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The Digital Life of Modern Corporations: Corporate Management Mechanisms and What the Future Holds

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Abstract: Digital transformation of the economy has redefined approaches to the issues of legal capacity, corporate governance and management of business processes. Traditional management mechanisms are no longer competitive unless used in conjunction with dynamically developing digital technologies. This article reviews the lifecycle of a "digital corporation" from the moment of its establishment (*i.e.*, from the moment it acquires legal capacity), the processes related to its governance and management (intra-corporate and intra-productive relations), as well as the documentation of the outcome of its business and production activities. We discuss the "digital footprint" left by corporations in public registers, a unified space of trust implemented as a digital interactive environment, "digital afterlife," and the adjustment of the legal capacity of corporations in view of the automation of their business processes. Furthermore, we provide several examples of digital management tools that are replacing traditional forms of management that rely solely on human cognition. We introduce three types of digital management: remote management (exercised by humans); smart management (based on algorithms designed by human engineers); and artificial intelligence (AI) management (that does not require human involvement). The article discusses the distinctive characteristics of each

of these types of management and their potential joint application. Legal risks associated with the use of digital technologies for the assessment and documentation of production and economic activities (e-accounting, cloud data, open-access information, public registers) are identified. The study relies on empirical economic, legal and technological data pertaining to the legal status of a modern mixed-capital business corporation. We present an overview of currently available IT solutions for digital corporation (e-corporation) management and modification of traditional management tools, and provide an assessment of the prospects for the future development of these technologies. We emphasize the role of law in the digitalization of the economy and offer approaches to legislative work aimed at the legal regulation of modern corporate management.

Keywords: digital transformation; corporation; digital corporation; corporate governance; digital management; smart management; online management; artificial intelligence

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Contents

I. Introduction

The impact that the development of information technologies and their introduction into the modern economy has on the transformation of the consciousness of digital society needs to be assessed (Laptev and Fedin, 2020, pp. 138–157). The legal framework for both the state regulation and the self-governance of domestic businesses requires continuous reevaluation. The desire of businesses to grow and to improve their competitiveness, the need to optimize operational cycles and processes, and to reduce transaction costs, *etc.*, have made the introduction of digital technologies into business processes inevitable. The sensitivity of the market to economic volatility, crises and other challenges of our time, as well as the need for efficient distribution of production and social costs, have been clearly demonstrated by A.D. Nekipelov (2020, pp. 37–46).

Corporate governance that relies on digital data and structured electronic information allows for the effective management of business processes. We believe that corporations can benefit from the use of digital technologies throughout their lifecycle and at each of the stages described by Adizes (2004). The term “digital corporation” is used herein with two different meanings, depending on the context. The first is a digital corporation that is a participant in economic relations (a business) whose management processes are carried out with the help

of automated digital technologies that render human intervention in corporate management virtually unnecessary. The second is a digital corporation that is a technologically uniform digital organism whose automated internal ecosystem provides for automated management of business processes.

It is important to understand that the very essence and nature of a corporate business entity is undergoing a transformation. The common understanding of a corporation as an association of persons (shareholders, participants) and the blending of capital (private equity funds) (Gafiyatov, 2007) may have to be revised once certain aspects of corporate management are delegated to digital algorithms and transformed into the digital code. As noted by Galbraith (2007), large corporations, acting through their members, exert considerable influence on the tastes of consumers. In contrast, digital corporations will not impose goods and services on their potential customers but will rather identify the true and objective needs of individuals and society as a whole by carrying out market research based on AI-assisted analyses of big data.

Economic literature devoted to prospective models of digital corporate management offers well-reasoned predictions of what technology trends and tools from the list compiled by Gartner[1] will become the prerequisites for surviving in the marketplace. Among them there are intelligent apps powered by AI models and deep neural networks, real-time services employing virtual assistants, industrial and household internet-of-things devices, augmented reality applications relying on 3D technologies, dynamic modeling of physical objects using sensor simulation, distributed ledgers, conversational systems that serve as an interface between individuals and production processes, *etc*. These technologies aim at improving the quality of customer service, transforming operational processes and optimizing business models (Bruskin and Kitova, 2017). Following the introduction of digital technologies into corporate relations, the institution of property

[1] Top 10 Strategic Technology Trends for 2017 (2016), *Gartner*. Available at https://www.gartner.com/doc/3471559 [Accessed 01.11.2020].

and the mechanisms for managing corporate capital have also started undergoing a transformation (Loseva, Tazikhina, and Fedotova, 2020).

The use of information technologies undoubtedly improves business analytics. According to Bruskin (2016), technology helps to address the following analytical challenges: how to achieve the best result in the presence of certain limitations; what will happen in the near future; how to model the effects of interaction between several factors and assess their combined effect on the outcome; and what happened in the past. A wide range of possible applications of distributed ledger technology (blockchain) and smart contracts in corporate practice, *e.g.*, for accounting of securities and voting at general meetings of a corporation, are reviewed by Chekhovskaya (2018). Among the problematic aspects of the digital transformation of corporate management, Huseynov and Inozemtsev (2018) list the use of outdated, atavistic approaches that contrast with the dynamic digitalization of the economy, the inadequacy of the existing, "old-school" methodological tools, the compatibility issues that hamper the joint use of traditional and modern techniques and methods, as well as the vagueness and probabilistic nature of digital forecasting.

This article describes new opportunities for corporate management emerging with the digital transformation of the Russian economy. It also presents the approaches to mediating the economic and legal consequences of introducing digital technologies into traditional corporate management.

II. The Legal Capacity and the Digital Legal Personality of a Corporation

II.1. The "Digital Footprint" of a Company in Public Registers

The establishment of a business, the beginning of its lifecycle and the onset of its production activities and business operations are associated with the acquisition by it of a legal personality (legal status), *i.e.*, the ability to participate in entrepreneurial and other economic relations (Laptev, 1969; Tolstoy, 1959).

In corporate practice, the legal personality of an organization is certified by the legal fact that the information about its establishment — as a result of creating a new corporation or reorganizing an existing one — has been entered into the Unified State Register of Legal Entities by the tax authority (Article 51 of the Civil Code of the Russian Federation). The Unified State Register of Legal Entities upholds the principle of "public credibility," sometimes also referred to as the "registration principle," according to which a counterparty or a business partner of a company is presumed not to know anything about the potential inaccuracies or misrepresentations of the information about this company contained in the Unified State Register of Legal Entities. This presumption is further clarified by the Supreme Court of the Russian Federation (paragraph 22 of the Resolution of the Plenum of the Supreme Court of the Russian Federation No. 25 dated June 23, 2015 "On the Application by the Courts of Certain Provisions of Section I of Part One of the Civil Code of the Russian Federation").

A corporation must disclose relevant material facts using the web service of the Center for the Disclosure of Corporate Information[2] maintained by Interfax. The facts that are subject to public disclosure include corporate transactions, securities issues, payment of income, performance of obligations, and decisions of the governing bodies of the issuer (corporation). The special legal capacity of corporations that work in construction and in surveying and design is recorded in the public registers hosted on the websites of the National Association of Builders[3] and the National Association of Surveyors and Design Engineers,[4] respectively. Such corporations may only carry out certain business on condition that the information about their membership of self-regulatory organizations is contained in the abovementioned registers. For the counterparties of a business, it is also important that up-to-date information about its admission to entrepreneurial activities is publicly disclosed in a digital register (online confirmation).

[2] Available at: https://e-disclosure.ru/. (In Russ.).

[3] Available at: https://nostroy.ru/. (In Russ.).

[4] Available at: http://nopriz.ru/. (In Russ.).

II.2. A Unified Space of Trust

A unified space of trust is a digital environment that ensures the recognition of an electronic signature of a business on documents certifying all types of economic and legal relations. The creation of a unified space of trust is the goal that unites states on all continents since the market for the majority of goods and services is transnational in its nature. The formation of the digital space of trust on the Eurasian continent began at the end of the 20th century with the European Union (Directive 1999/93/EC of the European Parliament and of the Council of December 13, 1999 on a Community Framework for Electronic Signatures). In Russia, the unified space of trust started to form a little over a decade ago, and the approaches to its creation were reflected in the Roadmap for the Development of Mechanisms for the Provision of State and Municipal Services in Electronic Form (Order of the Government of the Russian Federation No. 2516-r dated December 25, 2013) and in the "Information Society" National Program of the Russian Federation (Resolution of the Government of the Russian Federation No. 313 dated April 15, 2014). Within the Eurasian Economic Union, the cross-border space of trust is regulated by the Protocol on Information and Communication Technologies and Information Exchange (Appendix No. 3 to the Agreement on the Eurasian Economic Union of May 29, 2014).

In Russia, the procurement of goods and services for the needs of the government and companies with the state participation is carried out through the federal contract system that was introduced almost a decade ago (Federal Laws No. 44-FZ dated April 5, 2013 "On the Contract System for the Procurement of Goods, Works and Services for State and Municipal Needs" and No. 223-FZ dated July 18, 2011 "On the Procurement of Goods, Works and Services by Certain Types of Legal Entities"), specifically via online platforms such as RTS-Tender[5], the National Electronic Platform (formerly the MICEX Electronic Trading Platform[6]), the Unified Electronic Trading Platform,[7] *etc*. According

[5] Available at: http://rts-tender.ru/. (In Russ.).

[6] Available at: www.etp-ets.ru. (In Russ.).

[7] Available at: https://www.roseltorg.ru. (In Russ.).

to the Unified Procurement Information System,[8] goods and services purchased on digital platforms through the federal contract system account for a substantial share of GDP.

II.3. The Digital Afterlife of a Corporation

The digital afterlife of *a corporation* is the exercise of its legal capacity that exceeds the lifespan of its members. Modern information technologies provide for the automatic (algorithmic) implementation of economic policies, production activities and business operations. This supports the claim that corporations possess "digital immortality," since they can continue to exercise their legal capacity regardless of who their current members (shareholders) are until this capacity is overruled by a computer program. Information technologies have enabled market participants to conclude transactions (contracts) remotely by signing them electronically (Article 160 of the Civil Code of the Russian Federation) and to settle them automatically with the help of smart contracts (paragraph 2 of Article 309 of the Civil Code of the Russian Federation). The development of a legislative mechanism for putting companies into "sleep," or "digital conservation," mode is economically important for businesses. Under existing legal structures, as a legal entity, a corporation cannot suspend its activities and has to carry them out continuously, documenting all business operations in its accounting and tax statements (including reporting on zero gains and performance in previous periods of operation).

Currently, a corporation has three legal options to mediate the effects of economic fluctuations, all of which are described in the Civil Code of the Russian Federation (Articles 57, 61, 65 and 64.2): (1) reorganization, *e.g.*, through a split-off or a spin-off, and subsequent sale of part of the business (*i.e.*, of a newly established company); (2) liquidation; (3) bankruptcy or administrative exclusion of the defunct legal entity from the Unified State Register of Legal Entities at the initiative of the tax authority. The recent turmoil in the global economy provoked by various crises, including environmental disasters

[8] Available at: https://zakupki.gov.ru/. (In Russ.).

and epidemiological outbreaks, makes one consider the potential of digital conservation of businesses, not only in economic terms, but also from the legal perspective. Economists and legal scholars should be able to develop regulations enabling corporations to digitally "freeze" their logistical resources and other assets (*e.g.*, by way of entrusting their assets for safekeeping or to a trustee).

II.4. Change (Adjustment) of Legal Capacity according to Market Conditions

Artificial intelligence can guide the direction of a company's business on the basis of big data analysis. One of the significant advantages of AI systems is the ability to perform parallel analysis of information with a person to develop recommendations and improve the effectiveness of decisions made by independently analyzing more data and more correlations than a person can analyze. The data subject to such analysis could include global market statistics, consumer demand, inflation rates, opportunity costs, *etc.*

III. Managing a Corporation as a Digital Organism: Economic and Legal Aspects

Traditional models of corporate management — core (outsider, insider) and specialized (directive, beneficial, "impersonal,", *etc.*) — have specific components (Guriev *et al.*, 2004; Afanasieva *et al.*, 2015; Laptev, 2020). It appears that in the foreseeable future, digital technology may be able to significantly reduce time and transaction costs associated with corporate management procedures. The introduction of these new approaches would ensure the development of the investment climate and improve the standards of corporate governance, including those listed in the Corporate Governance Code, recommended for public corporations by the Bank of Russia in its Letter No. 06-52/2463 dated April 10, 2014.

The components that may potentially be included in corporate management models following digital transformation are listed in Tables 1 and 2.

Table 1

Remote management	• e-signatures; • videoconferencing; • biometric identification of management; • international language ("multi-language"); • LegalTech
Smart management	• corporate management (intra-productive procedures); • corporate governance (intra-productive procedures, conclusion and performance of contracts)
AI-management	• problem analysis and search for solutions; • "digitizing" the brains of participants in corporate relations; • extracting representations of human thought

The basic difference between the three types of corporate management listed above is the level of human involvement in managerial decision-making, as well as the degree of automation of management routines (Laptev and Feyzrakhmanova, 2021; Laptev, Chucha and Feyzrakhmanova, 2022). We believe that in the future all of the described digital tools for corporate management will interact with each other through technological means.

Table 2

Remote management	application of tools enabling a human individual (*e.g.*, a shareholder, a CEO, a member of the board of directors of a corporation) to participate in making and enforcing managerial decisions remotely
Smart management	application of tools ensuring automated management of a corporation guided by a set of predetermined algorithms, which does not require human involvement but provides for continued algorithmic modifications
AI-management	managerial decision-making is carried out by artificial intelligence, which does not rely on preset algorithms and does not require human involvement (cyber business companion)

Software programs developed by 1C, Megaplan and other companies may facilitate the application of the described corporate management tools. These programs can be either installed locally on a company's computers or be hosted on a cloud storage service, such as Dropbox, OneDrive, Google Drive, iCloud, *etc*.

III.1. Remote Management of a Corporation

III.1.1. Electronic Signatures

An electronic document signed with a qualified electronic signature is typically recognized as equivalent to a paper document certified with a handwritten signature. E-signatures can be used to certify any relations, with the exception of certain categories of document, which the law mandates must be stored exclusively on paper records (Article 6 of Federal Law No. 63-FZ dated April 6, 2011 "On Electronic Signatures").

In corporate practice, an electronic signature can be used to certify the following documents:

— notice of a general meeting of shareholders (participants);

— notice to a shareholder of a non-public joint-stock company about the intention to sell shares to a third party;

— notice to a company's creditors about its reorganization, liquidation or reduction of its charter capital;

— notice to a company from its shareholder about the conclusion of a shareholders' agreement;

— notice to a public company from a person who, through a shareholders' agreement, acquired the right, independently or jointly with his/her affiliate(s), to directly or indirectly dispose of more than 5, 10, 15, 20, 25, 30, 50 or 75 percent of the outstanding voting common shares of the public company, *etc*.

Issuing documents electronically reduces cost and time burdens associated with legal communication (paragraph 63 of the Resolution of the Plenum of the Supreme Court of the Russian Federation No. 25 dated June 23, 2015 "On the Application by the Courts of Certain Provisions of Section I of Part One of the Civil Code of the Russian Federation").

III.1.2. Videoconferencing

Videoconferencing technology presents an opportunity for holding staff meetings, boardroom meetings, and general meetings of shareholders remotely (online meetings). The need for the legal regulation of remote general meetings of joint-stock companies is emphasized in the draft law on the amendments to Federal Law No. 208-FZ dated December 26,

1995 "On Joint-Stock Companies."[9] It aims to provide for the possibility of holding general meetings of shareholders by means of their remote joint presence for discussing agenda items and voting thereon. The use of information and communication technologies would allow all shareholders to participate in the general meeting remotely, without having to be physically present at the meeting venue (the meeting venue is not determined).

Videoconferencing can be an effective tool for holding the following meetings and sessions:

— general meetings of shareholders (corporate participants);

— meetings of the board of directors;

— meetings of the collective executive body (management board, directorate);

— meetings of the governors of the parent and subsidiary companies;

— other intra-corporate meetings and sessions.

III.1.3. Biometric Identification of Corporate Managers

Companies in large integrated production and business complexes (holding groups) that have many employees and have to deal with high staff turnover and periodic rotation of management need to resort to facial recognition systems in order to verify the identity of individuals that participate in their remote (online) meetings and sessions. In other words, facial recognition is required to establish the fact of the expression of will of a person endowed with managerial competencies.

The relevance of this issue is emphasized in the April 13, 2020 "Information on Specific Aspects of Regulation of Corporate Relations in 2020" Announcement of the Bank of Russia, which extended the deadlines for activities requiring the involvement of a significant number of employees of public joint-stock companies or their interaction with

[9] Prepared by the Ministry of Economic Development of the Russian Federation, project ID: 02/04/09-20/00107789, "On Introducing Amendments to the Federal Law "On Joint-Stock Companies" with regard to Allowing General Meetings of Shareholders to Be Held by Means of Remote Joint Presence for the Purpose of Discussing Agenda Items and Making Decisions on Matters Put to a Vote, with the Aid of Information and Communication Technologies, without Determining the Meeting Venue". (In Russ.). Available at: https://regulation.gov.ru [Accessed 01.12.2020].

external counterparties (including the adjustment of the status of public companies that do not meet the requirements set out in paragraph 1 of Article 66.3 of the Civil Code of the Russian Federation, and the establishment of internal auditing systems in public companies) to January 1, 2021 in order to curb the spread of the COVID-19 virus and to mitigate the economic consequences of the pandemic.

Personal biometric data represent information that reflects biological and/or physiological characteristics of individuals, making it possible to identify them (Article 11 of Federal Law No. 152-FZ dated July 27, 2006 "On Personal Data"). The specific procedure for processing photos, videos, fingerprints and other information classified as personal biometric data is clarified by the Federal Service for Supervision of Communications, Information Technology and Mass Media (Roskomnadzor).[10] It has been reported that the prototypes of electronic passports of Russian citizens developed by Rostelecom, Goznak and the Voskhod Scientific Research Institute provide for the inclusion of biometric data (Kaliukov and Posypkina, 2020). Extending such identity verification practices to corporate procedures appears beneficial.

III.1.4. International Language

Business activities of large corporations often span multiple countries. Companies that operate on all continents, such as DHL and Shell, need to communicate with their business counterparties in a variety of languages. One indispensable tool for breaking the language barrier is specialized software that can automatically translate the speech of company employees and members of corporate bodies into an appropriate language, for example, during corporate events, such as regular and extraordinary shareholders' meetings, boardroom meetings and all kinds of workshops.

[10] Roskomnadzor explains the Issues of Attributing Photo, Video Images, Fingerprint Data to Biometric Personal Data and the Features of their Processing (2013). *Roskomnadzor Department for the Far Eastern Federal District*. (In Russ.). Available at: https://25.rkn.gov.ru/news/news54167.htm [Accessed 20.12.2020].

III.1.5. LegalTech

Computer-assisted professional legal work is a new business trend. Corporations establish legal departments, the job of which is to guarantee their normal functioning and to ensure corporate compliance. In this respect, the role of the corporate secretary of a company, professional standards for whom were approved by the Order of the Russian Ministry of Labor No. 711n dated November 20, 2018, are of particular importance. According to these standards, the main tasks of the corporate secretary include increasing the efficiency of corporate governance and improving the investment attractiveness of the company in the interests of its participants.

In practice, LegalTech can facilitate the following organizational functions of the corporate secretary:

— ensuring public disclosure and provision of information on the activities of the corporation at the request of shareholders and other persons;

— organizing annual and extraordinary general meetings of the company's shareholders;

— organizing meetings of the collective bodies of the company;

— protecting the rights and interests of the company's shareholders (participants);

— improving the efficiency of corporate governance.

LegalTech tools can be successfully applied in conjunction with artificial intelligence, which we will discuss in the following sections.

III.2. Smart Management of a Corporation

Internal corporate processes can be classified into two major types:

— corporate management;

— corporate governance.

Each of these two activities is associated with unique challenges that require a tailored approach. Information technologies that automate decision-making processes are capable of not only reducing the associated time burdens, but also helping one adopt the optimal, most efficient decision out of a vast number of options by considering

a host of factors. At present, software companies, such as BoardMaps and ITI Capital, provide smart solutions that can factor in market sensitivities, legislative regulations and other variables.

III.2.1. Corporate Management (Intra-Corporate Procedures)

Businesses (joint-stock and limited-liability companies) have their own internal legal provisions, regulatory treaties and corporate customs, including:

— the corporate charter;

— statutes governing the corporate bodies (general meeting of shareholders, board of directors, management board, *etc.*);

— provisions on personal data and commercial confidentiality;

— corporate contracts (shareholders' agreements and agreements on the exercise of the rights of company members);

— the code of corporate governance (code of corporate ethics), *etc.*

The listed sources regulating corporate relations, along with the legislation on corporations, prescribe a specific code of conduct for their participants, depending on the circumstances. The introduction of smart management systems, whose algorithms would thoroughly consider the above-described legislative regulations, could significantly facilitate the corporate decision-making process.

III.2.2. Corporate Governance (Intra-Productive Procedures, Conclusion and Performance of Contracts)

Smart management tools can help a company choose the best course of action by automating the decisions of its governors based on the analysis of past experiences and the prediction of future events, *e.g.*, as part of agile coaching. Smart governance can be successfully applied when addressing the following tasks:

— distributing competencies among contract holders (company employees);

— creating effective teams within a company;

— training and adapting to market dynamics;

— establishing and modifying internal workplace regulations;

— enforcing labor protection policies and monitoring their compliance, *etc.*

III.3. Corporate Management Exercised by Artificial Intelligence (AI-Management)

Artificial intelligence, capable of independently making managerial decisions without human supervision, represents one of the most promising technologies for management. The concerns of researchers and users regarding the pace at which AI is infiltrating all areas of life are unable to stop the rapid development of this technology. Faster processing times, the lack of susceptibility to an emotional bias, and the ability to evaluate a multiplicity of factors (*e.g.*, those derived from big data analyses) on-the-fly put the AI-management tools at the forefront and leave other tools unable to compete with them. The hype around AI is further exacerbated by the fact that the market of traditional management tools has long been saturated, and the economy needs a new source of demand.

III.3.1. Analyzing Problems and Finding Solutions: Digital Twins

In order to ensure normal growth and minimize business risks, companies need to analyze the business models they adopt (Tretyak and Klimanov, 2016). Big data represent a wealth of unstructured information that can be leveraged to inform the decisions of corporate managers and, more broadly, to shape the economic policy of a company as a whole.

AI is capable of creating a "digital twin" of an organization, which can be used to model the dynamics of its production and economic processes. It appears that the predictive power of AI can be most efficiently applied to tackle the following tasks:

— establishing and predicting the prices of goods;

— estimating the staffing needs of a company;

— distributing competencies among participants in corporate relations and corporate entities;

— investing in the development of future products;

— intradepartmental logistics, *etc*.

III.3.2. Digitizing the Brains of Participants in Intra-Corporate Relations

The possibility of uploading the cognition of a company's participant (its CEO, shareholder or member of the board of directors) into a computer today sounds like an obscure and distant future. Yet such a future would provide for the possibility of managing corporations by means of "digital thoughts." This would imply extracting from the human brain not only its problem-solving strategies but also cognitive styles, personal preferences and business ideas regarding corporate governance. In other words, this would involve uploading the unique "mental code" of an individual (shareholder, member of the board of directors, manager, *etc.*) into the digital management system of a corporation.

Scientific studies of the cognitive system of a worm have culminated in the digitization of its entire nervous system, consisting of 302 neurons. Digitizing the human brain, which consists of tens of billions of neurons, is obviously a much more painstaking process. However, it seems that it is only a matter of time before the creation of a digital blueprint of the human brain could be accomplished in minutes. Note that the Summit supercomputer developed by IBM has 9,216 22-core processors, or about 70 trillion transistors (essentially, "digital neurons"). In this context, the recent experimental studies of "transistor neurons" that can precisely emulate biological nervous tissues look particularly promising (Chen *et al.*, 2017). The digitization of the human brain would result in the "digital immortality" of human cognition that would continue as long as its digital blueprint exists on a magnetic medium or in cloud storage (*e.g.*, corporate cloud storage).

The digital transformation of the economy is a gradual process. It started with the *digitization* of documents and business processes, continued with the modification of business models through the introduction of information technologies (*digitalization*), and currently represents a digital business strategy (*digital transformation*) (Savić, 2019). At the next stage the creation of digital blueprints of human cognitive systems would certainly be of interest and would find application for designing business management models.

III.3.3. Decoding Representations of Human Thought

The power of the human mind (human thought) is in its ability to create a picture of the world and to determine a plan of action. Man is able to control his mind and strategically plan his activities. Throughout the course of its life, a business corporation has to make numerous decisions on its management, which first form in the minds of human decision-makers before their will is expressed and translated into reality. Medical imaging studies have demonstrated that the neural representations of human thoughts can be decoded, for example, with the aid of magnetic resonance imaging (Baldassano *et al*., 2016).

Certain corporate management decisions cannot be delegated to AI or smart management systems. Such decisions must be taken exclusively by human individuals. This necessity is dictated, firstly, by the uniquely human ability to subjectively assess a particular situation at a particular time and, secondly, by the fact that AI is currently exempt from any legal liability for its decisions (*e.g*., only individuals and legal entities can be held liable for property-related and administrative offenses).

In summary, participants in intra-corporate relations can convey their managerial decisions (their thoughts) remotely. Such digital management systems can be modeled on the Internet of Things, where the necessary human mental representations are accumulated until a "digital managerial decision" can be reached.

IV. Corporate Compliance and Documenting the Outcome of Production and Economic Activities

The outcomes of the production and economic activities of corporations are documented in multiple electronic databases maintained by various government agencies and non-governmental organizations, specifically:

— the Transparent Business web service[11] maintained by the Federal Tax Service of Russia, which consolidates information from the Unified State Register of Legal Entities, the Unified State Register of Individual Entrepreneurs, the Register of Disqualified Persons, the

[11] Available at: https://pb.nalog.ru/index.html. (In Russ.).

Unified Register of Small and Medium-Sized Business Entities, the State Register of Accredited Affiliated Enterprises, representative offices of foreign legal entities, *etc.*;

— the Center for the Disclosure of Corporate Information web service[12] maintained by Interfax, which contains information pertaining to material facts concerning issuers that is subject to mandatory disclosure;

— the Receipt Verification web service and smartphone application maintained by the Federal Tax Service of Russia, which consolidates information on authentic receipts;

— the Stamp Verification web service[13] and the Anti-Counterfeit Alco smartphone application maintained by the Federal Service for the Alcohol Market Regulation, which consolidate information related to special federal stamps and excise stickers placed on alcoholic beverages;

— the Register of Self-Regulatory Organizations and the Register of Members of Self-Regulatory Organizations information portals[14] maintained by the National Association of Builders, which contain information on membership in self-regulatory organizations;

— other e-services.

The listed digital information in essence represents structured big data, which may form the basis for corporate compliance, helping corporations to conform to requirements and laws.

Digital data accumulated through each of these web services are stored on the autonomous servers of the relevant government agencies and non-governmental organizations, which are not integrated.

The introduction of the Unified System of Inter-Agency Electronic Interaction, designed and implemented as an electronic document management system, became one of the first steps towards the integration of these big data sets into a single system. The framework for the Establishment and Implementation of the National Data Management System adopted by Order of the Government of the Russian Federation No. 1189-r dated June 3, 2019 aims at reducing the amount of statistical

[12] Available at: https://www.e-disclosure.ru. (In Russ.).

[13] Available at: https://public.fsrar.ru/checkmark. (In Russ.).

[14] Available at: http://reestr.nostroy.ru/. (In Russ.).

and tax reporting submitted by corporations, thanks to document digitization and the availability of the Unified System of Inter-Agency Electronic Interaction that has enabled one-stop access to the databases of multiple federal executive authorities. It has been proposed to create a single data cloud that would accumulate all information about the activities of corporations. The infrastructure of such a data cloud should rely on transparent data architecture that would be accessible to the competent government authorities on condition, of course, that the confidentiality of the information contained within it would be preserved.

Digital corporate compliance helps assess the corporation's resistance to economic failures and its ability to adapt to changes in the market situation, as well as to regulatory developments in the country's economy as a whole. Currently, corporations may submit their accounting statements through the GosUslugi Public Services Portal.[15] Yet, the scientific community has long been discussing the possibility of delegating the accounting competencies of human individuals (accountants) to AI (Pankov and Kozhukhov, 2020) as part of the overall trend for the gradual disappearance of certain occupations that deal with information that can be processed without human involvement.

At present most digital information is concentrated in the hands of the state and the constituent entities of the Russian Federation. This includes information on real estate (land plots and buildings) owned by corporations (the Unified State Register of Real Estate, which is maintained by the Federal Service for State Registration, Cadastre and Cartography), on the founders of legal entities and the owners of shares in the authorized capitals of companies (the Unified State Register of Legal Entities, which is maintained by the Federal Tax Service of Russia), and on registered vehicles (the State Inspection for Road Traffic Safety database). Certain information is stored by non-state organizations, such as self-regulatory organizations (information on the members of self-regulatory organizations) and registrars (information on the holders of issuers' shares). Digital accounting that does not require human involvement and automated documentation of business

[15] Available at: https://www.gosuslugi.ru/. (In Russ.).

operations significantly reduces the transaction costs that affect the costs of production, and allows companies to invest the savings in the development of their business.

V. Conclusion

The above overview of trends in the digitalization of the operations and management of modern corporations attests to the active introduction of information technologies into the economy. The lifecycle of a *digital corporation*, supported by the said technologies, can be indefinite. Automation of management, production and economic activities removes the expiration date of traditional businesses. Information technologies can help companies adjust their business model and improve the efficiency of business processes on a continuous basis. The described model of digital management of modern corporations suggests that a number of human competences and occupations, such as that of an accountant, auditor and corporate secretary, will become obsolete in the near future.

Digitalization of corporate management is bound to increase business profitability and improve competitiveness. We believe that in the nearest future science will have to tackle the issues of assessing the implications of the introduction of digital technologies, determining technical, economic and legal prerequisites for their implementation, and identifying their limits. Another important issue to address in light of digital transformation is the necessity to upgrade professional competencies of employees to make them able to work with state-of-the-art technologies.

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