Assessment Indicators of Company's Ecosystem Development Level

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Abstract: In recent years, ecosystems have been actively introduced into management practices. Ensuring business growth is one of the most important tasks. Therefore, there is a need to assess the level of their development. Although with the steady growth of the population itself this phenomenon is poorly studied and to date there are no unified methods for assessing the level of the firm's ecosystem and their indicators. Based on the analysis of scientific literature, the authors propose a list of indicators that will help to assess the level of development of the firm's ecosystem.

1 INTRODUCTION

Currently, ecosystem longevity is decreasing, but there is a dynamic development of value in successful ecosystems. The survival of an ecosystem tomorrow is not guaranteed by its reputation, age, or size (Kogdenko V.G., Mel'nik M.V., 2017).
This raises the need to assess the level of development of a firm's ecosystem.
In theory and in practice, there are no recognized unified methods of quantitative assessment and quality indicators of business ecosystem participants, but it is clear that should be determined by the collective governing body and it depends on the specifics of each ecosystem participant (Kafiyatullina Yu. N., 2022).
The purpose of this study is to develop a system of indicators for assessing the level of development of the firm's ecosystem.

2 FEATURES OF THE COMPANY'S ECOSYSTEM DEVELOPMENT

The ecosystem of a firm means the space of economic relations not only with suppliers, consumers and competitors, but also with the authorities, media, universities and scientific organizations - all structures that in one way or another affect the economic activity of the company (Plahin A.E., 2022).

The attractiveness of a company's ecosystem is determined by its capabilities for products and services. A company's ecosystem includes a number of stakeholders, including private sector producers and suppliers, consumers of goods and services, and public sector regulators.

Most key actors are focused on changing internal processes to adapt to the dynamics of the ecosystem. The roles of firms in the ecosystem are unstable, one not entirely stable configuration is replaced by another, forcing firms to change, otherwise ecosystem participants will not be able to see the signs of emerging opportunities in a timely manner (Popov E., 2022).

The existence of an ecosystem requires several factors that characterize its effectiveness: participants, structure, competitiveness, interaction and strategic choice.

A firm's ecosystem cannot exist without participants, an unstructured approach can damage its investment and profitability climate, without competition, both internal and external, ecosystems become monopolies, which is illegal in a number of countries and hinders the development of the entire industry (Mihajlov N.V., 2022).

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A firm's ecosystem goes through several levels of development. After passing through all levels, the firm's ecosystem is formed.

At the initial stage, there is a low level of interaction between new firms and other participants in the firm ecosystem. Next, a leader emerges in the firm ecosystem who can deeply develop the system and lead other participants.

In the next stage, the territory expands and the level of communication between new companies and other ecosystem participants increases. The level of recycling of resources increases, with new resources appearing both outside and inside the ecosystem.

Then there is a high level of interaction between ecosystem participants, strengthening positions. New sources of income come from outside. The ecosystem leader closely monitors other participants.

In the next stage of ecosystem development, the relationships between firms weaken and the recycling of resources within the ecosystem stops. If the firm's ecosystem fails to control new innovations and adapt to the requirements of the business environment, this may be the last step in the development of the ecosystem.

The "self-renewal" phase is based on the continuous enrichment of knowledge and technology. This phase occurs when the development of new ecosystems and innovations is threatened. Ecosystem development plays a vital role in long-term success and self-renewal (Popov E., 2023).

Stakeholders are present throughout the firm's ecosystem.

The very concept of "stakeholder" has evolved over time. Today's stakeholders are not secondary and subservient market participants. Stakeholders are active groups or individuals who can effectively influence the firm's ecosystem, having a significant impact on the solution of the main production issues: what, how and for whom to produce.

As for the development of stakeholder management in Russia, it should be emphasized that progressive and successful organizations in Russia continue to pay special attention to their stakeholders (Kupreeva V.V., 2021).

According to the premise of the stakeholder concept, it is necessary to establish, maintain and develop relationships with all stakeholders regardless of their importance (Sheresheva M.Yu., Palt M.M.,2014).

The development of the concept of stakeholders is a concept of shared values, which justifies the need to improve organizational competitiveness of an individual by contributing to the well-being of the organization by improving the economic and social conditions for the survival of these particular communities (Kogdenko V.G., Mel'nik M.V., 2017).

Stakeholders include organization owners, employees, customers, clients, partners, competitors, investors, government agencies, media and civil society institutions. The needs of a company and its stakeholders do not always coincide, and therefore there are relationships that require leadership. In today's world, organizations are aware of the need to build strategic, transparent, convincing, stable and mutually beneficial relationships with stakeholders.

Thus, it is the creation of such relations that forms the business reputation of the organization, which is the most important intangible resource (Kupreeva, V.V., 2021)

Internal and external stakeholders are distinguished in the ecosystem of the firm. Internal stakeholders include owners and employees of the company. External stakeholders include counterparties, consumers, government, mass media. Sometimes the interests of stakeholders do not coincide, but they are forced to interact according to certain rules.

The multiplicity and conflicting nature of stakeholders makes it difficult to develop a holistic, integrated approach aimed at maximizing the well-being of participants (Harin A.G., Gareev T.R., 2014).

Methods for assessing the firm ecosystem can be categorized into three groups:

1) Analytical type
2) Structural type
3) Matrix type

The analytical method is the most applicable for the formation of indicators for assessing the development of the firm's ecosystem. This method includes indicators for assessing economic efficiency and assessment of stakeholder groups.

Currently, there is no system of indicators for assessing the level of development of the firm's ecosystem. This article proposes to consider the indicators for assessing the level of ecosystem development.

3 THE RESEARCH PROCEDURE

The object of the study is the ecosystem of the firm. The subject of the study is economic relations on the assessment and management of the development of the firm's ecosystem.

The information base is scientific articles on the subject indexed in the RSCI database for 2015-2023

and author's developments on the evolution of the content of the firm's ecosystem.

Research algorithm: criticism of previous studies, problem formulation, development of the author's system of indicators for assessing the level of development of the firm's ecosystem, identification of advantages and disadvantages of the author's system, formulation of theoretical and practical significance of the results obtained.

4 INDICATORS FOR ASSESSING THE DEVELOPMENT OF THE COMPANY'S ECOSYSTEM

This paper considers elements of the firm's ecosystem as indicators for assessing its development.

The customer is a key link in modern economic society. It is the customer who chooses a product based on his own taste preferences, advertising, and imported advice (Kupreeva, V.V., 2021).

Partners in turn help to create conditions for the realization of products and satisfaction of customer's needs. Table 1 presents such elements as customers and partners as the most important components of the firm's ecosystem.

Table 1: Indicators for assessing the development of the firm's ecosystem.

Ecosystem element	Evaluation indicator	Essence of the indicator
Analyzing potential and existing partnerships (Bereza O.V., 2022)	A general model for integrated economic analysis of ecosystem performance	The formula is used to calculate a generalized quantitative indicator of the effectiveness of partnership relations: $E_s=\sum_{i=1}^{n}(V_i*R_i)$ where Es-a generalized indicator of the effectiveness of partnership relations in the banking ecosystem, score; Vi - ballot evaluation of the i-th efficiency indicator, score; Ri - significance of the i-th indicator in the general system of indicators of partnership relations definition efficiency; n - total number of characteristics.
Customer lifetime value (Tkachenko S.N., 2020)	A measure of a customer's lifetime value, calculated in terms of services and the ecosystem as a whole. in terms of services and the ecosystem as a whole.	The indicator is calculated using the formula: $CLV = t \cdot c \cdot f$, where t is the duration of interaction with the customer; c is the average price of customer purchases during the interaction; f is the frequency of purchases per unit of time. The key parameter affecting loyalty is the time of interaction between a company and its customer.
Intersubject linkages of ecosystem participants (Plahin A.E., 2022)	Assessment of intersubjective relationships of ecosystem participants	First, the specificity of relationships between ecosystem participants is determined, which determines their interdependence, taking into account the resource potential of each partner. Then the form of coordination of interaction between ecosystem participants is assessed. After that, the correspondence between the form of coordination of interaction between ecosystem participants and the interdependence of ecosystem participants will be determined.
Assessments of compliance of the actual results of the industrial	Integral indicator calculated on the basis of the proposed scales of	The assessment of the potential of each actor (PA) depending on its role in the ecosystem can be represented by an integral value containing the

ecosystem actors' activities with the target settings (Gamidullaeva L. A., 2020)	indicators and preference assessments	following elements:P3i = f (G1i, G2i, G3i, G4i, G5i, G6i, G7i, G8i, G9i), i = 1,..., n, (1) where n - number of ecosystem actors; G1i - production potential; G2i - innovation potential; G3i - intellectual potential; G4i - human resource potential; G5i - financial potential; G6i - technological potential; G7i - project potential; G8i - resource potential personnel potential; G5i - financial potential; G6i - technological potential; G7i - project potential; G8i - resource potential; G9i - managerial potential.

Currently, there is no clear position on the method and direction of analysis in the study of partners. Some authors emphasize only financial analytical indicators as the most important ones. However, another part of the authors are of the opinion that it is also necessary to pay special attention to qualitative indicators that determine the type of activity, the company's position in the market and its business reputation.

To analyze partnerships, the author Bereza O.V. proposes to use the following indicators:

- analyzing the dynamics of business partnerships;
- analyzing the structure of partnerships;
- analyzing the permanence of partners;
- analyzing partnership risk and the share of the market segment belonging to the partner;
- loyalty analysis (level of satisfaction with cooperation);
- analysis of financial results of work with partners (Bereza O.V., 2022)

Determining the overall performance indicator of a partnership requires calculating the importance of its elements. This requires expert judgment to establish the relevance of each overall performance indicator and determine their impact on the outcome and quality of the partnership.

In assessing the lifetime value of a customer, the key parameter that influences loyalty is the duration of the interaction between the firm's ecosystem and its customer. The duration of this relationship is influenced by financial and non-financial factors (Tkachenko S.N., 2020)

When assessing the intersubjective relationships of ecosystem participants, it is necessary to take into account the organizational features of functioning, ways of coordinating the interaction of ecosystem participants and indicators characterizing additional synergistic effects. At the end of the assessment, a complete picture of intersubjective interaction for all ecosystem participants is formed and it becomes possible to manage such a complex management object as an ecosystem with a multi-subject structure (Plahin A.E.,2022).

It should be noted that ecosystem actors are not permanent players in the ecosystem. Actors can try on different roles in different projects, as the ecosystem is dynamically developing and changing depending on the life cycles of implemented projects.

To assess the compliance of ecosystem actors' activities with the target parameters and actual results, we can use an integral indicator calculated on the basis of planned indicators and evaluation parameters (Gamidullaeva, L. A., 2020).

5 THE IMPACT OF THE COMPANY'S ECOSYSTEM DEVELOPMENT ON BUSINESS EFFICIENCY

Efficiency assessment not only reflects the calculation of specific quantitative indicators reflecting the ratio of results to costs, but also reflects the reserves of economic growth, certain forms of progressive qualitative changes (Kokujceva T.V., Ovchinnikova O.P., 2021).

Economic efficiency refers to the relative value determined for the obtained resource using the coefficient of the final result (Yakovleva A. K., 2019).

Evaluate the impact of the development of the firm's ecosystem by conducting a digital transformation performance assessment based on time, labor and financial criteria.

It is advisable to implement a digital transformation strategy in stages (if available) or in phases, taking into account the delayed time lag of the digitalization effect due to delays associated with the release of the workforce.

Assessing the effectiveness of digital transformation of the organization, it is important to develop measures to improve it, identify errors and obstacles in the development of the organization, and find points of growth of the organization. As a result, the competitiveness of the company increases, which

contributes to strengthening its position in the market, as well as increases capitalization and attracts investors for accelerated development (Kokujceva T.V., Ovchinnikova O.P., 2021).

An important factor in the development of a firm's ecosystem is the interaction of its participants. Each participant must cooperate with others to increase the overall return on the services provided (Mihajlov, N.V., 2022).

6 CONCLUSION

Ecosystem development in Russia is still much slower than abroad. Timely assessment of the level of ecosystem development contributes to increased competitiveness in the market and reduces the likelihood of premature "death" of the firm's ecosystem.

In the process of developing a firm's ecosystem, it is very important to develop a positive outlook in the process of interacting with the customer. This requires taking into account the behavior of multiple users based on statistical data. Also, analyzing the partners of the firm's ecosystem allows for the formation of an ecosystem image that helps improve competitiveness and increase customer loyalty, which helps accelerate sales and increase sales. A strong ecosystem image also improves stakeholder relations (government, media, etc.) and contributes to investment attractiveness.

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