

## **Globalization Substance and Industrial Revolution 4.0 And the Role of Technological Innovation for Economic Development Towards Entrepreneurship**

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**Abstract:** Entrepreneurship in the 21<sup>st</sup> century is characterized by a high volume of flexibility and knowledge. The two features have gained a great and renewed relevance as competitive advantages in a globalized economy. The classical industry structure has transitioned into a smaller focus and higher decentralization which is a major indicator of global development. Global competition has increased as technology changes due to the rise of economic liberalization. Today, there is a belief that fostering a nation's competitiveness translates into fostered entrepreneurship. The fourth industrial revolution has brought in technological innovation, therefore, spurring a transformation in production. There are two facets to this transformation. One, the need to integrate and upgrade systems, and two, the emergency of new systems based on artificial intelligence technology. The increased application of technology speeds up the restructuring and structural upgrading of the global industrial chain, therefore, enhancing the spirit of entrepreneurship. The purpose of this paper is to review the literature on the globalization substance, industrial revolution 4.0, and the role of the associated technological innovation for economic development towards entrepreneurship. First, the paper will present a theoretical background of these phenomena synthetically from globalization, industrial revolution phases, associated technological innovation and milestones in economic growth, and their role in enhancing entrepreneurship. The paper will highlight the role of technology-driven profile in the new global economy, spearheaded by innovative business strategies towards entrepreneurial initiatives.

**Keywords:** *Globalization, Innovation, Technology, Industrial Revolution 4.0, Economic growth, Entrepreneurship, Integration, Internationalization.*

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## INTRODUCTION

There has been a rising influence in different financial and economic processes at local, regional, and national levels in the global space. Coupled with sociocultural, political, and environmental processes, they all present the multidimensional aspect of globalization (Audretsch & Sanders, 2011). The globalization process consists of dynamics that are largely shaped by the fact that the various players are not on equal footing (World Economic Forum, 2019). In that sense, transnational corporations and developed nations have a greater influence while the influence of civil societies and developing nations is way less (Canidio 2013). Globalization can be argued to be a concept referring to the path to attaining full integration and liberalization of global markets (Caruso 2017). This integration and liberalization can be described as the uttermost desirable and inevitable fate of mankind. The events of the 20<sup>th</sup> century contradict this perspective because the period following world wars was characterized by a watering down of the internationalization process.

The internationalization process is a contemporary process that emerged with capitalism, which is one of the major global phenomena in scope (World Economic Forum, 2019). In a nutshell, globalization can be described as a phenomenon that seeks to gradually integrate economies via trade of technology, manpower, capital, goods, and intellect amongst nations. This trade fosters the nations' interdependence globally. There have been three complete globalization phases in national economies. The current phase, which is the 4<sup>th</sup> phase, is an industrial revolution dubbed Globalization 4.0. this 4<sup>th</sup> industrial revolution is a fusion of technologies that integrates the biological,

digital, and physical spheres. There are three main areas of research interest in the 4<sup>th</sup> industrial revolution. One, exploring its depth, seeking to unravel its dark side, and investigating insights and possible future approaches. The role of this revolution in the development of a new economic approach is a key research element.

Industrial revolution 4.0, economic growth, technology, and innovation are characterized by several features under the globalization substance. These include the new social contract, social talk, human capital industry, and corporate governance (McMillan & Rodrik 2011). The new social contract refers to the combination of human capital and era for the overall wellness of the society that is both the events with a purpose to be benefited through the usage of the superior and complicated era (Schwab, 2019). However, the 4IR is putting pressure on the labor marketplace as superior technologies are predicted to displace the traditional ways of manufacturing (Carvalho et al., 2018). According to the reports of the Future of Jobs 2018 around seventy-five million human beings are expected to lose their jobs to advanced technology inside the next 5 years and some other 133 million jobs are predicted to be created in fundamental advanced and rising economies (Coulibaly et al, 2018).

The social talk construct holds that social communication is defined via the ILO to encompass all kinds of negotiation, session, or the alternate of records among representatives of governments, employers and employees, on issues of common ground regarding economic and social policy. Also, it seeks to offer higher working conditions, employment opportunities, and improved gender equality via the software of social talk. Also, world leaders are initiating

international deals that aim at providing better working conditions, more wages, and equality for employees. Global Slavery Index (2018), reports that more than forty percent of humans had been in contemporary slavery till 2016 and seventy-one percentage of them were girls.

The World Bank defines human capital as including understanding, abilities, and fitness that human beings gather at some stage in their lives (Schwab, 2019). This would require exploring the architecture of the Fourth Industrial Revolution: Globalization 4.0, funding within the human capital to improve their skills, thru satisfactory schooling, fitness, and nutrition, and supplying ok infrastructure for universal increase. Also, the World Bank has released the task titled Human Capital that aims to assist international locations to address human capital extra successfully and efficiently. Further, the objective of this task is that when join schooling they are well-nourished and ready to research that they can enter the job industry with the desired skills, information, and health. Technology and innovation development, climate change, the growing fashion of gender inequality, cybersecurity, and other troubles are mounting the pressure at the governance norms to modernize inside the Fourth Industrial Revolution (Coulibaly et al., 2018).

This dynamic change has forced the general public to prevent supporting openness in a few countries. Therefore, the fourth commercial revolution would require proper company governance to generate a long-time financial boom thru the preservation of stakeholders consisting of clients, investors, and personnel, and developing societal considerations through offering safety warranties and developing

products that don't harm society. Also, within the fourth industrial revolution board of administrators, and proprietors should make certain that the corporation isn't just developing brief period financial gains and on the same time taking care of the wishes of the humans that have emerged due to a paradigm shift in the strategies of manufacturing goods and services. The Embankment Project for Inclusive Capitalism and Focusing Capital on the Long-term are the two projects started by way of the World Economic Forum for growing tools and methods to create long-term monetary increase and offer full-size insights at the development methods.

## **THEORETICAL BACKGROUND**

Globalization has taken place since the fifteenth century. In the previous 130 years of globalization, researchers have identified several stages that, with minor variations, have occurred. The first phase, which lasted from 1870 to 1913, was characterized by high capital and labor mobility, as well as a commercial boom fuelled by drastically lower transportation costs rather than free trade (World Economic Forum, 2019). The First World War cut short this period of globalization. As a result, it was impossible to restart the previous year's trend in the 1920s, and the globalization process was openly reversed in the 1930s (Schwab, 2016). Following World War II, a new era of global integration began. There were two distinct periods throughout this time. The turning points of the mid-1970s that denoted the changeover from the first to the second incorporated the breaking down of the macroeconomic guideline system set up in 1944 in Bretton Woods, the main oil emergency, the expanding versatility of private capital, strengthened by the initial

two peculiarities, and the finish of the brilliant age of development in the industrialized nations (World Economic Forum, 2019). On the off chance that the mid-1970s are taken as the defining moment, a prior period of globalization can be recognized, which kept going from 1945 to 1973. This period was portrayed by a significant work to foster global foundations for monetary and exchange participation and by a critical extension of trade activities between developed nations (World Economic Forum, 2019). It was additionally set apart by generally changing models of monetary association and restrictions on the portability of capital and manpower.

Huge scope projects capital subscription, particularly in natural resources and infrastructure, and the production of a worldwide market in open debt securities were the prevalent modalities of long haul worldwide capital developments during the principal period of globalization worldwide financial organization (Schwab, 2018). Long haul financing plans were then hit by a progression of crises, in any case, and almost vanished because of the overall discouragement of the 1930s, the breakdown of the highest quality level, and the monstrous bans that resulted (Kumari & Goel, 2020). As a reaction to the present circumstance, the Bretton Woods arrangements were embraced in 1944 with the end goal of making a multilateral arrangement of macroeconomic guidelines dependent on fixed however flexible trade rates and on monetary help for nations undermined with balance-of-installments emergencies.

One more reaction was the foundation of an authority worldwide financial framework at both the public level,

commodity and import banks, and the multilateral level i.e., World Bank and, later, Inter-American Development Bank and other territorial banks (Kumari & Goel, 2020). During the 1960s, long haul worldwide private streams returned, thanks partially to another period of worldwide monetary steadiness, yet additionally to different elements: the overflow of dollars that developed during the 1960s and of petrodollars during the 1970s; the deserting of the Bretton Woods arrangement of fixed rates and the buoyancy of the principle monetary standards in the mid-1970s; the quick improvement of institutional saving during the 1980s, drove by the United States and the United Kingdom; and the rise of an inexorably enormous monetary subsidiaries market somewhat recently of the 20th century, which made it conceivable to support the dangers related with various monetary resources and liabilities (Kumari & Goel, 2020).

## **RESEARCH METHODOLOGY**

The research was designed to take a systematic literature review approach. The research aims to explore the concept of globalization substance, relate it with the phenomenon of the 4<sup>th</sup> industrial revolution, assess the associated technological innovation and their impact on economic development towards entrepreneurship. A random internet search using keywords and phrases including Globalization, Industrial Revolution 4.0, Technological innovations in IR 4.0, Globalization and Technological innovation, Role of Globalization, IR 4, and Technological innovation in Economic Development for Entrepreneurship. These searches yielded a bulk of studies that were filtered using various eligibility criteria. The first exclusion criterion was study age. All

studies older than 10 years were excluded. Each article was assessed for relevance by skimming through to identify the presence of relevant information. The articles found to be within the 10-year age and contained relevant information was selected. The articles were reviewed extracting relevant information concerning the topic. Finally, the information extracted from each article was synthesized and conclusions were drawn.

## **FINDINGS**

The last quarter of the 20th century introduced the third period of globalization, with the slow spread of streamlined commerce, the developing presence on the worldwide scene of transnational companies working as incorporated development frameworks, the extension and remarkable portability of capital, and a shift towards the normalization of improvement models (Nan, 2019). Simultaneously, limitations on the development of labor persevered. This long process has been impacted by progressive innovations and in particular by propels that have reduced the expenses of transportation, communication, and information. The shortening of distances, in the economic perspective of the term, is an aggregate impact of cost decreases and the advancement of a new transport method, in addition to the limit to the real-time information transmission, beginning with the development of the telegraph and extending with the phone and the TV (Nan, 2019). Admittance to data on a mass scale, in any case, became conceivable just with the advancement of information and advances in communication lately. These innovations have diminished the expense of admittance to information, however not, clearly, the expense of handling it or, thusly, of utilizing

it (Ortiz-Ospina & Beltekian 2018). Progresses in transportation, communication and information are important for a more extensive scope of technological developments which have brought about phenomenal increases in economic expansion, efficiency, and expanded global exchange (Schwab, 2015).

In the European nations, the enormous capital urban communities have been occupied with global exchange since the commencement of current free enterprise (McWade, 2012). The internationalization of corporate production traces back to the late nineteenth century when it arose as a result of financial focus in the industrialized nations. Indeed, this is the peculiarity that denoted the introduction of transnational enterprises. From the 1970s on, it turned out to be progressively normal for labor concentrated assignments, like assembling or maquila processes, to be imported in different nations, in a pattern worked with by the decrease in transport costs and the exchange guidelines set up by the industrialized nations. This was the initial move towards the advancement of incorporated production frameworks, wherein production can be separated into different stages; that is, dismantling of the value chain (McWade, 2012). In such frameworks, the importing plants or firms in various nations can then have practical experience in the production of specific parts, specific periods of production, or in the assembling of explicit models.

These progressions in the construct of production and exchange have made key stakeholders of enormous organizations and business aggregates. Indeed, the improvement of incorporated production frameworks and expanded progressions of exchange, and unfamiliar direct speculation

go inseparably with the developing impact of transnational organizations (McWade, 2012; Kumari & Goel, 2020). The key element has without a doubt been the progression of exchange, monetary streams, and interest in emerging nations, whose speed has expanded over the most recent twenty years. These peculiarities are mostly to represent the tremendous flood of unfamiliar speculation and the stamped grouping of production at the world level which were a hallmark of the last decade of the 20th century. As on account of the exchange, global monetary exchanges began in Europe at about a similar time as present-day capitalism. In the nineteenth century, London was the fundamental worldwide monetary focus and managed the combination of the best quality level as an arrangement of global installments and macroeconomic guidelines (McWade, 2012). Paris and by the mid-20th century, New York were its nearest rivals.

Globalization has continued at a quicker pace in the financial circle than in production and trade, and it can sensibly be contended that we live in a period where the financial circle holds influence over the genuine area of the economy. The two processes are occurring inside a system of significant institutional rebuilding at the global level (Kumari & Goel, 2020). Furthermore, the quintessence of that interaction has been the progression of global current and capital trade. The plan of new global monetary guidelines keeps on being deficient, nonetheless and experiences institutional holes. Then again, there has been no relating progression of workstreams, which are dependent upon severe guidelines by national authorities, besides among the part nations of the European Union.

This is one of the significant contrasts between the first and current periods of globalization. The first was set apart by two significant movement streams: of European manpower to mild zones and generally Asian manpower to tropical regions. Together, these two relocations incorporated around 10% of the total populace of the time (Kumari & Goel, 2020). Likewise, the regulation of unskilled labor migration, which subsequently will in general search out sporadic channels (Singh & Zammit, 2019). This opens immigrants to harmful practices by traffickers, increases their defencelessness against the leadership, and creates further strain on remunerations for unskilled labor in the receiving nations (Haar, 2012). The current modalities for controlling migration assimilate the most profoundly qualified and somewhat scant manpower from third world nations (Incekara, & Savrul, 2012), The division of labor versatility hence fuels pay aberrations between laborers with various ability levels in both their home and their host nations.

Digital technologies are continuously disrupting society both on a nation and global scale. Globalization has influenced a shift characterized by global changes associated with technologies such as the internet of things, robotics, and artificial intelligence (Becheikh et al., 2016). The substance of globalization and the industrial revolution has sparked optimism to the idea of world transformation into poverty and inequality-free place. However, several major obstacles have presented themselves and that seems to be propelled by the same energy that causes progress in digital technologies (Müller, 2019). Overcoming these challenges means increased positivity and averted destabilization of the globe as it is known to us (Frey et al., 2016). The Fourth

Industrial Revolution and its virtual technology have now not only transformed truly every industry throughout the board but has done so on an international scale which has in no way been experienced before (Becheikh et al., 2016). In reality, it's by far the big scope, gadget-huge effect, and increasing speed of the Fourth Industrial Revolution that makes it so impactful and doubtlessly catastrophic (Qadri et al., 2018). While technologies including synthetic intelligence and robotics have brought extraordinary advancements in almost every enterprise, this equal generation is likewise threatening to displace billions of workers in near future, and the query remains as to what type of regulation if there be any at all, needs to be put into place to prepare for this displacement of human beings and wealth that might surely upheave our cutting-edge worldwide social and economic shape.

Xu et al. (2018) report the world fate remarking that the technological revolution is already altering lives, work, and social structure. The authors recommend cutting out an integrated and comprehensive response to the challenges the revolution is presenting, with the involvement of global stakeholders both in the private and public sectors. They associate the 4th industrial revolution with scary challenges (Lambert, 2017). The revolution is fostering inequality by disrupting labor markets. Labour is being replaced with automation, a move that is likely to increase the gap between labor and capital returns (Stiglitz, J. 2015). Labor and capital are no longer the most valuable and scarce resource but individuals with innovative ideas. In this view, Leswing, 2017 stressed the need to monopolize global talent in such an environment. The replacement of labor with automation will create great social tension. Also, integrating devices in IoT

brings a vulnerability in the networks raising the risk of hacking, and cyber insecurity. It is therefore a call to firms seeking to implement the benefits of the revolution to put up proper measures of security and risk assessment at each stage (Lang, & Mendes 2018).

Similarly, in attempts to seize a keep of an increasing number of disruptive natures of the Fourth Industrial Revolution, growing charges in inequality also threaten the progress made in terms of equitable distribution of wealth in the past few years. Research indicates one percent of the sector's wealth contributes more than eighty percent of all wealth annually (Becheikh et al., 2016). This inequality in the distribution of wealth will surely result in socially catastrophic degrees if no solutions are found quickly. The trouble isn't the handiest that the wealthy are getting wealthier. Research indicates excessive poverty, for example in sub-Saharan Africa, has additionally been growing, with different areas demonstrating comparable traits. The Sustainable Development Goal of ending poverty earlier than 2030 seems to be farther away than ever (Caruso, 2017). It is, in reality, imperative that governments begin operating extra carefully together to rewrite our modern-day worldwide structures of finance, trade, wages, and taxation on a global level.

However, with nations these days beginning to show a resentful eye toward the worldwide structures that have fuelled many of nowadays challenges, numerous countries have started adopting a reactionary method to globalization by using taking a more protectionist approach in worldwide matters and electing nationalist leaders (Ortiz-Ospina & Beltekian, 2018). This is, definitely, extraordinarily alarming for some of the motives, most of which must

do with the reality that future projections reveal the globe will continue to trend in the direction of greater globalized systems as technologies which include the internet and artificial intelligence maintain to permeate every enterprise. It is vital that cooperation both across international locations and among countrywide leaders and their citizens be enhanced instead of being ignored in these days of worldwide uncertainty, and that political goodwill is saved a priority henceforth.

The World Economic Forum Global Risk Report predicted that some global challenges though not caused by globalization substance will call for international effort to solve and ensure the safety and wellbeing of mankind. These are climate change, natural disasters, and extreme weather. On the same note, other researchers indicate that businesses face a greater threat in interruptions resulting from trade disputes, tariffs, and regulation changes including Brexit's exit from the European Union (Smith, 2014). It was projected that a global recession would occur in 2020 suggesting further, the need for world cooperation in international crises (Smith, 2016). Also, the projection recommended that world leaders continue cultivating the international business landscape towards strengthening globalization.

There has been a radical change in services and goods being traded in the 4<sup>th</sup> industrial revolution. McKinsey Global Institute reports that although there is a concentration of trade within regions, with a small volume across borders, there is a drastic change in the products and services. Service trade volume has risen 60% above goods trade in 2019 (Audretsch & Sanders, 2011). There has been a technology-oriented

shift in entrepreneurship that has seen a rise in intellectual property charges, telecommunication services, business services, and information technology services (Audretsch & Sanders, 2011). This is an indication that intangible services that cannot be affected by closed borders cannot be restrained to a region and must therefore be controlled from a global perspective. Therefore, the world is in an unprecedented shift which is not likely to slow down any time. The coincidence of the 4<sup>th</sup> industrial revolution with other contemporary issues such as social unrest, political tension, and a dynamic economic landscape point out to the globalization substance as a contributing factor. Further, cooperation between nations has led to great achievements in politics, social change, technology, medicine, and environmental awareness (Caruso, 2017). The continued solidarity and cooperation, without isolationism, will be an important factor in the future success of humankind. This, therefore, calls for a tearing down of the traditional structures and redesigning the processes and institutions in a bottom-up approach. A successful redesigning of the systems will herald an era of prosperity and peace.

In line with other researchers, Li et al (2017) have reported three key aspects of the 4<sup>th</sup> industrial revolution. One, technological advancement and its integration into the former technologies. Two the broad nature of the revolution's influence impacting human life in every aspect, and three, the high usage of the internet leading to the rapid spreading of technology. An analysis by (Caruso, 2017) assesses IR 4's implication on the labor and production processes. He remarks that IR 4 is associated positively with increased economic opportunities, production, and advanced and highly



competitive technologies. An example can be drawn from Stăncioiu (2017)'s report which indicates that while Japan and Germany are using digital technologies to grow their production, the USA on the other hand is using them to create new business models and enhance digital production of soft products and services with high speed. He refutes the claim that the revolution is likely to destroy the already existing global integration, but rather strengthen world economies. Morrar et. al (2017) reports a duality in technological innovation and social innovation. While the social feature of the industrial revolution 4.0 concentrates on positive aspects of the revolution, the technological innovation feature concentrates on transforming business processes to increase their efficiency.

Similar to the previous industrial revolutions, IR 4.0 is characterized by a combination of technological developments and governance decisions. The technological developments have impacted global systems of transportation, production, health, communication, energy, and distribution among others (Carvalho et al., 2018). Two important features that are key to watch are the new synergy between institutions and public policy, versus the synergy between norms and corporate behavior. These synergies bring an insight that helps mankind rise above false choices that might come up. This implies that the world no longer faces a stark choice between false dichotomies including national identity and immigration, jobs and technology, free trade versus protectionism, and social equity versus economic growth.

It is not to mean that globalization substance and IR 4.0 has not had such controversies (Carvalho et al., 2018). Their prominence is an indication that this two-

phenomenon caught up with mankind unprepared. There is therefore a need to develop more imaginative approaches that transcend the polemics bringing assurance to the skeptical mankind that technological change and global integration is not a move to set nations against each other in an endless game, or as some perceive, a race towards failure (Carvalho et al., 2018).

In entrepreneurship, innovation encouraging begins, alongside other factors, with a clean and particular layout of strategies. Dnishev & Alzhanova, 2016 report that the strategies should inspire, as possible, a specialization constructed at the company's exclusive competencies, with a specialized business strategy. Internationalization via, export and the maintenance of competitive advantage through patenting and different appropriation mechanisms are endorsed. The structure needs to stay non-rigid and inspire countries' empowerment and the interplay amongst the various countries. Policymakers ought to also set up regulations using ordinarily strategic indicators in preference to only monetary ones. They should also try to set up an institutional lifestyle of innovation assist inspired by way of the entire fine control and continuous development standards.

At the practical level, policymakers ought to inspire personnel in their business enterprise with qualified and skilled personnel and furnish their installations with superior technologies (Dnishev & Alzhanova, 2016). A strategy for top advertising of products and very good monitoring of competition and the evolution of client needs is likewise key. A critical strategic action for enterprises consists in finding an ideal scope for a business (Goldberg & Pavcnik, 2007). Although the

overall tendency of the outcomes supports a tremendous correlation between company size and innovation, several authors have affirmed that this relation is more complex than it first seems and that it is influenced utilizing numerous different elements which include enterprise characteristics and market structure (Dnishev & Alzhanova, 2016).

Bechiekh et al, 2016 recommend a restructuring of national innovation systems at the company level. Policymakers can increase firm size via internal improvement or mergers and acquisitions. To reduce the size of an enterprise for efficiency, decentralizing products and services with the aid of disinvestment, downsizing, reengineering, and outsourcing is recommendable. Several factors need to be taken into consideration to evaluate the most appropriate size of a company. Among others, recognize enterprise requirements, firm and industry specialization degrees, and the quantity and specificity of a company's competitive skills. It is important to take advantage of proximity to create various cooperative relationships.

For coverage makers, one of the most essential choices in fostering innovation could be to encourage competition within the various economic sectors by using banishing entry boundaries and stopping techniques evolved by using companies from leading to a monopoly or quasi-monopoly scenario within the industry ("Digital Cooperation: Advancing Global Digital Dialogue", 2021). They must also increase and declare clean policies to promote the sectors wherein they need to foster innovation. These regulations should consist of a specific announcement of the goals to be reached and, in particular, good enough financial support in the form of subsidies, preferential charge loans, tax

credits, and so forth., for corporations that desire to undertake innovation-related activities at the national level (Arokiasamy, 2012). It is also encouraged to install institutions to help groups internationalize their sports. This may additionally include public establishments doing overseas marketplace prospecting and coverage agencies overlaying internationalization-associated risks. Policymakers also can encourage innovation via the introduction of meeting locations and activities where the various monetary entities; that is, firms, financial institutions, research institutes belonging to the equal zone or related sectors can meet and alternate ideas. Even then, they can foster innovation through setting up geographical clusters and technopoles and by encouraging corporations to settle there.

## CONCLUSIONS

A leading vector in contemporary economic development, globalization impacts several life aspects in society. Frontline development areas impacted by globalization are technology and innovation. These two extend beyond country borders and usually are part of the cotemporally innovative-technological sphere. This research has identified several trends in development that results from the interaction of globalization, Industrial Revolution 4, innovative technology in the economy for entrepreneurship's sake including:

- Identification and creation of key areas of global economic relations, investment flows, technology and knowledge.
- Enhancing the role of external factors in the setup and advancement of national economic systems

- Inclusion of innovative technological links globally, affirming territorial decentralization, where development, exploration, manufacturing, distribution, and management are each established in a different nation.
- Intensifying the development of integration in technology and innovation.
- Strengthening of internationalization in entrepreneurship beyond national borders.
- Developing new technological fields such as biotechnology and artificial intelligence can be in fragment to allow outsourcing and therefore trade between developed and developing countries.
- Altering the landscape of technological development by enhancing the speedy accumulation of innovative ideas and skills to foster world market competitiveness in both high-end products and services.
- Transforming the global transnational cooperation strategies for the extension and establishment of manufacturing facilities, innovation, technology, and research centers in developing countries.
- Forming global information networks to engage consumers, producers, and supplies from different parts of the world.

General technological revolution and especially the speedy progress of the telecommunication and information era, boost up the process of constructive innovation which is going collectively with globalization. For a fact, the marketplace liberalization and increasing integration

quicken capital redistribution from sinking to advanced technology and sectors and increases the global productivity prospects and wealth of the growing countries. However, it also widens the economic gap and relegates less competitive companies, social agencies, and countries. Equally essential is their oblique effect on the company's functioning and the productivity increase of the economy. The enlightenment through internet flow of information at the demand structure and volume, the market potentialities, the competitor's response, and many others and informatics, its equally lighting fixtures elaboration, allow companies to without delay react to the ever-changing market situations. In this way, the reduction of entrepreneurial uncertainty discharges companies from a crucial expenses detail: the emergency reserves stored up in terms of merchandise and staff to address incorrect or out-of-date appraisals. The usage of those resources those sort of compensatory marketplace reserves, until then comprising a costly premium in contrast to entrepreneurial uncertainty, partially explains today's wonderful global productiveness.

Globalization creates new doors for improvement of the national innovation framework for all nations where innovativeness has become the propellor of economic development. In any case, the impacts of globalization are witnessed in various ways based on the level of development of innovation frameworks (Dnisev & Alzhanova, 2016). Developed nations, with a full-grown national innovation framework that increment their efficiency through investigation of new developing business sectors and technological specialties (Patel & Rietveld, 2021). Globalization and industrial

revolution 4.0 in developed nations extended and expanded their innovative abilities, improved the expenses of performing innovative work, made new items to business sectors, utilized new plans of action and serious systems. Non-industrial nations through globalization, at the phase of development of innovative frameworks, have had chances too, to fortify the limit of all elements of globalization substance. The manifestation of globalization in these nations with the establishment of centers of innovation and technology has contributed to the rise of national innovation systems with substantial financial resources and a broad involvement with the market mastering and creation of innovations. Essential channels and types of effect of globalization and technological improvement at national innovative systems in agricultural nations and advantages introduced an entrepreneurial perspective in agriculture.

It is worth noting that the cycles of globalization and internationalization have become inescapable in inventive movement. Along these lines, some claims shaped the worldwide innovation framework. The contentions for the presence of worldwide or large-scale regional (for example European) innovation frameworks in light of the following. One, the impact of national policy is decreased because of the improvement of global business and new technological advances; two, an expanding number of political regions constrained by territorial associations. Subsequently, the cycles of joining and globalization are filling in expansiveness. However, components of national innovative systems can have a similar degree of improvement in various regions, even inside unions.

Despite the number of possibilities and benefits that the 4th Industrial revolution and the globalization structure promises to provide, there are several demanding shortcomings or hazards also that the phenomena possess (Roy et al., 2016). For instance, the growing trend of cyber-crime is the foremost hazard to the Fourth Industrial Revolution as new and high-quality technologies will lessen the human effort but at the equal time, it will increase the risk of becoming a sufferer of cybercrime. Also, superior technologies would require skilled labor to perform them efficaciously. However, scarcity of skilled body of workers and insufficient infrastructure to offer essential skills for handling the advanced technologies is another essential task otherwise the semiskilled and unskilled labor will begin losing their jobs for that reason growing unemployment. High capital funding is needed to install the machines and technology. Thus, it turns distinctly tough for small enterprise homes to install infrastructure. Sophisticated and advanced technologies, as a result, will not be able to compete with the big companies which may additionally force them to shut down their companies. In the technology of automation and robotics, ethical problems have additionally emerged as the biggest danger to the achievement of the 4IR. However, robots have become smarter than ever before but they still lack ethical choice-making power that varies from nation to nation and region to region.

## REFERENCES

- Arokiasamy, A. (2012). The Influence of Globalization in Promoting Entrepreneurship in Malaysia. *southeast European Journal of Economics and Business*, 7(2), 149-157. <https://doi.org/10.2478/v10033-012-0021-7>
- Audretsch, D., & Sanders, M. (2011). Technological Innovation, Entrepreneurship, and Development. *Entrepreneurship, Innovation, And Economic Development*, 35-64. <https://doi.org/10.1093/acprof:oso/9780199596515.003.0002>
- Becheikh, N., Landry, R., & Amara, N. (2016). Lessons from innovation empirical studies in the manufacturing sector: A systematic review of the literature from 1993–2003. *Technovation*, 26(5-6), 644-664. <https://doi.org/10.1016/j.technovation.2005.06.016>
- Blanchard, E., & Olney, W. (2017). Globalization and human capital investment: Export composition drives educational attainment. *Journal of International Economics*, 106, 165-183. <https://doi.org/10.1016/j.jinteco.2017.03.004>
- Canidio, A. (2013). The Technological Determinants of Long-Run Inequality. Central European University. Mimeo.
- Caruso, L. (2017). Digital innovation and the fourth industrial revolution: Epochal social changes? *Ai & Society*, 33(3), 379-392. <https://doi.org/10.1007/s00146-017-0736-1>
- Carvalho, N., Chaim, O., Cazarini, E., & Gerolamo, M. (2018). Manufacturing in the fourth industrial revolution: A positive prospect in Sustainable Manufacturing. *Procedia Manufacturing*, 21, 671-678. <https://doi.org/10.1016/j.promfg.2018.02.170>
- Coulibaly, S., Erbao, C., & Metuge Mekongcho, T. (2018). Economic globalization, entrepreneurship, and development. *Technological Forecasting and Social Change*, 127, 271-280. <https://doi.org/10.1016/j.techfore.2017.09.028>
- Digital Cooperation: Advancing Global Digital Dialogue*. Digital Cooperation. (2021). Retrieved 14 January 2022, from <https://digitalcooperation.org/>.
- Dnishev, F., & Alzhanova, F. (2016). Globalization of Technological Development and for National Innovation Systems of Developing Countries. *The Journal of Asian Finance, Economics, and Business*, 3(4), 67-79. <https://doi.org/10.13106/jafeb.2016.vol3.no4.67>
- Deloitte (2016). Global Manufacturing Competitiveness Index. <https://www2.deloitte.com/global/en/pages/manufacturing/articles/global-manufacturing-competitiveness-index.html>
- Frey, C., Osborne, M., and Holmes, C., editors (2016). *Technology at Work v2.0: The Future is Not What it Used to Be*. Citi GPS: Global Perspectives and Solutions. The University of Oxford.
- Gaies, B., Goutte, S., & Guesmi, K. (2020). Does financial globalization still spur growth in emerging and developing countries? Considering exchange rates. *Research in International Business and Finance*, 52(1), 101113.
- Goldberg, P. K., & Pavcnik, N. (2007). Distributional effects of globalization in developing countries. *Journal of Economic Literature*, 45(1), 39–82.
- Haar, J. (2012), "Globalization and Entrepreneurship in Latin America", The Impact of Globalization on Latin America Task Force, Center for hemispheric Policy, Florida
- Hessels, J., & Naudé, W. (2019). The intersection of the fields of entrepreneurship and development economics: A review towards a new view. *Journal of Economic Surveys*, 33(2), 389–403.
- Hirschi, A. (2018). The fourth industrial revolution: Issues and implications for career research and practice. *The Career Development Quarterly*, 66(3), 192-204. <https://doi.org/10.1002/cdq.12142>
- İncekara, A., Savrul, M. (2012), "The Effect of Globalization on Foreign Trade And Investment In Eurasian Countries", International Conference on Eurasian Economies 2012, 23-30, Almaty, Kazakhstan Republic (October, 11th–13th 2012).
- Kumar, S., & Liu, D. (2005). Impact of globalization on entrepreneurial enterprises in the world markets. *International Journal of Management and Enterprise Development*, 2(1), 46. <https://doi.org/10.1504/ijmed.2005.006026>
- Kumari, S., & Goel, H. (2020). Exploring the Architecture of Fourth Industrial Revolution: Globalization 4.0. *FOCUS: Journal of International Business*, 7(2), 161. <https://doi.org/10.17492/jpi.focus.v7i2.722008>
- Lambert, L. (2017). The Four Challenges of the Fourth Industrial Revolution. Market

- Mogul. Retrieved from <https://themarketmogul.com/industry-4-0-challenges/?hvid=2Gt2CE>
- Lang, V., & Mendes Tavares, M. (2018). The distribution of gains from globalization. IMF working paper 18/54. Available at SSRN <https://ssrn.com/abstract=3157017>.
- Li, G., Hou, Y., & Wu, A. (2017). Fourth industrial revolution: Technological drivers, impacts and coping methods. *Chinese Geographical Science*, 27(4), 626- 637. <https://doi.org/10.1007/s11769-017-0890-x>
- Liu, C. (2017). International competitiveness and the fourth industrial revolution. *Entrepreneurial Business and Economics Review*, 5(4), 111-133. <https://doi.org/10.15678/eber.2017.050405>
- Marsh, P. (2012). *The New Industrial Revolution: Consumers, Globalization and the End of Mass Production*. New Haven: Yale University Press.
- McMillan, M. and Rodrik, D. (2011). Globalization, structural change, and productivity growth. NBER Working Paper Series No. 17143. Cambridge, MA, USA.
- McKinsey (2011). *Big Data: The Next Frontier for Innovation, Competition, and Productivity*. McKinsey and Company.
- McWade, W. (2012). The Role for Social Enterprises and Social Investors in the Development Struggle. *Journal of Social Entrepreneurship*, 3(1), 96-112. <https://doi.org/10.1080/19420676.2012.663783>
- Morrar, R. & Arman, H. (2017). The Fourth Industrial Revolution (Industry 4.0): A social innovation perspective. *Technology Innovation Management Review*, 7(11), 12-20. <https://doi.org/10.22215/timreview/1117>
- Müller, J. M. (2019). Antecedents to digital platform usage in industry 4.0 by established manufacturers. *Sustainability*, 11(4), 1121. <https://doi.org/10.3390/su11041121>
- Naud'e, W. and Nagler, P. (2015b). *Industrialisation, Innovation, Inclusion*. UNU-MERIT Working Paper 2015-043, United Nations University.
- Nan, G. (2019). *Industry 4.0: Pushing Globalization into a New Era*. China Today. Retrieved 11 January
- Stăncioiu, A. (2017). The fourth industrial revolution, industry 4.0. *Liability & Durability/Fiabilitate si Durabilitate*, 1(19), 74-78.
- Ortiz-Ospina, E., & Beltekian, D. (2018). *Trade and Globalization*. Our World in Data. Retrieved 14 January 2022, from <https://ourworldindata.org/trade-and-globalization#trade-has-changed-the-world-economy>.
- Patel, P., & Rietveld, C. (2021). Does globalization affect perceptions about entrepreneurship? The role of economic development. *Small Business Economics*. <https://doi.org/10.1007/s11187-021-00455-y>
- Prashantham, S., Eranova, M., & Couper, C. (2018). Globalization, entrepreneurship, and paradox thinking. *Asia Pacific Journal of Management*, 35(1), 1-9.
- Raj, D. And Buytaert, D. (2016). Could the Fourth Industrial Revolution help us reach the Global Goals? World Economic Forum, Davos, February 12
- Roy, R., Stark, R., Tracht, K., Takata, S., & Mori, M. (2016). *Continuous maintenance and the future – Foundations and technological challenges*. Science Direct. Retrieved 14 January 2022, from <http://dx.doi.org/10.1016/j.cirp.2016.06.006>.
- Schwab, K. (2015, December 12). The Fourth Industrial Revolution; What it means and how to respond. *Foreign Affairs*. Retrieved from <https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution>
- Schwab, K. (2016). *The Fourth Industrial Revolution: What it means, how to respond*.
- Schwab, K. (2018). *The future of jobs reports 2018*. World Economic Forum. Retrieved from [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs\\_2018.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf)
- Schwab, K. (2019). *Globalization 4.0 Shaping a New Global Architecture in the Age of the Fourth Industrial Revolution*. World Economic Forum. Retrieved from [http://www3.weforum.org/docs/WEF\\_Globalization\\_4.0\\_Call\\_for\\_Engagement.pdf](http://www3.weforum.org/docs/WEF_Globalization_4.0_Call_for_Engagement.pdf)
- Singh, A., & Zammit, A. (2019). *Globalization. Labour Standards and Economic Development The Handbook of Globalisation*, Third Edition: Edward Elgar Publishing.
- Smith, J. (2016). *Imperialism in the twenty-first century: Globalization, super-exploitation, and Capitalism's final crisis*: NYU press.
- Smith, Y. (2014). *Current Problems Associated with the End of the Third Industrial Revolution*, Posted on May 17, <http://www.nakedcapitalism.com/2014/05/problems-associated-with-end-of-third-industrialrevolution.html>.
- Stiglitz, J. (2015). *The Great Divide*, Publica Publishing House, Bucharest 16. World Economic

- Forum (2016). Report: The Future of Jobs. Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution, January.
- Waidner, M., & Kasper, M. (2016). Security in Industrie 4.0 - Challenges and solutions for the Fourth Industrial Revolution. Proceedings of the 2016 Design, Automation & Test in Europe Conference & Exhibition (DATE). Retrieved from [https://doi.org/10.3850/9783981537079\\_1005](https://doi.org/10.3850/9783981537079_1005)
- World Economic Forum. (2019). *Globalization 4.0 Shaping a New Global Architecture in the Age of the Fourth Industrial Revolution*. Geneva: World Economic Forum. Retrieved from [https://www3.weforum.org/docs/WEF\\_Globalization\\_4.0\\_Call\\_for\\_Engagement.pdf](https://www3.weforum.org/docs/WEF_Globalization_4.0_Call_for_Engagement.pdf)
- Xu, M., David, J., & Kim, S. (2018). The Fourth Industrial Revolution: Opportunities and Challenges. *International Journal of Financial Research*, 9(2), 90. <https://doi.org/10.5430/ijfr.v9n2p90>
- Qadri, B., Bhat, M. A., & Jamal, A. (2018). The rational expectations in globalization: Gauged globalization. *FOCUS: Journal of International Business*, 4(2), 44- 59. <https://doi.org/10.17492/focus.v4i02.11686>