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THE ROLE OF DIGITAL ECOSYSTEMS IN ECONOMY, BARRIERS IN THEIR DEVELOPMENT AND BENEFITS OF IMPLEMENTATION

Abstract: *The future economy will look very different from today. Digitalization will fundamentally alter the supply and demand dynamics in the economy. And it is undeniable that ecosystems, and not sectors, will define economic activities ultimately. In ecosystems, value chains will converge. Barriers to entry will shift from large capital investments to large customer networks as distribution models shift from a single point to that of multiple nodes. Today's nascent ecosystems are the building blocks for tomorrow's industry sectors. In this regards, digital ecosystem will help to create better environment to deliver customers best digital service, which will be discussed in this article in a broader sense.*

Key words: *demand, government, environment, digitalization, ecosystem, business, database.*

Language: *English*

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Introduction

The digital ecosystem is a multilateral digital platform with information technology infrastructure, open to partners and working on the principle of mutual benefit for all participants [1]. A digital ecosystem is a distributed, adaptive, open socio-technical system with properties of self-organization, scalability and sustainability inspired from natural ecosystems [2]. Digital ecosystem models are informed by knowledge of natural ecosystems, especially for aspects related to competition and collaboration among diverse entities [3]. The ecosystem of the digital industry is an environment that provides the conditions for the innovative development and distribution of digital services, digital products, applications and devices in a particular sector of the digital economy. The purpose of creating an ecosystem is to provide the population with digital services that are formed "on the fly", "on demand", in real time, taking into account compliance with all norms and regulations, as well as in conditions of maximum confidence. Such services will allow consumers to receive services and products without thinking about how the work is arranged to grow in general and how the information systems that support it work. The ecosystem generates the platform for public-private partnership (PPP) in the digitalization of different sectors of the economy which provides the opportunity for many third-party developers to join — the creators of new devices, products, tools and new digital services. Openness to participation, government incentives and a competitive environment will form the conditions for increasing the number of available digital services and improving their quality. Considering options for implementing the ecosystem, it should be noted that no technology can simultaneously solve all the problems of the industry. The challenges of industry digitalization are too large and complex for any one company. Therefore, we should not talk about disparate systems and services,

but about a platform that provides the ability to work together disparate systems and organizations, both from a technical and commercial point of view. Any industry (sub-industry) of the digital economy is based on the knowledge economy. The carrier of knowledge in the ecosystem of the digital industry should be the semantic core, the support and development of which is an extremely important and high-tech activity in the digital economy. For example, in the banking sector, in which semantic interoperability is of particular importance [4], Financial Industry Business Ontology, FIBO8, is currently being implemented. The ontology was developed at the end of 2015 by OMG (Object Management Group) in conjunction with EDM (Enterprise Data Management) and is an industry initiative to define the terms, definitions and synonyms of the financial industry, based on the use of Semantic Web principles such as RDF / OWL, as well as widely applicable OMG modeling standards, such as UML. The basis for the creation and development of FIBO are the requirements of the Basel Committee on Banking Supervision (BCBS), aimed at efficient data aggregation and reporting of risks [5].

Analysis

The digital ecosystem is a multilateral digital platform that meets criteria such as the availability of information technology infrastructure, openness for partners and the principle of win-win[1]. In the following table key characteristics of digital ecosystems are presented (figure 1).

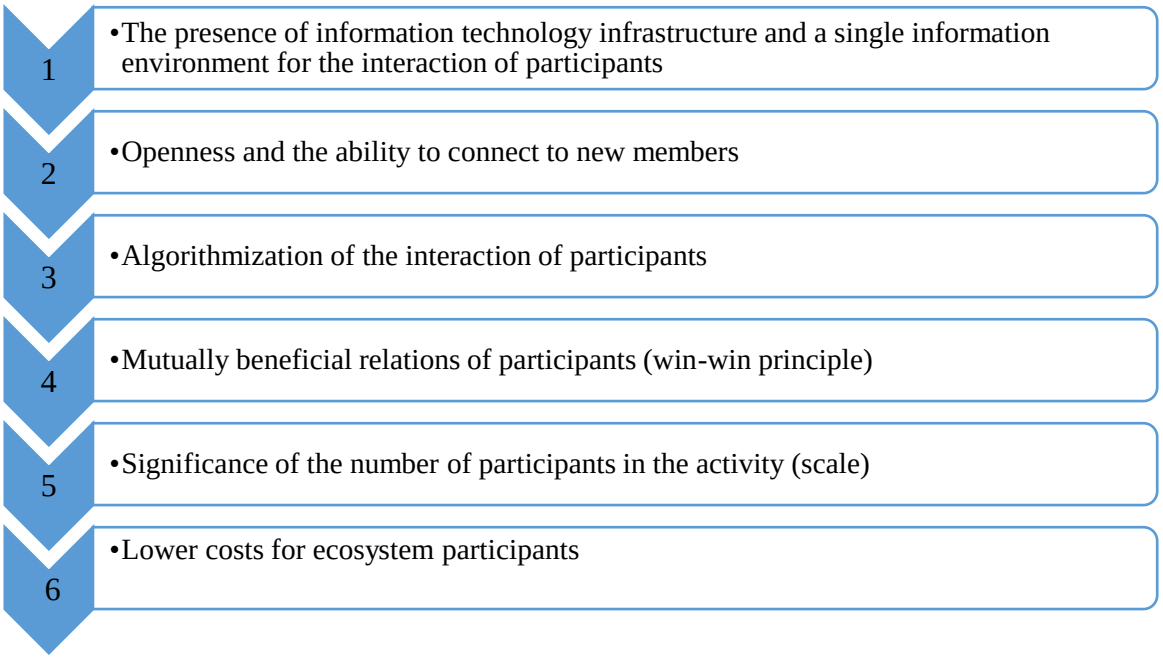

Figure 1. Key characteristics of digital ecosystem[2]

The areas in which digital platforms are mostly developed are transports (Uber, car sharing, travel services), communications (mobile communications, instant messengers, social networks), some types of finance (fintech) and e-commerce (marketplaces, announcement services), government services are also catching up. They are practically absent in the industry or where the number of contractors and transactions is small and automation through the digital ecosystem is not worth the effort". It is definitely necessary to support any business that makes the product more valuable and improves the quality of the product or service. It is too early to regulate tariffs, but in the long term three to four years some kind of monopoly regulation should appear so that businesses are not absorbed by giants. It is very important that as many of our ecosystems appear on the domestic market as possible and that profits do not flow to the expat side.

The work of an enterprise or community can be organized using a digital ecosystem in which users and the IT platform are seen as parts of a single organism. This is a symbiosis of the team and the technological tool, in which a high degree of freedom of communication between the participants, the

[1] Win-win is a principle in which all the parties benefit – there are no losers.

[2] Author's work based on scientific research and literature.

processes are adjusted as necessary and are easily adapted to current needs.

What can digital ecosystems do?

- Reflect real chains of production processes.
- Compile processes into productive activities of the enterprise.
- And vice versa, they decompose activities into component processes.
- From any "point" of production, one can see the movement of the finished product or its component - in the present and past tense.
- You can evaluate the consistency of processes and user actions in all respects - time, space, volume, quality.
- A distinctive feature of ecosystems is a high degree of trust. Databases (registers) of ecosystems store not only indicators, but also the history of events. You can see the manipulations of users in retrospect at all stages of the company, department, community. The principles of information storage are reflected in the term "temporal database". Closed ecosystems cover company employees or community members; open ecosystems include contractors, partners.
- Digital ecosystems are highly reliable and speedy because they are based on a distributed architecture. Failure of one or more elements does not mean stopping the process, loss of information.

Digital ecosystems enable enterprises to drive business processes more efficiently in a fully manageable manner. We are of the opinion that the followings are the top three ways that digitally integrated ecosystems drive value.

1. Create New Sources of Revenue

Digital ecosystems drive new revenue streams through consolidated ecosystem integration, with which organizations can track and analyze comprehensive data flowing through the business and use it to create new products and services. Such integration not only strengthens current revenue-generating processes it also creates value-added services for new revenue channels.

2. Lower Costs Through Improved Business Processes

Companies that have embraced digital transformation and ecosystem integration platforms are also finding measurable cost savings. Besides improving workflow efficiency, end-to-end integration improves your working relationships with customers and partners, and reduces operational costs due to automated data processes and business-wide efficiency.

3. Increase Speed of Technology Adoption

An ecosystem integration strategy enables enterprises to fully embrace new technology in ways that were previously cumbersome. Now, companies can take advantage of modern cloud services and SaaS solutions rather than rely on outdated legacy software that cannot keep up with the pace of the enterprise today.

How do ecosystems differ from traditional automation? In the second case, a fixed algorithm of actions is set, decisions are incapable of flexible adaptation and changes "on the go" without the intervention of the IT department. Databases do not store information about events, but indicators for a specific date, and the value of one indicator differs from the database to the database. The main problem of centralized systems is the lack of trust in information, so centralized IT solutions are not suitable for creating digital ecosystems.

Thus, creating a digital ecosystem, manufacturers set themselves the following goals and objectives:

1) Creation of fundamentally new sales channels, combined into a single ecosystem, which will provide the customer with the opportunity to purchase in a convenient way for him.
2) Effective collection and processing of customer data, which will allow, understanding the needs of the client, to provide a personalized approach to the client.
3) Business transformation: operational decision-making based on consumer behavior statistics, the acquisition of a new sales forecasting mechanism through the study of customer experience.
4) Scaling and business development through integration with other services and partner companies.
5) New ways to attract customers, increase team efficiency, streamline operations and bring new products to the market through intelligent technologies.
6) Acquisition of competitive advantages, when the completeness and presentation of information becomes the key choice of the buyer.
7) The growth of customer attractiveness by combining traditional channels with digital.

The actions of participants in the digital ecosystem are mutually beneficial and tend to be jointly supported and strengthened, which creates further opportunities for them that are not feasible outside this ecosystem. The most important characteristics of digital platforms that need to be communicated and improved:

- ✓ Convenience and ease of work with the platform, allowing to quickly solve problems;
- ✓ Quality assurance of the services and goods provided;
- ✓ Security and confidentiality of personal information;
- ✓ Availability and speed of technical support;
- ✓ Quality feedback service.

Digital ecosystems are already being broadly used in such areas as shopping, media and entertainment, real estate, finance and banking, food

delivery, travel transportation, job search and service / product sale.

The following table shows advantages and disadvantages of digital platforms (Table 1).

Table 1. The advantages and disadvantages of the digital ecosystem [1, p.11-12]

Advantages	Disadvantages
Access at a convenient time from a convenient place	No guarantee of personal data security
Time saving	There is no quality control of the provision of services
Saving money	Unstable operation, technical failures
The ability to compare and choose the best	Additional costs (commissions)
An opportunity to get a service / product without leaving home	Lack of quick feedback
Multifunctionality	No guarantee of personal data security
Possibility of prompt feedback	
Opportunity to sell a product / service and earn	

The point of the digital ecosystem is that the benefits be directed to each participant in the process. The user receives a set of different services or goods from various performers; for partners, the ecosystem is an additional way to promote their services and communicate with the end user. And for the platform owner - monetization through transactions that go through the resource, as well as offers of additional services. That is why nowadays it is chosen as business-models, and some of the examples of such reasons can be the followings:

- Great potential and ecosystem flexibility;
- Complete solution for customers;
- Ability to reach more users;
- Market need;
- Scalability;
- Convenience for customers;
- Cost reduction;
- Ability to rebuild from competitors.

Unfortunately, digital ecosystems are not developed in all spheres of production and services, of course, there are some internal and external reasons. According to Nikolai Golov, Head of Data Platform of Avito Company, the main barriers for the advancement of ecosystem are the technological complexity of the design, development of complex highly loaded systems (technologies, practices, competencies available on the market, product competencies). A well-designed system with a high level of reliability instantly occupies the market. All these barriers will remain in the coming years " [1, p. 29].

In the following table Key drivers and barriers to digital platform development are shown (Table 2)

Table 2. Drivers and Barriers for the development of digital platform[1, p. 18]

Drivers	Barriers
Emergence of the Internet and mobile technology	Bureaucracy and legislative imperfections
Digitalization	Unavailability of partners
The convenience of digital platforms	Unwillingness / Unreadiness for Digital Change
High demands and user needs for new niches	The need for large financial investments
Partners' growing interest	Lack of qualified personnel
User interest in receiving services in a single window	Opposition from traditional services and major players
	Personal data storage

In my opinion the development of digital ecosystem should be encouraged and supported, and also supervised not only by entrepreneurs, but also by the government. The main types of state support that could contribute to the development of digital platforms (ecosystems):

- Integration with city services;
- Open dialogue with the city;
- Information support;
- Tax holidays;
- Subsidies;
- Access to open city data;

- PPP, fulfillment of state orders, state tasks;
- Accommodation in a special economic zone;
- Technoparks (preferential accommodation conditions);
- Legal sandboxes.

Experts called the win-win aspect one of the key to the digital ecosystem. Differently assessing the current level of success of such a business model, no one doubted the prospects of the direction. Much attention was paid to the topic of personalization of services, the development of both B2C and B2B, increasing competition, the distribution of responsibility between platforms and their partners. One of the significant issues for modern business, according to experts, is the choice between creating your own digital ecosystem and embedding it in one of the existing ones. Moreover, ecosystems open to partners, according to experts, have more growth prospects.

Conclusion

Overall, to create, maintain and develop a digital ecosystem, we need big investments, which not every company has. Today, with the rapid development of technology, vivid examples of the effective use of such a model include retail, telecommunications, the information technology industry in the broadest sense, the tourism industry, and, undoubtedly, the government and municipal services provided to the population. It is worth noting that the increase in the number of ecosystems in the industries listed above is associated primarily with the expansion of the opportunities provided by information technologies for the B2C sphere. It is definitely necessary to support any business that makes a product more valuable, improves the quality of a product or service. It is too early to regulate tariffs, but in the long term three to four years some kind of monopoly regulation should appear so that businesses are not absorbed by giants. It is very important that as many of our ecosystems appear on the domestic market as possible and that profits do not flow to the side of expats.

References:

1. (2019). Digital ecosystems of Moscow. Research through ICT.MOSCOW platform in collaboration with The Department of Information Technologies of Moscow. May, 2019. –pp. 11-12,18, 22, 29.
2. (n.d.). Retrieved from https://ict.moscow/projects/ecosystems/
3. (n.d.). [E-resource]: Retrieved from https://dbootcamp.org/resources/glossary/
4. (n.d.). [E-resource]: Retrieved from https://en.wikipedia.org/wiki/Digital_ecosystem
5. Reingold, L.A., Volkov, A.I., Kopaygorodsky, A.N., & Pustozerov, E.Y.. (2016). Semantic interoperability in solving financial problems and ways of measuring it. Applied Informatics, №4 (64), Vol. 11, pp.115–134 (in Russian).
6. Zaino, J. (2016) *Banking on FIBO: Financial institutions turn to semantic standard. DATAVERSITY* (October 2016). Retrieved from http://www.dataversity.net/banking-fibo-financial-institutions-turn-standard-value-compliance/