



Review Contributions of the 5G Network with Respect to Decent Work and Economic Growth (Sustainable Development Goal 8): A Systematic Review of the Literature

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Abstract: Decent work and economic growth are fundamental elements for the sustainable development of a society, with Sustainable Development Goal 8 (SDG8) being one of the key objectives of the United Nations' 2030 Agenda. The 5G network has great potential to contribute significantly to the achievement of SDG8, offering faster and more reliable connectivity, which opens up new possibilities for innovation, operational efficiency, and job creation. The present study aimed to investigate the role of 5G technologies concerning decent work and economic growth (SDG8). As part of the method, 265 articles extracted from main databases such as Scopus, IEEExplore, and ScienceDirect were analyzed using the PRISMA methodology, resulting in 74 relevant articles after applying the inclusion and exclusion criteria. As a result, a greater contribution to the use of the 5G network was identified in sectors such as manufacturing, health, and transportation, generating greater economic growth and job creation. It was also found that the technological applications with the greatest contributions are "Internet of Things" and "Artificial intelligence". Finally, it was concluded that the results of this review are useful for future research on technologies that support 5G networks, contributing to economic growth and equitable and sustainable decent work in a wide range of sectors and rural areas.

Keywords: 5G; economic growth; decent work; innovation; job creation; operational efficiency; labor market; digital inclusion; employment

1. Introduction

Decent work and economic growth are two key objectives of the global sustainable development agenda [1]. The International Labor Organization (ILO) plays a central role in promoting decent work, which is defined as "productive work carried out in conditions of freedom, equity, security and human dignity" [2]. Decent work is important for individual workers' well-being and it is fundamental for sustainable economic growth and poverty reduction. When people have decent and adequately paid employment, they can consume, invest, and contribute to the economic development of their countries. Global economic growth is a key indicator of a country's development and prosperity. It is also important to consider an economic and environmental concept that seeks to change the way we produce, consume, and manage resources in society; the circular economy [3] can be used as an innovative approach that can transform the way economies and societies operate, promoting environmental sustainability and economic growth at the same time. The



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Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). world Gross Domestic Product (GDP) is a broad measure of global economic growth. The International Monetary Fund (IMF) expected the world economy to grow by 6% in 2021, in stark contrast to 2020, when it experienced a contraction of -3.3% due to the COVID-19 pandemic, and the year 2022, which was estimated to register a growth of 4.4%. In terms of economic developments, stronger growth was projected in 2021, at 5.1%, compared to figures of -4.7% in 2020 and 3.6% in 2022. This reflects a significant improvement in the economic outlook for 2021 and 2022 compared to 2020 [4]. The World Bank estimated that the world economy grew by 2.9% in 2019. However, due to the effects of the COVID-19 pandemic, there was an estimated contraction of 3.5% in 2020. A gradual recovery is expected in the coming years, with projected growths of 5.6% in 2021 and 4.3% in 2022 [5]. Foreign direct investment (FDI) plays a crucial role in global economic growth by driving investment, job creation, and technology transfer. According to the United Nations Conference on Trade and Development (UNCTAD), the FDI declined by 42% in 2020 due to the COVID-19 pandemic, but a gradual recovery is expected in the coming years [6]. International trade is an important driver of global economic growth. According to the World Trade Organization (WTO), the volume of world trade in goods is expected to grow by 8.0% in 2021, following a 5.3% contraction in 2020. However, the outlook remains uncertain due to the economic and health challenges related to the pandemic [7].

However, globally, there are still significant challenges in promoting decent work and equitable economic growth. Labor informality, unemployment, underemployment, and the gender gap in employment are some of the persistent problems faced by many economies [8]. In this context, it is crucial to implement policies and strategies that promote decent work and inclusive economic growth. This implies fostering entrepreneurship, strengthening labor skills, promoting equal opportunities, and guaranteeing social protection for workers [9]. Investments in education, training, and skill development are essential to improve the employability and productivity of workers. In addition, it is important to foster the creation of quality jobs, especially in sectors that drive innovation, technology, and sustainability [10].

The COVID-19 pandemic has exacerbated existing challenges to decent work and economic growth worldwide. The health crisis has led to significant economic contraction, job losses, and increased inequality. Economic recovery and the promotion of decent work have become urgent priorities for governments and international organizations [11]. It should also be noted that decent work and economic growth are fundamental elements for the sustainable development of a society [12]. Decent work refers to jobs that offer fair, safe, and dignified conditions with social protection and labor rights. On the other hand, economic growth implies a sustained increase in production and the generation of wealth in an economy.

In this context, the 5G network, or the fifth generation of mobile technology, has emerged as a transformative tool with the potential to significantly boost decent work and economic growth. This high-speed, low-latency wireless network offers faster and more reliable connectivity, opening up new possibilities for innovation, operational efficiency, and job creation [13]. It is transforming the way we work and how business operations are conducted in a variety of industries. Its advanced technical capabilities, such as low latency and increased connectivity capacity, are enabling the development of innovative applications and technologies that improve productivity and the quality of work. Investment in research and development (R&D) and the adoption of innovative technologies are key drivers of economic growth. According to the Global Innovation Index 2020, published by the World Intellectual Property Organization (WIPO), countries such as Switzerland, Sweden, and the United States lead the innovation ranking, boosting their economic growth [14]. This systematic literature review aims to examine how the 5G network impacts decent work and economic growth in line with Sustainable Development Goal 8. It will analyze how this technology influences productivity, innovation, and job creation, exploring the link between 5G-related R&D investment and economic growth based on a previous study.

This article is structured in seven different sections. After the Introduction, Section 2 presents the literature review. Section 3 presents the method followed to review the literature. Section 4 shows the results. Section 5 discusses the results. Section 6 presents the main conclusions of the article, and finally, Section 7 presents the limitations and recommendations of the research.

2. Literature Review

The 5G network, or the fifth generation of mobile technology, has been considered one of the most important innovations in wireless communications [15]. It offers significantly faster data transfer speeds, a lower latency, and a higher connectivity capacity than previous generations of mobile networks. It has great potential to contribute to the achievement of Sustainable Development Goal 8 of the United Nations' 2030 Agenda, which focuses on decent work and sustainable economic growth [16], as it drives operational efficiency, fosters innovation, and creates new business opportunities. Below are some key points about the impact of the 5G network on these aspects.

2.1. Impact of 5G on Economic Growth

The 5G network provides significantly faster data transfer speeds and increased connectivity capacity, enabling the adoption and development of new digital technologies and services [17]. This technology is driving digital transformation in multiple sectors, such as manufacturing, healthcare [18], transportation [19], and agriculture [20], generating new business opportunities and increasing productivity. The implementation of the 5G network is driving investments in infrastructure and related technology development, which, in turn, stimulates economic growth [21].

2.2. Impact of 5G on Decent Work

The 5G networks facilitate teleworking and remote collaboration, enabling greater work flexibility and the inclusion of people who previously had barriers to accessing certain jobs [22]. The increased connectivity and low latency of the 5G network facilitate real-time communication, improving efficiency [23] and decision making in work environments. The implementation of the 5G network also creates jobs in several sectors [24], including network-related technology, infrastructure, and services [25]. Telework and remote collaboration are clear examples of how the 5G network is boosting decent work [26].

With significantly faster data transfer speeds, the 5G network enables real-time communication, facilitating collaboration and flexible working. This provides opportunities for people to access jobs that were previously limited by geography or mobility barriers, contributing to labor inclusion and an improved work–life balance [27]. In addition, the 5G network drives industrial automation and advanced robotics, which improve efficiency and productivity in industry [28]. This enables the creation of more specialized and higher value-added jobs, as repetitive and monotonous tasks can be taken over by machines, freeing up workers for more creative and strategic tasks.

Likewise, the 5G network is driving digital transformation in sectors such as healthcare, agriculture, and smart cities. Telemedicine and remote healthcare benefit from the connectivity and low latency of the 5G network [18], which facilitates access to quality health services, especially in remote and rural areas. In agriculture, the 5G network enables smart agriculture by enabling the efficient monitoring and management of crops, irrigation, and livestock through sensors and data analysis [29]. In smart cities, the 5G network optimizes the management of urban services [30], such as transportation, lighting, and waste, leading to urban efficiency and sustainability [31]. These are just a few examples of how the 5G network is contributing to decent work and economic growth. As this technology becomes more widely deployed and adopted, its impact is expected to continue to expand, generating new opportunities and improving the quality of work in various sectors of the economy.

3. Methodology

This section is structured as follows: (1) purpose and questions, (2) type of study, (3) search strategy, and (4) inclusion and exclusion criteria.

3.1. Research Purpose and Questions

Based on the literature review, this study will analyze the impact of the use of 5G technologies on poverty reduction and how these technologies are integrated in different sectors to contribute directly and indirectly to poverty alleviation. The research questions are as follows:

- RQ1. How can the 5G network drive job creation in specific sectors, such as manufacturing, healthcare, and transportation?
- RQ2. How can the 5G network improve operational efficiency and productivity in different economic sectors?
- RQ3. What opportunities does the 5G network offer for automation and advanced robotics in industry, and what is its impact on existing jobs?
- RQ4. What are the specific applications of the 5G network in digital health and how can they improve access to healthcare services and generate employment in the healthcare sector?

3.2. Type of Study

The systematic literature review (SLR) method was chosen to develop this study because of its contribution to support practice and policy, as well as to guide future research [32]. The PRISMA method [33], which is recognized as a highly effective tool for producing quality systematic reviews, was applied because of its ability to standardize processes, minimize bias, ensure scientific rigor, and present transparent results. This is essential for an accurate assessment of the impact of 5G technology on the achievement of SDG8.

3.3. Search Strategy

The data collection method was based on a search of reliable sources, for which a review of articles was carried out, among which the following databases stood out: Scopus, ScienceDirect, and IEEE Xplore, among others. It shows the search terms and literary resources [34] used in this study that will be taken into account in the search process. A total of 265 articles were found, of which 74 relevant articles were obtained by applying the different inclusion and exclusion criteria, as shown in Figure 1 and Appendix A.



Figure 1. Selection methodology diagram.

When applying the search to all of the information related to the research topic, the following keywords were considered: 5g AND ("economic growth" OR "decent work"), "Economic growth" AND (("decent work" OR "Digital economy" OR "Job creation") OR 5g), 5g, AND "economic growth, and "5G's contribution to job creation".

Three stages were used for the selection and evaluation of the collected studies. After the first search phase, in the second phase, the titles and abstracts of 191 articles were analyzed using the inclusion and exclusion criteria; finally, in the third phase, 74 articles were selected for analysis and synthesis. Figure 2 shows the process of the selection and evaluation of the studies.



Figure 2. Process of the selection and evaluation of manuscripts.

3.4. Inclusion and Exclusion Criteria

For the systematic review study, the inclusion and exclusion criteria shown in the table below were applied (Table 1).

Table 1. Inclusion and exclusion criteria.

		Criteria
	I01	Articles on 5G technology used for contribution to economic growth and decent work.
	I02	Articles related to 5G technology and its contribution to job creation in different economic sectors.
Inclusion	I03	Articles on the impact of the 5G network on labor inclusion.
	I04	5G items that contribute to operational efficiency and productivity in different economic sectors.
	I05	Articles partially answering the research questions.
	I06	Articles in English language.
	E01	Unrelated articles on 5G technology and its contribution to job creation in different economic sectors.
Exclusion	E02	Articles that do not contribute to operational efficiency and productivity in different economic sectors using the 5G network.
	E03	Articles that have no relevance to the contribution of 5G technology to economic growth and decent jobs.
	E04	Articles that do not partially answer the research questions.

4. Results

A total of 265 articles found in the databases related to the research topic were analyzed, and duplicate articles that did not meet the inclusion criteria were discarded. After reviewing the articles, 191 articles were excluded according to the exclusion criteria and because they did not answer the research questions, and 74 articles were obtained for systematic review.

Figure 3 shows the automation that was performed based on the PRISMA method, according to [35], mentioning the importance of this process to explain, in detail and in a transparent manner, the evaluation of the article. The inclusions and exclusions are specified in accordance with the aspects considered.



Figure 3. PRISMA diagram methodology.

This graph (Figure 4) shows the number of articles found in the database, analyzed according to the year of publication.



Figure 4. Articles based on year and database.

Created using the VoSviewer tool [36], Figure 5 shows a bibliographic network map generated among the countries with the most research on the SDG8 topic related to 5G networks.

Figure 6 shows a word cloud extracted from the keywords of the articles that were systematized using the R Studio software version 2023.06.1 for this bibliographic analysis. The following words stand out: 5G, economic growth, and digital economy. Figure 7 also shows the tree structure with the percentages of the most repeated words according to the bibliographic analysis.



Figure 5. Overlay visualization of bibliometric analysis.



Figure 6. Overlay visualization of documents available in the Scopus database: word cloud.

5g	artificial	digital economy	digital econon 2	security testbeb	all-round security concept 1	business 1	comprehensive energy safeguard system 1	copper-cladiaminate 1 1%	corporate takeovers 1 1%	covid-19 big data 1 1%	criminal law regulation 1	critical infrastructure 1	data analysis 1
9%	3 2%	2 2%	1%		1%	1.4	1%				120	1%	176
			5g industry growth 1 1%	5g wireless technology 1 1%	antenna 1 1%	business environment 1 1%	data management 1 1%	dsrc 1 1%	economic impact of 5g 1 1%	economic indications 1 1%	economic performance 1 1%	electromagnetic fields 1 1%	electromagnetic security 1 1%
	economic growth 3 2%	smart city 2 2%	5g infrastructure 1 1%	5gpolicy 1 1%	automated ships 1 1%	c-v2x 1 1%	design thinking 1 1%	emission peak 1 1%	entrepreneurial spirit 1 1%	entrepreneurial inspacts 1 1%	evolving 1 1%	feeding system 1 1%	fibre infrastructure 1 1%
			5g mobile comunication 1	5gstakeholder 1 1%	autonomous vehicle 1	carbon neutrality 1	diffusion 1	entry and an an entry of the second s	filter	ghg emissions 1	high-quality development	hospitals	ict
	internet of	5g 1	1%		1%	1%	176		1%	15	1 1%	1 1%	1 1%
	things 3	1%	5g networks	6g 1	avoid traffic congestion 1	cellular communications 1 1%	digital economics 1 1%	energy security	fitech			plonic of arminischer	
big data	2% ai 2% 55 1 1 1 1 1 1 1 2 55 55 1 1 1 1 1 1 1	2% 5g-mmwave 1	ave 1%	176	1%			1 1%	1 1%	1 1%	industry 4.1 1 1%		technology 1 1%
4		178	5g nr a non-uniform 1 1 1% 1%	a non-uniform competition model 1	a non-uniform base station competition model 1 1% 1%	cellular networks 1 15	digital manufacturing 1 1%	engineering education 1 1%	foreign acquirer 1 1%	india villages			
576		ai graphs 1		1%						1 1%	input-output model	-	nantigen verbat besterer 1 18
		1% 5g attack	5g ports 1	academy-Industry collaboration 1	bibliometric 1	cge model 1	digital revolution 1 1%	enterprise development 1	foreign direct investment	industrial internet of things	1%		
iot 4		vector 1	1%	1%	1%	1%		1%	1 1%	1 1%			intelligent
3%	computing 2 2%	5g edge security 1 1%	5g private network 1 1%	accountabiblity 1 1%	broadband internet 1 1%	co-creation 1 1%	digital technologies 1 1%	enterprise strategies 1 1%	gdp 1 1%	industrial revolutio 1 1%	n 1 1 1%	models 1 1%	planning 1 1%

Figure 7. Visualization of the documents based on bibliometric analysis.

Figure 8 reveals that, in the study, China tops the list with 24 articles dedicated to research on the topic of 5G network application for job creation, closely followed by India with 13 articles. In addition, Greece has six articles, while Italy and Pakistan have three articles each in this research area.



Figure 8. Articles analyzed by country.

Figure 9 also shows the authors with the highest numbers of citations per year from the articles related to the present publication, with an average of 5 TCs (total citations).



Figure 9. Top authors' production over time.

5. Discussion

5.1. Answer to the Questions

In this systematic review of the scientific literature, we analyze the impact of 5G technology on decent work and economic growth and identify the best technologies, the most frequent implementation tools, as well as the largest amount of research based on the type of sector in order to answer the proposed questions.

RQ1: How can the 5G network drive job creation in specific sectors, such as manufacturing, healthcare, and transportation?

As seen in Figure 8, China leads in the number of articles that were published in recent years related to the application of the 5G network in job creation. In addition, Figure 9 highlights that Chinese authors lead in terms of the research and mastery of 5G technology application in the context of job and economic growth. Considering this, Figure 10 shows the articles related to this topic, where the applications that have impacts on the economy through the health, transportation, and manufacturing industry sectors are identified. Of these, we can highlight the following: smart transportation (9), telemedicine (19), and smart manufacturing (14).



Figure 10. Articles organized based on sector and application.

From Table 2, it can be seen that the 5G network drives job creation in the manufacturing industry through 5G-enabled smart manufacturing, enabling the implementation of automated systems, collaborative robotics, and predictive maintenance, which improves production efficiency and creates new job opportunities in terms of monitoring and managing these systems. The 5G network drives job creation in the healthcare sector through high-speed telemedicine and remote surgery, and it creates jobs related to these technologies. For the transportation sector, the 5G network drives job creation through intelligent traffic management and connected transportation systems, which enable real-time data collection and exchange between vehicles, infrastructures, and devices, facilitating efficient traffic management, road safety, and autonomous navigation. This drives job creation in areas such as the development of smart mobility applications, data analytics, and infrastructure maintenance.

Table 2. The 5G-based applications used in specific manufacturing, transportation, and medical industries.

Specific Sectors	Application	Articles
The application of 5G technology focuses on smart manufacturing that enables the implementation of advanced automation systems, collaborative robotics, and predictive maintenance, which improves production efficiency and creates new job opportunities in terms of monitoring and managing these systems.	Smart manufacturing	[37–48]
The application of 5G focuses on high-speed telemedicine, remote surgery, and advanced monitoring systems. It enables real-time transmission of medical data, remote surgery, and remote patient monitoring, improving accessibility to medical care and creating jobs related to these technologies.	Healthcare	[49–56]
The specific application of 5G technology is in intelligent traffic management and connected transportation systems, facilitating efficient traffic management, road safety, and autonomous navigation. This drives job creation in areas such as smart mobility application development, data analytics, and infrastructure maintenance.	Smart transportation	[19,57–62]

These specific applications of 5G technology open new job opportunities and contribute to economic growth in each sector.

Figure 11 shows an analysis classified by the type of 5G technology used by each sector, with those with the greatest impacts being healthcare, transportation and manufacturing, agriculture, tourism, and education.

The Table 3 shows the digital technologies of the articles according to the results found. Among the most outstanding are the Internet of Things, artificial intelligence, sensor networks, machine learning, big data, blockchain, and virtual reality, among others.

Table 3. Detail of applications based on 5G technology.

5G Technology	Quantity	Articles
Artificial intelligence	12	[38,42,60,63-71]
Big data	5	[72-75]
Blockchain	4	[49,61,76,77]
Virtual reality	3	[78–80]
Deep learning	2	[81,82]
Internet of Things	30	[19,39–41,43,44,46,48,58,59,62,83–100]
Machine learning	5	[52,57,101–103]
Sensor networks	7	[45,51,53–56,104]
Tactile Internet	3	[37,47,50]
Others	2	[38,105]



Figure 11. Articles classified based on 5g technology and industry.

RQ2. *How can the 5G network improve operational efficiency and productivity in different economic sectors?*

Figure 12 shows the items analyzed for their uses and impacts on operational and productive efficiency through 5G network-based technologies.



Figure 12. Distribution of items analyzed based on application.

The Table 4 provides, in detail, the items analyzed based on sector according to the parameters and functionality topics, providing evidence that the 5G network mainly improves operational efficiency and productivity in the health sector with the use of telemedicine, which enables remote medical care, patient monitoring, and the connectivity

of medical devices, improving the quality of care. In the manufacturing industry, the 5G network improves operational efficiency and productivity through automation and industrial robotics that allow for the adoption of technologies such as the Internet of Things (IoT) and advanced robotics, leading to greater productivity, efficiency, and competitiveness. Likewise, in the transportation sector, the 5G network improves operational efficiency and productivity by driving the implementation of smart cities; promoting the development of innovative urban solutions, such as the efficient management of public services; and driving the implementation of 5G in autonomous vehicles and in transportation infrastructure to improve efficiency, safety, and user experience.

Sector	Use/ Application	Description	Articles
Trade	E-commerce	Drives the growth of digital commerce, generating employment in the areas of logistics, digital marketing, and the development of e-commerce platforms.	[38,63,70,73,77]
Education	E-learning	Facilitates access to quality education anywhere, generating employment in the creation of educational platforms and digital content.	[68,79,82,96]
Agriculture	Precision agriculture	Facilitates crop and livestock monitoring and management, creating employment demand in areas of agronomy, data analytics, and agricultural technology.	[81,87,88,102,105]
	Smart agriculture	Improves agricultural productivity and sustainable resource management, creating jobs in precision agriculture and agricultural data analysis.	[66,86,99,100]
Transportation	Smart city	Promotes the sustainable development of cities, creating jobs in areas of smart infrastructure, efficient energy, and digital public services.	[43,76,93,95,104]
Industry	Smart manufacturing Improves production efficiency and productivity, generates employment in industry, and promotes technological innovation.		[37-42,44-48,83,85,90]
Tourism	Smart tourism	Improves the tourist experience through connected services and applications, generating employment in the tourism industry and promoting sustainable tourism.	[69,71,74,78,91,92,103]
Transportation	Smart transportation	Optimizes supply chain and fleet management, creating jobs in logistics, transportation, and delivery services.	[19,57–62,84]
Health	Telemedicine	Enables remote medical care and patient monitoring, improving access to healthcare and generating digital health jobs.	[49–56,64,65,67,75,80,94, 97,98,101,106]

Table 4. Detail of items analyzed based on application and sector.

RQ3. What opportunities does the 5G network offer for automation and advanced robotics in industry, and what is its impact on existing jobs?

The 5G network offers opportunities to enhance automation and advanced robotics in industry, which can increase efficiency and productivity. While there may be changes in existing jobs, new job opportunities also open up in areas related to the supervision and management of automated systems, contributing to the development of specialized skills and sustainable economic growth. This graph (Figure 13) shows the number of selected articles, grouped by their contributions to and impacts on automation and advanced robotics in industry.



Figure 13. Articles contributing to automation and advanced robotics in the industry.

Table 5 shows the classification of articles based on the contributions they offer through the use of 5G technologies in automation and advanced robotics in industry, according to the results found: real-time communication and control, remote monitoring and maintenance, and automation and collaborative robotics. It is important to note that while the implementation of automation and advanced robotics may affect some existing jobs, it also creates new job opportunities in terms of supervision, programming, maintenance, and the management of automated systems. In addition, it can foster the creation of jobs in related sectors, such as software development, robotics engineering, and specialized technical training.

Parameter	Contribution	Articles
Automation of repetitive and dangerous tasks	This can free employees from monotonous and risky tasks, allowing them to focus on higher-value activities, such as the design, monitoring, and control of automated systems.	[41,44,48,83]
Collaborative robotics	They can work safely alongside humans. Instant and accurate communication between robots and other systems, thanks to 5G technology, allows for more effective and flexible collaboration in the work environment, optimizing production and improving quality.	[39,45,46]
Real-time communication and control	This facilitates the coordination of complex tasks, improves the efficiency of industrial processes, and enables greater human-robot interaction.	[40,42,43,72,85,90]
Remote monitoring and maintenance	This means that experts can access data and diagnostics remotely, making it easier to identify and solve problems, reducing downtime, and optimizing operational efficiency.	[37,38,47,89]

 Table 5. Article classification according to parameters and contributions to existing jobs.

RQ4. What are the specific applications of the 5G network in digital health and how can they improve access to healthcare services and generate employment in the healthcare sector?

The specific applications of the 5G network in digital health are diverse and have the potential to improve access to healthcare services and generate employment in the healthcare sector. Some of these applications are presented in Figure 14 below. The most impactful of these are remote monitoring and diagnosis, which enable the remote monitoring of patients through connected medical devices, such as sensors and wearable devices, via the 5G network. These devices can collect health data in real time and transmit them to healthcare professionals, enabling more accurate monitoring and the early diagnosis of medical conditions. This improves the quality of care and may require additional staff for data analysis and the interpretation of results. Secondly, we have remote and collaborative surgery, which, due to the low latency and high data transmission capacity of 5G, enables remote and collaborative surgeries. Surgeons can control surgical robots precisely and in real time, even over long distances. This expands the access to specialized services, as experts can provide real-time assistance from any location, which, in turn, can generate employment in the development and maintenance of these technologies.



Figure 14. Articles classified by medical application and 5g technology.

Table 6 shows, in detail, the items analyzed based on 5G technologies and the medical applications that enable the improved access to healthcare services that overcome geographical barriers and increase the efficiency of communication between patients and healthcare professionals. In addition, the implementation of these technologies can generate employment in the development, implementation, and maintenance of digital health-related infrastructures and services.

Table 6. Article classification based on functionality and 5G technology in healthcare.

Functionality	5G Technologies	Articles
	Artificial intelligence	[64,65,67]
Pomoto monitoring and diagnostics	Big data	[75]
Remote morntoring and diagnostics	Internet of Things	[94,98]
	Virtual reality	[80]
	Blockchain	[49]
Mobile health and wellness applications	Internet of Things	[97]
Mobile health and weilless applications	Machine learning	[101]
	Sensor networks	[51]
Pomoto and collaborative surgery	Tactile Internet	[50]
Remote and conductative surgery	Sensor networks	[53-56]

5.2. Related Work

Other articles, such as [107], were searched for their relation to the current adoption of technology in different rural areas such as agriculture, education, and healthcare. The systematic review was carried out in the following scientific databases: Taylor and Francis, IEEExplore, Scopus, Springer Link, Wiley Library, and ACM. Finally, 83 contributions were selected from the 234 retrieved articles. It was concluded that SMEs need to obtain a competitive advantage based on use and good technological management to improve business sustainability and economic growth through the effective management of business resources, considering that the smart city model can be adopted and applied effectively in rural contexts, as well as how smart technologies can accelerate the automation of critical processes that often require a large number of employees. This results in the creation of additional employment opportunities for skilled workers in rural areas.

In [108], a bibliometric analysis supported by the Web of Science (WoS) database was carried out through the science mapping methodology in order to evaluate the impact of teleworking at the cost level; it was found that for companies, it generally implies savings, taking into account the consumption of energy, internet connections, and tools; likewise, it reflects "apparent" savings for the worker in the reduction in travel costs to the companies.

On the other hand, in [109], a study on the role of greener innovations in promoting financial inclusion to achieve carbon neutrality was carried out; it mainly sought to explore the intertwined role of greener innovations in supporting financial inclusion for a sustainable future. As a methodology, the research approach of carrying out a bibliometric analysis and systematic literature reviews (SLRs) was applied; after applying the search strategies, 290 articles were finally considered for the final review. The analyzed results show that technological innovation can play a key role in financial inclusion towards carbon neutrality and can have some important policy implications, already generating positive effects in the short term, with important environmental, economic, and social repercussions.

Finally, the authors of [110] conducted a search from a corpus of 95 articles based on how technologies and data sources can be used to achieve a given SDG. It was identified that the adoption of artificial intelligence (AI) poses benefits and changes for industries and companies to address the great challenges of our society, driving job creation through initiatives such as building sustainable cities (environment), advancing medical diagnostics (society), and fostering innovation (economy).

6. Conclusions

After performing a systematic literature review of 74 articles related to the topic in question, it was concluded that the 5G network has an important contribution to decent work and economic growth. Through its ability to offer fast, reliable, and massive connectivity, the 5G network boosts job creation in various sectors and promotes sustainable economic development. The implementation of the 5G network implies the need to expand and improve telecommunications infrastructure, which generates employment in the installation, maintenance, and management of this infrastructure. Based on Figure 10 and Table 2, we conclude that the adoption of 5G technologies has a greater impact on sectors such as manufacturing, health, and transportation and creates new job opportunities in terms of monitoring, programming, data analysis, and application development.

The functionality parameters considered in the applications enabled through the 5G network in the main sectors are associated with "Real-time communication and control", "Automation of repetitive and dangerous tasks", "Remote monitoring and maintenance", and "Collaborative robotics".

Also, it was concluded that the medical applications that generate the greatest amount of employment mainly use artificial intelligence, Internet of Things, and sensor networks. These technologies are based on the 5G network that allows for a fast and reliable connection, which facilitates the implementation of high-speed telemedicine services. Healthcare professionals can perform online consultations, remote diagnostics, and patient monitoring through high-quality videoconferencing. This improves the access to medical care, especially in rural or remote areas, where distance can be an obstacle.

In summary, the 5G network has a significant contribution to decent work and economic growth by generating employment, driving innovation, improving productivity, promoting the digital economy, and facilitating access to employment and educational opportunities. Its proper deployment and adoption can lead to sustainable economic growth and the creation of quality jobs in various sectors, thereby strengthening social development and improving people's quality of life. Based on the results obtained, it is recommended for future research in the scope of this review to consider other factors such as government policies and cultural and social factors.

Finally, it is important to understand that the results of this systematic review are useful for future research to promote the research and development of 5G network-enabled technologies that contribute to economic growth and decent work in various sectors and rural areas, thus enabling sustainable and equitable economic development.

7. Limitations and Recommendations

In this review, eligibility criteria were applied to focus on studies that focus directly on the contribution of 5G technology to decent work and economic growth. While this strategy ensures a precise focus, tangential work may have been excluded. In addition, by not considering studies published in books or theses, and by excluding articles that address other aspects of 5G technology, such as its social or environmental impacts, it is likely that complementary information that is relevant to a more complete understanding of the topic was left out. Finally, the limitation to articles in English could have excluded research in other languages, which could affect the overall representativeness of our review. If these limitations had not been applied, it is likely that we would have had a larger number of included articles. These limitations emphasize the need for future broader and more inclusive studies to address this topic comprehensively.

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Data Availability Statement: The data used in this systematic review were collected from publicly accessible sources cited in the references. No primary data were generated.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Articles excluded after application of the criteria.

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
1		[111]	The Internet of Things as an accelerator of advancement of broadband networks: A case of Thailand	2018	NO	out of context
2	Scopus	[112]	A novel radio multiservice adaptive network architecture for 5G networks	2015	NO	out of context
3		[113]	Challenges of 5G usability in disaster management	2018	NO	irrelevant
4		[114]	Beijing's pain points	2020	NO	out of context

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
5		[115]	Critical Internet of Things: An Interworking Solution to Improve Service Reliability	2020	NO	out of context
6		[116]	UAV Network and IoT in the Sky for Future Smart Cities	2019	NO	irrelevant
7		[117]	Downlink-uplink decoupled access in heterogeneous cellular networks with UAVs	2020	NO	irrelevant
8		[118]	What drives Indian mobile service market: Policies or users?	2020	NO	out of context
9		[119]	Special features of the architecture of 5G networks. Probabilistic forecasting of the impact of electromagnetic fields of radio frequencies on the population (literature review)	2021	NO	review
10		[120]	Norges debatt om kinesiske investeringer: Fra velvillig til varsom	2020	NO	out of context
11		[121]	5G Core Security in Edge Networks: A Vulnerability Assessment Approach	2021	NO	out of context
12		[122]	Innovative Ecological Economic System Based on 5G Network and Internet of Things	2021	NO	irrelevant
13		[123]	Technological megashift and the EU: Threats, vulnerabilities and fragmented responsibilities	2021	NO	out of context
14		[124]	Research on the Development of New Industries, New Formats and Models Based on information technology	2021	NO	irrelevant
15	Scopus	[125]	Lessons learned from FITech Turku, a 18 million euros university collaboration project to complement the regional demand for Master degree engineers	2021	NO	out of context
16		[126]	Opportunity for Developing Ultra High Voltage Transmission Technology Under the Emission Peak, Carbon Neutrality and New Infrastructure	2021	NO	out of context
17		[127]	The real economic costs of COVID-19: Insights from electricity consumption data in Hunan Province, China	2022	NO	irrelevant
18		[128]	Research on 5G related technologies under the new generation of information technology	2021	NO	irrelevant
19		[129]	Innovation in Information Technologies for the Achievement of SDG 9 in Mexico: Technology Policy Analysis	2023	NO	out of context
20		[130]	Design and Implementation of Intelligent Feeding System Based-on the oneM2M	2021	NO	irrelevant
21		[131]	Private 5G Practice in Oil and Gas Industry	2022	NO	irrelevant
22		[132]	How ICT can contribute to realize a sustainable society in the future: a CGE approach	2022	NO	irrelevant
23		[133]	A Proposal for Formulating a Spectrum Usage Fee for 5G Private Networks in Indonesian Industrial Areas	2022	NO	out of context
24		[134]	Leveraging 5G to Enable Automated Barge Control: 5G-Blueprint Perspectives and Insights	2023	NO	irrelevant
25		[135]	Evaluating the Forest Ecosystem through a Semi-Autonomous Quadruped Robot and a Hexacopter UAV	2022	NO	out of context

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
26		[136]	Review on the COVID-19 pandemic prevention and control system based on AI	2022	NO	review
27	Scopus	[137]	Research on the Impact of New Infrastructure on Economic Growth Based on R Language Data Modeling	2022	NO	duplicate
28		[138]	The impact of criminal law regulation-based business environment optimization on entrepreneurial spirit and enterprise development	2022	NO	out of context
29		[139]	Systemic technology innovation management and analysis of other forms of IP protection	2022	NO	review
30		[140]	Assessing the relative importance of sustainability indicators for smart campuses: A case of higher education institutions in Nigeria	2021	NO	irrelevant
31		[141]	Banking the unbanked. Constitutive rules and the institutionalization of mobile payment systems in Nigeria	2023	NO	irrelevant
32		[142]	Discovering smart: Early encounters and negotiations with smart street furniture in London and Glasgow	2023	NO	irrelevant
33		[143]	The impact of the FinTech revolution on the future of banking: Opportunities and risks	2022	NO	irrelevant
34		[144]	Threading the needle of the digital divide in Africa: The barriers and mitigations of infrastructure sharing	2020	NO	irrelevant
35		[145]	Detecting and developing new business opportunities in society 5.0 contexts: A sociotechnical approach	2023	NO	out of context
36		[146]	Identifying industry 5.0 contributions to sustainable development: A strategy roadmap for delivering sustainability values	2022	NO	irrelevant
37	Science Direct	[147]	The future of aging in smart environments: Four scenarios of the United States in 2050	2021	NO	irrelevant
38		[148]	Shared leadership, value and risks in large scale transport projects: Re-calibrating procurement policy for post COVID-19	2021	NO	out of context
39		[149]	Understanding the adoption of Industry 4.0 technologies in improving environmental sustainability	2022	NO	irrelevant
40		[150]	Sustainability-oriented innovations in smart cities: A systematic review and emerging themes	2022	NO	review
41		[151]	Rolling out of fibre optic networks in intermediate versus urban areas: An exploratory spatial analysis in the Netherlands	2021	NO	out of context
42		[152]	Network and information security challenges within Industry 4.0 paradigm	2017	NO	out of context
43		[153]	How would the COVID-19 pandemic reshape retail real estate and high streets through acceleration of E-commerce and digitalization?	2021	NO	irrelevant
44		[154]	Coopetition in the soc industry: The case of qualcomm incorporated	2020	NO	out of context
45		[155]	Literature review: Anomaly detection approaches on digital business financial systems	2022	NO	review

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
46		[156]	Simulation of temperature control and irrigation time in the production of tulips using Fuzzy logic	2022	NO	out of context
47		[157]	A survey of Network Neutrality regulations worldwide	2022	NO	out of context
48		[158]	Clean energy-based rural low carbon transformation considering the supply and demand of new energy under government participation: A three-participators game model	2022	NO	out of context
49		[159]	Expert model of risk assessment for the selected components of smart city concept: From safe time to pandemics as COVID-19	2022	NO	irrelevant
50		[160]	Path for China's high-tech industry to participate in the reconstruction of global value chains	2021	NO	out of context
51		[161]	China's rise and its implications for International Relations and Northeast Asia	2021	NO	irrelevant
52		[162]	Beyond automobility? Lock-in of past failures in low-carbon urban mobility innovations	2022	NO	out of context
53		[163]	A framework for safer driving in Mauritius	2017	NO	out of context
54		[164]	Knowledge on IT tools based on Ai maturity—Industry 4.0 perspective	2019	NO	out of context
55		[165]	Model of functioning of the centralized wireless information ecosystem focused on multimedia streaming	2022	NO	irrelevant
56	Science Direct	[166]	Preliminary investigation of late Mughal period wall paintings from historic monuments of Begumpura, Lahore	2018	NO	out of context
57		[167]	Cyber- Physical Systems and Education 4.0—The Teaching Factory 4.0 Concept	2018	NO	irrelevant
58		[168]	Diplomatic relations and cross-border investments in the European Union	2023	NO	irrelevant
59		[169]	An assessment of the liberalization and the evolution of competition in the Moroccan mobile market	2022	NO	out of context
60		[170]	The political economy of productivity growth	2022	NO	out of context
61		[171]	COVID-19, China and the future of global development	2020	NO	irrelevant
62		[172]	Making sense of smart tourism destinations: A qualitative text analysis from Sweden	2022	NO	irrelevant
63		[173]	Does information communication promote financial development? Empirical evidence from China	2023	NO	irrelevant
64		[174]	Financial technology as a driver of poverty alleviation in China: Evidence from an innovative regression approach	2022	NO	out of context
65		[175]	Digitalization of railway service with the use of post-COVID-19 events	2022	NO	out of context
66		[176]	Linguistic Pythagorean fuzzy CRITIC-EDAS method for multiple-attribute group decision analysis	2023	NO	out of context
67		[177]	The run-up to the global financial crisis: A longer historical view of financial liberalization, capital inflows, and asset bubbles	2020	NO	out of context

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
68		[178]	The Belt and Road Initiative (BRI): What Will it Look Like in the Future?	2022	NO	out of context
69		[179]	Can digitalization improve enterprise sustainability? –Evidence from the resilience perspective of Chinese firms	2023	NO	irrelevant
70		[180]	Twin transitions of decarbonisation and digitalisation: A historical perspective on energy and information in European economies	2022	NO	irrelevant
71		[181]	Can digital economic attention spillover to financial markets? Evidence from the time-varying Granger test	2022	NO	out of context
72		[182]	Model design and structure research for integration system of energy, information and transportation networks based on ANP-fuzzy comprehensive evaluation	2018	NO	out of context
73		[183]	A Digitally Capable Mobile Health Clinic to Improve Rural Health Care in America: A Pilot Quality Improvement Study	2022	NO	irrelevant
74		[184]	Does the digital economy contribute to carbon emissions reduction? A city-level spatial analysis in China	2022	NO	irrelevant
75		[185]	An integrated socio-cyber-physical system framework to assess responsible digitalisation in agriculture: A first application with Living Labs in Europe	2022	NO	out of context
76	Science Direct	[186]	IOT sensor-based pollution management control technique	2022	NO	irrelevant
77		[187]	Mixed Reality or Simply Mobile? A Case Study on Enabling Less Skilled Workers to Perform Routine Maintenance Tasks	2023	NO	out of context
78		[188]	The economic impact of mobile broadband speed	2022	NO	irrelevant
79		[189]	Intelligent Manufacturing for the Process Industry Driven by Industrial Artificial Intelligence	2021	NO	irrelevant
80		[190]	Remote poultry management system for small to medium scale producers using IoT	2022	NO	irrelevant
81		[191]	Transformation of Supply Chain Management to Green Supply Chain Management: Certain investigations for research and applications	2023	NO	irrelevant
82		[192]	Disruptive technologies that are likely to shape future jobs	2020	NO	irrelevant
83		[193]	Acceptance of Chinese latecomers' technological contributions in international ICT standardization—The role of origin, experience and collaboration	2023	NO	out of context
84		[194]	Research on value co-creation elements in full-scene intelligent service	2022	NO	out of context
85		[195]	Hue and cry over Huawei: Cold war tensions, security threats or anti-competitive behaviour?	2019	NO	out of context
86		[196]	Social implications of smart cities	2019	NO	irrelevant

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
87		[197]	Assessment of coordinated development between tourism development and resource environment carrying capacity: A case study of Yangtze River economic Belt in China	2022	NO	irrelevant
88		[198]	Effect of the logistics industry on the promotion of China's position in the global value chain: An international trade perspective	2023	NO	irrelevant
89		[199]	Digital technologies can enhance climate resilience of critical infrastructure	2022	NO	irrelevant
90		[200]	Surviving major disruptions: Building supply chain resilience and visibility through rapid information flow and real-time insights at the "edge"	2022	NO	out of context
91		[201]	Broadband Connectivity, Government Policies, and Open Innovation: The Crucial IT Infrastructure Contribution in Scotland	2022	NO	irrelevant
92		[202]	Technology sovereignty as an emerging frame for innovation policy. Defining rationales, ends and means	2023	NO	irrelevant
93		[203]	Sustainable management of a leading Chinese telecommunication multinational: A case study of company X in host country Malaysia	2023	NO	irrelevant
94		[204]	How can rural businesses thrive in the digital economy? A UK perspective	2022	NO	out of context
95	Science	[205]	Problems and Prospects for the Development of Urban Airmobility on the Basis of Unmanned Transport Systems	2023	NO	irrelevant
96	Direct	[206]	The evolution of renewable energy environments utilizing artificial intelligence to enhance energy efficiency and finance	2023	NO	irrelevant
97		[207]	Enhancing smart farming through the applications of Agriculture 4.0 technologies	2022	NO	irrelevant
98		[208]	Malaysia's Efforts toward Achieving a Sustainable Development: Issues, Challenges and Prospects	2014	NO	out of context
99		[209]	Artificial intelligence technologies and related urban planning and development concepts: How are they perceived and utilized in Australia?	2020	NO	irrelevant
100		[210]	Exploring the unique characteristics of environmental sustainability in China: Navigating future challenges	2023	NO	irrelevant
101		[211]	Industry 4.0 technologies assessment: A sustainability perspective	2020	NO	irrelevant
102		[212]	Evaluation on new first-tier smart cities in China based on entropy method and TOPSIS	2022	NO	irrelevant
103		[213]	Trends in energy consumption under the multi-stage development of ICT: Evidence in China from 2001 to 2030	2022	NO	irrelevant
104		[214]	What's driving the diffusion of next-generation digital technologies?	2023	NO	irrelevant
105		[215]	Research agenda for the digital economy	2022	NO	irrelevant
106		[216]	What can we learn from the 2008 financial crisis for global power decarbonization after COVID-19?	2023	NO	irrelevant

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
107		[217]	Mobile phones, mobile Internet, and employment in Uganda	2022	NO	out of context
108		[218]	Technological trajectories and scenarios in seaport digitalization	2021	NO	out of context
109		[219]	ICT Access and Entrepreneurship in the Open Innovation Dynamic Context: Evidence from OECD Countries	2022	NO	out of context
110		[220]	The Nonlinear Relationship of Environmental Degradation and Income for the 1870–2011 Period in Selected Developed Countries: The Dynamic Panel-STAR Approach	2016	NO	irrelevant
111		[221]	Practical mobile network planning and optimization for Thai smart cities: Towards a more inclusive globalization	2021	NO	irrelevant
112		[222]	Sustainable transition towards greener and cleaner seaborne shipping industry: Challenges and opportunities	2023	NO	irrelevant
113		[223]	SDGs-oriented evaluation of the sustainability of rural human settlement environment in Zhejiang, China	2023	NO	irrelevant
114		[224]	Digital finance and household carbon emissions in China	2022	NO	irrelevant
115	Science	[225]	A deep dive into the birth process of linking 6G and the UN SDGs	2022	NO	out of context
116	Direct	[226]	Structural development and evaluation of profitable industrial use cases based on innovative technologies like 5G	2019	NO	out of context
117		[227]	GRADE: Deep learning and garlic routing-based secure data sharing framework for IIoT beyond 5G	2022	NO	out of context
118		[228]	The Digital Challenge for Multinational Mobile Network Operators. More marginalization or rejuvenation?	2022	NO	irrelevant
119		[229]	Towards 5G: Scenario-based assessment of the future supply and demand for mobile telecommunications infrastructure	2018	NO	irrelevant
120		[230]	On the ultra-reliable and low-latency communications for tactile internet in 5G era	2020	NO	irrelevant
121		[231]	Policy choices can help keep 4G and 5G universal broadband affordable	2022	NO	irrelevant
122		[232]	A Multi-Layer Collaboration Framework for Industrial Parks with 5G Vehicle-to-Everything Networks	2021	NO	irrelevant
123		[233]	Market resiliency conundrum: is it a predicator of economic growth?	2018	NO	irrelevant
124		[234]	Analyzing the Level of Digitalization among the Enterprises of the European Union Member States and Their Impact on Economic Growth	2022	NO	irrelevant
125	IEEE	[235]	Context-aware Mobile Edge Resource Allocation in OFDMA Downlink System	2022	NO	out of context
126	Xplore	[236]	Research on digital transformation of enterprise human resource management based on DEA-Malmquist model	2022	NO	irrelevant

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	Publication Year	Status	Remarks
se Governance of IT	2018	NO	out of context
on Framework for in Nigeria's Tra	2021	NO	review
e Communications: pplications, and es	2023	NO	out of context
conomy—Using the an consumers	2018	NO	out of context
ironment for the			

Table A1. Cont.

Title

127		[237]	Baseline Mechanisms for Enterprise Governance of IT in SMEs	2018	NO	out of context
128		[238]	Agriculture 4.0: An Implementation Framework for Food Security Attainment in Nigeria's Post-COVID-19 Era	2021	NO	review
129		[239]	A Survey on UAV-Aided Maritime Communications: Deployment Considerations, Applications, and Future Challenges	2023	NO	out of context
130		[240]	Applying the concept of circular economy—Using the cultural difference of European consumers as an example	2018	NO	out of context
131		[241]	Analysis of the web portal environment for the exchange of relevant information on commercial establishments	2022	NO	irrelevant
132		[242]	Trans-disciplinary Research on Outcome based Learning Analytics for Gainful Employment	2019	NO	out of context
133		[115]	Critical Internet of Things: An Interworking Solution to Improve Service Reliability	2020	NO	irrelevant
134		[243]	Students' Capability in Bridging the Entrepreneurial and Innovation Chasm	2021	NO	out of context
135		[244]	A Comparative Review on Renewable Energy Application, Difficulties and Future Prospect	2021	NO	review
136	IEEE	[245]	Application of Monte Carlo Simulation for Analysis of Costs and Economic Risks in a Banking Agency	2019	NO	out of context
137	Xplore	[246]	Applying Design Science Research Methodology for Development of a Mobile-Based Digital Quail Farming Guide	2022	NO	out of context
138		[247]	Maritime Drone Services Ecosystem-Potentials and Challenges	2022	NO	out of context
139		[117]	Downlink-Uplink Decoupled Access in Heterogeneous Cellular Networks with UAVs	2020	NO	irrelevant
140		[248]	Uplink NOMA for UAV-Aided Maritime Internet-of-Things	2023	NO	irrelevant
141		[249]	Evaluating the Role of Microcredit Program for Youth Employment Generation in Algeria	2020	NO	irrelevant
142		[250]	Integrated Photonics for RF Sensing Applications	2019	NO	out of context
143		[251]	Sustainable Development in Engineering Education	2021	NO	out of context
144		[252]	Keynote Talk 3: Technology for Meeting the SDGs by 2030	2019	NO	irrelevant
145		[253]	Benchmarking MSMEs Ecosystem in Indonesia: A Qualitative Study	2019	NO	irrelevant
146		[254]	Investigating attitudes of entrepreneurs towards the use of information and communication technologies in Croatian SMEs in two Northern Adriatic counties	2018	NO	irrelevant
147		[255]	Towards an efficient and interpretable Machine Learning approach for Energy Prediction in Industrial Buildings: A case study in the Steel Industry	2022	NO	irrelevant

No.	Data Base	Doi	Title	Publication Year	Status	Remarks
148		[256]	Approach for Developing the Monitoring Large-Scale Digital Systems of the Regional Economy	2021	NO	irrelevant
149		[257]	Deep Learning-based Time Series Models for GDP and ICT Growth Prediction in India	2022	NO	out of context
150		[124]	Research on the Development of New Industries, New Formats and Models Based on information technology	2021	NO	out of context
151		[258]	Chief Remote Officer Role in COVID-19 for Work Sustainability and Use of Artificial Intelligence (AI)	2023	NO	irrelevant
152		[130]	Design and Implementation of Intelligent Feeding System Based-on the oneM2M	2021	NO	irrelevant
153		[259]	Sustainable Heritage Management Towards Mass Tourism Impact: the HERIT-DATA project	2018	NO	out of context
154		[260]	Analysis on the Social and Economic Impacts of Internet Platforms: (Based on Survey Data from WeChat (China) during 2019–2020)	2020	NO	out of context
155		[261]	Data Interface Matching and Information Security Measurement of Scientific and Technological Innovation Measurement Analysis and Multi-Agent Economic MIS	2022	NO	out of context
156		[262]	Novel Framework for Performance Prediction of Small and Medium Scale Enterprises: A Machine Learning Approach	2018	NO	irrelevant
157		[263]	Digital Innovation in Industry 4.0 Era—Rebooting UAE's Retail	2020	NO	out of context
158	IEEE Xplore	[264]	Artificial Intelligence as a Key Driver of Business Operations Transformation in the Conditions of the Digital Economy	2021	NO	irrelevant
159		[265]	Domestic Study on Digital Economy, Industrial Upgrading and Economic Development	2022	NO	out of context
160		[266]	Research on the Construction of Traditional Enterprise Digital Evaluation Index System	2021	NO	out of context
161		[267]	A Data Governance Model based on Data Value Analysis under the Framework of Digital Economic	2022	NO	out of context
162		[268]	A Comparative Study for Indoor Factory Environments at 4.9 and 28 GHz	2020	NO	out of context
163		[116]	UAV Network and IoT in the Sky for Future Smart Cities	2019	NO	out of context
164		[269]	An Innovative Hybrid Model for Developing Cross Domain ICT Talent in Digital Economy	2018	NO	out of context
165		[270]	The Research on the Promotion Path of Digital Elements to Digital Economy	2021	NO	out of context
166		[271]	An Analysis of the Digital Transformation Trends in ASEAN-5 after COVID-19 Pandemic1	2021	NO	out of context
167		[272]	URLLC and eMBB in 5G Industrial IoT: A Survey	2022	NO	irrelevant
168		[273]	A Study on the Performance Metrics of the Universal Filtered Multi Carrier Waveforms for 5G	2021	NO	out of context
169		[274]	Transformation of Business Technologies into Digital Platforms and Evaluation of the Effectiveness of their Application	2021	NO	out of context

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[275]

Table A1 Cout			
Title	Publication Year	Status	Remarks
Research on the Spatial Distribution Pattern and Influencing Factors of Digital Economy Development in China	2021	NO	out of context
Modeling the factors that influence digital economy services acceptance	2021	NO	irrelevant
5G Core Security in Edge Networks: A Vulnerability Assessment Approach	2021	NO	out of context
Digital economy has become a new engine for	2021	NO	out of context

			in China			
171		[276]	Modeling the factors that influence digital economy services acceptance	2021	NO	irrelevant
172		[121]	5G Core Security in Edge Networks: A Vulnerability Assessment Approach	2021	NO	out of context
173		[277]	Digital economy has become a new engine for regional development	2021	NO	out of context
174	IEEE Xplore	[278]	Evaluation method of enterprise economic growth quality based on data analysis	2021	NO	out of context
175	-	[279]	A Taxonomy of 5G Stakeholders	2021	NO	out of context
176		[280]	On Assessing the Potential of 5G and beyond for Enhancing Automated Barge Control	2023	NO	out of context
177		[281]	Improved Secure Communication Based Adhoc Routing in Mobile Network Technology	2023	NO	out of context
178	-	[282]	Common Weight DEA-Based Methodology for Ranking APEC Countries by Considering Sustainable Development Goals Including Decent Work, Income Inequalities, and Gender Equality	2019	NO	others
179		[283]	A fiscal revolution inspired by the Capabilities Approach to reduce socio-economic impact of climate change and strengthen the resilience of tax systems	2020	NO	out of context
180		[284]	In situ construction of ZIF-67 derived Mo2C@cobalt/carbon composites toward excellent electromagnetic wave absorption properties	2023	NO	out of context
181		[285]	An Insight into Deployments of Green Base Stations (GBSs) for an Environmentally Sustainable World	2021	NO	out of context
182		[286]	Technology Related to Agricultural Transformation and Development based on 5G Technology	2020	NO	others
183		[287]	Methods for comparing digital applications in buildings and districts	2022	NO	out of context
184	IOP	[288]	Strategies and Policies to Dealing the Challenges and Use of Industry Based on IT in Indonesia	2018	NO	irrelevant
185	Science	[289]	Research on the mechanism and countermeasures of digital economy development promoting carbon emission reduction in jiangxi province	2023	NO	out of context
186		[290]	Flood damage costs under the sea level rise with warming of 1.5 $^{\circ}\mathrm{C}$ and 2 $^{\circ}\mathrm{C}$	2018	NO	out of context
187		[291]	Performance Analysis of Quantum Repeaters Based Hybrid Communications Networks	2021	NO	out of context
188		[292]	Research of Media Technology Development with Programmed Thinking in 5G Era	2021	NO	out of context
189		[293]	Advanced biosensing technologies for monitoring of agriculture pests and diseases: A review	2023	NO	review

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No.	Data Base	Doi	Title	Publication Year	Status	Remarks
190	IOP	[128]	Research on 5G related technologies under the new generation of information technology	2021	NO	irrelevant
191	Science	[294]	Trends and innovations in photovoltaic operations and maintenance	2022	NO	out of context

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- 1. Naciones Unidas Objetivos y Metas de Desarrollo Sostenible—Desarrollo Sostenible. Available online: https://www.un.org/sus tainabledevelopment/es/sustainable-development-goals/ (accessed on 22 May 2023).
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