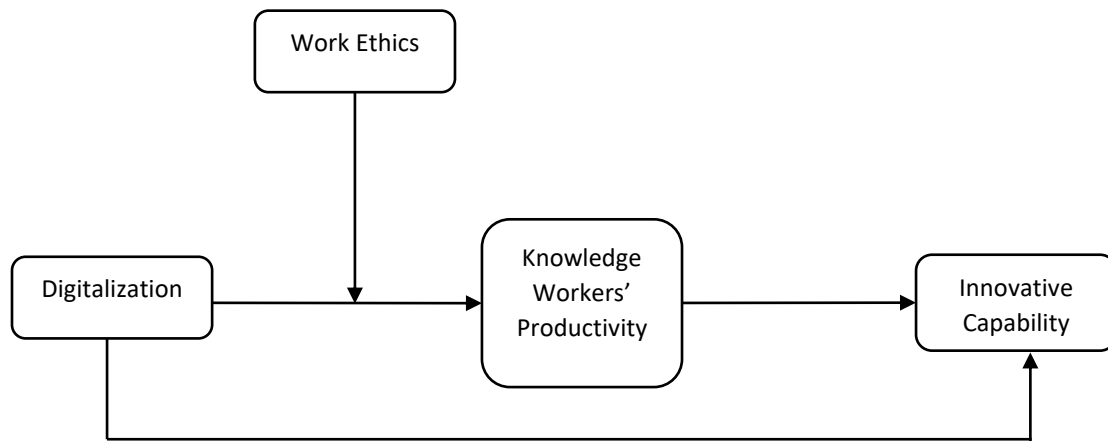


Figure 1: Research Model

Research Plan and Methodology

This study aims to draw a comparison between a developed (Hong Kong) and a developing (Pakistan) country keeping in view the unique characteristics of each of these countries. The Hong Kong industry is primarily a service industry with widespread business operations relying heavily both on the knowledge of employees and use of advanced technology to sustain the businesses. On the other hand, Pakistan is a developing and struggling economy with huge resource challenges and international border restrictions. A number of SMEs have emerged post covid-19 to sustain

the economy along with online business ventures. However, there are challenges in terms of digitalization and innovative capability of the organizations due to talent acquisition issues and resource constraint issues.

Two separate rounds of data collection will be managed each in Pakistan and Hong Kong. The target industry in both countries will be information technology as it is linked significantly to the use of digitalization and involve in the R&D and product innovation thus linking to the innovative capability. The respondents for this study will be the IT professionals with relevant experience. The participants will be informed about the purpose of research work, and they will have a consent to participate in the study. Survey questionnaire, based on the study constructs, has been designed to collect data. For all study constructs, measures are adopted from literature that are presented in Table 1. Questionnaire, in online form, will be sent to the respondents both in Hong Kong and Pakistan. Sample size for both data sets will be above 300 and statistical analysis will be performed through SPSS and AMOS, to test the study hypotheses for both study settings.

Table 1: Study Constructs, Items and Source

Construct	Items	Source
Digitalization	We fully adopt digital artefacts (products or services)	(Guo et al., 2020)
	We fully adopt digital platforms that support digital products and services	
	We fully adopt digital infrastructures, such as technology tools and systems	
	We fully adopt digital business models	
	We fully adopt digital management models	
	Firm digitalization relies on internal R&D	
	Firm digitalization relies on external purchases	
Knowledge Workers' Productivity	I achieve satisfactory results in relation to my goals	(Palvalin et al., 2015)
	I am usually able to carry out my work tasks efficiently (smoothly, without problems)	
	I am able to use the majority of my working time for conducting relevant tasks related to my goals	
	My job mainly includes tasks in which I am able to exploit my knowledge and skills efficiently	
	I am able to meet customers' expectations	
	The quality of my work outputs is high	
	The work group I work in works efficiently as a whole	
Innovative Capability	The quality of our digital solutions is superior compared to our competitors'	(Khin & Ho, 2018)
	The features of our digital solutions are superior compared to our competitors'	
	The applications of our digital solutions are totally different from our competitors'	
	Our digital solutions are different from our competitors in terms of product platform	
	Our new digital solutions are minor improvements of existing products	
	Some of our digital solutions are new to the market at the time of launching	
Work Ethics	I make decision based on professional code of ethics	(Komari & Djafar, 2013) (Panigrahi & Al-Nashash, 2019) (Al-Nashash et al., 2018)
	Employees in this organization are expected to strictly follow legal standard	
	First consideration for the organization is to check whether employee decision violates any law	
	The law or ethical code of employee's profession is major concern	
	I obey rules set for employee working attitude	
	Every employee must stick to organization's rules and regulations	
	It is very important to follow organization's rules and procedures	
	Organizational policies are strictly obeyed in this organization	
	I am instrumental among people within the organization	
	Employees protect other consideration rather than protecting their own interest	
	Organization's interest is not hurt during the work consideration	
	Employees can do anything further to protect organization's interest	
	I am always self-esteemed with the work I do	
	Employees always attempts to improve their efficiency	
	Employees are always highly motivated	
	Employees set their tasks and attempts to fulfill them	

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