THE ECOSYSTEMS AS A NEW STAGE OF RETAIL DEVELOPMENT

OS ECOSSISTEMAS COMO NOVA ETAPA DE DESENVOLVIMENTO DO VAREJO

LOS ECOSISTEMAS COMO NUEVA ETAPA DEL DESARROLLO DEL RETAIL

Daria Popenkova
Plekhanov Russian University of Economics, Moscow, (Russia)

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Abstract
In the complex VUCA world researchers are interested in studying business models. In modern conditions the concept of business modulation acquires development, which involves minimizing dependencies between elements (modules) while increasing the connections within the modules. It is modularity that creates the conditions for the emergence of an ecosystem. The article deals with three groups of research on the topic of ecosystems: ecosystems as biological systems, ecosystems as structures and ecosystems as ways to create a value proposition. The author substantiates that ecosystems are non-hierarchical structures of relationships in order to create such a common value that a single firm would not be able to create alone. Modern authors, considering business models of retail, focus on the impact of digitalization and put the creation of value for customers at the forefront. The article gives examples of innovation ecosystems of the largest retailers, which made it possible to confirm that they do not have hierarchical management as in classic business models, since the so-called "center" consists of hundreds of companies, a powerful IT architecture. It is revealed that since ecosystems mean organization within organization without hierarchical types of management, this requires the development of internal entrepreneurship and skills of systemic interaction. It is necessary to transform one's own consciousness and the consciousness of a whole generation that will interact within the framework of ecosystems, which requires universities to educate students new types of skills.

Keywords: Ecosystem, Retail, New business environment, Coopetition, Interaction, Modules

Resumo
No complexo mundo VUCA, os pesquisadores estão interessados em estudar modelos de negócios. Nas condições modernas, o conceito de modulação de negócios adquire desenvolvimento, o que envolve minimizar dependências entre elementos (módulos) enquanto aumenta as conexões dentro dos módulos. É a modularidade que cria as condições para o surgimento de um ecossistema. O artigo trata de três grupos de pesquisa sobre o tema dos ecossistemas: ecossistemas como sistemas biológicos, ecossistemas como estruturas e ecossistemas como formas de criar uma proposta de valor. O autor fundamenta que os ecossistemas são estruturas não hierárquicas de relacionamentos para criar um valor tão comum que uma única empresa não seria capaz de criar sozinha. Os autores modernos, considerando os modelos de negócios do varejo, focam no impacto da digitalização e colocam a criação de valor para os clientes em primeiro plano. O artigo dá exemplos de ecossistemas de inovação dos maiores varejistas, o que possibilitou constatar que eles não possuem uma gestão hierárquica como nos modelos clássicos de negócios, já que o chamado "centro" é formado por centenas de empresas, uma poderosa arquitetura de TI. Revela-se que uma vez que os ecossistemas significam organização dentro da organização sem tipos hierárquicos de gestão, isso requer o desenvolvimento do empreendedorismo interno e habilidades de interação sistêmica. É necessário transformar a própria consciência e a consciência de toda uma geração que irá interagir no âmbito dos ecossistemas, o que exige das universidades a formação de novos tipos de habilidades aos alunos.

Palavras-chave: Ecossistema, Varejo, Novo ambiente de negócios, Coopetição, Interação, Módulo

Resumen
En el complejo mundo VUCA los investigadores están interesados en estudiar modelos de negocio. En las condiciones modernas adquiere desarrollo el concepto de modulación empresarial, que implica minimizar las dependencias entre elementos (módulos) al tiempo que aumenta las conexiones dentro de los módulos. Es la modularidad la que crea las condiciones para el surgimiento de un ecosistema. El artículo aborda tres grupos de investigación sobre el tema de los ecosistemas: los ecosistemas como sistemas biológicos, los ecosistemas como estructuras y los ecosistemas como formas de crear una propuesta de valor. El autor fundamenta que los ecosistemas son estructuras de relaciones no jerárquicas para crear un valor común tal que una sola empresa no sería capaz de crear por sí sola. Los autores modernos, considerando los modelos de negocio del comercio minorista, se centran en el impacto de la digitalización y ponen en primer plano la creación de valor para los clientes. El artículo da ejemplos de ecosistemas de innovación de los minoristas más grandes, lo que permitió constatar que no tienen una gestión jerárquica como en los modelos de negocios clásicos, ya que el llamado "centro" está formado por cientos de empresas, una poderosa arquitectura de TI. Se revela que, dado que los ecosistemas significan organización dentro de la organización sin tipos jerárquicos de gestión, esto requiere el desarrollo del espíritu empresarial interno y habilidades de interacción sistémica. Es necesario transformar la propia conciencia y la conciencia de toda una generación que interactuará en el marco de los ecosistemas, lo que requiere que las universidades eduquen a los estudiantes nuevos tipos de habilidades.

Palabras clave: Ecosistema, Retail, Nuevo entorno empresarial, Coopetición, Interacción, Módulos

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1. INTRODUCTION AND LITERATURE REVIEW

The modern corporate environment is characterized by four complex phenomena: market instability, accelerating pace of change, complexity, and the transfer of power from companies to customers (Fig. 1).

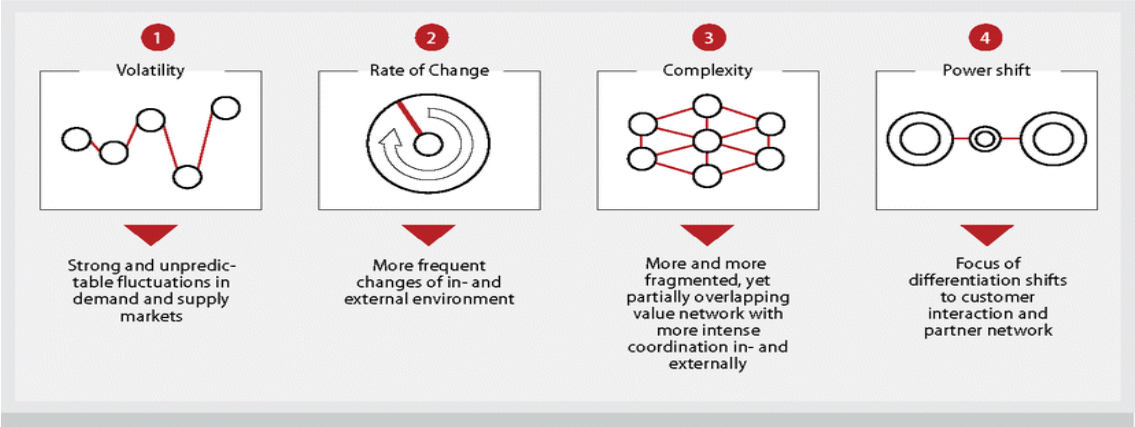


Figure 1. Phenomena characterizing the current business environment (Schön, 2012)

In a complex world, strategy researchers are more and more interested in studying business models - a term coined by Peter Drucker back in 1954, meaning how a firm works and how it creates and provides value for stakeholders. According to Casadesus-Masanell and Ricart (2010), the business model consists of two components: 1 - the choice made by the management, and 2 - the consequences of this choice. There are three subjects to choose from: politics, assets, policy management. The retail business model consists of (1) a set of target customer options, (2) a customer value proposition and a value chain, and (3) a set of consequences that ultimately affect profits.

Osterwalder and Pigneur (2010) conceptualize in more details a business model consisting of nine interdependent parts: value proposition, relationships (with customers), customers, channels (communications), revenues, key resources, key activities, key partners and costs. This conceptualization of business model has been applied to retail.

Cao (2014) argues that a business model should include at least three main prerequisites: value proposition, ways to create value, and value appropriation, especially through innovation. A value proposition involves identifying target customers and explaining why they should buy a product or service. Value creation and delivery are related to the design of the retail value chain. Value assignment refers to retail profit. Thus, retail business model includes four dimensions: target customers, value proposition, value chain, profit.

Sorescu et al. (2011) focus on retail business models and claim that the business model for a retail firm includes three components: the retail format; the processes of acquiring, storing, displaying and exchanging goods and services that meet customer requirements, retail management; participants involved in creating and providing customer experience, as well as mechanisms (such as systems of contracts and incentives) that motivate these participants to fulfill their roles in providing a customer experience.

Mostaghel et al. (2022) consider aspects of the retail business model that have been influenced by digitalization and prioritize creating value for customers (Fig. 2).

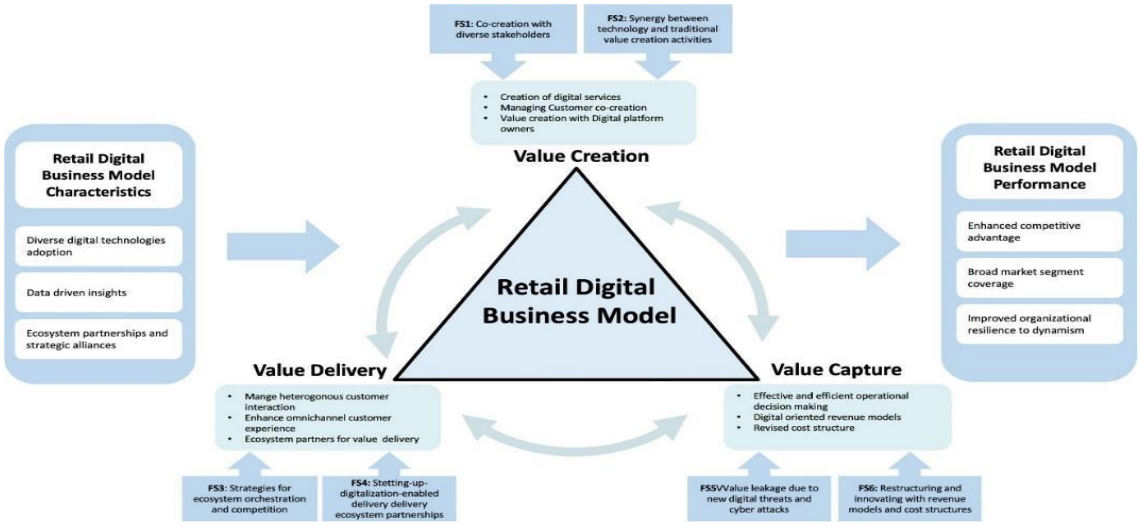


Figure 2. Retailer's Digital business model (Mostaghel et al., 2022)

It can be concluded that the basis of retailers' business models is the creation of value for customers.

Schön (2012) investigates that in modern conditions the concept of business modulation is developing, which is based on the concepts of classical management, but has a feature that lies in the very concept of the word "modularity". Thus, "modularity" can be understood as minimizing dependencies between elements (modules) while increasing the connections within modules. A module in this context can be considered as a unit with strong connections between its components, which can be removed non-destructively from the system as a whole. Modules connect and interact with each other through common connections or interfaces.

Schön believes that an important feature of modular systems is that they allow mixing and matching different modules to obtain new configurations. Thus, the flexibility of the system increases, allowing it to successfully respond to the complexity and instability of the external environment. According to the author, the business model consists of three closely interrelated blocks (Fig. 3). The first is the value proposition - the unique values that the business offers to its customers; the second is the revenue model - based on the expected relationships with customers, the sales channels used and the pricing logic; the third is the cost model – how a company can profitably realize its value proposition by using its assets.

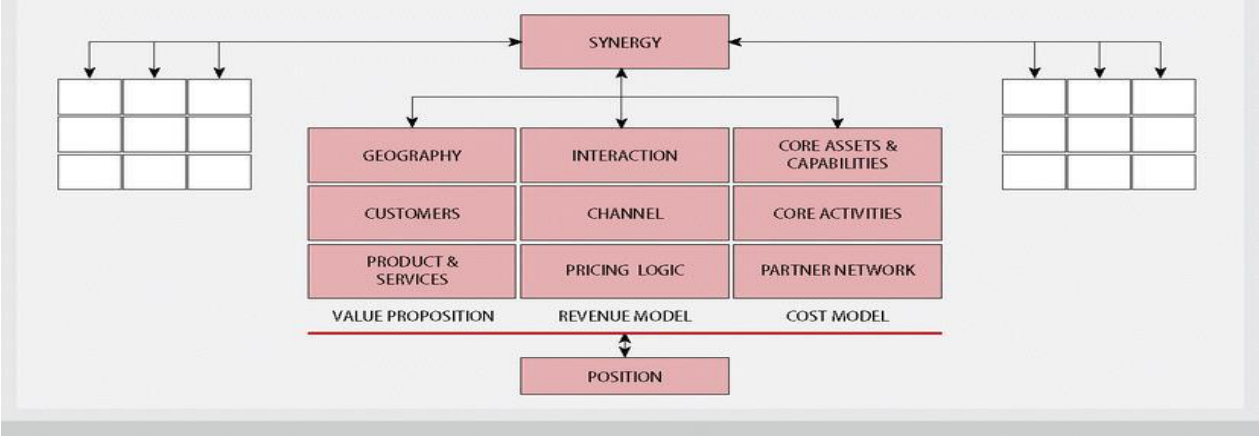


Figure 3. Composite blocks of the business model (Schön, 2012)

A quick replacement of the module can allow the company to radically change the value creation system and, thus, significantly increase strategic flexibility. Unfortunately, this is not always feasible in practice, but the author of the concept is convinced that modularity can also occur within elements, which increases strategic flexibility. At the same time, the structure of the business model ensures the integrity of the entire value creation system. The author identifies six elements for which modularity is relevant: geography, customers, supply of goods and services, customer knowledge, sales channels, pricing, assets and opportunities, types of activities, partner network (Fig. 4).

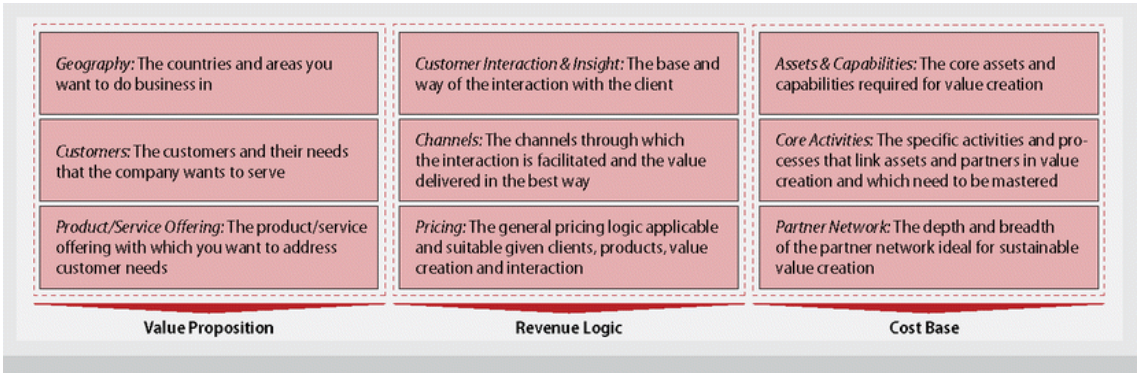


Figure 4. Elements of business model (Schön, 2012)

Almost any modularity carries the risk of losing a competitive advantage. One of the reasons is that modularity can limit the company's differentiation potential: if access to the module is open or it can be obtained from the market, there is a possibility that a competitor also uses it. From the client's point of view, this could potentially make the companies' offers

interchangeable. In a study by Jacobides et al. (2018) it is proved that modularity creates conditions for the emergence of an ecosystem.

2. METHODS

A review of the scientific literature on the topic of ecosystems allows us to conditionally divide it into three large groups: representatives of the first agree that ecosystems are not a new concept, but take their roots from natural, biological systems; the second is a look at the design of the ecosystem, which depends on the structure of interdependent activities, that is, "ecosystem-as-structure"; the third is the creation of a value proposition.

The first group of researchers believes that it is not necessary to call ecosystems a phenomenon of the XXI century. Moore in 1993 suggested considering the company not as an element of an industry, but as part of a business ecosystem that covers several industries (Moore, 1993). He defines an ecosystem as an economic community supported by a set of interacting organizations and individuals, which produces goods and services of value to customers who are also members of the ecosystem. The ecosystem includes suppliers, competitors, manufacturers and other stakeholders. They develop their capabilities and roles according to the direction set by one or central companies. Companies occupying a central position allow participants to move towards a common vision, coordinate their investments and find mutually supportive roles. In an ecosystem companies develop opportunities around innovation, collaborate and compete to meet customer needs, to develop new products and ultimately implement the next round of innovation. The author is based on anthropologist Gregory Bateson's definition of the concept of "coevolution", both in natural and social systems - a process in which interdependent species evolve in an endless reciprocal cycle-in which "changes in Species A prepare the ground for natural change in Species B – and vice versa." As an example of natural phenomena, one can cite the relationship of predators and their prey or flowering plants and their pollinators. Borrowed from biology, the term "ecosystem" usually refers to a group of interacting firms that depend on each other's activities. The business ecosystem, both biological and natural, develops in four stages: birth, expansion, leadership and self-renewal – or, if not self-renewal, then death (Fig. 5).

The Evolutionary Stages of a Business Ecosystem		
	Cooperative Challenges	**Competitive Challenges**
Birth	Work with customers and suppliers to define the new value proposition around a seed innovation.	Protect your ideas from others who might be working toward defining similar offers. Tie up critical lead customers, key suppliers, and important channels.
Expansion	Bring the new offer to a large market by working with suppliers and partners to scale up supply and to achieve maximum market coverage.	Defeat alternative implementations of similar ideas. Ensure that your approach is the market standard in its class through dominating key market segments.
Leadership	Provide a compelling vision for the future that encourages suppliers and customers to work together to continue improving the complete offer.	Maintain strong bargaining power in relation to other players in the ecosystem, including key customers and valued suppliers.
Self-Renewal	Work with innovators to bring new ideas to the existing ecosystem.	Maintain high barriers to entry to prevent innovators from building alternative ecosystems. Maintain high customer switching costs in order to buy time to incorporate new ideas into your own products and services.

Figure 5. Ecosystem life cycle (Moore, 1993)

Markin and Calvin (1981) make a reference to retail markets, revealing in them the makings of ecosystems. The authors investigate that the retail establishment and its environment inherently form an ecosystem in which the parts interact and mutually influence each other. In order to survive, retailer should maintain a degree of harmony with the environment, since its behavior affects the environment, and these effects return to the socio-economic system, it follows that the retail establishment must constantly change and adapt in order to maintain a relatively constant relationship of survival with its environment, for only in an effort to achieve some form of equilibrium with the environment. Environment, you can ensure long-term survival.

So, two important facts regarding the success and survival of retail institutions can be explained in terms of environmental reasoning. Environmental analysis provides that each type or institution has requirements that are common and necessary conditions for achieving the goals and objectives of the institution. Such requirements are: sales, profits, based on demand, daily needs, consumers' income, need for tolerance. Each element of an ecosystem has a maximum and minimum intensity of elements or conditions that it can withstand without damage. It is important to note that the secret to growth and survival lies in the ability of an institution to cope with environmental conditions and use its resources in a way that preserves its niche. Successful institutions have relatively low demands and extremely high tolerance, or the elements of their habitats change little, if at all. Trade institutions such as the public market,

bazaar and fair, which characterize the traditional sustainable environment of less developed countries, are prime examples of this phenomenon.

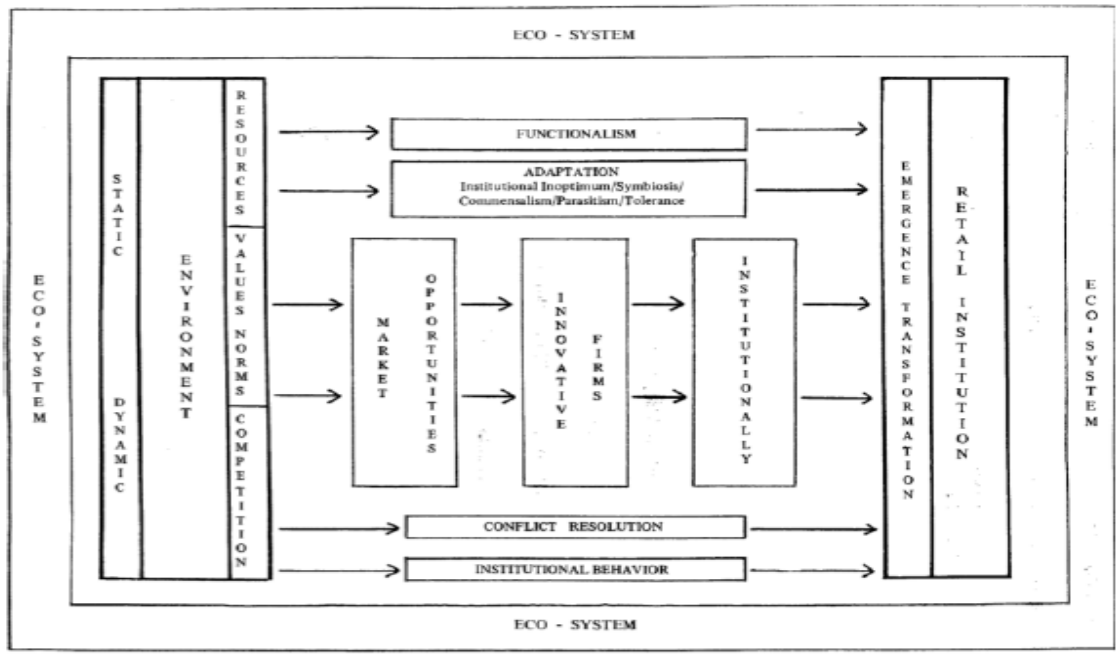


Figure 6. Retail Ecosystem Diagram (Markin & Calvin, 1981)

The second group of studies, which focuses more on ecosystem structures, agrees that ecosystems involve complementary companies, products or services that may belong to different industries and should not be bound by contractual arrangements, but nevertheless have significant interdependence. Ecosystems do not fit into the classical relationship between firm and supplier, the System of Porter's Five Forces, nor are they hierarchical business structures. They can be considered as hybrid structures that combine market and hierarchical relationships of participants. In a traditional organization, the decision-making process is usually structured hierarchically and involves ordinary employees making more limited decisions within their job descriptions, middle managers or top managers - more complex decisions. Ecosystems consist of autonomous individuals or organizations that independently make decisions within the framework of the rules and resources of the platform. With the help of restrictions, the platform determines what participants can do, how they make a profit, but nevertheless the participants themselves decide whether they will contribute to the activity. Thus, management decisions are made by a platform that plays an important coordinating role in defining the rules of

participation and exchange that ultimately generate network externalities (and other benefits from coordination).

Platform ecosystems are characterized by a large set of interconnections, they can be considered as hybrid structures, and it is the organizational nature and structure of ecosystems and their strategic behavior that are of interest. In a traditional hierarchical organization, power is based on the ownership of assets necessary for production. In ecosystems, by contrast, the source of power and authority of the platform's "hub" is largely due to the control of the technological architecture at the center of the ecosystem and the central role in the relationship between a number of players for whom coordination is a key process. That is, while the payoff from coordination within an ecosystem serves as a driver of development, the platform is uniquely positioned to exercise control over participants, rules of engagement, and how profits are distributed. For example, app developers on a mobile app platform accept terms and conditions and pay fees and commissions to the platform in exchange for access to the user base, development tools, and opportunities to generate revenue and feedback from the community. Thus, the relationship between the platform and business participants is characterized by less managerial freedom compared to hierarchical organizations.

Definition of ecosystems proposed by Jacobides et al. (2018), suggests that ecosystems are not controlled by someone unilaterally hierarchically. Despite all the power that the center can possess (if any), ecosystems are devoid of traditional hierarchical control (as there is in Keyreku, for example, or in the traditional vendor-retailer model, where it is dictated what is supplied and at what price). That is, ecosystems must be both de jure and de facto process-driven, even though standards, rules, and interfaces are often set by the "center," while companies remain free to make decisions by producing a complex interdependent product or service. In the study, the authors point to the presence of two types of complementary elements in the ecosystem: first, the presence of unique complementary elements (they call them "non-generics"). For example, a cup of tea with water and a tea bag will not be an ecosystem, because its elements can be purchased independently, they are not specific, but are generics and manufacturers do not need to make joint investments and diligent cooperation so that the buyer has a new value – tea in a cup. The constituents of a cup of tea are complementary products and are not considered as an ecosystem (Fig. 7 shows the differences between the ecosystem,

hierarchical and market systems of interaction between companies). In other words, A does not function without B, where A and B are unique elements, or A is maximized by B. Such complementarity can be strong (A requires the presence of B), specific (A requires B to be adapted to it), unilateral (A requires a certain activity or component B, but not vice versa) or bilateral, where A and B both require the presence of each other, which is the basis of the idea of joint specialization. Second, supermodular complementarity: "more A makes B more valuable," where A and B are two different products, assets, or activities. For example, the platform-application ecosystem is a one-way unique interoperability, since the fact that the application does not function without an operating system (OS), but it works without applications, as well as supermodular complementarity, since the presence of applications increases the value of the OS, and the mass installation of the OS increases the value of the application.

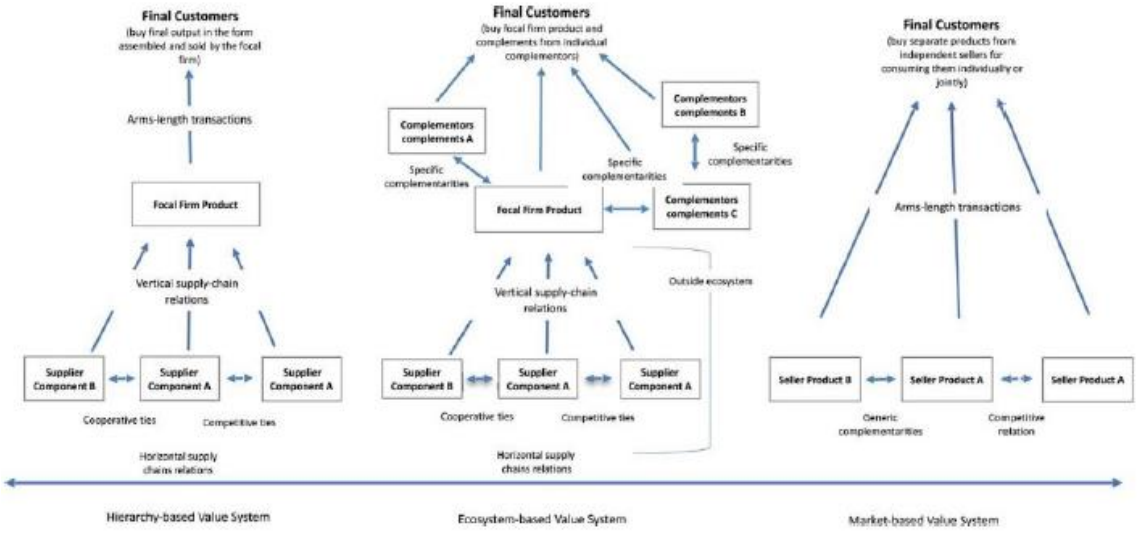


Figure 7. Different types of interactions (Jacobides et al., 2018)

In the study of Kretschmer et al. (2020) it is said that ecosystems are meta-organizations, and it is necessary to consider the platform ecosystem as an "organization of organizations", that is, a meta-organizational form. Meta-organizations bring together multiple organizations, actors, activities, and interfaces and rely on interrelated social or economic value propositions or business models. Thus, the success of platforms depends on the cooperation, coordination

and integration of a different and often very large number of organizational units and agents, some of which are direct competitors. The authors argue that meta-organizations tend to arise when there are intermediate levels of interdependence between participants; all participants in the ecosystem are affected by external factors in the form of network effects; the actions of one participant can attract additional users to the ecosystem, so other participants can also benefit. The ecosystem leader represents the visible hand, similar to Smith's invisible hand in traditional markets. The meta-organizational features of platform ecosystems emphasize the role of the ecosystem leader as a source of control, without formal authority, and the importance of incentives to encourage continuous innovation.

Teece (2014) believes that having an "architect" who sets a goal at the system level, determines the hierarchical differentiation of the roles of participants and sets standards and interfaces is an important and distinctive feature of the ecosystem.

The third group of studies places greater emphasis on the entity "ecosystem-as-affiliation", that is, it considers ecosystems as a community of related participants who create joint value.

According to Parker et al. (2016), An ecosystem strategy typically aims to increase the number of participants who are associated with a major participant or platform, thereby increasing its central role and power and increasing the value of the system itself through direct and indirect network externalities, potential interactions of participants that can unlock new interactions, and combinations that in turn will increase the overall value of the system.

Adner (2017) gives the following definition of an ecosystem – it is an agreed structure of diverse partners who need to interact to create a value proposition. In this definition, consistency refers to the degree of agreement among participants regarding their own positions and objectives; a successful ecosystem is one in which all participants are satisfied with their position, which reaches, at least temporarily, pareto equilibrium. The author puts the following philosophy into the definition: an ecosystem inherently means not only a set of partners, but a set of relations that cannot be decomposed into a set of bilateral interactions. Multilateralism, which can be fully decomposed into direct and indirect linkages, does not require an ecosystem approach. For ecosystem design to make sense, there must be a critical interaction between

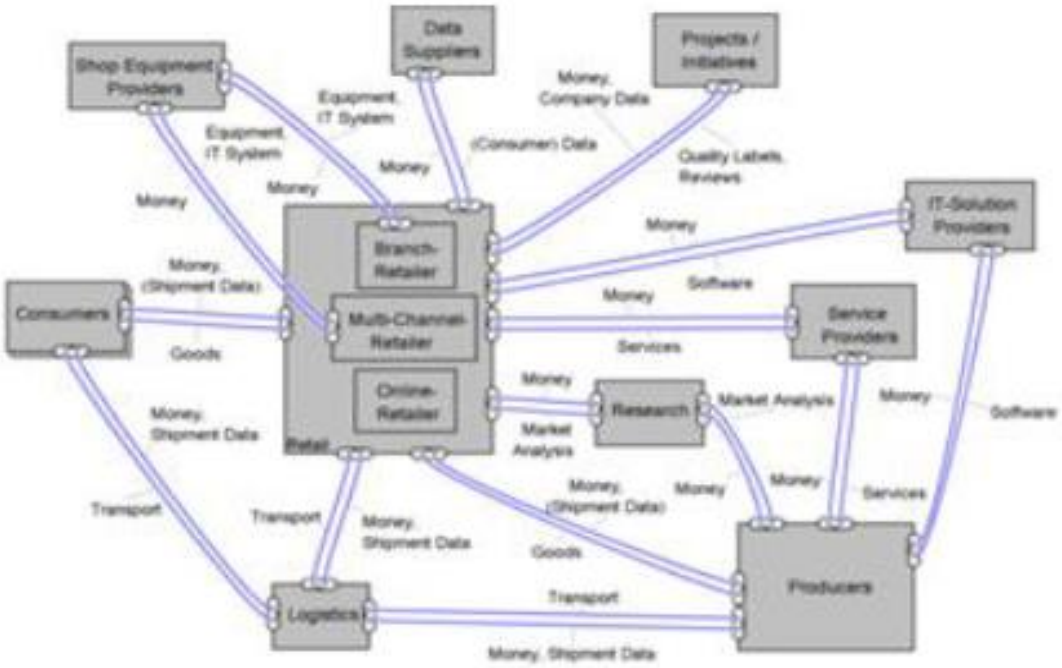
these relationships. For example, for parties A, B and C, an example of irreducibility might be the case where a successful contract between A and B is undermined by the non-performance of the contract between A and C: an analysis of the relationship A and B in isolation from C would lead to a false conclusion. At the same time, an important note is that the ecosystem does not equal a plurality of alliances. The defining characteristic of partners is that they are the actors on whose participation the value proposition depends, regardless of whether they have direct links with the main firm (the central link of the ecosystem) or not. This definition places the value proposition at the heart of the ecosystem — it is the proposed value proposition that creates the boundary of the ecosystem. The definition also emphasizes the central role of the coherence framework – the same set of participants, structured in two different configurations, makes up two different ecosystems. The Adner study also states that ecosystems allow firms to create value that no firm could create alone.

Iansiti and Levien (2004) define business networks as ecosystems characterized by a large number of interconnected actors that depend on each other for their mutual efficiency and survival. The authors argue that there is an important feature associated with value creation in an ecosystem: to preserve the integrity of the system, the value created by one element must be divided between all the elements of the system. This effect means that as the number of members of the system expands, its prosperity only increases. Conversely, if the central link of the ecosystem does not share the value created, participants will look for other systems to join. Thus, Value sharing is the basis, the philosophy of ecosystems, the authors point to the "common destiny" of the community as a whole – the productivity of individual members is related to the overall performance of the ecosystem and a center is needed that will ensure sustainable development. They cite the example of walmart, which in the last century created Walmart's Retail Link to exchange sales data with its suppliers and partners – a kind of network that later grew into an ecosystem. The first partner of the trading network in the exchange of data was the company Procter & Gamble, which used an array of information for more accurate forecasting, production planning and inventory.

Konstantinov (2019) highlights the terms "virality" - the ability to create interest and attractiveness of entering the system and "network value" - the synergistic effect of ecosystem activity.

Research of ecosystems in retail was carried out by Böttcher et al. (2021), who proposed a model based on the study of German companies, which, however, is universal, which may indicate that in terms of philosophy, approaches, understanding, ecosystems in trade and ecosystems in other areas will not have many differences (Fig. 8).

Figure 8. Retail Ecosystem Model (Böttcher et al., 2021)



The definitions are systematized in Table 1.

Table 1
Review of scientific articles on the topic of "ecosystems" (compiled by the author)

Author	Definition of an ecosystem
1. Ecosystems as biological/natural systems	
R.J. Markin and P.D. Calvin (1981)	The secret to survival lies in the institution's ability to cope with environmental conditions and the ability to adapt, balancing between complementary and opposite phenomena – low/high demands and low/high tolerance. The establishment of retail trade and its environment form an ecosystem in which parts interact and mutually influence each other
J.F. Moore (1993)	The concept of an ecosystem is close to the concept of coevolution, associated with natural phenomena. The company should not be considered as an element of one industry, but as part of the business ecosystem. As in any natural system, it is assumed that members of the ecosystem benefit from interacting with each other and success, the health of each member depends on the others. Ecosystem – an economic community supported by a set of interacting organizations and individuals – members of the business world that produces goods and services of value to customers who are themselves members of the ecosystem
2. Ecosystems as structures	
M.G. Jacobides et al. (2018)	The interaction of companies is coordinated outside of vertical integration and without hierarchical management due to compliance with basic requirements, while companies remain free to make decisions, producing a complex interdependent product or service. Ecosystems must be both de jure and de facto process-driven, even though standards, rules, and interfaces are often set by the "center"
T. Kretschmer et al. (2020)	Ecosystems as meta-organizations or "organizations of organizations". Success depends on the cooperation, coordination and integration of a large number of organizational units and agents, and there are also intermediate levels of interdependence. The ecosystem leader represents a visible hand similar to Smith's invisible hand in traditional markets
D.J. Teece (2014)	Having an "architect" who sets a goal at the system level, defines the hierarchical differentiation of participant roles, and sets standards and interfaces is an important and distinctive feature of the ecosystem
3. Ecosystems for shared value creation	
G.G. Parker et al. (2016)	An increase in the number of participants who are associated with the main participant or platform leads to an increase in its central role and power, the value of the system itself through direct and indirect network externalities, the interaction of participants that can open up new interactions and combinations that, in turn, will further increase the overall value of the system.
R. Adner (2017)	An ecosystem is a coherent (participants are satisfied with their position, at least temporarily achieved pareto equilibrium) structure of versatile partners who need to interact to create a value proposition. Not only a set of partners, but a set of relationships that cannot be decomposed into a set of bilateral interactions. Ecosystems allow firms to create value that no firm could create alone
M. Iansiti and R. Levien (2004)	Ecosystems are characterized by a large number of interconnected participants who depend on each other for their mutual efficiency and survival. To preserve the integrity of the system, the value created by one element must be divided among all the elements of the system, with the expansion of the number of members of the system its prosperity only increases
G.N. Konstantinov (2019)	"network value" – synergistic effect of ecosystem activities and "virality" – the ability to create interest and attractiveness of entering the system
T.P. Böttcher et al. (2021)	Based on the study of German retailers, a map of the retailer's ecosystem was compiled, which turned out to be universal, applicable not only in trade

3. RESULTS

The author's definition of an ecosystem is a group of firms and a core that interact with each other within a non-hierarchical relationship structure in order to create such a common value that a single firm would not be able to create, while the value created by one element must be divided between all elements of the system.

Next, consider examples of innovation ecosystems of the largest retailers. Retailer Walmart has a comprehensive ecosystem: provides health services through a network of primary care clinics, offers in-store laboratory testing in partnership with Quest Diagnostics, and partners with insurer Humana to sell Medicare drug plans. In financial services, it provides cards in partnership with Green Dot, money transfer services through MoneyGram and tax services through Jackson Hewitt. Walmart Marketplace competes with Amazon.

Similarly, Netherlands-based Delhaize has created an ecosystem that includes various food business models, such as food delivery through FreshDirect and partnerships in Europe, e-commerce with full cart delivery, and various store formats, including supermarkets and convenience stores. Delhaize has also expanded bol.com, its non-food market, and is taking steps to monetize and personalize media in its food and non-food offerings using its consumer data and analytics data.

Another foreign retailer creating an ecosystem is the Swedish network ICA. According to its CEO Strömberg (McKinsey & Company, 2021), they will develop partnerships with pharmaceuticals to a greater extent, rather than with fanche retail, which is closer to food, as well as with restaurants.

More than 70 enterprises of the Japanese Rakuten Group cover a wide range of online and offline services, including e-commerce, travel, digital content, financial technologies such as credit cards, banking, securities, insurance, electronic money and payments in smartphone applications, communications, including mobile communications. transport service and professional sports. By combining these diverse services with a common membership and loyalty program, Rakuten has created one of the most unique and trusted ecosystems in the world (Fig. 9).

Figure 9. Rakuten Group Ecosystem (Rakuten, n.d.)

The core of the marketplace includes service companies in three blocks - communications, data and operators (membership). In partnership with Japan Post in 2018, Rakuten launched a service that allows shoppers to pick up goods purchased through the Rakuten Ichiba marketplace at post offices across the country and at Japan Post's Hakoposu posts. In December 2020, the Company and Japan Post announced the signing of a Memorandum of Understanding aimed at forming a strategic partnership to create a reliable and sustainable logistics environment. This partnership involves sharing data and leveraging each other's significant assets and know-how, including Japan Post's nationwide distribution network with its massive delivery volumes and data, as well as Rakuten's expertise in demand forecasting and operational logistics know-how of order data developed through Rakuten Ichiba. Tencent Group is a global Internet company providing communications, social networking, gaming, digital content, advertising, FinTech and cloud computing services. Tencent Group operates the leading communication and social platforms in China (Weixin and QQ). As globalization in the Internet and high-tech industries accelerates, strengthening the relationship with a leader in advanced technology, such as Tencent Group, to improve services through collaboration can help increase Rakuten's competitiveness. Tencent shares Rakuten's commitment to creating value through innovation and empowering users and partners, supporting its transformation into a global innovation leader. In January 2018, the Company and Walmart announced a strategic alliance to expand user reach and improve services by

leveraging the strengths of both companies in Japan and the United States. This example demonstrates that the ecosystem is a partnership of giants, each in its own industry.

Amazon works with more than 2 million independent partners in the U.S., including sellers, developers, content creators, authors, and delivery providers. Over 20 years, Amazon has acquired 40 companies that have become part of its ecosystem (Fig. 10).

Figure 10. Amazon Ecosystem (Nordmark, 2020)

The core of the ecosystem - the Amazon marketplace consists of applications that allow you to list goods on the site, delivery, automatic pricing, accounting for goods, tracking orders, receive customer feedback, communicate with customers, pay taxes, keep accounts, make promotion on the site, get analytics. Amazon Web Services (AWS) service offerings include all six services in the cloud computing stack (see Fig. 11).

Figure 11. Amazon IT Ecosystem (Okunola, 2021)

In the U.S., IT solution (application) providers and marketplace providers are connected through, for example, SupplierGATEWAY (n.d.) is a standalone application aggregator originally created to manage aerospace and defense vendors, and later evolved into a cloud-based SaaS platform for managing any supplier to create faster supply chains. This aggregator, if necessary, conducts an assessment of risks, an assessment of their stability. The aggregator is a certified amazon partner, which can also be considered part of the ecosystem. A very complex tangle of interactions in the ecosystem is emerging, definitely without hierarchical management, but with a large number of connections and modules.

Among the Russian retailers, we give examples of X5 Retail and Ozon. X5 Group and Sber (Retail Technology Innovation Hub, 2022) decided to jointly develop cooperation on projects in the field of e-commerce, data architecture management, the development of cloud technologies and artificial intelligence, as well as the creation of virtual assistants. The main activity of X5 Group in the field of e-commerce will be focused on the development of express

delivery services, and the perekrestok Vprok procurement service can be combined with Sberbank's own online business and develop within its ecosystem, in particular, with the SberMegaMarket marketplace. Igor Shekhterman, CEO of X5 Group, believes that cooperation with Sber, one of the Russian technological leaders in the field of ecosystem and digital products, will allow X5 to strengthen expertise in this area and offer unique products and services to customers. Sbere is confident that there is a level of potential synergy in such cooperation, which will be mutually beneficial for both companies and customers.

In order to better understand the essence and philosophy of the ecosystem, we give the example of Ozon, whose ecosystem includes sellers and a huge number of service companies, the so-called internal ecosystem, these are subsidiaries and services for maintenance (both for sellers and for buyers) and owned by Ozon itself. In order for the marketplace to function, service companies are divided into the following blocks: operators, analytics, integration, content, logistics, advertising and other operations. These companies are the "center" of the ecosystem and, as can be seen in Fig. 12, this center consists of hundreds of companies grouped in different directions. This center cannot be perceived and function as the center of the traditional management hierarchy – it can be interacted with, as was identified above in the formation of the definition and identification of the essence of the ecosystem.

Figure 12. OZON Ecosystem (Data Insight, 2020)

The interaction of sellers and service companies can be organized in two fundamentally different ways. The first option is that the service company provides services to support sales on the marketplace from the account of the seller client, while the commission is an average of 6-8% of the seller's turnover. Seller receives a package of services - an establishment on Ozon of a certain number of goods, setting up a showcase, recommendations, advertising campaigns, support for the delivery of goods, all the necessary actions in the personal account, consultations of the accounting department, warehouse, logistics. Logistics services are not included in such a contract, but they can be provided and paid additionally. The second option is to work under a distribution contract, in which the service company buys goods from the supplier and sells hem through its own accounts on the marketplace, earning on the difference between the purchase price and the recommended retail price. The services listed above under this option can be provided by the same company, operator or distributor that sells the seller or manufacturer on the marketplace, or by another specialized company. Ozon's support for

service companies is expressed, among other things, in the fact that Ozon shares with technology partners its commission, which it receives from the seller, and for a seller, the services of a technology partner are free for the first 6 months. A technology partner can expect 1-2% of the value of goods sold. The exact amount depends on several circumstances: the category of the seller (since the commission of the technology partner is calculated from the Commission of Ozon), in addition, the seller's turnover is taken into account, whether the goals for the share of advertising revenues are achieved. In addition, for each new attracted seller, Ozon pays the partner 25,000 rubles. When connecting the provider to the marketplace, there is a need to exchange data between various information systems. This task is solved by integrators - companies that develop IT solutions for connecting two or more systems into a single circuit.

Yandex.Market also cooperates with agencies that can help the seller connect to the marketplace and continue to work on it. They have a dedicated line with the support service of the marketplace, so they can quickly solve problems. Agency services for which the seller does not need to pay - this is done by the marketplace: connecting the store to the Market through his personal account, creating up to 10 cards for goods, creating an Excel file for uploading up to 100 articles, launching up to 3 promotion campaigns. Other agency services for which the seller will have to pay: creating photos and descriptions of goods, storing goods and delivering orders to customers, API integration and automation of workflows (the agency can configure the processing of orders on the Market in the SELLER CRM system, update balances, prices and receive automatic notifications from your personal account in messengers), promotion of goods on the Market, analytics and regular support.

Yandex.Market distinguishes three types of partners – ordinary, technological and certified. Often, certified partners are the sellers themselves, who have achieved such professionalism in trading on the site that they can advise others, providing them with services. The cost of services is 0.32% - 2.18% of the seller's turnover on the site - depending on his categories, sales regions and quality index. Yandex itself pays from 30,000 to 40,000 rubles. for each connected seller. To strengthen the network value of the Yandex ecosystem, actively attract not only sellers and partners to support sellers, but also those who want to open a pick-

up point. The owner of the point is invited to pay a percentage of the amount of orders issued, to arrange a branded room for free and assistance with choosing a place to open a point.

4. DISCUSSION

Summarizing the consideration of ecosystems, we can conclude that their so-called center is hundreds of companies, a powerful IT architecture and companies that support it. Obviously, there is no question of top-down management or even flatter management as in classic business models. There is a systematic interaction and value management.

With the development of technology, a person has a digital twin, then a cognitive twin, and with the increasing development of the cognitive world, people's thinking completely changes towards the globalization of the mind in a cognitive society. Globalization of the industrial type is replaced by digital globalization and a person will have to interact with a set of self-organized elements and with an IT architecture that performs partly human functions, with a networked form of business.

The challenge is to transform thinking from the industrial type to the thinking of the cognitive world. Ecosystem phenomena give rise to the need to adapt to decentralization and, consequently, the need to develop entrepreneurial skills, and we are talking both about entrepreneurship within corporations in connection with the transformation of a modern corporation into an ecosystem, and personal. As mentioned above, the way of development of the company through transformation into an ecosystem means replacing business units with business modules, an ecosystem means an organization within an organization (meta-organization) without hierarchical types of management, which inevitably requires the development of internal entrepreneurship.

The second way of ecosystem development is that on the basis of the formation of a community of entrepreneurs, a community is formed, which is formed into an entrepreneurial ecosystem. There is a need for entrepreneurial talent. Industrial understanding of successful entrepreneurship: the entrepreneur is a rebel (in the sense of rebellion for the implementation of ideas), as a result of which the old is destroyed and the new is created, the role of the entrepreneur is reduced to the search for new ways of development, ideas and having after that accumulated wealth (Schumpeter). The modern vision of entrepreneurship is associated with

other aspects: firstly, with intuitive serendipity and the ability to make a clear choice from the opportunities seen, believing in the success of their activities. Secondly, the key abilities in the era of ecosystems are: 1 – network interactions and the ability to build network connections; 2 - creative component (to see the ways of development and the ability to integrate them into system structures); 3 – ability to use IT interfaces; 4 – the ability to work not with fixed knowledge, but with an accelerating flow of knowledge. Thirdly, in the era of ecosystems, the skill of systems thinking is necessary, which allows you to see system connections in a complex VUCA world. The world of networking means moving from competition to coopetition.

In the United States, students are already being trained a new type of interaction – ecosystems. In The New School Parsons School of Design, they teach product design from the perspective of an ecosystem. In the fall of 2022, the School and LG AI Research began an academic research collaboration with the aim of exploring ways in which artificial intelligence can provide meaningful support to the work and training of creative professionals in the creation of a product. This educational institution instills in students the skills of thinking in the plane of ecosystems in the design, development and creation of a product taking into account innovative technologies, material processing, the introduction of artificial intelligence, etc. (Fig. 13).

Figure 13. Ecosystem in The New School Parsons School of Design (School of Constructed Environments, n.d.)

Similar experience should be adopted by Russian universities. The need to transform their own consciousness and the consciousness of the younger generation, to teach them new skills is the main challenge in the accelerating development of ecosystems.

5. CONCLUSION

A review of approaches to business models in general and to retailers in particular is conducted and it is concluded that they are based on value creation. Business models were studied: Osterwalder & Pigneur – a map of nine interdependent parts, one of which is a value proposition, Cao – a model based on a value proposition, Sorescu – a model that depends on the format of the store, Mostaghel – a retail business model influenced by digitalization, and the focus is again on creating value for customers;

- the concept of "modularity" is studied and it is revealed that in conditions of instability of the external environment it is modularity that allows to successfully respond to its complexity and instability, mixing and coordinating different modules to obtain new configurations. A quick replacement of the module can allow the company to radically change the value creation system. It is modularity that is the basis for the creation and condition for the emergence of an ecosystem and this term is not new, but takes its roots from biological/natural systems;
- the differences between the ecosystem, hierarchical and market systems of interaction of companies are revealed. In a traditional hierarchical organization, power is based on the ownership of assets, in ecosystems, the source of power of the platform "hub" is due to control over the technological architecture at the center of the ecosystem. The essence of the ecosystem is reduced to the interaction of companies outside of vertical integration and without hierarchical management, thanks to compliance with basic requirements and architectural support of the "center";
- the essence of ecosystems is investigated from the point of view of value creation: the task of the ecosystem is to increase the number of participants who are associated with the main participant or platform, which leads to an increase in its central role and power,

the value of the system itself due to direct and indirect network externalities, the interaction of participants that can open up new interactions and combinations that, in turn, will further increase the overall value of the system;

- the author's definition of the ecosystem is compiled, which is simultaneously based on the features of the structure and on the specifics of value creation. Ecosystems are groups of firms and a core that interact with each other within a non-hierarchical relationship structure with the goal of creating a common value that a single firm would not be able to create, while the value created by one element must be divided among all the elements of the system.
- examples of ecosystems are studied on the example of several marketplaces, hich include sellers and a huge number of service companies, the so-called internal ecosystem – these are subsidiaries and services for maintenance, which is the "center". The center represents thousands of companies, it cannot be a management superstructure with which sellers can build a hierarchical model of interaction. This confirms the philosophy embedded in the definition of the ecosystem about the need for interaction to create shared value;
- the world is currently moving to the phase of the so-called Society 5.0., that is, to the cognitive world. This means interacting with artificial intelligence, the digital twin of man, with the global mind. The accelerating development of ecosystems contains a challenge - the presence of skills of systems thinking, an entrepreneurial approach and the ability to interact with IT architectures. The development of such skills should be put at the forefront in Russian universities. The need to transform one's own consciousness and the consciousness of the younger generation, teaching them new skills is the basis for successful development in the future;
- the transition to the model of the ecosystem world entails a transition from competition to the so-called "joint competition" - cooperation with a competitor to achieve a common goal. This approach is still alien to small and medium-sized businesses, acceptance in the mind. Over time, there will be a change in the perception of such competitors and there will be a need to interact with them just with the help of platforms that are part of ecosystems.

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