

A Perceptional Study on the Association of Technology and Workers Performance

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Abstract

The world is moving from traditional analytics to 'predictive analytics and now increasingly towards prescriptive analytics, where the decisions are driven by predictive models using business rules engines to help the companies to decide the next best decision. Technology increasingly affects virtually every aspect of work, has been hailed as one of the most important developments in recent history. A motivated employee is a valuable asset which delivers huge value to the organization in maintaining and strengthening its business activities. Performance which leads to growth has unprecedented challenges which can be best defined by internal and external environmental factors in which technology is the key needed attention. Maintaining workers participation is one of the biggest challenges facing businesses irrespective of salaries and benefits, creating a working environment where workers are motivated and engaged; and are supported to develop themselves technologically. However, this paper focuses on the impact of technology on workers performance, also the major challenges of technology on workers performance and to examine the major factors that motivates workers. A structured questionnaires and interviews were constructed to provide answers to the research questions and a sample size of 60, employees. It was found out that technology facilitates effective communication, satisfactorily result and just-in-time delivery. It was also found out that workers were comfortable with the software provided by the company. It was however observed that most of the systems they work with experienced interruptions and vulnerabilities. Social media, mobile platform, analytics and cloud computing should be explained well to workers, as enablers to the next generation of technological thinkers.

Keywords: Technology; Motivation; Workers; Performance

Introduction

Technology increasingly affects virtually every aspect of work, it has been hailed as one of the most important developments in recent history. It has been argued that advances in automation and technology will result in increased productivity and product quality as well as increased market share for the United States in the global economy. These hoped-for outcomes have resulted in spending on technology in organizations doubling as a percent of revenues over the past decade.

Technology refers to the collection of tools, including machinery, modifications, arrangements and procedures used by humans. Two basic opposing views exist with regard to the impact of technology on individuals. First, some argue that the computerized workplace is inhumane and workers' jobs are robbed of enriching elements. These deskilled jobs produce dissatisfaction, alienation, and reduced motivation to perform. On the other hand, some argue that the computer liberates people. From this perspective, technology helps to remove the monotony and make jobs more enriched and satisfying. Zuboff [1] developed a typology of technology in informative way that reflects these opposing viewpoints. According to Zuboff, view point of technology, in informative way, falls into two types: Automated or informed.

An automating technology seeks to deskill the processes that make up the work. With this type of technology, greater control and continuity over the work process can be achieved through substituting technology for human labour [1]. An informed technology, on the other hand, is designed to upgrade or enrich the work processes. Through removing the most boring, repetitious, dangerous and mindless tasks from the work, human labour is left to perform the creative, challenging, intellectual and satisfying aspects of the work.

A similar typology has been proposed by Clegg and Corbett [2] with regard to advanced manufacturing technology. According to their classification scheme, a "specialist control" system entails

giving engineers the responsibility for maintaining and repairing the technology and giving computer specialists the responsibility for writing, editing, and fine tuning the computer programs. Operators, or those that use the technology, are restricted to loading, monitoring, and unloading the machine, and alerting other specialists in the event of a malfunction.

According to Zuboff's [1] and Clegg and Corbett's [2] typologies regarding the impact of technology on people describe the effects primarily in terms of how the technology changes the nature of the work that individuals must perform. The work (or job) design literature provides a vast amount of data that can shed some light on the underlying processes through which technology impacts workers.

Objectives of study

- (a) To examine the association of technology and workers performance
- (b) To examine the major factors that motivates workers in organisation
- (c) To examine the major challenges of technology on workers performance

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Literature Review

Concept of technology and Motivation

Frances Stewart provided probably the broadest definition of technology by including all skills, knowledge and procedures required for making, using and doing useful things. Technology in her definition therefore includes the *software* of production – managerial and marketing skills, and extended to services – administration, health, education and finance. Smillie also, describes this broader definition of technology as “the science and art of getting things done through the application of skills and knowledge”.

In general, the concept of technology implies a subtle mix of know-how, techniques and tools. Technology in this sense is vested in people – their knowledge, skills and routines – just as much as in the machine they use. Machines and tools are only the physical manifestation of a particular technology or technologies. The concept of technology has been given various definitions by previous literatures.

According to Kumar et al. [3] technology consists of two primary components: 1) a physical component which comprises of items such as products, tooling, equipments, blueprints, techniques, and processes; and 2) the informational component which consists of know-how in management, marketing, production, quality control, reliability, skilled labor and functional areas. The earlier definition by Sahal [4] views technology as ‘configuration’, observing that the transfer object (the technology) relies on a subjectively determined but specifiable set of processes and products.

The current studies on the technology have connected technology directly with knowledge and more attention is given to the process of research and development [5]. By scrutinizing the technology definition, there are two basic components that can be identified: 1) ‘knowledge’ or technique; and 2) ‘doing things’.

Technology is always connected with obtaining certain result, resolving certain problems, completing certain tasks using particular skills, employing knowledge and exploiting assets. The concept of technology does not only relate to the technology that embodies in the product but it is also associated with the knowledge or information of it use, application and the process in developing the product.

The early concept of technology as information holds that the technology is generally applicable and easy to reproduce and reuse. However, Reddy and Zhou contend that the early concept of technology contradicts with a strand of literatures on international technology transfer which holds that “technology is conceived as firm-specific information concerning the characteristics and performance properties of the production process and product design”. They further argue that the production process or operation technology is embodied in the equipment or the means to produce a defined product.

On the other hand, the product design or product technology is that which is manifested in the finished product. Pavitt suggests that technology is mainly differentiated knowledge about specific application, tacit, often uncodified and largely cumulative within firms. Thus, based on this argument, technology is regarded as the firm’s ‘intangible assets’ or ‘firm-specific’ which forms the basis of a firm’s competitiveness and will generally release under special condition [5]. Tihanyi and Roath propose that technology can include information that is not easily reproducible and transferable. Based on this argument technology is seen as “tacit knowledge or firm-specific, secrets or knowledge known by one organization”.

Impact of technology on work and workers

Campion and Thayer, said research has demonstrated that, this presents a more holistic and thorough approach to studying the design of work, and the setting and sample provided with an opportunity to explore. The study conducted by Campoion reveals that before and after the implementation of a new information technology system in a warehouse, Management at the warehouse claimed that the new technology was going to liberate workers from the monotony of their previous job.

However, their description of both the technology and their reasons for implementing it led to the fact that the new technology was meant to heighten the control and continuity of the work processes consistent with an automated technology [1]. From the study, technology, as described by management, definitely resembled a “specialist control” application within the typology of Clegg and Corbett [2] as the users of the technology (warehouse workers) would have no responsibility for either the development of the coding, nor for the maintenance of the technology. Thus, according to the researchers they expected that the new technology would result in deskilled jobs as well as an increased level of control over the work processes. Thus, the focus of the rest of our discussion and our hypotheses are on the impact of an automated technology.

Technology and knowledge

Based on the above definitions and concepts gathered from various literatures, the area of technology is wide and dynamic. The numbers of literatures on the subject are voluminous, extensive and varied in perspectives [3]. A review of literature reveals that past studies have made little attempt to explain the difference between knowledge transfer and technology transfer. Many of the studies do not draw a clear line between knowledge and technology transfer because most of the studies have regularly applied the term interchangeably in both technology transfer and knowledge transfer literatures; where majority have treated knowledge transfer and technology transfer as having similar meaning.

Model for the study

The model of the study is shown in Figure 1.

Understanding human resource management software

Accoding to Erin, human resources (HR) software solutions also called Human Resources Information Systems (HRIS), Human Resources Management Systems (HRMS) or Human Capital Management (HCM) software make managing a large or growing workforce more efficient. These solutions streamline the traditional HR functions of benefits administration, personnel tracking and payroll (Figure 2). But in addition to increasing your productivity by automating many of these administrative processes, HR software can also support the organisation at strategic level, by helping to recruit, develop and manage company’s most valuable resource: its people. Three main categories: Core HR, Workforce Management and Strategic HR-also called Talent Management or Talent Administration software.

Core HR: encompasses the three traditional human resources management functions: benefits administration, personnel tracking and payroll. Every company will require these functions once it has reached a critical mass of employees.

Workforce management, or workforce administration: Comprises the range of software solutions intended to effectively schedule and track workforce. These solutions are ideal for

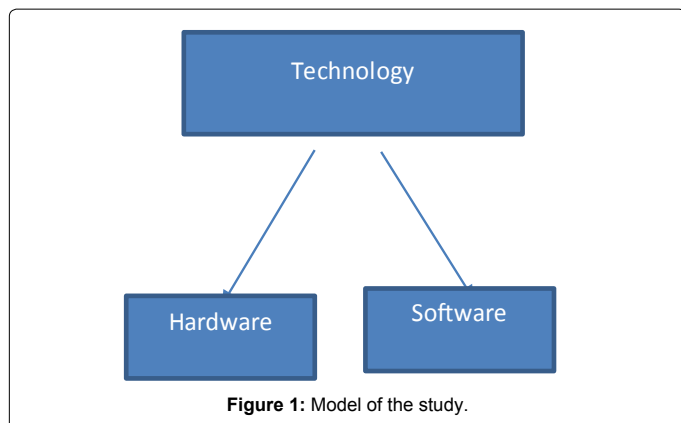


Figure 1: Model of the study.

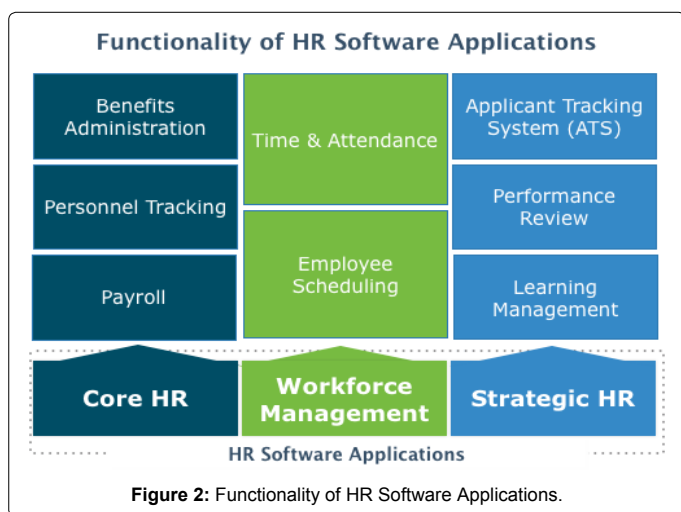


Figure 2: Functionality of HR Software Applications.

organizations whose employees work in shifts, and include applications to track time and attendance, monitor compliance with labour laws and usually include payroll functionality, or integrate well with other payroll software.

Strategic HR: involves growing the company by attracting and developing the best people, as well as better managing your workforce overall. Strategic HR applications generally provide some combination of applicant tracking and recruiting, learning management as well as performance review functionality. This type of software streamlines these strategic processes to ensure that a company is using its staff as efficiently as possible, and also that employees are continuing to grow and develop—increasing employee satisfaction and retention rates.

Methodology

This study specifically used non-probability sampling. This method of sampling technique gives the researchers the opportunity to accidentally choose respondents who in their opinion are considered to be relevant to the research topic.

Data analysis

The analysis of data is shown in Table 1.

Findings

From the above, it could be inferred that, majority of the workers strongly agree with the fact using technology ensures efficiency and effectiveness (55%), effective communication (61.7%), achieve

satisfactorily result (71.7%), and job involvement (58.3%). However, majority of the respondents (51.7) also strongly agreed that, the organisations software are user friendly and are comfortable with it. More than half of the respondents (80.0%) strongly agree that technology in terms of machines and software are very expensive to maintain and repair. Majority of the respondents (41.7%) disagree that organisational software needs specialists to operate, since their software is user friendly. Some strongly agree (33.3%) that, because some of the machines and software require technical knowledge to operate.

Further, workers were asked if they experience system vulnerabilities and interruptions. From the table majority (56.7%) of them strongly agreed that their system experience interruptions like, hacking, malicious software, and snooping etc. workers were asked what motivated them to perform effectively and efficiently, majority (51.7%) said money whilst others (31.7%) said technology. Therefore technology motivates workers to performance and facilities job design. So apart from money and technology, what other factors motivate you, majority (55.0%) of the respondents said when management communicate with them and when they are engaged in any activity they are motivated. Some workers are proactive they want to update their knowledge, majority (76.7%) agree that with the introduction of new machines they are ready to update their knowledge. Majority of the respondents (58.3%) said the happiness of workers is taken into consideration.

More so, workers were asked which apps motivates them to work efficiently and effectively, majority (40.0%) said time management apps, followed by cloud-based sharing tool such as Google drive and dropbox.

Lastly, workers were asked which of the software’s they are aware of and motivated by it, majority (26.7%) said they are aware of tally and Saas for accounting purposes followed by BambooHR (20.0%) (BambooHR is a Web-based human resources (HR) software solution that is well-suited for small to midsized businesses, and as it’s Web-based, it’s accessible through the Web browser of any device with an Internet connection).

Conclusion

The emergence of new technology over the past few years has resulted in a transformational change in the world around us. The world is moving from traditional analytics to ‘predictive analytics and now increasingly towards prescriptive analytics, where the decisions are driven by predictive models using business rules engines to help the companies to decide the next best decision. It was found out that technology facilitates effective communication, satisfactorily result and just-in-time delivery. It was also found out that workers were comfortable with the software provided by the company. It was however observed that most of their systems they work with experienced interruptions and vulnerabilities. The study also finds that money and technology are the major factors that motivate workers to give their best. Also apart from money and technology, workers are also motivated by management communication and engagement. It was found out that workers becomes proactive and update their knowledge when new technology is introduced in the organisation. It was also observed that motivation is not only about money, technology, and involvement, achieving result rather taking the happiness of workers into consideration, makes them feel part of the organisation. It was also found out that Tally & SAP and BambooHR were very popular software’s followed by the others. Preventive and unscheduled maintenance are the best type of

Questions	Labels	Total N=60	Percentages (100%)
1. efficiently and effectively	a. strongly agree	33	55.0
	b. agree	15	25.0
	d. disagree	12	20.0
2. Effective communication	a. strongly agree	37	61.7
	b. agree	18	30.0
	d. disagree	3	5.0
	e. strongly disagree	2	3.3
3. Achieve satisfactorily result	a. strongly agree	43	71.7
	b. agree	17	28.3
4. Job involvement	a. strongly agree	35	58.3
	b. agree	19	31.7
	c. neither	3	5.0
	d. disagree	3	5.0
5. Are you comfortable using the organisational software	a. strongly agree	31	51.7
	b. agree	18	30.0
	d. disagree	4	6.7
	e. strongly disagree	7	11.7
6. The cost involve in maintaining the machines and software are very expensive	a. strongly agree	48	80.0
	b. agree	10	16.7
	d. disagree	2	3.3
7. Do your machines and software require specialists to operate	a. strongly agree	20	33.3
	b. disagree	25	41.7
	d. strongly disagree	15	25.0
8. Have you experienced system vulnerabilities and interruptions	a. strongly agree	34	56.7
	b. agree	6	10.0
	d. disagree	12	20.0
	e. strongly disagree	8	13.3
9. What keeps you motivated for this job?	a. money	31	51.7
	b. technology	19	31.7
	c. job design	10	16.7
10. Which of these make you perform effectively apart from money and technology?	a. communicating with employees	33	55.0
	b. Job Design	10	16.7
	c. Employees involvement	17	28.3
11. Does the Introduction of new machines and software motivate you to update your knowledge?	a. yes	46	76.7
	b. no	14	23.3
12. Is your happiness taking into consideration by management?	a. yes	35	58.3
	b. no	25	41.7
13. Which of these apps motivates you to work efficiently and effectively	a. productivity apps	11	18.3
	b. time management apps	24	40.0
	c. Cloud-based sharing tools such as Google Drive and Dropbox	13	21.7
	d. opensource	12	20.0
14. Which of the following software are you aware of and motivated by	(a) BambooHR	12	20.0
	(b) HRM direct	8	13.3
	(c) ERM	10	16.7
	(d) Comsol	5	8.3
	(f) Fishbowl Manufacturing	9	15.0
	(h) tally & Sap	16	26.7

Primary data 2014

Table 1: Data analysis.

maintenance recommended. Most of the machines and software's should be user friendly since it was observed that some requires specialist to operate. Social media, mobile platform, analytics and cloud computing should be explained well to workers, as enablers to the next generation of technological thinkers.

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