Reconstruction of Meaningful Work in the Fourth Industrial Revolution

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Abstract
The 4th industrial revolution is often characterized by the embracement of digitalization, automation, and artificial intelligence that are cheaper, faster, and more reliable than cognitive human functions. Therefore, the new era of industrial revolution sparked much interests for productivity particularly the increase in output as a result of improved efficiency and the improvement in product quality prioritizing customization. However, the integration of technology at the workplace also introduces changes to the landscape of work involving disappearance of work and a shift in job structures. Such implications on work design, interpersonal relationships, and ethics are pillars to meaningful work. As meaningful work is essential for coveted work outcomes on a personal and organizational level, there is a pivotal need to look into the possible reconstruction of meaningful work following the changes in work orientation brought by the wave of the fourth industrial revolution. This paper conceptually discusses three imprints of the fourth industrial revolution namely continuous learning, changes in work design, and work-life permeability, and their possible roles in redefining meaningful work.

I. INTRODUCTION

Industrial revolution refers to a significant disruption of the economy that impacts the society in ways such as changes in work, learning, or values [1]. In this 21st century, the world is experiencing early stages of the fourth industrial revolution that builds on the digital revolution of computers and internet around the mid-20th century [1]. However, what differentiates the fourth industrial revolution from its predecessor are three technology drivers namely digital, physical, and biological [2]. Examples of digital technology are artificial intelligence, robotics, and internet of things. Physical technology includes autonomous vehicles and 3D printing, while examples of biological technology are neurotechnology and genetic engineering [1, 2]. As such, the fourth industrial revolution is often characterized by the embracement of digitalization, automation, and artificial intelligence that are cheaper, faster, and more reliable than cognitive human functions [2].

This new era of industrial revolution sparked much interests for productivity particularly the increase in output as a result of improved efficiency and the improvement in product quality prioritizing customization [2]. However, the fourth industrial revolution "is not only changing the 'what' and the 'how' of doing things but also 'who' we are" [3]. This suggest that the integration of technology at the workplace not only alters the landscape of work in terms of work disappearance and shift in work designs but also the meaning of work roles [4]. Such implications on work design, interpersonal relationships, and ethics are pillars to meaningful work [5]. While it is acknowledged that meaningful work is essential for coveted work outcomes on both personal and organizational level [6], little is known about the reconstruction of meaningful work given the changing nature of work following the fourth industrial revolution [4, 7].

II. MEANINGFUL WORK

Work ascribes many meanings to an individual such as the role of work as a job that secures source of income, a career that provides social status, or a calling to contribute for the greater good [8]. Despite that, meanings of work do not translate to meaningful work, though often used interchangeably in literature due to their positive connotation [8]. Defined as of purposefulness of a job for an individual [5], meaningful work is a subjective construction of experiences influenced by work values, centrality of work in life, and work orientation. As "meaningfulness is in the eye of the beholder" [5], there is a lack of consensus to what constitutes meaningful work. However, Rosso et al. (2010) [8] organized sources of meaningful work into four categories: self, others, work context, and spiritual life. An individual consist of values based on personal upbringing,

intrinsic motivation that makes work matter, and belief on the role of work in life that predicts meaningful work [8, 9]. Besides that, meaningful work is formed through social interactions with others at work such as supervisors and colleagues, and family members outside of work [8, 10]. In the work context, job design that promotes task significance [11], organizational goals that guide the interpretation of work, and assimilation of work with non-work domain also impact meaningful work [8]. While lacking empirical evidences for spirituality, it is suggested that sacred calling to be a vessel of God in the workplace serving a greater cause enhances the sense of duty creating meaningful work [8].

Meaningful work results in beneficial personal outcomes such as life satisfaction, life meaning, and better health, while on an organizational level meaningful work promotes work engagement, commitment, and job satisfaction [6]. As employees have multiple life roles, they juggle between work and life such as personal-care roles, family roles, friendship roles, and community roles [12]. The ability to stay engaged in work and non-work roles creates a sense of life and job satisfaction because effort, time, and commitment are equally distributed in each domain [13]. Meaningful work is also associated with better health due to lesser stress experienced from work-life conflict and job burnout [14]. When a job empowers employees to strike a balance in life resulting in purposefulness [15], employees reciprocate this fulfilment with emotional and psychological attachments towards the organization reflected through elevated work engagement and commitment [16].

The following sections focus primarily on changes in the work context following the fourth industrial revolution involving continuous learning, changing nature of work, and work-life permeability. However, as organizations do not operate in a vacuum and because meaningful work is conceived through the perception of self as well as the relationship with others, an overlapping discussion of self and others in work and non-work context will also ensue.

III. THE NEED FOR CONTINUOUS LEARNING AND MEANINGFUL WORK

Disappearance of work is a worrying issue come the fourth industrial revolution as human resources are being replaced with the advancement of digitalization and automation. It is estimated that 7.1 million jobs will be lost by 2020 as a result of cheaper, faster, and more reliable artificial intelligence [2, 17]. Consequently, there is an eminent need for continuous learning in the workplace to up skill and reskill in order to remain competitive. Technical training, particularly on technology, is of importance for employees to capitalize on the explosion of technology embedded in everyday work be it in the utilization of digitalized equipment and machineries or the monitoring of automation processes [2]. Besides that, it is also beneficial for employees to be equipped with soft skills involving intrapersonal and interpersonal relationship that are difficult to be substituted by robots [18]. Employees with soft skills are

more agile, imaginative, and open to change allowing quicker adaptability creating competitive advantage [19, 20].

Acknowledging the uprising value of continuous learning in the workplace, training and development programs are no longer mere perks to attract potential job candidates [21]. Instead, training and development programs have become an employee's need to ensure that they are fully equipped with knowledge and skills necessary to fulfil current job needs involving advanced technology [22]. Besides that, opportunity for continuous learning in the organization also prepares employees for potential changes in job roles by updating their set of skills to remain relevant in the future [22]. This is particularly important as the fourth industrial revolution brings upon the obsolesce of lowly skilled job roles and the creation of highly skilled job roles [4]. Moreover, continuing adult education in organizations through training programs not only develop a skilled workforce but enhances employee's personal growth in terms of life enrichment [23]. All of these benefits of training promote employees' competence for the job which is a mechanism for meaningful work [8]. Furthermore, opportunities for training and development symbolize the commitment of the organization towards their employees despite the availability of technological substitutes [24]. Such perceived support creates a sense of belongingness towards the organization which further enhances meaningfulness of work [8, 24].

IV. CHANGING NATURE OF WORK AND MEANINGFUL WORK

Work has undergone a few waves of disruptions since the 18th century. Physical jobs based on agriculture have shifted to the manufacturing sector and later moved towards mass production [1]. In the mid-20th century, physical industrial jobs begin to erode as intellectual jobs were on the rise alongside the introduction of computers and the internet [1]. In the 21st century, work has yet again been disrupted by the fourth industrial revolution, this time changing both the type of industry and the nature of jobs [4]. As innovative industries highly involving technologies such as artificial intelligence, robotics, and internet of things are upcoming, many have suggested the emergence of new types of jobs [2, 4]. However, based on literature reviewed, not much is known about the exact type of new jobs created by the fourth industrial revolution. What is known is that non-routine jobs involving creativity and social interaction such as managers and doctors will be in demand as they are currently difficult to be substituted through digitalization and automation [25]. Nevertheless, jobs that involve predictable procedures such as librarians and technicians will soon be obsolete [25].

The introduction of technology as the basis of firm operation also suggest a radical change in the way work is done [7]. While this area of literature is understudied whenever discussing the impacts of the fourth industrial revolution [26], the changing nature of work suggest that employees relate to their job differently resulting in the reconstruction of meaningful work

[7]. Following the increasing displacement of jobs by technology, for example autonomous vehicles paired with driving, sensing, and navigating features eliminating the need for drivers [2], employers can no longer ensure long term employment. This results in an inclination towards a boundary less career instead of a traditional career within a single organization [27]. A move towards boundary less career in the fourth industrial revolution involves working with multiple organizations under different bosses, working independently, or working flexibly via digital platforms [4]. Moreover, new job needs and expectations are formed in regards to survival, security, social interaction, and autonomy where freedom and growth are valued more than the traditional value of stability for income [4]. While it is hardly possible to fulfil every employees' search for meaningful work [5], non-traditional work arrangements could offer a better fit between person and job making work more meaningful. As such, work comprising of flexible time and place are highly sought after [28].

V. PERMEABILITY OF WORK-LIFE AND MEANINGFUL WORK

Millennials, which will soon make up the majority of the global workforce, are cohorts of employees who grew up following the fourth industrial revolution [29]. Consequently, their expectations for the overlapping of work and life revolve around technology revolution [30]. As technologies make way for new work arrangements [31], millennials are seeking for freedom, flexibility, and work-life balance [32]. However, study shown that millennials found work less meaningful as compared to employees from the older generations [33]. As a result, they switched jobs more regularly than the generations before [27]. This uprising trend for autonomy and work-life balance indicates an urgent need to understand the reconstruction of meaningfulness of work in this digitalized era [4].

As omnipresent and globally interconnected technology is infused in daily business operations [1], work can be done anywhere and anytime through the usage of mobile technology, portable computers, and the internet [31]. This promotes a sense of flexibility of work and empowerment that blur the line between work and home [31]. New work patterns such as on call employment, zero hour contract, and flexi hours reduced the need for employees to be stationed at the office from nine to five [15]. Instead, employees can work from home while attending to life responsibilities during the day [31]. Flexible work arrangement is often associated with work-life balance for working mothers [34] but is also essential for millennial fathers who are sharing parenting responsibilities [35]. As flexibility reduces stress and improve employee's wellbeing, it results in lesser work-life conflict [34]. A sense of pride and satisfaction entailing the ability to balance work and life further promote meaningfulness of work [10].

VI. CONCLUSION

Three imprints of the fourth industrial revolution include the need for continuous learning, changing nature of work, and permeability of work-life. In order to keep up with advanced work requirement and to prevent job obsolesce due to automation and digitalization, the availability of training and development in organizations are crucial in the construction of meaningful work. This is because continuous learning opportunities denote the organization's commitment towards employees despite the availability of technological substitutes. Besides that, the changing nature of work in the fourth industrial revolution is noted through the creation of new job roles and new working arrangements. A shift towards boundaryless career involves changes in job needs and expectations where freedom and growth provide more meaning to employees than job stability. As technologies make way for new work arrangements, boundaries of work and life become more permeable. This is particularly important for Millennial who prioritize work-life balance as pride and satisfaction from balancing both work and life makes work more meaningful. Thus, the fourth industrial revolution not only brings about changes in the type of work and the way work is done but also in work values, needs, and expectations. Therefore, reconstructing what meaningfulness means to employees in this digitalized era.

VII. RECOMMENDATIONS FOR FUTURE RESEARCH

Meaningful work involves a connection between oneself and the job [9]. Currently, different aspects of self-require further understanding in order to establish what constitutes meaningful work [8]. For example, millennial who will soon be dominating the workforce have several identities not only associated with work but with life outside work such as family, personal, and community. Besides that, there is also generation X who should be retiring from the workforce in the next 10 years yet are extending their working lives due to reasons such as flexible work arrangement and financial benefits [36]. Understanding the evolvement of self-following the fourth industrial revolution given the accessibility of technology and the change in work patterns and how one manages different aspects of life contributes to better understanding of how meaningful work is redefined.

Furthermore, most studies on work values in regards to meaningfulness of work are based on the western context [8]. However, work values may differ according to cultures [37], therefore, providing different meaning and motivation to a person [38]. For example, Protestant work ethics is usually associated with work values in western context yet there are other work values in non-western context such as Confucian work values [37] and Islamic work values [39]. In the fourth industrial revolution where work is boundariless, future studies should look into the possibility of assimilation of work values as a result of global interaction and how such integration of value reconstructs meaningful work.

Lastly, meaningfulness of work is embedded in experiences with others in a complex social context [5, 8], yet not much is known about the experiences of meaningful work following the fourth industrial revolution. Rosso et al. (2010) [8] questioned about the specific people who impact meaningful work, indicating the importance for future studies to look deeper into social interactions experiences contributing to meaningfulness. As new work arrangement surfaces, changes in social dynamics of the workplace could contribute to different experiences of meaningful work. Therefore, qualitative methodologies such as hermeneutics phenomenology and methods such as in-depth interviews and focus groups could be used to better understand the experiences of reconstructing meaningful work in the 21st century.

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