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SOCIAL POLICY REQUIREMENTS FOR THE DIGITALIZED WORLD OF WORK

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Abstract

Recently, we have been witnessing some revolutionary improvements in robotics, artificial intelligence and sensor technologies which have opened the door for a new phase of automation. Digitalization is highly supported by the business world due to its positive effects on productivity through quality improvements, human error reductions and process accelerations. Yet, the extent and pace of automation of work activities and digitalization of work processes in a wide range of industries necessarily depend on technical feasibilities, economic gain/loss relations, and social cost of technology adoptions. At country level, unemployment and social security problems caused by increased digitalization could have significant economic implications as well as social side-effects, national governments therefore should proactively formulate policies in these areas in order to attain a net positive gain from their technology adoption initiatives. However, social policy interventions by governments bring extreme economic costs for national economies. In this concern, all related societal stakeholders should align with the local and national governmental bodies to develop creative and efficient ideas, projects and proposals to provide sustainable solutions for emerging social problems in the digital era. Accordingly, social innovation initiatives have recently come out as an alternative way of jointly producing innovative and sustainable solutions to these new and complex social and economic problems e.g. job extinctions, youth unemployment, re-skilling etc. In this study, we aim to explore possible models for initiating social innovation practices in order to support social policy developments in education, employment and social security areas.

Keywords: Digitalization; social policy, education; employment, social security, social innovation.

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1. Introduction

Today's transformational developments in robotics, artificial intelligence, internet and sensor technologies have speeded up automation and digitalization processes both in production and service industries. However, the pace and the extent of these technology adoptions in various national economies depend not only on technical feasibilities, but much more on economic gain/loss levels and possible societal effects. The developments in new technologies are affecting not only production and service systems but also have disruptive effects on the skill requirements of employees, forms of employment and social security systems. These changes are bringing about new for individuals within education, employment, and social security areas. Accordingly, the digitized world of work requires governments to be proactive in issuing new social policies for covering these areas. National governments need to focus on national education policies, employment arrangement rules and social security systems since these are the areas which are highly and negatively affected by the ongoing technology adoptions. However, social policy interventions by governments bring extreme economic costs for national economies. Moreover, the classical public policy instruments do not function effectively for providing sustainable solutions in today's digitalized world of work. Since social problems should concern not only governments but also all related institutions and organizations, the solutions for these problems need to be sought by different stakeholders in addition to the governments. Accordingly, social innovation practices have recently come out as an alternative way of producing innovative ideas that bring effective and sustainable solutions to these new and complex social and economic problems derived from increased digitalization. In this study, we aim to depict a roadmap for developing a suitable social and economic context that would help flourish partnerships among government bodies, private sector companies and non-governmental organizations for initiating social innovation practices with the intention of supporting social policy developments in education, employment and social security areas.

2. Digitalization

Recently, we have been witnessing some revolutionary improvements in robotics and artificial intelligence technologies which have opened the door for a new phase of automation. The effect of these new technologies has started the Fourth Industrial Revolution, which includes developments in robotics, artificial intelligence, machine-learning, nanotechnology, and 3-D printing. In this new era, a wide range of work processes have been automated to be conducted via machines rather than human workforce. Combined with the rise of mobile internet and cloud technology, the new technologies have brought about rapid internet-based service business models to replace classical business models and the way of doing business. The so-called platform economy becomes an important factor in innovatively disrupting the classical rules of economical gains based on previous technologies and organizational structures.

Throughout the history, industrial revolutions mainly changed the production systems and increased efficiency levels compared to the preceding production systems. First Industrial Revolution started with the discovery of steam engine at the end of the 18th century through which the craft-based production was shifted to water and steam powered mechanical systems. At the end of the 19th century, the extensive usage of electrical energy provided the transition to assembly based production systems

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which opened the door for Second Industrial Revolution era. At the end of 20th century, the developments in electronics and ICT sector brought about the Third Industrial Revolution with autonomous production systems. Finally, the innovations of cyber-physical network systems have initiated the Fourth Industrial Revolution in which fast, continuous and bulk real-time data exchanges between objects become feasible. In this respect, each phases of automation have redesigned the production systems which in turn have converted the global economy via the surplus generated through efficiency gains in production.

By the help of today's technological advancements, almost 5 percent of all occupations are capable of being fully automated, and 60 percent of all occupations have at least 30 percent of modules to be automated by the current technology in hand (McKinsey Global Institute, 2017). In view of that, for all industries today's change imperatives mainly drive from the changing nature of the work itself. The main transformation in the nature of work comes from the erosion in the importance of time and in the importance of space context. In other words, now we can work at 'anytime' and at 'anywhere'. Such freedom has enabled companies to disintegrate work tasks and split jobs across many industries while gave employees the opportunity to decide to their work arrangement in line with their personal preferences.

Automation is highly supported by companies due to its positive effect on productivity through both improvements in quality, speed of processes, customer satisfaction etc. and reductions in human related problems such as individual errors, unethical behaviors, work stress, resistance to authority, laziness, mobbing, turnover intention, etc. triggering each other (Elçi, Şener, Aksoy, & Alpkan, 2012; Elçi, Erdilek, Alpkan, & Şener, 2014). As the affordability of new technologies increases and their usage spreads out across industries, companies are getting more dedicated for achieving higher production efficiencies, and so they focus on accelerating their technological system changes and innovation capabilities. Yet, the pace and extent of automation of work activities in a wide range of industries depend on the technical feasibility, economic gain/loss relations, and social cost of technology adoptions. More importantly, in order to utilize the efficiency potential of these new technologies, companies and national economies should focus both on aligning public and private strategic directions and trying to prevent possible social side effects while exploiting possible opportunities and benefits. Furthermore, at country level economic growth levels as well as national education policies and social security systems would be highly influential on technology adoptions or social resistance particularly in developing economies.

3. Effects of digitalization on labor markets

Each industrial revolution has made a significant contribution in the redesign of production systems which then also changed radically the way of doing work. As a result of the first two industrial revolutions, the production systems required work tasks to be bundled into discrete job roles to be performed by specific occupational profiles based on the rules of division of labor (Cohen, 2012). Then the subsequent advancements in technology have brought about the re-bundling of work tasks into new kinds of jobs and so eliminated the obsolete occupational profiles and initiated totally new ones. In past, these job creation and job extinction processes ended up in a net balance of job creation (Autor, 2015).

According to the "Future of Jobs" report published by the World Economic Forum (WEF, 2018), the new technologies and their combined effect in manufacturing systems will cause extensive disruption not only

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to business models but also to labor markets over the next five years. These effects in labor markets will occur as having new categories of jobs partially or completely displacing the current ones, creating massive changes in employee skill sets, and transforming the norms of how and where people work. The report by the World Economic Forum is based on a data set from companies across nine broad industries and covering the world's biggest 15 economies; including Australia, Brazil, China, France, Germany, India, Italy, Japan, Mexico, South Africa, Turkey, the United Kingdom, the United States, the ASEAN group and the GCC group. These economies altogether account for 65% of the world labor market (WEF, 2018). In addition, according to the World Economic Forum report, combined with other socio-economic and demographic changes, in the next five years 75 million jobs may get extinct, while 133 million additional new occupational roles may emerge.

In order to be prepared for the requirements of these new job roles and so to be able to cope effectively with disruptions to the labor market, investing in workforce skills is crucial both for companies and for national economies. It is for sure that, all over the world, most of the employees in various industries would be either affected by the increased unemployment due to job extinctions or they would be forced to have new work skills given that the expansion of job requirements over the standard job descriptions.

The possible negative and positive effects of these transformations and the expected skill gaps will vary across industries and occupational roles. According to the Future of Jobs reports, at least 50% of the workforce will require re-skilling in some extent. Additionally, more than 55% of workers across the Aviation, Travel & Tourism; Financial Services & Investors; Chemistry, Advanced Materials & Biotechnology; and Global Health & Healthcare sectors will need some re-skilling while the Aviation, Travel & Tourism industry outlines the largest demand for reskilling with 68% (WEF, 2018).

The transformation of new technologies affecting manufacturing systems does not only have a disruptive effect on occupational roles and skill requirements of employees, but also on the forms of employment and the way of working. In today's business world, we have been already vastly witnessing to the rising trend in project-based and network-based working modules. The talent gap, explicitly the scarcity of skilled labor, has already led to the development of new work arrangement solutions (OECD, 2016). The work-life balance preferences, and increasing women workforce and working parents with children have been calling for more flexibility arrangements in the working times or in the choice of work location. In that, flexible working arrangements including working from home and flexible time planning are much more likely to be as the standard work arrangements in near future. The traditional model of permanent full-time employment will most likely be replaced or at least supplemented by some other forms of flexible employment modules, such as part-time work, fixed-term activities, individually tailored temporary work and service arrangements, freelance work status, and cross function job roles.

4. Challenges for social policy

Although previous industrial revolutions bringing new phases of automation also created new jobs while wiped out some others, all those new jobs were considered as forms of standard employment with long-term employment prospects and social security commitments provided by employers. Specifically, in the third industrial revolution some clerical or physical jobs disappeared by office and workshop automations, but still some newer jobs related to computerized operations emerged. Accordingly

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specialized human capital leading to higher organizational performance got much more respect on the eyes of employers who paid attention to advanced human resource management practices including job design, employee selection, performance evaluation etc (Erdil, Alpkan, & Biber, 2004). However, today's new digitalized systems and original platform business models have enabled companies to make short-term contract based deals with employees much more easily than ever. In contrast to previous effects of automation waves, the fourth industrial revolution is bringing about much more groundbreaking effects on the employment, retention and social security policy requirements in labor markets. In near future, we may possibly see that gradually more companies will structure their businesses more in the forms of temporary project categories being fulfilled by employees from temporary networks; consequently companies would need to have and sustain only a minimum level of core labor force. This would put companies in the position of 'buyer' of contract based human capital rather than employer of employees. Especially the growing platform based models for recruiting high skilled employees will encourage more companies to depend on such platform systems for fulfilling their human workforce needs via short-term deals. As a result, more and more companies would no longer want to reserve human capital resources within their organization (Leimeister, Zogaj, & Durward, 2015).

On the other hand, the rising demand of companies for contracted deals means that potentially more and more independent and individual workers would offer their services via these platform based systems. Eventually, the increased non-standard work arrangements would bring about the problem of social security not only for individual workers but also for national governments. Due to this changing trend, there will be a transfer of risk from corporate structures to individuals who would be self-employed contractual workers (Eichhorst, Hinte, Rinne, & Tobsch, 2017).

Consequently, these new work arrangements will bring about new risks for individuals including (i) education related risks, such as not being educated for multi-function job roles, (ii) employment related risks, like losing the reimbursement opportunities for work accidents or sickness leaves; and (iii) social security based risks, such as losing employer support for pension plans, paid maternity leaves and nursing cares. For that reason, the digitized world of work obviously necessitates governments to immediately and proactively develop new social policies for dealing with possible problems in traditional employment, education and social security systems directly affected by increasing digitalization.

5. Importance of social innovation for future workforce

The European Commission defines social innovation as; "the development and implementation of new ideas (products, services and models) to meet social needs and create new social relationships or collaborations. It represents new responses to pressing social demands, which affect the process of social interactions aimed at improving human wellbeing. Social innovations are innovations that are social in both their ends and their means. They are innovations that are not only good for society but also enhance individuals' capacity to act" (European Commission, 2013 p. 6). Similarly, Caulier-grice, Kahn, Mulgan, Pulford, and Vasconceld (2010) defines social innovation as; "we define social innovations as new ideas (products, services and models) that simultaneously meet social needs (more efectively than alternatives) and create new social relationships or collaborations". As a remedy for social problems in all aspects of life, social innovation practices can be utilized in various ways including open source software for

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education, crowd source investments for development, co-produced care for the elderly, and etc. Since the economical sources of governments are not fully enough for all aspects of social support, policy-makers are increasingly aware of the potential of social innovation for enhancing education, health, and well-being of citizens. Social innovators by their proactive and innovative approaches are changing the way national governments work and the way business is transacted for the good of the society. Normally, private business firms in the marketplace prioritize such strategic goals as profit and capital maximization via market domination at the expense of not only the competitors, but sometimes of suppliers, customers and even laborers; and they exploit new technologies including full automation and internet of things to accomplish these goals. In this concern, national governments try to regulate labor markets in order not to leave over laborers, small investors, and customers to extremely competitive market dynamics. Although governments used to play a dominant role of intervention to labor markets in order to sustain employment and social welfare, in the new employment game the traditional governmental maneuvering tools seem to be limited. As an extremely negative scenario in developing countries without developing/controlling artificial intelligence, youth unemployment coupled with a possible collapse of social security systems may lead a serious decline in both citizens' purchasing power and local firms' profitability rates leading then to tax collection problems and governmental budget cuts. In this respect regarding lie-long learning for re-skilling of future workforce, social security issues and employment related problems; how can social innovation be used for supporting well-being of citizens? According to Mulgan and colleagues (2007) social innovation process is composed of four main elements: (i) Identification of new/unmet/inadequately met social needs; (ii) Development of new solutions in response to these social needs; (iii) Evaluation of the effectiveness of new solutions in meeting social needs; (ıv) Scaling up of effective social innovations. By using this perspective, we can depict a roadmap for developing a suitable social and economic context that would help flourish partnerships among government bodies, private sector companies and non-governmental organizations for initiating social innovation practices with the intention of solving digitalization based social problems in education, employment and social security areas. Regarding the drivers of social innovation practices, SI-Drive (2017) report depicts some possible macro level influencers. According to this report, economy affects employment policies as well as budgets cuts due to economic crisis become an important driver for social innovation. Likewise, technological innovations can be another driver by creating new possibilities to develop new products and services, which creates new jobs. Other possible drivers of social innovations in the field of employment include the possibilities offered by public-private partnerships. As a second step, it is important to identify the priority areas for social innovation, specifically pertaining to employment related problems, such as youth unemployment, skills mismatch, skilled labor shortage, generations-long exclusion from re-skilling opportunities, etc. European Commission published Atlas of Social Innovation (ASI) report in which the key context specific drivers of social innovation practices i.e. innovative environment, information and communication technologies, financial resources, solidarity, governance and politics are evaluated (2018). Moreover, the existing cooperation, partnership, and network relationships among individuals and corporations are also important drivers of social innovation. OECD (2016) depicts relative social innovation levels of countries calculated by each country's policy and institutional framework, financing opportunities, social entrepreneurship context and civil society coverage levels. Overall results of this index show that USA, United Kingdom and Canada are the first three countries in

which social innovation levels are the highest worldwide. In examination of these examples, it is seen that there are some necessary societal conditions that are effective in flourishing social innovation. These influencers include, appreciation of diversity, respect for others and collaboration, experimentation for tailor-made solutions, and availability of joint public funds to support innovative high quality education. Therefore, in order to create an environment that would support social innovation interventions in the field of education, employment and social security areas, national governments should firstly identify the most critical and priority areas for social innovation that would bring positive returns from possible partnerships among public institutions, private companies and NGOs. Afterwards, national governments should issue some supportive legislation that would prosper technological innovations and ICT sector developments. Given that, the ease of attaining necessary financial resources are very important for the initiation of social innovation interventions, national governments should issue legislations that would bring about some financial advantages particularly tax advantages for private sector institutions so as to encourage them to collaborate more in social innovation partnerships. Moreover, national governments should focus on increasing social awareness of their citizens in the areas of social inclusion, collaboration, experimentation for tailor made solutions, and innovative education. The increased public awareness in these areas would possibly augment social innovation collaborations and practices.

6. Conclusion

The idea that becoming a leader company in innovativeness would bring operational and corporate performance Kılıç, Ulusoy, Gunday, and Alpkan, (2015) has already been strongly and widely accepted all over the world. Nowadays, digitalization is similarly highly supported by the business world due to its positive effect on productivity through quality improvements, human error reductions and process accelerations. This revolution brings about disruptive innovation not only in production systems but also in employment forms which initially increase cost efficiency, speed of delivery, quality, flexibility, innovativeness, etc. However, in the further levels of digitalization, these increased technologies adoption levels in production systems wipe out some classical jobs, create some never jobs with short term employment contracts, and diminish social security commitments of the employers. Accordingly, these changes also bring about some new and complex problems for national governments in the areas of employment, social security, purchasing power, and tax collection. Since unemployment and social security problems caused by increased digitalization could have significant economic implications as well as multi-layered social effects, national governments should proactively formulate policies in these areas in order to attain a net positive gain from their technology adoption initiatives. However, social policy interventions by governments bring extreme economic costs for national economies. Besides, more functional problem-solving methods come into play when preventive practices are put into action in combating these problems via collaboration of all stakeholders. For that reason, for today's novel and complex problems derived from digitalization, social innovation practices have come out as an alternative way of producing innovative ideas that bring effective and sustainable solutions. By investigating previous studies and real life examples of social innovation practices, we depict a roadmap for national governments by which they can develop a suitable social and economic context for flourishing partnerships among government bodies, private sector companies and non-governmental organizations in

order to initiate social innovation practices in education, employment and social security areas. As a first step, governments should identify the most critical and priority areas for social innovation that have a potential for creating positive returns via partnerships among public institutions, private companies and NGOs. Afterwards, some supportive legislation which would prosper technological innovations and more importantly which would ease the attainment of financial resources need to be issued. Moreover, national governments should focus on increasing social awareness of their citizens in the areas of social inclusion, collaboration, experimentation for tailor made solutions, and lifelong learning education systems. In this concern, development of innovative methods and auditing experts for social impact analyses and evaluations to assess the social value created by social investment and support programs and projects, in order not spend in vain societal efforts and resources.

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