Development of Flexible Management Structures in the Context of Digital Transformation of INDUSTRY 5G

Natalya Metelenko[1], Ivan Klopov[1], Valentyna Voronkova[1], Vitalina Nikitenko[1], Roman Oleksenko[2,*], Anastasiia Brytvienko[3] and Nataliia Runcheva[3]

[1]*Zaporozhzhia National University, Zaporizhzhia, Ukraine.*

[2]*Volodymyr Vynnychenko Central Ukrainian State University, Kropyvnytskyi, Ukraine.*

[3]*Bogdan Khmelnitsky Melitopol State Pedagogical University, Zaporizhzhia, Ukraine.*

Abstract: This article attempts to develop flexible management structures in the context of the digital transformation of INDUSTRY 5G, which accelerate the construction of the industrial Internet and promote organisational transformation. The key economic factors of 5G digital management are that enterprises are being formed as complex socio-technological systems that need to be adapted to the new socio-economic conditions of the digital society. To verify the complexity of the existence of enterprises as complex socio-technological systems, we used the Agile methodology as a complexity methodology that is developing on the basis of flexibility and self-organisation methods. The results obtained showed that the evolution of organisational structures is moving from classical models to adaptive organisational structures of digital development. Digital transformation is emerging as a trend to promote a more inclusive digital space and economic benefits. The introduction of flexible models of digital management organisational structures is becoming even more important in the context of 5G and IoT implementation, accelerating digitisation, artificial intelligence, robotics, which require flexible management organisational structures.

Keywords: Flexible models, organisational structure, digital transformation, organisational transformation, INDUSTRY 5G.

INTRODUCTION

The relevance of the research topic is that enterprises or companies previously followed only the traditional logic of development, considering automation and informatisation as the key to transformation and modernisation, and ignored the organisational level for digitisation. The emergence of the digital economy brings businesses not only challenges but also opportunities for INDUSTRY 5G digital transformation.

Intellectualisation, informatisation of management, innovative development of business models, and the desire to build a new development model that adapts to the new era are becoming more promising. This is a difficult task and a long-term process. Therefore, managers should work hard to change concepts, cultivate capabilities, improve systems and secure resources to fully play the leading role of enterprises, deepen industrial transformation and upgrading, and act as leaders in their industries.

Due to the introduction of new types of management - organisational, adaptive, flexible, transformational, digital - business leaders must develop management for efficient and sustainable development, which requires transforming their organisational structures as dynamic adaptive 5G digital transformations. The transformation of organisational management structure models puts forward a fundamentally new structure of thinking of managers, which forms a new "model of enterprise" and organisation. For this purpose, each enterprise, as a complex socio-technological system, must perform nine systemic functions within the organisation to survive in a changing external environment. Each system is interconnected and interacts with each other, and must realise the integrity and competitiveness of the organisation. The 9 systemic components of organisations will ensure adaptation to new social, economic and sociocultural conditions of existence: 1) corporate leadership; 2) strategy; 3) business processes; 4) goal setting; 5) culture; 6) training; 7) information/knowledge management 8) organisational structure; 9) business problem solving. Enterprises should focus not only on the internal part, but also on the external environment, including PEST-analysis (government, economy, society, technology), competitors, which will help them survive, transform, modernise and occupy high innovation and adaptation indices. To do this, enterprises as complex socio-technological systems should pay more attention to external processes, transform their organisational structures, achieve dynamic self-adaptation and better respond to the impact of external factors.

The purpose of the article is to conceptualise the model of organisational structures of management in the context of digital transformation of INDUSTRY 5.

*Address correspondence to this author at the Volodymyr Vynnychenko Central Ukrainian State University, Kropyvnytskyi, Ukraine;
E-mail: roman.xdsl@ukr.net

Objectives: 1) to analyse organisational changes as a condition of digital transformation of INDUSTRY 5 enterprises; 2) to find out the flexibility of the organisational structure of digital transformation of INDUSTRY 5.0 enterprises; 3) to reveal the model of an adaptive flexible "learning organisation" as a successful response to market and competition changes; 4) to form a model of virtualisation of management structures in the context of digital transformation of INDUSTRY 5G.

MATERIALS AND METHODS

The study used the methods of system analysis and synthesis, since we are talking about organisations that are complex socio-technological systems; the synergistic method, based on self-organisation, search for tractors, bifurcation processes that require a way out of a situation of instability and uncertainty: Agile methodology as a methodology of complexity and a non-linear methodology capable of analysing organisations as complex systems that develop in conditions of instability, information stochasticity on the principles of self-organisation. A datacentric approach to analysing flexible management governance structures in the context of digital transformation INDUSTRY 5G aims to facilitate information sharing, data visualisation and information management, the database provides query functions, forms, reports. The data can be used to generate useful business intelligence and decision support information for change management. A data-centric approach to analysing agile management governance structures for INDUSTRY 5G digital transformation includes methods for collecting, structuring, documenting and reusing key data, such as strategies, actions and events, that are typically generated by change management processes. It creates a challenge for stakeholders, especially in visualising, managing and reusing previous successful change management strategies. It creates difficulties in realising enterprise agility and effective change management. Other details such as attributes, primary and foreign keys, data types and constraints can be configured (or defined by users) according to their specific data requirements and business cases. Changes and changes indicators can thus be tracked and analysed.

ANALYSIS OF THE LATEST RESEARCHES AND PUBLICATIONS

Digitalisation is defined as digital methods that use digital devices to communicate, record and transmit data. Based on the above, digital transformation is seen as a strategy, a paradigm shift in communication, interaction between people and society. In this sense, digital transformation is seen as a process or model that includes infrastructure, management, behaviour, and integrated problem solving. It can be noted that regardless of whether it is a strategy, a digital processing operation or a paradigm shift, the core of digital transformation is the advancement of technology. Digitisation is constantly changing with the development of digital technologies, as it forces organisations and businesses to undergo digital conversion, digital renewal and digital transformation. We use the classic management books by Adizes Itzhak Calderon "How to Overcome the Management Crisis" (2019), "Styles of Good and Bad Management" (2020), and Appelo Jürgen (2019), which helped shape the Agile management 3.0 paradigm, leadership, and team management. In our research, we refer to the work of Buhaychuk, Oksana, Nikitenko, Vitalina, Voronkova, Valentyna, Andriukaitiene, Regina & Malysh, Myroslava Interaction of the digital person and society in the context of the philosophy of politics (2022), which identifies the impact of digitalisation on all processes of society - economy, politics, society, and human beings. The general trend of digitalisation is analysed in Buhaychuk, Oksana, Nikitenko, Vitalina, Voronkova, Valentyna, Andriukaitiene, Regina & Malysh, Myroslava "Interaction of the digital person and society in the context of the philosophy of politics" (2022), which influenced the evolution of flexible models and organisational structures of the enterprise in the context of digital transformation. The works of Voronkova Valentyna H., Nikitenko Vitalina A., Teslenko Tatyana V., Bilohur Vlada E. "Impact of the worldwide trends on the development of the digital economy" (2020) played a major role in our study. An interesting paper by Valentyna Voronkova, Vitalina Nikitenko, Roman Oleksenko, Regina Andriukaitiene, Julia Kharchenko, Eduard Kliuienko "Digital technology evolution of the industrial revolution from 4g to 5g in the context of the challenges of digital globalisation" (2023), which examines the evolution of digital technologies of the industrial revolution from 4g to 5g in the context of the challenges of digital globalisation, is the most interesting. We tried to study works that explore the concept of humanocracy, for which people are above all" (Hamel G., Zanini M., 2021) and Gerben van den Berg, Paul Rietersma "25 Key Management Models" (Gerben van den Berg, Paul Pietersma, 2020), which overcome the old concept of management and replace it with new concepts, paradigms, communities.

Vìtalina Nikitenko, Valentyna Voronkova, & Roman Oleksenko, Larysa Filoretova, Liudmyla Lanoviuk y Viktoriia Khvistel "Perspectives of civilisational political development of world regions in the context of current challenges and opportunities" (2023), which analyses the prospects for civilisational and political development of the world's regions in the context of current challenges and opportunities. To analyse the key economic factors of 5G digital management, we use works that analyse enterprises as complex sociotechnological systems that need to be adapted to the new socio-economic conditions of the digital society, in particular, works by Valentyna Voronkova, Olesia Zvezdova, Anastasiia Khmel, Tetiana Lushahina, Liudmyla Lanoviuk. Theoretical and practical aspects of modern politics: challenges and reformatting of the global world (2022); Kyrychenko, M., Nikitenko, V., Voronkova, V., Harbar, H., & Fursin, A.A. "The search for new forms of personal expression in the era of postmodernism" (2021). We are trying to show that the introduction of flexible models of digital management organisational structures is becoming even more important in the context of the introduction of 5G and the Internet of Things, accelerating digitisation, artificial intelligence, robotics, which require flexible management organisational structures, and the formation of the management paradigm 3.0 plays a major role (Appelo Jürgen, 2019). With the introduction of a new management paradigm and digital transformations, the

management crisis is being overcome and effective business processes and good management styles are being introduced (Adizes Itzhak Calderon, 2019, 2020). The development of the concept of flexible governance structures of management in the context of digital transformation of INDUSTRY 5G was facilitated by the work of Nikitenko, Vitalina, Voronkova, Valentyna, Andriukaitiene, Regina, & Oleksenko, Roman "The crisis of the metaphysical foundations of human existence as a global problem of post-modernity and the ways of managerial solutions" (2021); Nikitenko Vìtalina, Voronkova Valentyna, Oleksenko Roman, Andriukaitiene Regina, Liudmyla Holovii "Education as a factor of cognitive society development in the conditions of digital transformation" (2022). Transformational changes in organisational management and human resources in the digital age are presented in Cherep, A., Voronkova, V., & Androsova, O. "Transformational changes in organisational management and human resources in the digital age" (2022). In this regard, the paradigm of Gupta Sunil "Digital Strategy. A Guide to Rethinking Business", which should equip managers with the need to formulate a digital strategy for their enterprise (Gupta, Sunil, 2020). The study shows that the key to solving problems lies in organisational transformation, in organisational changes, which are an important task of transforming manufacturing enterprises on the basis of technological modernisation and the introduction of smart manufacturing. The solution of the research tasks was also facilitated by the works of Peter F. Drucker

"Challenges for Management of the XXI Century" (2020); Karlgaard Ritch "The Human Factor. The secrets of long-term success of outstanding companies" (2017); Kelly Kevin "Irreversible. 12 technologies shaping our future" (2018), which allowed the development of flexible management structures in the context of digital transformation INDUSTRY 5G, which accelerate the construction of the industrial Internet and promote organisational transformation.

For a broader understanding of the investigated problem, the authors proposed the following articles: Verkhovod, I., Oleksenko, R., Ratsul, O., Kushnir, N., Ihnatchenko, I. (2023). «Social Communications and Their Role in the Development of the Social Sphere», Trusova, N. V., Oleksenko, R. I., Kalchenko, S. V., Yeremenko, D. V., Pasieka, S. R., & Moroz, S. A. (2021). «Managing the intellectual potential in the business-network of innovative digital technologies», Dmytrenko, M., Nesterenko, S., Oleksenko, R., Yeremenko, L., & Vasylchenko, O. (2021). «Management of corporate responsibility in the business environment: Socio-psychological aspect».

RESULTS

Organisational change can not only ensure the successful implementation of enterprise projects at the digital level, but also contribute to the growth of enterprise employees to high performers as a digital workforce. Organisational change refers to the systematic transformation of an enterprise in the context of its mode of operation, decision-making, management transformation to corporate culture, which contributed to their transformation into innovative learning organisations. The most typical is the emergence of a data platform and a technology platform, so if a digital transformation is underway, it means that the organisational model needs to be rethought. The enterprise model, in order to adapt to digital survival and to adapt to the new enterprise management model, must build on this basis a technology suitable for the enterprise platform, the data platform, to form the management paradigm 3.0 (Appelo, 2019).

1. Organisational Changes as a Condition of Digital Transformation of Enterprises Industry 5.0

Based on the experience of digital transformation, organisational change is an important task of enterprise transformation via technological modernisation and the only way to digitally transform manufacturing enterprises that need to undergo a comprehensive and gradual organisational transformation. In the absence of organisational change, digital technologies are likely to replace traditional inefficient processes with efficient digital ones. In this regard, Gupta Sunil's paradigm "Digital Strategy. A Guide to Rethinking Business", which should equip managers with the need to formulate a digital strategy for their enterprise (Gupta, Sunil, 2020). Through research and observation, we have seen that manufacturing enterprises often fall into the trap of neglecting the modernisation of technologies and the basics of lean manufacturing, and undervaluing the formation of digital technologies of qualified specialists in the process of digital transformation. The analysis has shown that there are enterprises that limit the prospects for digital transformation to simple technology modernisation and project implementation, and that managers lack deep and systematic thinking and practice in the context of transformation and reorganisation of an enterprise or organisation. With the introduction of a new management paradigm and digital transformation and innovation, management crises are being overcome and effective business processes and good management styles are being introduced (Adizes Itzhak Calderon, 2019, 2020).

Table 1. Processes of Organisational Changes.

Processes	Development Direction
Process 1	Businesses need to move from a centralised "mode of operation" model to a decentralised decision-making model based on data and models.
Process 2	Businesses must move from the traditional management model to a "new management model" that focuses on the capabilities of digital management 5.0.
Process 3	Businesses need to shift to long-term development, innovation and staff growth,
Process 4	Enterprises should move towards a flexible corporate culture that advocates a combination of people-orientation and creativity
Process 5	Digital transformation in terms of informatisation

(compiled by the authors).

2. Informatization and Digitization as a Condition for the Formation of an Organizational Structure

The difference between digital transformation and informatisation lies in the distinct business focus, way of thinking, data analysis methods, organisational structure, and transformation paths. Whereas informatisation focuses on building and managing business information, digital transformation is about creating and placing subject resources in the commodity field. In other words: digitisation is a stage of high level of informatisation, deep application of information and expansion from data collection and analysis to data forecasting and operational data. The impact of digitalisation on all processes of society - economy, politics, society, and human beings - has been determined (Buhaychuk et al., 2022)., but digital transformation cannot exist independently of informatisation; it is intended to solve the problem of information islands between information systems when building informatisation and to implement data interconnection between complex systems. Different business focuses should also be taken into account. Whereas informatisation is a focus on managing business information, recording up-to-date information generated by the enterprise, results and management of each link of the business, digital transformation allows business and technology to truly interact to change the traditional business model. At the same time, they involve different ways of thinking: informatisation is a support and a tool, while digitalisation is about thinking and the business itself. For example, office automation (OA). OA in the information age is the process of creating offline paper regulations, documents and processes online, it is a tool and method that does not change the business itself. Digitalisation is the continuous collection of all kinds of information, which directly changes the traditional way of thinking and achieves the effect of rebuilding the business model. In the digital open access system, all processes are completed in the "digital space", the formation of an online office is a digital record of all employees at any time and in any scenarioValentyna H., Nikitenko Vitalina A., Teslenko Tatyana V., Bilohur Vlada E. "Impact of the worldwide trends on the development of the digital economy" (2020). If informatisation is data statistics, then digitisation is the performance of algorithmic functions. Traditional informatisation is based on simple tabular records of data, and then statistics and presentations are made based on a small amount of data, presenting stats without analysis. Each informatisation application basically uses the data in the system according to the conditions and then presents it graphically, without "analysis" in the middle. Digitisation uses algorithms to identify correlations between data, involves creating an optimal input and output model, and then implements real data analysis. In other words, if informatisation improves and helps people's memory and statistical abilities, digitisation directly empowers people's analysis and decision-making capabilities. In this regard, the organisational structure of the enterprise is also different. While informatisation is a sustainable development, digitalisation is a transformative development. In the process of informatisation, the organisational model of an enterprise does not need to be changed, IT departments and some jobs are added at most, and the entire structure of the enterprise and the decision-making process remain unchanged. The whole process has remained virtually unchanged. But when it comes to digitisation, the organisational structure of such an enterprise breaks down, as a large number of data collection, calculation and feedback processes are automatic, with direct instructions bypassing the traditional authorisation model (Voronkova et al., 2023).

In this context, the digital transformation of enterprises means personalised and lightweight products created to order. Digitisation, as the process of converting information into a digital (i.e. machine-readable) format, refers to the transformation of any input, and an analogue-to-digital converter is used to perform this transformation. Today's era is the age of information, and digitisation of information is increasingly valued as a factor of competitiveness. For example, PingCode is a next-generation R&D management platform that makes management automated, data-driven and intelligent, helping companies improve R&D efficiency.

Table 2. Success Factors for Digital Transformation of an Enterprise.

Factors	Development Direction
Factor 1	Roadmap for the introduction of digital technologies
Factor 2	The concept of "lean production"
Factor 3	Innovations
Factor 4	Formation of digital thinking and professional, competent specialists
Factor 5	The intellectualisation of labour and the emergence of white-collar jobs
Factor 6	The value of exact management decision-making
Factor 7	Transition of Digital Transformation 5.0 from the stage of information integration and knowledge accumulation to the stage of intellectual work.

(compiled by the authors).

In recent years, there has been a wave of digital transformation 5.0, the introduction of digital technologies such as artificial intelligence and big data, driven by the exponential development of technology as a new economic resource for 5.0 organisational structures. However, the adoption of corporate digital technologies has not reached widespread use, as businesses have not transformed at the organisational level, resulting in delays in Digital Transformation 5.0, as it was expected.

3. Flexibility of the Organisational Structure of Digital Transformation of Industry 5.0 Enterprises

The flexibility of the organisational structure of the digital transformation of INDUSTRY 5.0 enterprises refers to the adaptation of the organisational structure in accordance with the changing environment in the organisational structure and the establishment of a temporary task-oriented team organisation. The essence of organisational agility is to maintain a balance between change and stability, which requires managers to exercise strong management control. With the increasing development of informatisation, networking and globalisation, the exchange of internal and

external information and talent has become a key feature of the enterprise.

The digital divide has acquired a new dimension related to the "data value chain". Personal data has no value until it is collected and processed, and vice versa, there can be no digital intelligence without raw data. Creating and capturing value requires both raw data and the ability to transform data into digital intelligence, and a focus on data helps to move to higher stages of development (Voronkova et al., 2023).

While the data-driven digital economy is growing, the data gap is exacerbating the digital divide: 1) project structures lead to the fragmentation of resources and make it much more difficult to maintain and develop the company's production and scientific and technical potential as a whole; 2) the project manager is required to manage all stages of the project life cycle and the project's place in the company's network of projects; 3) the formation of project teams that are stable entities deprives employees of awareness of their place in the company; 4) difficulties with the future use of specialists in the company; 5) partial duplication of functions.

Table 3. Advantages of the Flexible (Adaptive) Organisational Structure Model.

Direction title	Definition	Advantages of an agile organisation
1. Smooth flow of information	Can change the way and efficiency of information exchange and decision-making	Shortens the decision-making cycle, can reduce information distortion, increase direct contact between superiors and subordinates, improve coordination and speed of information exchange
2. Creativity and flexibility are enhanced	The organisation becomes flexible and adaptable to the environment	The organisation can change and adapt to new operating conditions, for example, during the COVID-19 pandemic crisis. It leads to production efficiency, increased employee engagement, responsibility and enthusiasm
3. Reducing the level of management and the number of employees, especially mid-level employees, with little regulation, strong horizontal links, and encouraging creativity.	The company's overall operating costs are reduced and its competitiveness in the market is enhanced	Increased efficiency will inevitably lead to lower production costs and reduced personnel costs by reducing the middle management
4. In this way, the organisation's response and coordination capabilities are enhanced	All departments and personnel of the enterprise are more directly in contact with the market, reducing the time gap between decision-making and action	Increase the ability to respond to dynamic changes in the market and competition, thereby making organisational capabilities more flexible and responsive through rapid decision-making and adaptation

(compiled by the authors).

Organisational change can lead to a transformation of the operating model, resulting in an evolution from an "independent mode of operation" in which the digital team drives digital projects to an "integrated mode of operation" where business leaders drive digital projects. The digital team tends to focus more on project delivery rather than operational goals, with two roles as both business leader and digital project manager. A digital organisation or enterprise is moving from an experience-based, centralised decision-making model to a data-driven, model-driven, decentralised decision-making model. At the same time, there is a change in the decision-making regime, which implies a change in the decision-maker: while in a centralised regime decision-making is mainly made by the shop floor manager or factory manager (senior manager), in a crisis or unstable regime decision-making is mainly made by operational staff together with data and models, resulting in both increased decision-making efficiency and decision-making quality.

Table 4. Main Mistakes that Led to Delays in the Implementation of Digitalisation Projects.

Essence of the error	The way to overcome it
Businesses do not have a digital roadmap as a long-term strategy; digitalisation projects have long implementation cycles and uncertain outcomes; business units do not see efficiency in digitalisation	The implementation of enterprise digitalisation projects is aligned with operational goals, resulting in employees failing to see the practical value of digitalisation projects. The payback period of investments thus calls into question their value, as each department makes it impossible to achieve cross-departmental, end-to-end collaboration, while the effect of digital solutions is often inseparable from this collaboration.
The company lacks a lean framework and lean production that has not been integrated into digital transformation	Developing of the concept of "lean manufacturing". With a lack of understanding, enterprises often hope to solve the problem of careless processes through digitalisation, which results in a lot of waste in the production and operation of the enterprise. When enterprises lack a lean manufacturing culture and practices, it is difficult to drive transformation using operational and decision-making models.
Employees' digital capabilities do not improve alongside corporate digital projects	Employees should master and control new digital tools, implement a digitalisation strategy at all levels, which will facilitate iterative modernisation to reach the stage of independent innovation
Businesses consider digitalisation as a tool to increase efficiency, but ignore the opportunities offered by the development of organisational concepts	It rejects digital thinking and digital transformation, which remains only at the level of a tool platform represented by machines, not people. If the concept of digital thinking and digital transformation is not improved, the effect of transformation will be absent, leading to an inability to achieve increased competitiveness in the form of digital transformation.

(compiled by the authors).

As a result of overcoming digitalisation implementation mistakes and establishing an effective organisational

structure, the transition from simple digital production and enterprise to smart, intelligent production, enterprise, and management towards digital management 5.0 will be made, continuously improving the efficiency of production and freeing employees from monotonous, routine work. At this stage, production is gradually shifting from focusing on "operational performance" to "innovation", paying more attention to the business opportunities offered by transparency. With the help of digital tools, invisible production problems can be made transparent and continuously improved, through the continuous development of collaborative work, employees begin to think digitally and develop the habit of using data, focus on intelligent data-driven decision-making.

In other words: by means of continuous iterative algorithms, the experience of managing an enterprise is changing, a scientific system is being created that combines problem identification, analysis, judgement and independent decision-making, improving employees' understanding of the business and independent decision-making. Simultaneously with digital governance, its organisational transformation is underway. With the advancement of digital construction, the need for organisational change is becoming more acute, and comprehensive and gradual organisational changes are taking place - from the mode of operation, decision-making mode, management mode to the corporate culture within the organisation, resulting in changes in operating and decision-making models that have led to intelligent decision-making based on the optimisation of the model of organisational structures of digital (algorithmic) management 5.0. The result of these processes is the concept of organisational change, which begins with the transformation of the operating model in the face of challenges for management in the 21st century (Drucker, Peter F., 2020).

4. The Model of an Adaptive Flexible "Learning Organisation" as a Successful Response to Market and Competitive Changes

The model of an adaptive flexible "learning organisation" allows to achieve the following: 1) content creation and management that leverages a range of social and other collaborative features and functions; 2) incorporates cross-departmental and divisional lines and includes workspaces; 3) has secure access to documents across the company; 4) has enterprise-level social networking capabilities; 5) uses an approach to facilitate real-time discussion and uses instant messaging screens and mobile chat to reduce unnecessary email between employees in the organisation; 6) the organisational culture has shifted to a problem-solving, solution-focused culture, guided by the belief that shared knowledge is power.

Adopting an agile business model is the first step in becoming a learning organisation based on the human factor and the secrets of outstanding companies' success (Karlgaard, 2017). Improving the management system of the digital economy is also linked to improving the models of organisational management structures. In order to promote the healthy development of the digital economy, we must insist on promoting the development, regulation and development of all processes of organisational management structures. Strengthening the management of the digital economy is not to limit the development of the digital economy, but to create a standardised and orderly development environment and ensure the healthy and rapid development of the digital economy.

Table 5. Adaptive Business Model as a "Learning Organisation".

Name of theory or concept	Defenitions
Technological theories	A technology company is constantly innovating and needs a sales team to learn about new product features and functions.
Innovative theories	Healthcare organisations are constantly updating their policies and procedures in line with rapidly changing guidelines and regulations to address
Software theories	A software company must provide customers with customised updates to adapt to rapidly changing market conditions.
Security theories	A multinational fast food company is constantly launching new products in different markets and regions
Theories of adaptability	An adaptive business model means that a company has the tools and culture to adapt to a rapidly changing market.
Theories of adaptive models formation	Transitioning to an agile business model requires the right tools, new thinking, good strategy and a high level of commitment.
The theory of an adaptive "learning organisation"	Adaptable to a relatively volatile and unpredictable business environment, consensus-building and using non-traditional tools to create and manage content.

(compiled by the authors).

In summary, the most prominent advantage of the agile organisation model is that it is flexible, convenient and agile, as this structure can make full use of the internal and external resources of the enterprise, enhance the organisation's ability to respond to market changes and competition, and help the organisation better realise the centralisation and decentralisation Unity of stability and transformation. In addition, it can significantly reduce costs, promote the development of human resources, and facilitate the development of the organisational structure of the enterprise. To consolidate customer relationships, the Honeywell Company in the United States has created a "team of commandos" that includes sales, design, and manufacturing departments. Clearly, the flexible organisational structure has strengthened communication and collaboration between departments, allowing different aspects of knowledge to be shared to form a joint force that fosters knowledge and technology innovation. In the new round of global technological revolution and industrial transformation, the integration and development of mobile Inter-

net, cloud computing, big data, Internet of Things, artificial intelligence, blockchain and other new technologies and various fields have broad prospects and unlimited potential. Due to the innovation driven by science and technology, the optimisation and upgrading of industrial structure and digital operation of enterprises have become the inevitable choice of traditional industries to further expand development space. The main strategy is to take digital construction as the main line, take factory intelligence as the foundation, use company informatisation as the driving force, and take the innovative business model as the breakthrough point to support the globalisation, diversification and development of the group, shaping the technology of our future (Kelly Kevin, 2018).

5. The Model of Virtualisation of Management Structures in the Context of the INDUSTRY 5G Digital Transformation

The INDUSTRY 5G model of virtualisation of management structures in the context of digital transformation refers to the use of technology to bring people, money, knowledge or ideas together in an invisible (meaning a combined physical office building, fixed assets and permanent staff, etc.) to achieve certain organisational goals. Virtualised corporate organisations do not have the various departments or organisational structures that conventional enterprises have, but are interconnected by eight groups of network technologies, including knowledge, information, talents, necessary to achieve goals to form a complex of dynamic resource use. The INDUSTRY 5G model of virtualisation of management structures in the context of digital transformation aims to improve and enhance regulatory technologies and tools, and integrate regulation and management into all processes of innovation, production, operation and investment. The main purpose of the INDUSTRY 5G governance framework is to clarify the main responsibilities and obligations of platform companies, encourage all industries in the digital economy to formulate self-regulatory norms based on the actual development of the industry, and promote the legal and compliant operation of platform companies. It is the ability to integrate the entire business chain, that is, to build a tightly integrated core operations and control management system to support the operations management and control capabilities of the group and member companies, reduce management costs, improve operational efficiency, free up inefficient labour, and control operational risks.

Table 6. Model of a Modern Organization.

Division	Objectives	
1. Decision-making subsystem	The organisation's governance system, decision-making bodies at all levels, and decision-makers form the decision-making subsystem.	Decision-making bodies and decision-makers at all levels are at the centre of organisational decision-making.
2. Creativity and flexibility are enhanced	The organisation becomes flexible and adaptable to the environment	It leads to an increase in morale and production efficiency, increased employee enthusiasm for work, and employee responsibility
3. Reducing the level of management and the number of employees, especially middle management	The company's overall operating costs are reduced and its competitiveness in the market is enhanced	Increased efficiency will inevitably lead to lower production costs and reduced personnel costs by reducing the middle management
4. It helps to enhance the organisation's response and coordination capabilities	All departments and personnel of the enterprise are more directly in contact with the market, reducing the time gap between decision-making and action	Increase the ability to respond to dynamic changes in the market and competition, thereby making organisational capabilities more flexible and responsive through rapid decision-making and adaptation

Flexibility of the organisational structure. The so-called flexibility, like adaptability, means continuously making temporary adjustments. As an organisation is based on dynamic cooperation between individuals, groups and units within the organisation and complementary functions with the external environment, flexibility has become an essential factor for the survival and development of an organisation in the face of uncertainty. Agile organisations are designed to emphasise trust, cooperation and information sharing amongst the members of the organisation. The management concepts envisaged by an agile organisation are mainly manifested in: networked organisational boundaries, flattening of the management level, flexibility of the organisational structure, and globalisation of the organisational environment (Kyrychenko et al., 2021).

Among them, organisational structure flexibility is based on the ability to innovate. Through the division of labour and cooperation, risk sharing, and appropriate adjustments to the authority structure, it empowers grassroots employees, meets the needs of high-level employees, and enhances employee ownership. Consciously improve your own work standards to turn organisational will into individual conscious action. Agile organisational structure is characterised by simplicity of structure, responsiveness, speed and flexibility to adapt quickly to the needs of the modern market. It includes the ability to coordinate human resources, i.e. to establish digital talent management and services, empower employees, create echelons, optimise productivity, provide strong platform support for talent planning strategy, and implement a management organisational structure model (Nikitenko et al., 2021).

It should be emphasised that the fundamental value of an agile organisational structure is that it can come from the diverse needs of employees, customers and other stakeholders and promote a sense of responsibility of "team collaboration" so that the organisation can adapt to changes in the environment, allocate all enterprise resources quickly and efficiently, and then take advantage of the shared resources to solve specific problems that the organisation faces in its development. Flexibility of the organisational model. The purpose of the organisational model flexibility is

to utilise the organisation's resources to the fullest extent possible and to increase the organisation's ability to adapt to dynamic changes in the organisational environment, which is manifested in the unity of centralisation and decentralisation, the unity of stability and change. The flexibility of the organisational model is manifested as a unity of centralisation and decentralisation. In contrast to the practice of blindly emphasising decentralisation to avoid the negative impact of excessive decentralisation, a flexible organisational structure requires the introduction of the necessary centralisation while decentralising.

Centralisation means that top management sets the strategic direction of the entire organisation and defines the authority between superiors and subordinates. Decentralisation of authority means that middle and lower level departments, as well as production and operational staff, are empowered to handle some emergencies. The key to unifying centralisation and decentralisation is the timely transfer of information through direct and indirect communication channels between superiors and subordinates, proper adjustment of the authority structure, ensuring the formation of strategic development goals and specific areas of the organisation's activities (Nikitenko et.al., 2022).

The flexibility of the organisational model is manifested as a unity of stability and transformation. In order to adapt to the needs of constant changes in the organisational structure, the organisational structure is divided into two parts: one part is the organisational structure created to perform some regular tasks of the organisation. This part of the organisational structure is relatively stable and is the basic part of the organisational structure: the other part. One part is an organisational structure set up to perform some temporary tasks, which is an additional part of the organisational structure, such as various project teams, temporary employees and expert consultants. While agile is the unity of centralisation and decentralisation, and the unity of stability and change, flexibility is more fully reflected in decentralisation and a constantly changing organisational structure. Typical organisational forms of flexibility are temporary teams and redesign. As the backbone of an organisation, an enterprise's organisational structure should focus on meeting the growth requirements of the enterprise during its changes, as well as enhancing the core competitiveness of the enterprise and optimising the organisation of the enterprise by reforming and integrating the enterprise's business processes, organisational structure and corporate culture. In practical terms, in order to build such an open and dynamic organisational model, an enterprise should develop modern concepts of agile management, agile governance and decision control to adapt to the ever-changing organisational environment, promoting the integration of resources from all information systems managed by the group; promote the use of data to optimise its own processes, products and decision-making, improve the efficiency of resource coordination and the ability to make effective management decisions at all levels. Over the past few years, modern adapted agile organisations have prioritised building an intelligent manufacturing platform and a core operations management platform in line with the requirements of the overall digital transformation plan, as well as developing a shared service platform, a social business platform, a digital human resources platform, a management and decision support platform, which indicates that the path of digital transformation development has already begun (Cherep et al., 2022).

CONCLUSIONS

Globally, the digital transformation of traditional industries continues to progress, including the ability to innovate business models, i.e. create greater social value by integrating better resources (marketing, supply, technology, finance, logistics, resources, etc.) and the power of the internet platform. Digital transformation has penetrated all areas of life and has become an inevitable development trend in almost all industries. In non-ICT industries, digital talent is concentrated mainly in four main sectors - manufacturing, finance, consumer goods and corporate services. Los Angeles, New York, Hong Kong, the United Arab Emirates, and London are among the top five cities with the highest share of digital talent in non-ICT industries, all of which exceed 80%. It is necessary to accelerate the development of the digital economy, and to promote the deep integration of the digital economy and the real economy in accordance with the needs and development opportunities of countries. New infrastructure construction should be accelerated, strategic planning should be strengthened, and the construction of high-speed ubiquitous, cloud-based, smart and flexible, green and low-carbon, secure and manageable networks should be accelerated, while improving organisational management structure models. To do this, organisational leaders should familiarise themselves with the direction of digitalisation, networking and intelligence, and promote the digitalisation of manufacturing and services. Leaders of organisations should use new Internet technologies to carry out a comprehensive and complete transformation of traditional industries, improve overall factor productivity, and make full use of digital technologies for economic development to create an internationally competitive digital industry cluster.

Organisational leaders should use the agile organisational management model to build a "team" organisation and increase organisational group cohesion. In fact, the amount of knowledge and data possessed by employees in an enterprise organisation has become the main source of wealth creation for an enterprise. In the process of building a team-based organisation, enterprises should pay attention to the organisational model of the "team" - team (personal, creative, digital) management. Without a team with genuine mutual cooperation and shared responsibility, its existence will greatly reduce the efficiency of the organisation, not only fail to promote employee harmony and unity, but also weaken employee enthusiasm and enthusiasm. A concrete method could be to create a temporary working group that focuses on organisational tasks and emphasises performance and efficiency. Through flexible forms of management organisational structure models, flexibility of the organisational structure, reduction of the vertical level of the organisation and the transition from centralisation to decentralisation are realised. Generally speaking, the more levels of management there are, the higher the cost of information circulation and the slower the organisation responds to external information. To this end, reducing

organisational layers, breaking down walls between organisations, empowering employees, and smoothing out management levels will not only help improve an organisation's adaptability to the environment, but also help the organisation reduce daily operating costs.

The model of digital management organisational structures includes: 1) the organisation should create an analysis model that fits its own characteristics based on its ability to receive information. 2) as digital technologies play a more prominent role in supporting production and service delivery, enterprises are developing digital development plans to improve digital infrastructure and enhance people's digital skills; 3) digital transformation has become a key element to promote a more inclusive digital space, create a more vibrant cyberspace, and create greater economic benefits. Digital governance organisational models are becoming even more important in the context of 5G and IoT deployment, and the acceleration of digitisation due to the COVID-19 pandemic. These trends are expanding opportunities for massive data collection and monetisation on a global scale. The study of models of management organisational structures in the era of global digital development is aimed at using flexible and intelligent production, at realising the deep integration of digitalisation and industrialisation through smart and flexible transformation and modernisation of production and technology (industrial internet platform).

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Received: Sep 15, 2023 Revised: Sep 18, 2023 Accepted: Sep 20, 2023