The Impact of Industry 4.0 on Innovative Organisations, A Thematic Review Using the PRISMA Statement 2020

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Abstract—The fast growth of technologies during the Industry 4.0 era resulted in new or evolved organisations forming. Throughout the Fourth Industrial Revolution, the interaction between technology and humans evolved. Furthermore, the skills and capacities of individuals and organisations are changing due to the abundance of technology. This study investigated the impact of industry 4.0 on innovative organisations and used thematic analysis to identify the major themes. VOS viewer content analysis and critical terms of occurrences analysis were used to identify the major themes. In addition, the PRISMA statement 2020 is applied for the methodological part. The results indicate three significant themes business models, innovative organisations, and digital transformation. The findings show that changes in the global economy and market needs are forcing businesses to adopt technical breakthroughs made possible by digital transformation. it is considered that adequate resources, experienced and capable workers, and well-organized, adequately adaptable, and creative procedures are required for innovative organisations. In addition, HRM practises in the digital era must incorporate teleworking, promote employee engagement in achieving the aim of digital transformation, and incentivise a proper leadership style. Also, technological advancement drives businesses to innovate in their everyday production, supply, value chains, and numerous operations, allowing them to adapt quickly to client requests.

Keywords—digital transformation, IR 4.0, innovative organisations, HRM, VOS viewer, PRISMA

1 Introduction

Industry 4.0 technologies are already widely employed across the world. These technologies have enormous promise and have caused substantial changes in practically every industry (Ammar et al., 2021). According to (Afonso et al., 2017), several organisations' business models are being transformed by Industry 4.0. Via different emerging

communication, information, and intelligence technologies, these technologies can enable flexibility, efficiency, and productivity. In addition, Industry 4.0 focuses on technology goods, more agile procedures, and processes in complex settings prone to interruption and deflection. One of its goals is to link people, machines, and materials in a broad communication network, to boost mobility, flexibility and the construction of intelligent networks and vertical and horizontal integration (Belinski et al., 2020). Traditionally, physical and digital technologies are two types of Industry 4.0 technology. Manufacturing technologies such as additive manufacturing, sensors, and drones are examples of physical technologies (Dalenogare et al., 2018). Modern information and communication technologies such as cloud computing, blockchain, big data analytics, and simulation are examples of digital technologies.

According to (Grabowska & Saniuk, 2022), the link between human and technology capital changed during the Fourth Industrial Revolution. The automation of technological capital results in high-quality goods and services. Increased labour efficiency is generally accomplished through automated or semi-automatic decision-making (Nascimento et al., 2019). In addition, the importance of developing new competencies and adapting to the new reality of Industry 4.0 is emphasised. Industry 4.0 synthesises technological breakthroughs and the value chain organisation paradigm that will change the industrial output (Birkel et al., 2019). Although it is instinctively connected with the functioning of machines and contemporary technology, it is crucial to recall its humanistic aspect and the critical role humans play (Beier et al., 2020). On the other hand, as business activities become more digitalised, autonomous, and "smart," the Fourth Industrial Revolution is redefining employees' roles, responsibilities, skills, and certification needs (Saniuk et al., 2021). Digitalisation is upending established job trajectories in various industries, including manufacturing, information and communication technologies (ICT), marketing, and supply chain management (Dobrowolska & Knop, 2020). In addition, a shift in human roles, responsibilities, and skill needs implies a shift in HRM operating practices such as employee recruiting, development, and redeployment (Munsamy & Telukdarie, 2019). Industry 4.0 also presents HRM issues regarding needing more essential skills and credentials and job loss due to automation, robots, and IT applications (di Gregorio et al., 2019).

The current study aims to investigate the impact of industry 4.0 on innovative organisations. The main objective behind the investigation is to identify the significant themes in prior literature related to the subject. Additionally, the impact of industry 4.0 transformation on human resource management needs for the business capabilities and skills. After reviewing and comparing the existing research on innovative organisations in the age of industry 4. o in previous literature, it is found that there needed to be more studies, and more information on the topic is not available.

2 Research methodology

2.1 Materials and method

To incorporate high-quality materials, the current study employed the PRISMA statement 2020 to include and exclude records from Scopus and Web of Science databases. The data were screened using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, as recommended by (Moher et al., 2009) and shown in Figure 1. However, the current study used the PRISMA statement 2020 for better reporting for records and relevant reports associated with the literature. We used the search terms "industry 4.0" AND "innovative organisations" for our literature survey. Initially, 216 records were obtained. The current review covered publications from social science, computer sciences, decision science, business management, accounting, economics, econometrics, finance, and interdisciplinary articles. In such a case, the results are reduced to 183 documents. Furthermore, we chose just the articles, reviews, and book chapters for the current study, reducing the number of records to 97. Additionally, only published and English-language documents were considered to replicate the study's scope for important literature outcomes. This step decreased the number of records to 94. The next stage was to remove unnecessary and missing document information duplication, and records were limited to 76. Also, the citation criteria were used for the filtration of documents, and a minimum of five times cited articles were included in the study. To synthesise it, only 46 papers were included in the assessment. Figure 1 displays the PRISMA statement selection and rejection mechanism used in the current investigation.

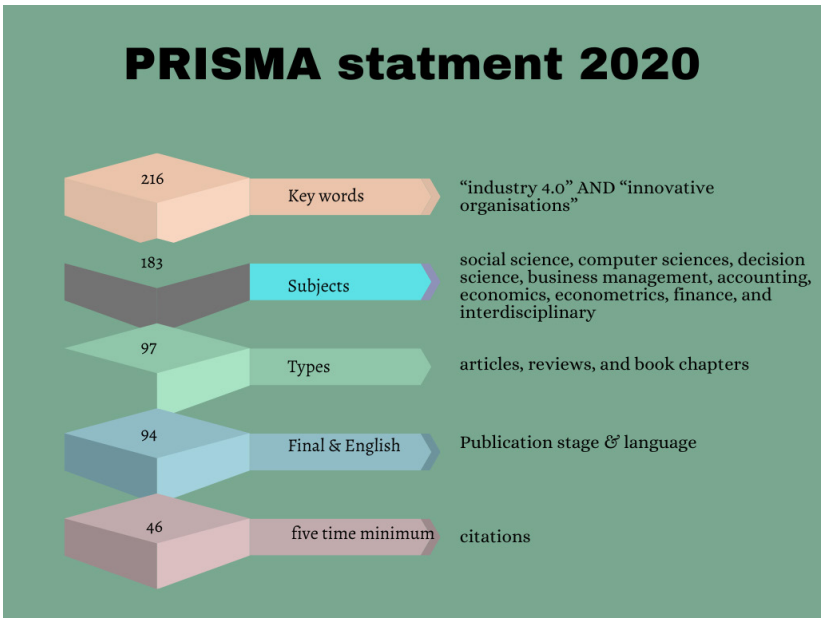

Fig. 1. PRISMA statement 2020

3 Descriptive analysis

Additionally, the records for the current study were picked mainly from recent years for two key reasons. First, the current years emphasise digitalisation and organisational innovation (Hald & Coslugeanu, 2022). the records from 2016 to 2023 were dominant in the current review, as depicted in Figure 2. Many articles are included from 2019 to 2022 due to the recent increase in industry 4.0 intention from the researcher's and academicians' perspective; ten records were selected from 2019, which is significantly higher than other years. The significant additional contribution is from 2021 to 2022, with eight and nine documents from each year, as illustrated in Figure 2.

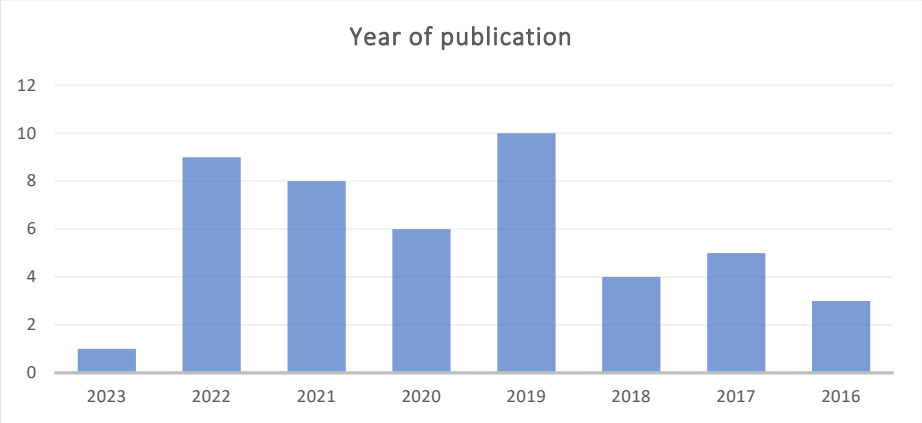

Fig. 2. Distribution of documents on the year base publication

Furthermore, the source-based results are depicted in Table 1 with the source titles, the number of records from sources, citation details and an average of citations from each journal. The significant contribution of articles is recorded from the Sustainability (Switzerland) and Benchmarking with three records from each journal. However, the average citation records 31% of total citations from Benchmark journals. In addition, the Business Process Management Journal and Annual Reviews in Control citation averages are also higher than the other journals for the current study sources details, number of articles, citation reports, and citations average are illustrated in Table 1.

Table 1. Source title, article numbers, citation, and citation average

Source Title	Cited by	Number of Documents	Citations average
Annual Reviews in Control	182	1	18%
Benchmarking	318	3	31%
Business Process Management Journal	239	1	23%
Engineering, Construction and Architectural Management	21	2	2%
Journal of Cleaner Production	58	2	6%
Journal of Intellectual Capital	13	2	1%

Source Title	Cited by	Number of Documents	Citations average
Journal of Open Innovation: Technology, Market, and Complexity	7	3	1%
Sustainability (Switzerland)	93	3	9%
Sustainable Production and Consumption	5	2	0%
Technological and Economic Development of the Economy	70	2	7%
Technological Forecasting and Social Change	20	2	2%
VINE Journal of Information and Knowledge Management Systems	10	1	1%

Moreover, we employed key terms occurrences analysis to identify the significant themes in the review literature. The VOS Viewer emphasised the number of keywords and key phrases used in the published articles. Forty-five selected papers analysed the critical occurrence, with 53 essential terms appearing more than sen times. Three significant data streams were assigned during the key term's occurrence research: business models, digital transformation and innovative organisations. We also offer the relevancy score for each sentence and the average score. In addition, a minimum of seven times occurred was included in the table, and the highest time used term was 32 times. Moreover, we also have a relevance score for each word extracted from the VOS viewer software. Table 2 depicts the terms, classification, occurrences of critical terms and relevance score of each time below.

Table 2. Key term occurrences, terms selected, and relevance score

Term	Classification	Occurrences	Relevance Score
author	business models	9	0.7957
benefit		12	0.9398
business		12	0.8514
company		17	0.6951
development		22	0.2689
field		20	0.4545
food supply chain		19	1.1178
healthcare		7	1.189
logistic		10	0.4287
privacy		11	0.6608
research		32	0.2209
review		13	0.602
risk		13	0.7442
stakeholder		16	0.8088
traceability		23	0.9902
artificial intelligence	digital transformation	21	0.6161
big data		14	0.6159
cloud computing		11	1.0006
consumer		9	1.9199
cost		15	0.7626
digitalization		7	1.1358

Term	Classification	Occurrences	Relevance Score
importance		11	0.2985
lack		8	1.1738
literature		23	0.4257
literature review		15	0.2108
machine learning		12	0.3326
new technology		8	0.8915
safety		11	0.8186
security		23	0.585
transaction		11	1.6204
user		9	0.5444
way		17	0.6261
analysis		23	0.1983
area		20	0.4901
disruptive technology		7	0.2336
environment		21	0.526
focus		10	0.3592
control		11	0.7355
insight		9	2.6401
knowledge		13	0.4914
model		23	0.4155
need		12	0.6466
organisation	innovative organisations	19	0.5431
originality value		12	3.4951
practical implication		9	3.9996
product		17	0.8867
research limitations implication		7	4.9463
researcher		13	0.6131
service		16	0.4392
smart contract		10	1.1638
solution		19	0.5156
work		9	0.7865
world		9	1.6308

Additionally, the documents were examined using bibliometric key term occurrences and content analysis to determine the major themes of the study. VOS Viewer software analyses the published literature's content—data clusters created on the text established to group the related ideas. The current study found that in more detail in the journals' indexing procedure outlined in the databases, researchers' keywords and keywords are equally accurate for bibliometric analysis designed to uncover the structures of the examining field. Hence, we involved both class keywords for the co-occurrence analysis within the study area associated with innovative organisations, business models, and digital transformation. In total, 46 records were contained within the research, and the data delivered 53 keywords. We have thoroughly established and selected only

the most numerous 51 repetitive keywords in at least five records. Figure 3 illustrates the content analysis results. The cluster is represented by blue displays supply chain, organisational culture, value and enterprise are significant themes findings. The cluster in red is primarily ascribed to digital transformation, sustainable development, human resource management, business model and high-tech enterprise. The brown cluster signifies capability, adoption and organisational sustainability. Figure 3 below illustrates the details of thems identification using the VOS viewer.

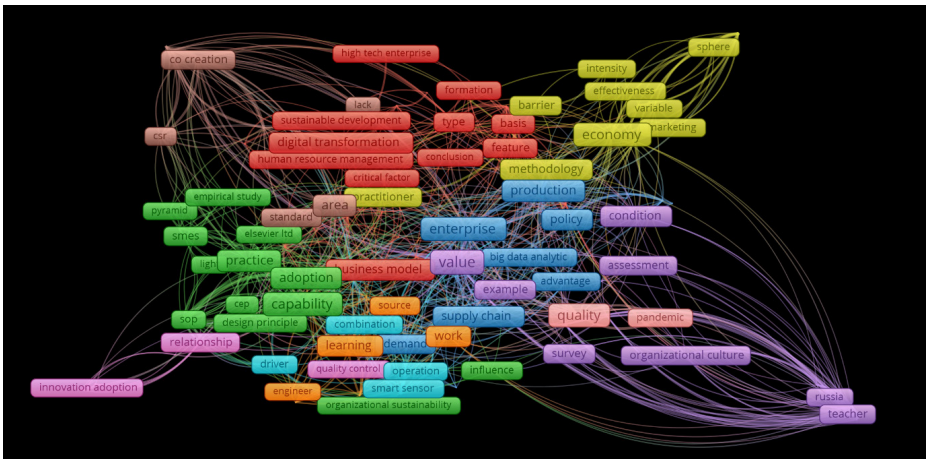

Fig. 3. Themes identification using the VOS viewer

4 Thematic review

4.1 Innovative organisations

Recent shifts in the global economy and market demands are compelling firms to implement technological advancements facilitated by digital transformation (Barrane et al., 2021). As a result, more complicated and brilliant goods with new capabilities have been developed. To manufacture bright goods, firms must significantly modify their new product development (NPD) process (N. A. Qureshi et al., n.d.). Furthermore, the fourth industrial revolution (from now on, industrial revolution 4.0) has multiplied the world's revenue by orders of magnitude. Like other areas of the economy, industrial revolution 4.0 had unprecedented repercussions that are put out for businesses (Wang et al., 2021). The advent of digital technology has reduced compliance costs and administrative hurdles, which has affected the performance of organisations (Shpak et al., 2019). The operation of Industry 4.0 is also characterised by productive information provision of management processes in the business sector, where the overall volume of generated data that comes to the management subsystem is used for making management decisions, and the cost of storing and maintaining data in the enterprise management system is reduced (Gadekar et al., 2022). Successful application of these processes

necessitates the creation of novel economic systems, which should be modelled (Gitelman & Kozhevnikov, 2018).

According to (Nafchi & Mohelská, 2020) to implement the Smart idea, it is considered that adequate resources, experienced and capable workers, and well-organized, adequately adaptable, and creative procedures are required. Industry 4.0 refers to the organisation of production processes based on interacting technologies and gadgets, often known as a "smart" factory, in which computer-driven systems manage physical processes, and are decentralised on self-organisation mechanisms (Kanimozhi Suguna & Nanda Kumar, 2019). On the other hand, researchers like (Akkaya, 1 C.E.), suggested that business settings are rapidly evolving. Agile businesses thrive in today's competitive market. Suppose today's technology businesses, leaders in their respective industries, fail in that competitive climate (Nagy et al., 2021). In that case, they may lose their market leadership because some organisations who were formerly market leaders in their respective industries are likely to fall behind their competitors due to a failure to adapt to changing market conditions. In addition, as the fluctuation and complexity of business environments and organisations themselves increase on an unprecedented scale in the age of Industry 4.0, tensions created as a result of those changes and the related requirements translate to unprecedented effects or widely admired achievements in science, technology, economy, or society (e.g., innovative, breakthrough, novel solutions), or, conversely, they come down to unfortunate, undesired, anguished outcomes (Adamik & Nowicki, 2019). Table 3 below shows the details of authors, citations of articles, sub-classification details, segments and settings in which the research was conducted.

Table 3. Authors, cited by sub-classification, segments, and settings

Authors	Sub-classification	Segments	Settings
Barrane et al., 2021	new product development	technological developments	Inter-organizational collaborations
Shpak et al., 2019	innovative policy	Markov chains	integration approaches
Wang et al., 2021	banking sector.	high technology exports,	technological innovation
Nafchi & Mohelská, 2020	organizational culture	innovative culture	readiness and maturity
Akkaya, , 2019	technology companies	digital world	dynamic environment
Adamik & Nowicki, 2019	Corporate Social Responsibility (CSR)	competitive advantage	pathologies and paradoxes
Inshakova et al., 2020	human and machine labor	business processes	organization of intellectual production
Demirkesen & Tezel, 2022	construction companies	building information modeling	digitalization
Garad & Gold, 2019	organimodelling learning	learning ecosystem	Leaders in organizations
Gitelman & Kozhevnikov, 2018	organisations	global managerial education	anticipatory learning

Authors	Sub-classification	Segments	Settings
Anshari & Hamdan, 2022	knowledge management	skills and capabilities	digital fluency
Gouda & Tiwari, 2022	digital disruption	automobile industry	sustainable business performance
Kanimozhi Suguna & Nanda Kumar, 2019	digital supply chain	start-up enterprises	software services
Gadekar et al., 2022	Higher Sustainable Organisational Performance	manufacturing industry	business model
Nagy et al., 2021	innovative technologies	construction industry	cyber-physical ecosystem

According to (Inshakova et al., 2020), It should also be emphasised that universal machine technologies are employed in the service sector. For the automation of various business operations, which differ for different industrial segments, the industry requires considerable adaption and a foundation on breakthrough digital technologies of Industry 4.0. In agriculture, the prospects for automation are limited, and their practical deployment needs research. For example, I4.0 has already encouraged the application of several digital technologies in the construction sector, including innovative materials, sensor systems, and intelligent equipment (Demirkesen & Tezel, 2022). According to the findings (Anshari & Hamdan, 2022), by detecting key issue aspects in current information, innovation has become a crucial component of an organisation to enhance performance and address challenges, particularly under the uncertain conditions of the natural world. The innovation process is firmly based on knowledge management. However, businesses must train highly skilled individuals to foster innovation in the manufacturing system and monitor its digital activities (Garad & Gold, 2019). Allowing employees to adapt to I4.0 technology lowers human error and aids in the improvement of their work processes. As a result, talent agility and innovation adoption are critical for businesses (Gouda & Tiwari, 2022).

4.2 Digital transformation

In the modern age of digital transformation, innovation is critical and pervasive in all businesses. Researchers established numerous aspects to describe innovation capability and proposed that organisations develop their innovation capabilities in various methods (Rauniyar et al., 2022). Innovation capability is the degree to which a corporation can absorb, adapt, and change any given technology to create something new, other than the items currently on the market, to generate profits (Bencsik, 2020). In addition, the ultimate source of innovation capability is an innovation culture that continually transforms knowledge and ideas into distinctive goods and services, processes, and systems for long-term survival in a competitive market (Kosolapova et al., 2021). According to (Aghimien et al., 2022)digitalisation can resolve the vexing dilemma of delivering projects over budget, late, and under specification. For example, digital technology may lower labour expenses while improving quality and efficiency and enhancing site safety.

According to the Industry 4.0 vision, digitising firm processes may facilitate the integration of firm functions and supply chain members so that "the chain becomes a completely integrated ecosystem that is fully transparent to all the players involved—from the suppliers of raw materials, components, and parts, to the transporters of those supplies and finished goods, and finally to the customers demanding fulfilment (Ardito et al., 2019)." According to (Choudhury et al., 2021) to complete this digital transition, specific "enabling technologies" (such as information systems and better Big Data analytics approaches) must be used. On the other hand, deploying digital supply chains and more modern marketing strategies is hampered by costly investments and significant hurdles associated with digitisation. In addition, the inability to assess and choose available technologies that may support the digitisation process and supply chain integration is one of the most critical factors of digitisation costs (Kondrat'ev, 2019). According to (Kondratiev & V., 2018), the purpose of Industry 4.0 is to accelerate digitalisation and, as a result, the horizontal and vertical integration of company activities. Therefore, all data related to operations, inbound/outbound logistics, market demands, and product-customer interactions would be available in real-time. Table 4 below shows the authors' details, articles' citations, sub-classification details, segments and settings in which the research was conducted.

Table 4. Authors, cited by sub-classification, segments, and settings

Authors	Sub-classification	Segments	Settings
Rauniyar et al., 2022	innovative strategies	supply chain domain	adopting blockchain technologies
Ardito et al., 2019	supply chain management	innovation dynamics and applications	patent analysis
Mohelska & Sokolova, 2018	autonomous decision-making	innovation and education	organizational culture
Choudhury et al., 2021	supply chain arrangements	mart Manufacturing Processes	hierarchical structure
Pagano et al., 2021	industrial districts	companies, institutions and universities	innovative forms
de las Heras et al., 2021	sustainable consumption	environmental impact	collaborative consumption
Kondrat'ev V.B.	innovative economy	global value chains	digital technologies
Nicolás-Agustín et al., 2022	human resource practices	strategic alignment	digital revolution
Malatji et al., 2022	intelligent interconnectivity	cybersecurity risk	enterprise information technology
Kondratiev & V., 2021	sustainable development	resources management	advanced production technologies
Kondratiev & V., 2018	global value chains (GVC)	digital technologies	productive capabilities policy

Furthermore, Industry 4.0 necessitates ongoing innovation and education, which depends on people's abilities and organisational culture. Proper management practices are crucial in establishing the corporate culture (Mohelska & Sokolova, 2018). In addition,

To accomplish digital transformation, businesses must address two key issues: technology usage in the value chain and changes affecting their people, culture, and expertise. Organisations' capabilities for digital transformation (DT) include substantial resources (IT infrastructure), people resources (technical and management skills), and intangible resources (knowledge, client focus, and synergy) (Nicolás-Agustín et al., 2022). According to (de las Heras et al., 2021) human resources constitute a competitive edge in any firm. Businesses must integrate their management with operations management for the most significant outcomes. Additionally, advances in Industry 4.0 technologies, such as artificial intelligence and the Internet of Things, have resulted in the automation of numerous employments. Also, as a result, employment requirements have changed (Pagano et al., 2021). Experience in programming, Big Data analytics, robotics, and intelligent system maintenance will be required. Soft skills, lifelong learning, analytical, inventive, and critical thinking are all becoming increasingly important (Yasir et al., 2022). According to (Malatji et al., 2022) corporations may utilise HRM techniques to guarantee that individuals with the necessary capabilities are employed and kept and to ensure that employees are encouraged to behave by the company's plan. In this regard, we may presume that strategic alignment encourages adopting certain beneficial HRM practices in the digital era (Mustapha et al., 2022). As a result, HRM practises in the digital era must incorporate teleworking, encourage employee engagement in achieving the aim of digital transformation, and incentivise a proper leadership style (M. I. Qureshi & Khan, 2022).

4.3 Business models

Innovation plays a significant role in the strategy of such firms, as evidenced by the fact that all large technological organisations attribute a significant portion of their success to novelty goods and new concepts (Zeebaree et al., 2020). According to (Kumar & Nayyar, 2020), to adapt or upgrade to industry 4.0, every corporation or organisation must undergo complex and time-consuming procedures to transit and incorporate industry 4.0 concepts and strategies into their present methods and approaches. Industry 4.0 includes technology from various fields, necessitating substantial changes in research, manufacturing, logistics, and service activities (Jerman et al., 2019). According to (Joseph Jerome et al., 2022), Coupled with these interruptions, the current pandemic has tested all global supply systems. The capacity of a supply chain to recover to its original condition or shift to a new, more desired one after being disturbed is characterised as resilience. Firms that lack this resilience perform poorly in their operations and suffer financial implications (Vassakis et al., 2018).

Technological advancement drives businesses to innovate in their everyday production, supply, value chains, and numerous operations, allowing them to adapt quickly to client requests (Panetto et al., 2019). As a result, businesses are being driven to use advanced analytic tools to "win with data," as well as digital and machine advances (Kloviene & Uosyte, 2019). According to (Rodríguez-Abitia & Bribiesca-Correa, 2021) the concept of digital transformation has gained traction in the recent decade. It differs from the previous concepts in that it not only attempts to quantify the extent to

which an organisation can benefit from the use of IT, but it is also viewed as an evolutionary process in which IT becomes a fundamental component of its daily life, affecting all dimensions involving both people and the organisation itself (Lu et al., 2020). In addition, given that the growth of Industry 4.0 is defined as using high-tech gadgets and equipment, as well as the widespread use of Internet technologies, the actual job is to adapt the educational system to the needs of the stage of societal development (Kolesnichenko et al., 2019). Only gathered knowledge will contribute to the development of Industry 4.0 and its safe development under these conditions (Hwang et al., 2021). Table 5 below shows the authors' details, articles' citations, sub-classification details, segments and settings in which the research was conducted.

Table 5. Authors, cited by sub-classification, segments, and settings

Authors	Sub-classification	Segments	Settings
Vassakis et al., 2018	innovation and competitiveness	enterprises and organisations	strategic business decisions
Stachová et al., 2019	sustainability	organisations, and educational institutions	Innovations
Lu et al., 2020	Organisational innovation	Carroll's pyramid model	SMEs
Rodríguez-Abitia & Bribiesca-Correa, 2021	digital transformation model	innovative products, services	higher-education institutions
Kumar & Nayyar, 2020	smart factories	key technologies	innovation
Jerman et al., 2019	crucial elements	organisation and determines	management and leadership
Joseph Jerome et al., 2022	pharmaceutical industry	innovative	organizational inertia
Kolesnichenko et al., 2019	performance measurement system	business environment and organisational processes	technology
Gajdzik & Wolniak, 2022	employee skills and competencies	creativity and innovativeness	steel mills.
Zeebaree et al., 2020	digital connectivity	accessible technological solutions	human-machine communication
Hwang et al., 2021	product realisation	additive manufacturing	design theory and design
Kolesnichenko et al., 2019	"Knowledge economy"	"Information–knowledge	higher education

However, while transitioning to Industry 4.0 is a long-term process, businesses must take a strategic approach to human resources and development. In this regard, intellectual capital and intellectual capital management have piqued the curiosity of numerous company management scholars (Stachová et al., 2019). According to (Akhtar et al., 2022), intellectual capital management is a notion that assures long-term competitiveness while avoiding ad hoc measures that increase risks and expenses. Intellectual capital is defined as knowledge and knowledge efforts that may be converted into value and provides a framework for showcasing attributes and potentials for long-term development. Also, Using Industry 4.0 in a firm aims to improve its innovativeness, among other things (Sikandar et al., 2022). An operator should have the necessary knowledge and skills, allowing for more incredible innovation and creativity. Steel firms must do

this to expand and build competitive competition in the global market (Gajdzik & Wolniak, 2022).

5 Conclusion

The current study objective was to investigate the impact of industry 4.0 on innovative organisations. Results suggested that changes in the global economy and market needs are forcing businesses to adopt technical breakthroughs made possible by digital transformation. In addition, findings indicate that it is considered that adequate resources, experienced and capable workers, and well-organized, adequately adaptable, and creative procedures are required. In addition, as the fluctuation and complexity of business environments and organisations themselves increase on an unprecedented scale in the age of Industry 4.0, tensions created because of those changes and the related requirements translate to phenomenal effects or widely admired achievements in science, technology, economy, or society. According to the findings of (Ardito et al., 2019), the industry 4.0 vision, digitising firm processes may facilitate the integration of firm functions and supply chain members so that "the chain becomes a completely integrated ecosystem that is fully transparent to all the players involved—from the suppliers of raw materials, components, and parts, to the transporters of those supplies and finished goods, and finally to the customers demanding.

Furthermore, the impact of industry 4.0 transformation on human resource management needs for the business capabilities and skills. In addition, (Malatji et al., 2022) findings suggest that corporations may utilise HRM techniques to guarantee that individuals with the necessary qualifications are employed and kept and to ensure that employees are encouraged to behave by the company's plan. Also, HRM practises in the digital era must incorporate teleworking, promote employee engagement in achieving the aim of digital transformation, and incentivise a proper leadership style. On the other hand, the findings suggest that Technological advancement drives businesses to innovate in their everyday production, supply, value chains, and numerous operations, allowing them to adapt quickly to client requests. However, while transitioning to Industry 4.0 is a long-term process, businesses must take a strategic approach to human resources and development.

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