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THE IMPACT OF THE TRANSITION FROM THE 4TH TO THE 5TH INDUSTRIAL REVOLUTION ON BUSINESSES

SUMMARY

The 5th Industrial Revolution (5IR) offers new opportunities for people and businesses. It places people and technology in one place. Compared to the 4th Industrial Revolution, 5IR aims more at human-centered and sustainable development. It makes ESG values the main pillar of business strategies and presents a scalable model of production and workforce.

Studies show that companies that properly coordinate artificial intelligence and its use in companies increase their profits and profitability at a high level. The collaboration of humans and robots offers unparalleled results in business, healthcare and creative fields. Of course, despite all this, issues such as employee acquisition of new skills, ethical considerations and digital inequality still remain on the agenda.

The main purpose of this study is to examine business cases in the transition from the 4th Industrial Revolution to the 5th Industrial Revolution and to present the results of the research, revealing the positive and manageable challenges.

Keywords: 5th Industrial Revolution, Human-machine collaboration, Sustainable business, Artificial intelligence and automation, Digital economy

Industrial revolutions have been turning points in the evolution of human economy and society. The first industrial revolution, initiated in the 18th century, revolutionized production processes by leaps and bounds with the advent of steam engines. Later, the second industrial revolution occurred with the large-scale application of electricity. In the mid-20th century, automation and information technology advancements formed the third industrial revolution.

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The rapid development of technology over the past decades has paved the path to the 4th Industrial Revolution (IR). It is mainly based on artificial intelligence (AI), robot technology, Big Data, blockchain and automation. However, as technology influence expanded, the position of the human factor also evolved and thus formulated the vision of the 5th Industrial Revolution. The 5th IR emphasizes a human-centric paradigm and collaborative cooperation of humans with technology (Schwab, 2016).

The 4th Industrial Revolution is largely dependent on automation and digital technologies. As such, there has been a profound shift in production and service industries. Artificial intelligence and machine learning augment business productivity with optimized decision-making capabilities and more adaptable management systems (Brynjolfsson & McAfee, 2017). Application of robotics and AI technology, especially in the manufacturing industry, helps lower the cost of operations and increase product quality and speed of production.

Big Data and analytics are among the most crucial components of business models. In the current age, information is now the most critical asset, and companies are tapping their strategic decision-making by engaging in more nuanced analyses of consumers' behavior, market trends, and competitive environment. For example, analysis of data can make companies create bespoke marketing strategies and provide an enhanced customer experience. With the 4th Industrial Revolution, the platform economy and e-commerce have become much larger. In contrast to previous models of trade, Amazon, Alibaba, and other large platforms process users' data to enhance products and services offered and world market access. This system enhances consumers' options, enables small and medium businesses to globalize, and overall encourages the digitalization of the business environment.

According to the World Economic Forum (2022), on a huge scale, artificial intelligence and automation technologies will create major transformations in the global labor market. As forecasted, 85 million jobs will be destroyed through technological changes by 2025, but at the same time, 97 million new jobs will be created. These changes will increase the demand for acquiring new skills in the labor market and require employees to watch for continuous learning and retraining.

The 5th IR: Synthesis of Humans and Technology

While the 5th Industrial Revolution is based on the technological innovations established through the 4th Industrial Revolution, its greatest distinction is that it puts the union of humans and technology center stage. Here, artificial intelligence and automation and other emerging technologies are not only utilized in order to streamline business processes, but also to enhance human well-being and to develop an economic model with greater inclusivity.

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One of the primary aspects of this new period is a people-oriented approach. Development of the technology goes not only to raise productivity and economic effectiveness but also to enhance the standard of people's lives. For instance, the application of AI and robotic technology in medicine and education enhances people's health and their possibilities to gain knowledge. This is done to create technology that affects people in a positive way and necessitates close attention to its ethics.

The 5th Industrial Revolution supports the shift to a sustainable economy. Drifting away from unsustainable production processes, ESG (Environmental, Social, Governance) principles are becoming the primary strategies of companies (Roblek et al., 2020). ESG-strategy companies are turning to new approaches to reduce their environmental footprint, improve social responsibility and introduce transparent models of administration. This not only supports the long-term sustainability of businesses, but also raises their value as an investor and to customers.

A PwC (2023) study reveals that ESG-strategy companies are valued by investors and customers. This indicates that companies are motivated not only to generate profit, but also to develop socially and environmentally responsible activities. In this way, the 5th Industrial Revolution is driving companies to more responsible, inclusive and personalized models of work through technology and human cooperation.

Expected Impacts of the 5th Industrial Revolution on Businesses

The 5th Industrial Revolution is introducing a new period in the corporate world with even greater human-technology interaction. The effects of the 5th Industrial Revolution on corporations are seen in a number of areas and necessitate new approaches to be employed in the operations of companies.

One of the key characteristics of this period is the intensification of human-robot cooperation. Automation and AI technology enable humans to work in parallel to create a hybrid cooperative environment in the workplace. This not only boosts productivity but also ensures that human capabilities are utilized on more strategic and creative work without fully replacing them. For instance, the application of AI and robots in manufacturing reduces heavy physical labor, but human knowledge and capabilities continue to be needed to manage and streamline these advancements.

Alongside this, the 5th Industrial Revolution is also boosting the requirement of new job skills. The extensive application of digital transformation and automation is adding to the value of technical and analytical skills in the labor market. Employees should not only possess conventional professional skills but should also be skilled in working with artificial intelligence, analyzing big data and related technology innovations. A report by the World Economic Forum (2023) says that by 2027 approximately 50% of the jobs in the world will

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necessitate new skills in employees that will induce a significant shift in the world job market.

In order to get accustomed to these changes, companies should create flexible adaptation strategies. Besides adopting new technologies, companies should heavily invest in developing their human resources. Engaging employees in training and retraining will help them shift to new technological currents faster and enhance the competitiveness of companies. For instance, big corporations like Microsoft and Google are already creating specific programs to enhance employees' skills in the area of AI and machine learning.

One of the primary methods of boosting productivity and reducing errors in today's companies is human-machine collaboration. Humans and machines are cooperating to create better business models with the integration of automation and artificial intelligence.

One example of such a strategy in the context of healthcare is robots assisting surgeons. For instance, the Da Vinci Surgical System has been proven to enhance the accuracy of surgery and lower error rates by 30% (Nature, 2023). This represents an example from the real world where the expertise of human surgeons is supplemented with the accuracy of robotic technology. In a similar vein, AI is equipping humans with capabilities in the creative process. Applications such as OpenAI's DALL-E 3 enable innovators and artists to perform their work better, yet human intervention is needed to ensure ethics are complied with. The input of AI in creative processes illustrates human-machine partnership to be emerging as a significant contributor in industries related to manufacturing and services as well as cultural and creative industries. Gartner (2023) suggests that 60% of companies will implement “augmented workforce” strategies by 2030. This will imply that human capabilities will be blended with technology to develop new work processes with increased efficiency.

Efficient use of resources and sustainable development are some of the pillars of the 5th Industrial Revolution. The new businesses are shifting to a circular economy and introducing sustainable innovations. Philips’ “Equipment as a Service” is one such concept that is based on the leasing of medical equipment, and it cuts down on electronic waste by 50% (Philips, 2023). In contrast to the conventional consumption pattern, it ensures the reusing of the resources and a lowering of the cost of production. Investment in renewable energy systems is also one of the primary requisites of this shift. Google’s AI-based data centers, besides consuming fully renewable sources of energy, lower the cost of cooling by 40% (Google Sustainability Report, 2023). This proves that AI is not only helpful in the processes of the business but also in sustainable development. Although the 5th Industrial Revolution (5IR) enhances human-machine collaboration, a number of social and economic challenges arise. Continuous

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education and the application of ethical approaches are essential to solving these problems.

Automation and the introduction of AI into the workplace are threatening to render the workforce obsolete in certain fields. A Pew Research (2023) survey found that 54% of employees are worried that their job will be obsolete because of automation. To solve this challenge, firms ought to scale their reskilling and micro-credential-based training programs. For instance, Siemens' Digital Industry Academy trains 200,000 workers a year in IoT and cobot management. This ensures that employees keep up with technological advancements and are in the labor market with new competencies.

The pervasive application of technology also poses ethical questions. Transparency and fairness in decision-making in AI and automation are put on the front burner. A case in point is the "trolley problem" in driverless cars. Tesla and other manufacturers are developing ethical AI coding while cars are programmed to decide if an accident occurs. Cars' decision-making in the case of an accident is subject to fierce debate. Ethical development of AI is essential to ensure the future sustainability of human-machine collaboration.

Access to the technological innovations of the 5th Industrial Revolution is not universal. The ITU (International Telecommunication Union) estimated in 2023 that 3.7 billion people lack internet connectivity. This hinders their entry into the digital world and the opportunities of the 5th Industrial Revolution. Bridging the digital divide will require governments and corporations to invest in the extension of technology availability, the establishment of internet connectivity and the advancement of technological capabilities. Otherwise, the advantages of the technological revolution will accrue to a limited section of people only, which will further widen economic and social inequality across the world.

Empirical data and statistical analyses show that the 5th Industrial Revolution is having a significant impact on businesses and the economy. As a result of the rapid spread of digitalization, artificial intelligence and automation, economic systems and business models are being reshaped.

As per the predictions of International Data Corporation (IDC, 2022), over 70% of the world's economy will be digital in 2025. This means digital technologies will be dominant in nearly all functions and conventional business strategies will get transformed. Firms are growing their customer bases, reducing costs and automating processes by migrating to digital platforms.

Based on Deloitte's 2023 studies, firms that embrace the 5th Industrial Revolution achieve an average 30% increase in revenue growth. This supports the argument that technology solutions with a focus on humans improve the efficiency of business. For example, the use of personalized manufacturing, AI-driven analytics and IoT technology enables corporations to develop better market strategies and improve customer satisfaction.

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Moreover, the contribution of AI to world GDP by 2030 will amount to 15.7 trillion dollars, states a PwC (2019) report. This indicator clearly shows the influence of AI on business and economic development. The incorporation of AI in business models not only boosts productivity, but also saves costs and intensifies market rivalry.

The 5th Industrial Revolution (5IR) is turning into a key transformation period that fundamentally changes the economic and technological landscape. The key characteristics of this period are the concerted integration of human-centered technologies, artificial intelligence, and automation. It is already apparently seen that 5IR, in addition to bringing innovations into the technological sector, also puts people in the focus of technology by giving attention to the role of people and society. The new period causes significant changes in the working rules and company business models. In this respect, one of the elements that constitute the essence of successful transformation is the well-balanced incorporation of automation into human labor. By investing in this area strategically, companies can best achieve the synergy of the labor force and technology.

One of the striking features of the 5th Industrial Revolution is the prevalence of personalized products and services. Thanks to tools like artificial intelligence and IoT, the solution is provided in such a way that it responds to customers in a better and more accurate way. This kind of strategy not only makes companies competitive but also means an opportunity to boost customer loyalty and satisfaction. But with all the opportunities this period has to offer, significant challenges like ethical issues and digital inequality cannot be left untouched. Making the decision-making processes of the artificial intelligence transparent, avoiding algorithmic bias, and pursuing an inclusive strategy are the largest ethical demands of the 5S period. Complying with this and developing complex strategies in this vein will be a significant key to achieving social stability in the future.

Also, one of the essential components of 5S transformation is re-skilling the labor pool and creating a learning culture. Micro-credentials, online learning programs, and increasing ongoing learning opportunities will go a long way in preparing the labor pool in anticipation of future technological advancements. Moreover, embracing business strategies in accordance with ESG (Environmental, Social, and Governance) principles by firms is also one of the essential 5S requirements. Creating ecologically sustainable, socially responsible business models will enable businesses to sustain their competitive edge in the long term and create sustainable development.

Catching up with the opportunities offered by the 5SI era can contribute importantly to the economic growth and competitiveness of the country. To this end, it is essential to develop and enhance the regulatory and legislative environment

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for the use of artificial intelligence technology on a state level and invest in technological infrastructure. Overall, the 5th Industrial Revolution is not only technological development, but it is also a deep socio-economic transformation beneficial to people and society. Strategic decisions in accordance with the opportunities and challenges presented by the revolution will be essential to those companies and states to achieve a more sustainable and creative future. A ready response to 5SI in this sense will not only mean competitiveness, but also the well-being and sustainability of societies.

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4-CÜ SƏNAYE İNQİLABINDAN 5-Cİ SƏNAYE İNQİLABINA KEÇİDİN BİZNESLƏRƏ TƏSİRİ

XÜLASƏ

5-ci Sənayə İnqilabı (5İR) insanlar və biznes üçün yeni imkanlar təqdim edir. İnsan və texnologiyanın həmrək olaraq bir məkanda yerləşdirir. 4-cü Sənayə İnqilabı ilə müqayisə edəsi olsaq, 5İR insan mərkəzli və davamlı inkişafı daha çox hədəfləyir. ESG dəyərlərini biznes strategiyalarının ana sütünu halına çeviri və istehsalla işçi qüvvəsinin genişləndiriləbilən bir modelini təqdim edir.

Tədqiqatlar göstəriri ki, süni intellekt və onun şirkətlərə koordinasiyasını düzgün edən şirkətlər öz mənffət və gəlirliyini yüksək səviyyədə artırır. İnsan və robotun əməkdaşlığı biznes, səhiyyə və yaradıcılıq sahələrində misilsiz nəticələr təqdim edir. Təbii ki, bütün bunlara baxmayaraq, işçilərin yeni bacarıqlara yiyələnməsi, etik mülahizələr və rəqəmsal bərabərsizlik kimi məsələlər hələ də

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gündəmdə qalmağa davam edir. Bu tədqiqatın əsas məqsədi 4-cü Sənayə inqilabından 5-ci Sənayə inqilabına keçiddə biznes nümunələri araşdırmaq və tədqiqatlar üzrə aparılmış nəticələri təqdim edərək, bunun müsbət və qarşılanabiləcək çətinləklərini ortaya qoymaqdır.

Açar sözlər: 5-ci Sənaye İnqilabı, İnsan-maşın əməkdaşlığı, Davamlı biznes, Süni intellekt və avtomatlaşdırma, Rəqəmsal iqtisadiyyat

ВЛИЯНИЕ ПЕРЕХОДА ОТ 4-Й К 5-Й ПРОМЫШЛЕННОЙ РЕВОЛЮЦИИ НА БИЗНЕС
РЕЗЮМЕ

Пятая промышленная революция (5ПР) открывает новые возможности для людей и бизнеса. Он объединяет людей и технологии в одном пространстве. По сравнению с 4-й промышленной революцией, 5-я промышленная революция больше нацелена на устойчивое развитие, ориентированное на человека. Это делает ценности ESG основой бизнес-стратегий и обеспечивает масштабируемую модель рабочей силы и производства.

Исследования показывают, что компании, которые правильно интегрируют искусственный интеллект и его интеграцию в свой бизнес, значительно увеличивают свою прибыль и рентабельность. Сотрудничество человека и робота дает непревзойденные результаты в бизнесе, здравоохранении и творчестве. Конечно, несмотря на все это, такие вопросы, как переподготовка сотрудников, этические соображения и цифровое неравенство, по-прежнему остаются на повестке дня.

Основная цель данного исследования — изучить бизнес-модели при переходе от 4-й промышленной революции к 5-й промышленной революции и представить результаты исследования, подчеркнув положительные моменты и возможные проблемы.

Ключевые слова: 5-я промышленная революция, сотрудничество человека и машины, устойчивый бизнес, искусственный интеллект и автоматизация, цифровая экономика

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