

Hybrid Firm: The Future of Organizing for Industry 4.0

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Abstract

Since the dawn of the first Industrial Revolution, the hierarchies within individual firms serve to organize economic activity and direct productive and entrepreneurial efforts within societies, complementing the invisible hand of the market exchange. With the global economy currently undergoing a profound transformation in the fourth Industrial Revolution, the traditional technological and social characteristics of firms are rapidly evolving, incorporating new elements of the knowledge economy, digitization, distributed/virtual workplace, and network organization. In this study we summarize the key characteristics and success factors of an emerging hybrid firm form, providing evidence-based managerial advice about navigating these changes and preparing organizations to thrive in the new global economic order.

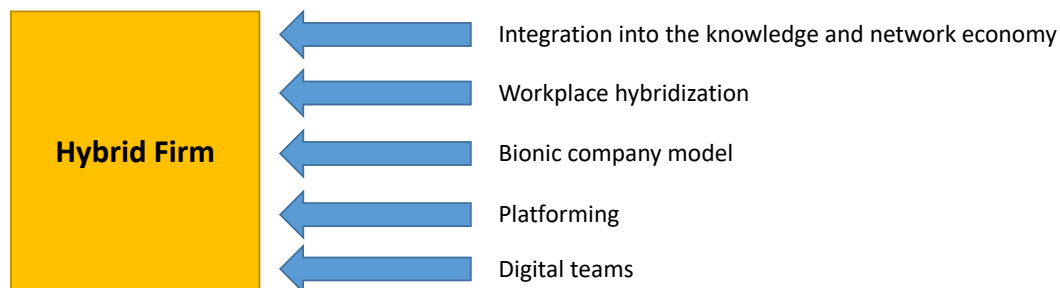
Introduction

The 2020-2021 global economic lockdown caused by the COVID-19 pandemic accelerated the long-standing, worldwide shift towards the fourth Industrial Revolution, defined as the advance of cyber-physical systems through the convergence of physical, social, biological and digital worlds.^{1,2}

This convergence of emerging and traditionally distinct technologies (e.g., big data, Internet of Things, artificial intelligence, augmented reality, robotics, additive manufacturing, nanotechnology, biotechnology, neurotechnology) portends not only improvements in the efficiency of existing business models, but a significant shift in the architecture of industrial capitalism.³

As such, the conventional concept of a private firm as a hierarchical mechanism enabling to economize on transaction costs when organizing production activity,⁴ which underpinned the economic development of capitalist societies since the first Industrial Revolution, is rapidly evolving. We are witnessing the emergence of a hybrid firm (Figure 1), which is likely to dominate the economic landscape of the future.

Figure 1. Key characteristics of the emerging hybrid firm



The hybrid firm is grounded in the digital model of enterprise, meaning it is marked by the combination of the physical and the virtual, e.g., resources, processes, operations, products, and areas of activity.⁵ Hybrid firms can enjoy the pursuit of a combination profit and social goals at their core, attending to social influences in local communities, leading to the rise of the "social hybrid firm."⁶ Such socially-oriented hybrid organizations can play a crucial role in addressing global sustainable development challenges and responding to pressing social, environmental, and economic challenges.⁷ For example, particularly notable are the opportunities for achieving the organizational and societal diversity, equity, and inclusion (DE&I) goals in the hybrid firm context,⁸ where otherwise overlooked groups (e.g., people with special needs, representatives of historically marginalized communities) could actively participate in the workforce.

In this article, we summarize the key characteristics and success factors of the emerging hybrid firm form. Subsequently, we provide evidence-based managerial advice about navigating these changes and preparing organizations to thrive in the new global economic order.

Integration into the knowledge and network economy

Hybrid firms, firstly, are “new,” knowledge economy firms with distinctive features and advantages compared to traditional firms. Their most crucial peculiarity lies in the accumulation of intellectual resources underpinning their competitive advantage. As Harold Demsetz defined it, a firm is a repository of the specialized knowledge and specialized production resources needed to harness that knowledge.⁹ Today, knowledge is becoming a priority business resource. As a result, hybrid firms have a major disposition for learning, such that the organization can create, acquire and disseminate knowledge as well as change its behavior in accordance with new information, original ideas, and modern thinking systems.¹⁰ Furthermore, hybrid firms pursue organizational development based on innovation, flat hierarchy, network management principle, creativity, and lifelong learning.

Hybrid firms benefit from reduced transaction costs as a result of attracting implicit, explicit, and objective knowledge. The existence of a hybrid firm is a reaction to the fundamental asymmetry in the knowledge economy: a higher specialization is required to obtain knowledge than to use it.¹¹

Accordingly, as a knowledge economy firm, the hybrid firm integrates knowledge and ensures its effective use in order to produce knowledge-intensive products. Hybrid firms, therefore, perform what R. Grant argued is the main function of organizations: incorporating specialized knowledge into goods and services.¹²

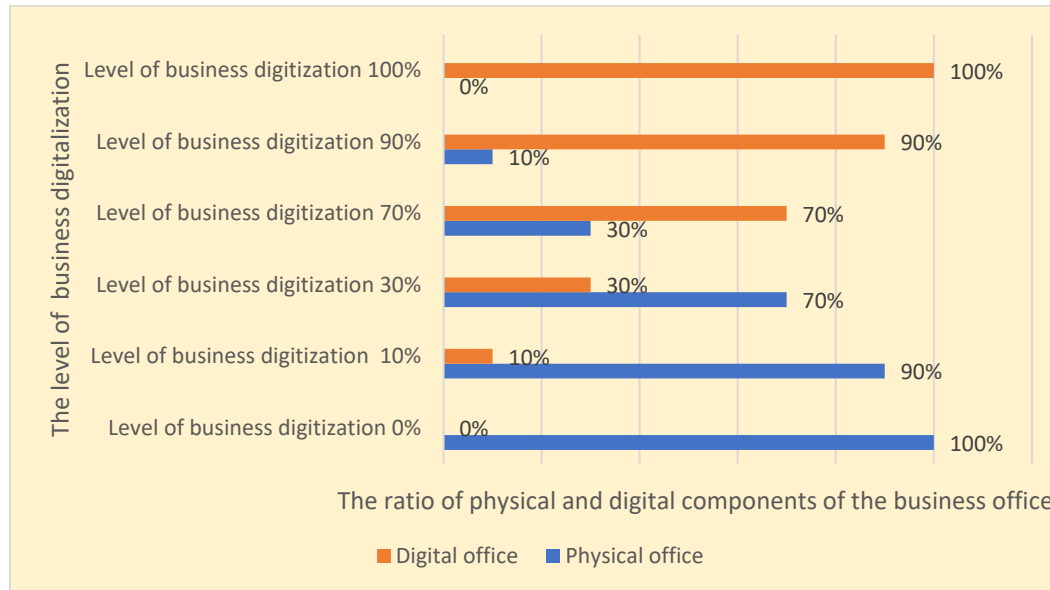
Moreover, hybrid firms are network economy firms. They strive to create, develop, and ensure the effective functioning of internal networks – work and project teams – and external network of customers, partners, resources, social stakeholders, etc. Subsequently, the hybrid firm can achieve a high level of adaptive and allocational efficiency and gain a competitive edge, ultimately minimizing transaction costs. As a system of external and internal networks, the firm acquires and accumulates the characteristics of an adaptive virtual firm, capable of leveraging information technology in interactions with suppliers and customers to create a product that meets customer needs.

Workplace hybridization

Hybrid office model. Office hybridization is one of the forms of business hybridization.^{13,14,15,16} For example, the hybrid business models described by Neil Miller are in fact hybrid office models, as the main criterion for determining them is a combination of the characteristics of a physical office (i.e., headquarters) and a digital office. The models include physical offices with limited or wide flexibility and digital offices with limited use of physical

office or without physical office.¹⁷ Importantly, the level of office hybridization corresponds to a firm's overall level of digitalization (see Figure 2). Indeed, office hybridization contributes to the effective combination of traditional and digital business tools as well as the introduction of digital business models, processes, and technologies.

Figure 2. The relationship between the processes of digitalization and hybridization of offices business organizations.



The ratio of digital and physical components (DC:PC) of a hybrid business office is defined in Figure 2 in accordance with the following criteria for the level of business digitalization:

- 1) limited use of digital business tools: 10% (DC): 90% (PC);
- 2) widespread use of digital business tools: 30% (DC): 70% (PC);
- 3) formation of a digital workplace, the technological core of digital business: 70% (DC): 30% (PC);
- 4) comprehensive digitalization of the business: 90% (DC): 10% (PC).

The greater the level of business digitization, the more potential is created for workplace digitization, and the lesser the need for a physical office. The reverse statement is also true: low levels of business digitization imply the reliance on physical office space. Obviously, full digitization of the workplace might not always be possible; rather, effective hybrid firms find the right balance between traditional and digital business tools, models and processes.

Workplace model as a service. The ongoing process of workplace hybridization implies a transformation of physical-world workplaces into

their virtual models, which lead to a creating of fundamentally new, highly productive work environment. The emerging virtual workplaces hinge upon digital services for managing the information, communication, and cross-channel support of effective work. In particular, in terms of technology, these services are: (a) providing all employees with digital tools for remote work outside the office; (b) offer centralized means of communication (e-mail, instant messaging, etc.) for synchronous work of employees online and offline, including in corporate networks; (c) have an improved interface to combine the workplace with employee social networks and key business applications.

All these digital tools enable digital corporate governance, which is based on the model of Desktop-as-a-Service,¹⁸ an effective management approach of hybrid firms unbounded by the geographic location of actual business processes. In economic terms, the introduction of digital jobs reduces the cost of hardware and office space; furthermore, relaxation of the geographic location boundaries is conducive for optimizing the staff expenditures and for accessing the global talent pool. Subsequently, hybrid firms enjoy improved quality of services and processes and increased work efficiency across the organization.

In the field of strategic management, digital jobs facilitate the collection of comprehensive information in all areas of the company which can aid long-term management decisions. In the field of operational management, it is possible to coordinate the current work of individual structural units of enterprises, taking into account the time and location of the business. In the field of personnel management, it is about digital human resources (HR), which helps to organize the joint work of staff, their mobility, and flexibility in the performance of functional duties. Further, digital HR assists in attracting employees with digital dexterity i.e., the in-demand ability to use digital technologies to improve business efficiency.

Ultimately, the digital workplace is an ecosystem. According to Simon Dance, Chief Executive Officer of Interact Software, organizational performance depends on: 1) people (employees), their digital needs, engagement, productivity and innovation, and impact on customers/consumers, suppliers, and stakeholders; 2) tools, technologies and programs that constitute the "digital" element of human activity; 3) a culture that combines the two previous elements – people and tools – and reconciles the business mission, values, and activities of the firm.¹⁹ These three components underpin modern digital workplace and are, therefore, guideposts for hybrid firms' success.

Bionic company model

The hybrid firm context with its focus on thriving in the knowledge economy, digitization, distributed/virtual workplace, and network organization creates a fertile ground for the next step, the emergence of a bionic company.

A bionic company is an organization that “blends new technologies with human capabilities to power innovation, advantage, growth, efficiency, and resilience;”²⁰ this blend of humans and technology is a hallmark of the Fourth Industrial Revolution, effectuating the superhuman (or bionic) business capabilities. According to the Boston Consulting Group (BCG) bionic companies use new technologies such as cloud computing and artificial intelligence (AI) to produce new technology platforms, augmenting the capabilities of human experts. Combined with “flexibility, adaptability and comprehensive experience of people,” the platforms acquire a completely new essence. Bionic companies, according to BCG consultants, “are superior to others in terms of cash flow and enterprise value.”

Michael Everson and John J. Sviokla (of PWC) reveal the essence of bionic companies by analyzing the evolution of dominant forms of capital that underpinned the corporate competitive advantage. At the end of the nineteenth century (the heyday of the second Industrial Revolution), the dominant form of capital was *financial capital* (i.e., access to own and borrowed financing), which had a complex dynamics, but with proper management guaranteed significant competitive advantages for companies that owned it. In the twentieth century, *human capital* and *natural capital* were added, and business success depended on the effective management of these three forms of capital (FiHuNa – financial value, human talent, and natural resources).

In the twenty-first century, three other forms of capital have become critical to value creation: *behavioral capital* (collection and modeling of data that track the behavior of people, companies, nature, and industrial goods), *cognitive capital* (algorithm value; codified streams of knowledge of individuals and enterprises) and *network capital* (a set of connection points with people and machines that can be deployed by the company). Each of these forms of capital is exponentially compounded and increases the growth of others. They are sometimes called the aggregate capital of BeCoN (behavioral, cognitive, network) because they are most effective when combined.

The hallmark of a bionic company is its ability to manage all six forms of capital. The general “formula” of their description will be as follows:

$$BC = \{Fi, Hu, Na, Be, Co, N\},$$

where: BC – bionic company, Fi – financial capital, Hu – human capital, Na – natural capital, Be – behavioral capital, Co – cognitive capital, N – network capital.

For example, the bionics are: Alphabet (Google), Amazon, Apple, Facebook and Microsoft, which together form about 13% of the capitalization of the US stock market. These companies have grown rapidly, relying not only on physical assets and efficient fund and investment management, but also on the creation of digital cross-border platforms that make the most of their BeCoN capital.²¹

BCG names four key attributes of a bionic company: 1) a strong sense of purpose; 2) focus on business results (e.g., personalization of customer experience, process improvement, creation of new proposals); 3) recognition that it is human talent with creativity, critical thinking, design and technical skills in autonomous teams that allows you to make quick decisions; 4) use of modular technology stacks that adapt and “release data.”²²

At the same time, BCG distinguishes three types of results bionic companies can achieve. The first is a shift in the corporation’s relation to its customers: companies move from focusing on sales of products or services to a customer-centric business model. The second result is bionic operations. Soon, almost all business processes and operations will be significantly expanded or even controlled by machines, many of which will work with artificial intelligence algorithms. Inevitably, humans’ roles will change. Many new jobs will be created for people who will develop complementary and automated processes and improve them over time. However, large-scale reworking of outdated business processes will be needed so that people and machines can work together. Third result is new offers, services, and business models. The combination of data, technology (including artificial intelligence) and human talent will allow bionic companies to bring to market a steady stream of new products and services, many of which also provide new models of business-customer interaction.²³

So, what are the transformational benefits of bionic companies? First, the bionic company is digital. Second, bionic companies rely on artificial intelligence in their digital transformations. The latter is the basis for business transformation and the introduction of new flexible working methods. These companies 1) invest in data management, 2) use the capabilities of digital platforms, and 3) digitize processes. Finally, bionic companies are investing heavily in digital retraining and in technologies to complement people, especially in data analytics and artificial intelligence.

To gauge the transformational benefits of bionic companies, we introduce the Bionic Company Business Transformation Index (IC_{bc}). A firm's score is calculated through three sub-indices:

- 1) index of development of the bionic company as digital (I_D);
- 2) index of introduction of artificial intelligence (I_{AI});
- 3) the company's human capital investment index (I_{HR}).

$$IC_{bc} = (I_D a + I_{AI} b + I_{HR} c) / 3,$$

where IC_{bc} – the competitiveness index of the bionic company, a, b, c – respectively, the importance (weight) of indicators of development of digitization processes, the introduction of artificial intelligence, and investment in human capital of the firm; $a + b + c = 1$.

Each sub-index consists of several components which are measured by a group of indicators. Comparisons of bionic companies can be made both based on the transformation index and sub-indices/individual indicators (see Table 1).

Table 1. Bionic Company Business Transformation Index, Sub-Indices, and Components

Index	Sub-Indices	Components (groups of indicators)
Bionic Company Business Transformation Index (IC_{bc})	Bionic Company Development Index as Digital (I_D)	Displays the dynamics of digitization processes by indicators: integrated digital technologies, digital jobs, digital products, customer focus (customer-centric). Calculated as the weighted average of lower-level sub-indices.
	Index of introduction of artificial intelligence (I_{AI})	Reflects the dynamics of the cost of a system of software and/or hardware that can receive and process information, manage large data sets, use the capabilities of digital platforms, simulate human behavior.
	Index of investment in human capital of the company (I_{HR})	Reflects the dynamics of investment: a) in the development of digital skills of staff, b) in technologies that complement people, especially in artificial intelligence. Calculated as the weighted average of lower-level sub-indices.

The next question, therefore, is how to "stimulate" the development of bionic processes in business? Based on the business needs and maturity of the company, Deloitte offers three types of solutions: 1) testing the performance of key business processes, 2) optimizing processes (goals, bottlenecks in processes, developing proposals to improve action plans, forecast bionics analysis), and 3) sustainable improvement (definition of corporate improvement strategies, development of opportunities for analysis and optimization of processes, dissemination of management concepts,²⁴ etc.). In general, the most important steps for business organizations on their path to becoming bionic, hybrid firms are: (1) development and implementation of a strategy for combining "human + machine;" (2) restructuring of the management system, starting with the introduction of new business models - digital platforms, service business models, creation of ecosystems; (3) professional training of new-generation managers in accordance with the new technological requirements of the digital economy; and (4) formation of new competencies of employees, focusing on technological and digital skills.

Platforming

The concept of "platform" in the works of economists appeared in the 1990s. However, D. Evans and R. Schmalensee found long-standing roots in this model and called the companies that used it "matchmakers:" the platforms brought together social groups who had something to share with each other. As an example: "Visa" recently celebrated its fiftieth anniversary, the London Stock Exchange has existed for more than two hundred years, and the Grand Bazaar in Istanbul - more than five hundred years.²⁵ The fundamental building block of hybrid firms, the Desktop-as-a-Service model, is in its essence a platform that links employees, managers, customers, partners and other stakeholders.

Opening the hybrid firm boundaries, the modern platform allows consumers and producers to connect with each other to share goods, services, and information. For example, eBay brings together sellers and buyers; iOC and Android - consumers and developers; Uber - passengers and drivers; Airbnb - travelers and property owners.²⁶ Is it fair to think that a platform economy is an intermediary economy? Researchers emphasize that platforms do not produce their own products and do not use traditional raw materials, instead providing users with access to other users. This works only if there is an appropriate infrastructure, standards of compatibility for its elements, and established rules of transactions, user rights, and user responsibilities.

Researchers have investigated different classifications of platforms based on their distinguishing characteristics:

- (1) **functional purpose** - search engines, social networks, e-commerce platforms, application stores, price comparison sites, etc. (for example, the European Commission applies this classification);
- (2) **right of ownership** - private and public;
- (3) **region of distribution and use** - global, national, local; platforms can also be extraterritorial and operate in several geographic markets simultaneously;
- (4) **field of activity** - general or specialized;
- (5) **terms of accessibility for participants** - open platforms available to all market participants, closed corporate platforms, or monetized platforms that charge participants for access;
- (6) **sources of income** - including platforms whose organizers have income from activities not related to the subject of exchange and platforms whose operations are independent of non-core income, like charities;
- (7) **mechanism of action for transactions** that act as channels of exchange or transactions between different users, buyers or suppliers (such as platforms Alibaba, Amazon, Uber, Airbnb, Baidu and others): innovative, which serve as a foundation for the development of other companies' complementary technologies, products, or services; integrated, which are both transactional and innovative platforms (e.g., Apple has both platforms); investment - consist of companies that act, for example, as a holding company, an active investor on the platform;²⁷ and the latest technological advances have allowed the emergence of mixed platform business models based on digital markets. For example, markets such as Airbnb or Uber offer platforms to connect supply and demand with innovative forms of value creation, delivery, and capture;²⁸
- (8) **mechanism of interaction of participants** - the first basic form of interaction is cooperation, in which platforms provide an open arena for participants to exchange knowledge and skills, development of their specialization is welcomed. Another basic form is integration, in which platforms bring together and coordinate the interaction of two types of users in a particular market. The task of the platform owner, therefore, is to attract as many participants onto the platform as possible. Ultimately, many platforms strive to take on a multilateral form, with a complex but effective business model and the ability to build relationships with network partners i.e., independent developers of goods and services, consumers, and partners in sales and

promotion, without which it is impossible to generate revenue. Partners are encouraged to participate in the platform through monetization. Consumers have access to goods created and offered on the platform, as well as special services that guarantee quality service. Each multilateral platform thus forms its own ecosystem. Moreover, an important factor in the growth of multilateral platforms in the digital economy is the fierce competition between platforms that target the same user base, and the result - the innovative development of platforms that can qualify as hybrid.²⁹

The effectiveness of platform business transformation is determined by a set of four fundamental indicators. First is the increase in the number of participants (service users) of the platform. This facilitates a network effect, in which the value of any product or service for one user directly depends on the number of other users of the same product or service. The effect of the network is triggered if the network expands and the number of its members reaches a certain threshold level. After that, it is easier to attract new users, as they can immediately understand the value of using the platform. In general, the more participants, the higher the value for each of them, and vice versa. The second indicator reflects the reduction of transaction costs involved in clients finding each other and conducting an agreement, i.e., the elimination of obstacles to connecting service providers and customers. The third indicator is capturing the reduction of time to bring a new product to market. Many local companies complain about the lack of resources to invest in marketing and sales, while the platforms provide such an opportunity for a small fee. Finally, the fourth indicator must reflect the emergence and growth of revenues associated with the expansion of network connections of platform members and the number of channels of work with customers.

Digital teams

Firm hybridization, when grounded in digital entrepreneurship, is a systematic transformation of all company vectors and processes in accordance with Industry 4.0 technologies. An important component of this process is the transformation of the organizational and economic mechanism of the firm, which should cover its structure, operational, financial, and other activities, staff and its motivation, customer and partner networks, management, marketing, social contacts, etc.

A complex direction for a firm's organizational and economic transformation is a move toward the digital team model. The digital team should be not only a professional but also a business and service team focused on achieving a positive synergistic effect among its offline and online

channels and technologies with partners and clients. It is necessary to point out two interrelated units of the digital business model: 1) a company as a single digital team; 2) a basic production unit of a company, like the design team, as a digital team.

The main characteristics of the company as a digital team are as follows.

First, a flat (horizontal) organizational structure. An important direction and condition for the digital transformation of the company's structure is the definition of teams as its primary production units and the forming of its digital model. The digital team is open, multidisciplinary, and cross-functional, combining operational, business, service, social processes, and information technologies. The digital team is customer-centric, which necessitates the inclusion of a client experience specialist (experience-designer).

Transformation based on the formation of a new horizontal (flat) production unit of the vertical organizational structure of the firm will provide flexibility, maneuverability, innovation, customer-centric business, and rapid response to changes in its external environment.

Second, the team's budgeting and key performance indicator (KPI) system. Digital teams must be included in the company's budgeting system and have a certain level of independence in the formation and use of financial resources and regulation of cash flows. To this end, digital teams need to be defined as centers of responsibility - centers of costs, revenue, profit, investment, and budgets - within the overall budget system of the firm, as a necessary condition for combining professional and business processes.

Further, it is advisable to develop and implement a system of key performance indicators for responsibility centers, which will gauge the real costs and results of their activities and, on this basis, determine the amount of funding and measures to motivate staff. Given the multi-vector nature of the hybrid business, the KPI system of digital teams as centers of responsibility should include indicators that characterize the economic efficiency of their activities, the effectiveness of customer experience management, professional achievements of the team's members, omnichannel ability, social effects, etc.

The third characteristic of the company as a digital team is its approach to external networks, cross-channel interactions, and knowledge management. The company as a digital team is open, including in its relations with partners i.e., independent participants in its external networks. For the service vector of the hybrid business, a branch interservice network is an effective model for customer service, its characteristics being: diversification of activities based on cooperation between producers of different types of services; focus on the formation of complexes of basic and

additional services, the provision of complex and package services, etc. The model of the branch interservice network is based on offline and online communications of the firm's network members, which helps to increase customers' assessment of quality, value, and cost of services, ease the company's entry into new market segments, and strengthen its competitive position in traditional segments.

In modern conditions, network interaction can be built by creating online platforms that are network integrators. It should be emphasized that online platforms are a modern model of interaction of both the company's partners and its cooperation with customers. The activities of the digital team combine offline and online forms of business processes, which ensures its cross-channel interaction with customers. The digital team model involves the digitalization of knowledge movement in the organization, which includes digitizing the knowledge base and using online sources of knowledge and information (including crowdsourcing technologies).

Fourth, the development of digital public relations and marketing, which can significantly expand the space of marketing communications and secure a public relations audience on electronic social networks. Unlike Marketing 3.0, Marketing 4.0 is characterized by transformations from exclusive to inclusive, from vertical to horizontal, from individual to social. An essential feature of Marketing 4.0 is the human orientation of marketing communications and the goal of ensuring a positive synergistic effect through the integration of online and offline channels of interaction with customers and partners.

Fifth, the hybrid firm as a digital team is customer-centric and expertly manages customer experience. Successful hybrid firms transform customer orientation (i.e., a focus for attaining a positive assessment of the value of the firm's goods, services, and works) into customer-centricity, combining: a) team orientation to study and meet customer needs (personalized customer orientation); b) activities for the formation of a positive customer experience (customer experience - CX); c) customer evaluation. In general, customer-centricity is a method of ensuring the long-life cycle of the company's target customer, which is a condition for business stability and profitability.

Customer experience, as a component of customer-centricity, is the "impression [the] customers have of [a] brand as a whole throughout all aspects of the buyer's journey" which directly affects the firm's bottom line.³⁰ It is gained by the client while communicating with the company as they evaluate the firm based on process (quality of production, maintenance, etc.) and performance criteria (economic and other benefits received by the client). For hybrid firms, customer experience should be defined as the customer's assessment of the quality of the relationship with the firm, which

has emotional (subjective customer valuation), value (benefits), and social (networking - useful relationships) components and is a determinant of the duration and mutual benefit of their cooperation. Said another way, the client's experience is their attitude toward the firm, which is characterized by the level of their satisfaction in the relationship. Ultimately, the purpose of customer experience management is to gain the customer's loyalty to the firm and its products (services).

Thus, the main guidelines for transforming the business' organizational and economic mechanism toward the model of a hybrid firm as a digital team are the formation of a flat organizational structure, implementation of a customer-centric approach, customer experience management, development of networks and cross-channel communications, and the digitalization of knowledge base, marketing, and public relations.

Spotlight: Law Firms

To demonstrate hybridization successes, we refer to an example of law firms and evolution of the respective industry. Each of the five crucial characteristics of hybrid firms (see Figure 1), are becoming salient in today's legal profession.

First, law firms are actively implementing the *hybrid office model*, combining the presence of employees in the office with partially remote work from home or elsewhere. In June 2020, more than 1,000 lawyers and non-lawyers of the international consulting law firm Altman Weil took part in a survey on the effectiveness of remote work. The conclusions are as follows: people like to work from home (average score on a 10-point scale - 8.3), with 72% of staff preferring to work at least half of their working time from home, even when their offices are fully open and only 4% of all staff wanting to work full time in the office. Further, most respondents have "enough technology to work effectively at home" (average 8.1/10) and consider themselves "competent to use all necessary technology effectively" (average 8.8/10). Almost everyone agreed that "when our office reopens, it will be important for me to be able to work from home when needed" (average 8.8/10); though equity partners wanted to return to the office more than any other group. While the transition to remote work was prompted by the COVID-19 pandemic, the firm believes that law firms can save a lot of money just by reviewing the terms of the lease and more effectively using the common space. In the future, the office will work only when it is necessary to have a face-to-face meeting with clients or to resolve issues that cannot be considered remotely.³¹ Of course, it is important that a work arrangement of this kind satisfies clients. According to the Legal Trends Report 2021, 79% of consumers consider the presence of remote interaction an important factor

for hiring a lawyer. At the same time, the share of consumers who prefer video conferencing as the best choice for communication with lawyers is 58%. Customer satisfaction, however, does vary with the level of cybersecurity.³²

Yet, the problematic consequences of hybrid office formats and the emergence of "hybrid workers" should not be glossed over. There are: 1) threats to teamwork: employees who will work on their own schedules or from home may not be involved in decision-making and informal communication in the firm; 2) the need to revise the methods of planning working hours in the office and at home including the introduction of various schemes for agreeing on individual work schedules and for assessing the fairness of the level of workload of employees; 3) the importance of creating conditions for comfortable work and mobile work equipment for "hybrid lawyers" who work both at home and elsewhere outside the office; 4) changing the role of leaders who have to define goals and coordinate the work of many team members.

Second, modern law firms are close to the introduction of *artificial intelligence inherent in bionic companies*. Some experts are concerned about a portending substitution of humans with machines. Others, including PwC, argue that artificial intelligence could instead create more jobs for lawyers over the next 20 years than it could replace. PwC experts believe that the introduction of artificial intelligence in the sector of professional legal services is expected to increase the number of jobs - by 16% by 2038. However, it is suggested that such processes will be heterogeneous: law firms will try to automate low-level work, reducing dependence on junior lawyers and support staff. In the field of intellectual activity, where lawyers are required to have a high level of professionalism, and income directly depends on the work performed, the picture will be different. For example, automation will help lawyers spend less time on a single case by increasing the hourly rate and number of clients. The increase in the number of jobs may also be due to the growing demand for legal services in the context of the general economic boom.³³

Third, in the legal business, *platforms* like Peerpoint from Allen & Overy are gaining relevance. The platform allows lawyers to work on client requests remotely and serve on legal teams without being in the same country. Another example is the well-known British portal FirstLaw, which brings together 17,000 lawyers who can provide legal and audit services in 100 jurisdictions.

Finally, modern law firms are gradually transforming into *digital teams* as a part of integrating their business models into the *knowledge and network economy*.

Conclusion

Thus, a hybrid firm in the digital economy combines the characteristics of a traditional firm, a new firm of the knowledge economy, and a virtual organization. It relies on modern models like the digital office, digital workplace, bionic company, platform companies, and digital team.

Our analysis of the main characteristics and models of a hybrid firm in the digital economy is the basis of the conclusion that modern business transformations are based on the integration of digitalization and hybridization processes, the level, efficiency and interrelation of which directly affects its competitiveness and profitability.

To analyze and measure the level of development and efficiency of hybridization and digitalization of business, justify the choice, directions, and measures for forming the optimal model of a hybrid firm in the digital economy, we propose the Omniscancy Index of Business - **OIB (Omniscancy Index of Business)**, which includes quantitative and qualitative characteristics of the level of development and the ratio of online and offline communication channels of the company with customers. It is designed to serve as a tool for comparing the results of the transformation of business processes in different periods of a hybrid firm's development, and should become the basis for management decisions for choosing the form of business hybridization through the development of cross-channel customer communications.

The omnichannel index can be integral, individual, or comparative.

1. **Integral omnichannel index (IOIB)** is a tool for evaluating the online channels of client communications of the hybrid firm as a whole. The structure of the integrated IOIB includes indicators:

- 1) coefficient of productivity of online channels of client communications (PC_{Och} - **Online Channel Performance Coefficient**), which characterizes their business return and is calculated as a share of sales of products (services, works) through online communication channels in the total sales of products (services, works) of a hybrid firm in a certain period;
- 2) customer load factor on online communication channels (CLF_{Och} - **Online Channel Client load factor Coefficient**), which characterizes the number of customers who used online communication channels and their share in the total number of customers of the hybrid firm in a given period;
- 3) coefficient of customer loyalty to online communication channels ($CULF_{Och}$ - **Online Channel Customer loyalty factor Coefficient**), which characterizes the assessment of customers' use of online

channels as the ratio of their positive feedback and the total number of customer reviews of the company's online channels in a given period;

- 4) capital intensity ratio of online communication channels (**CCC_{Och} - *Online Channel Capital Content Coefficient***), which characterizes the level of financial costs of the company for online channels as the ratio of costs for the formation, use, and development of online channels and total costs for cross-channel communications in a given period;
- 5) the efficiency of online communication channels (**CCE_{Och} - *Online Channel Employment Coefficient***), which characterizes the level of the firm's labor costs of employees who provide customer communications online, as the ratio of labor costs of these employees and the total firm costs of employees who provide customer communications in general in a given period.

So,

$$IOIB = [CLF_{Och} \times PC_{Och} \times CULF_{Och}] / [CCC_{Och} \times CCE_{Och}] \times 100\%$$

The level of omniscience according to the IOIB can range from 0% (the company does not have online channels of client communications) to 100% (the company does not have offline channels of client communications). Note that these thresholds do not characterize a hybrid digital business firm, as the criteria for such are the integration of hybridization and digitalization of business processes and omnichannel.

A value of $0 < IOIB < 100\%$ indicates a certain level of use of cross-channel communications, its hybridization, and the growth of IOIB - an increase in the level of omnichannel hybrid business.

2. ***Individual omnichannel index*** should be used in the analysis of the level of development and effectiveness of a particular online communication channel of a hybrid firm. It is a tool for choosing the most effective online channels, justifying measures for their development, and optimizing the so-called "portfolio of cross-channel communications" of a hybrid company. The individual omnichannel index includes indicators of productivity, customer load, customer loyalty, capital intensity, and labor intensity of a particular online channel.

3. ***Comparative individual and integral indices of omnichannel*** are tools for analysis and evaluation of the development and dynamics of the

level of efficiency of online client communication channels over time, for example, in the current period of operation of a hybrid firm compared to the base period:

Comparative Integral Omnichannel Index = $\text{IOIB (current period)} / \text{IOIB (base period)}$.

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Endnotes

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