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Global Business and Industry 4.0 in the Context of COVID-19

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Due to the COVID-19 pandemic, global business is currently facing one of the biggest challenges in its sustainability. The "new normal" provides the customers with a different quality level of products and services (World Health Organization, 2019). This paper shows that the future focus of the business will be on the implementation of fully automated services and how this will change global business related to Industry 4.0.

Keywords: Industry 4.0, COVID-19, technology, global business

From the end of the 18th century and the introduction of mechanical production based on steam engine technology, the emergence of Industry 1.0 was established and followed by mass production, stimulated by electricity during the second half of the 20th century. The third industrial revolution in the early 70's accelerated automation of production enabled by the use of internet technologies as a solution to emerging issues and the introduction of robotics. Today, the beginnings of the fourth industrial revolution, based on cyber-physical systems, are found as the industrial revolutions

initiated fundamental changes in technology, organization, business, society and environment (Dombrowski et al., 2014).

The technologies of Industry 4.0 are already transforming today's business world, and these transformations will be more and more pronounced in the coming period. Technological progress with increasing acceleration reshapes the company profiles of today and the skills needed to perform work tasks and leads to the transformation of hitherto established paradigms of thinking and working. Therefore, improving efficiency alone is no longer sufficient to

achieve or maintain market competitiveness, but it is essential that companies continuously acquire new skills to monitor new technologies and master newly created production processes.

Industry 4.0, in the medium term, is about to reach a more comprehensive implementation and application, primarily by those companies which, due to the high level of flexibility requirements, are continuously under pressure to apply rationalization methods and, consequently, innovation to improve production structures. Such organizations will recognize opportunities in the new systems to comprehensively increase productivity levels and generate higher profit rates. Typical examples are technology-intensive medium-sized organizations that primarily have staff with the necessary qualifications and competencies, primarily due to the standardized procedures implemented in this segment. On the other hand, more restrained towards the innovative solutions of Industry 4.0 will be primarily those organizations that, as flexible large-scale manufacturers, are already far ahead in terms of production technologies and organizing tasks, given that the new (disruptive) systems of Industry 4.0 would be a threat to the achieved level of productivity. Thus, the related comparative advantages are that these organizations have built over the competition.

Consequently, it is to be expected that innovative systems will provide breakthrough less in less technologically advanced small and medium-sized organizations. The reasons are found on the one hand in the limited resources and competencies of many small and medium-sized organizations, which for these reasons will be reluctant to engage in (cost-intensive) experiments with an uncertain outcome. On the other hand, small and

medium-sized organizations are represented in industries that currently produce mostly relatively standardized goods with a limited level of automation. Moreover, such organizations (viz production of furniture, metals, and others) are subject to limited flexibility requirements, so demanding and risky automation measures are unlikely to be considered more seriously with this type of organization. Thus, simple actions and actions that require a profile of staff with a lower level of qualifications at the level of small and medium-sized organizations in the foreseeable future should be maintained in their current form and without significant changes in terms of automation (Hirsch-Kreinsen, 2014).

The vision of Industry 4.0 is that production plants will be able to request the necessary goods and materials needed for production autonomously. Thus, workers today's specific tasks of managing production processes will become redundant and even disappear over time. Under this assumption, workers will only rarely, in exceptional situations, intervene in production management tasks. Admittedly, some actions cannot be automated or automated to a negligible extent, and they are referred to in the literature as residual quotas of professional production labour (Hirsch-Kreinsen, 2014). Residual quotas of residual production work include demanding maintenance and equipping of production capacities, specific actions of delivery of materials and semi-finished products or manual work in certain production phases. All these actions necessarily and without exception require the professional knowledge and experience of the persons performing them, so it will not be possible to automate them fully.

Due to actual changes, adopting Industry 4.0 models requires a new approach to business

demands and professionals are obligated to learn new skills and use hi-tech gadgets to perform everyday tasks (Marugalska and Wyrwicka, 2017). Industry 4.0 offers numerous benefits and industrial processes that the management can more easily control.

The COVID-19 pandemic is a global phenomenon - as of 9th May 2021, there have been 157,289,118 confirmed cases of COVID-19, including 3,277,272 deaths, reported to WHO. As of 6th May 2021, a total of 1,171,658,745 vaccine doses have been administered (World Health Organization, 2021) - and requires a global approach. It is necessary to balance the measures that will combat the pandemic and the measures that will allow regular business activities, production and services.

COVID-19 speeded up Industry 4.0 technologies because, without them, many aspects of life and business were slowed down or even entirely stopped. From every corner of the world, companies and societies reported the most significant ways in which our lives have been altered, and virtually no business and society have been left untouched after such dramatic disruption. Main changes could be seen after the analyses of the most common phenomenon: work from home (42% of the U.S. labor force, mainly from the ranks of white-collar employees and professionals, are working from home) (Schallom et al., 2021), intensive Industry 4.0 technologies implemented, a distorted sense of time, growing need for essential workers, online lectures for students and working parents juggle, change of food service, travelling and tourism limited by regulations, a renewed relationship with nature and last but not least, a mental health crisis.

Implementation of Industry 4.0 technologies is a process, which can be added to increase and maximize the efficiency of the business operations and choose the exact business model, appropriate for a given period and in line with the business strategy in the COVID-19 context. This approach allows the definition of adequate business models and long-term sustainability even in future adverse conditions. Therefore, with this approach, the collapse of global business can be avoided, and the need to define the most appropriate business models (local, regional and/or global) during the pandemic is inevitable.

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