Improving the methodology of business analysis based on the stakeholder approach, taking into account the development of the quaternary sector of the economy and informatization of the company's business model

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Abstract. The article presents proposals for improving the research areas of the company's ecosystem, analyzing the information component of the business model, assessing growth opportunities. A methodology for analyzing the company's ecosystem has been developed, which includes five stages. It is noted that the developed methodology makes it possible to assess the company's activities based on the stakeholder approach, taking into account the economic sector to which the company belongs.

Keywords: ecosystem, stakeholders, economic sectors, business model informatization, business analysis.

At the current stage of economic development, changes are taking place in the business environment associated with the digitalization of technologies, the accelerating growth of the Quaternary sector of the economy and, in general, with the transition to a digital economy, in which digital data is a key factor of production in all spheres of socio-economic activity. A feature of modern business is also the fact that it is to a much greater extent than before, associated with the external environment. Researchers believe that a modern company must constantly look outside - not least in order to timely identify rapidly approaching threats from new technologies and competitors [1].

In modern analytics, companies should be viewed as complex adaptive systems that evolve constantly and in a difficultly predictable manner [2], which complicates forecasting cash flows and assessing the future state of the company.

All this necessitates the development of business analysis, namely, the formulation and solution of the following tasks during the analysis: study of the company's ecosystem, its business environment, stakeholders, the types of capital supplied by them and the risks associated with them; assessment of the transformation of the company's business model towards the inclusion of information resources and technologies; study of business development opportunities [3, p. 1879].

The modern direction in business analytics combines the features of a stakeholder approach in terms of identifying the interests and capabilities of business-related persons, elements of a resource approach and analysis of integrated reporting in terms of researching types of capital supplied by stakeholders, as well as elements of value-based management in terms of modeling the future state. the company, including its cash flows to assess the value created and value for all stakeholders.

The changes in the analysis are associated with changes in the goal setting of the business. Thus, the maximization of short-term profits and the efficiency of using material resources was replaced by the maximization of business value within the framework of value-oriented management. In modern conditions, the key goals of business are to create intangible types of capital, maximize value for all stakeholders and ensure "long-term viability", business survival in an unpredictable information environment [4].

In addition to assessing survivability, the modern concept of analysis should include the study of business opportunities in creating value for stakeholders, in the development of the entire business ecosystem, that is, the aggregate wealth of all persons involved in the company, and not just maximizing the wealth of shareholders. This approach significantly changes the concept of analysis: the emphasis is shifting in the direction of moving away from the proprietary concept to identifying significant stakeholders, their needs, opportunities and risks associated with them.

The development of the concept of stakeholders is the concept of common values [5, 6], which substantiates the need to increase the competitiveness of an individual company simultaneously with an increase in its contribution to organizational wealth, with an improvement in the economic and social conditions for the existence of those specific communities in which it operates [7]. Researchers emphasize the role of this concept for the development of the world economy, considering the efforts of business to make a profit, helping society to solve its problems, as a factor of such growth [8]. Within the framework of this concept, companies strive to be a source of value not only for shareholders, but also for society as a whole.

The implementation of the updated concept of analysis is carried out in the course of the following stages [3, p. 1880]:

1) establishment of the economic sector to which the company belongs, in order to identify the ecosystem and business environment of the company, identification of key stakeholders, types of capital supplied by them and associated risks;

2) analysis of the types of capital that a company needs regardless of the sector of the economy, namely, organizational, financial and social and reputation capital, including its market and social components. Analysis of those types of capital and that group of stakeholders that are key for each individual company belonging to a specific sector of the economy;

3) analysis of the company's viability, risks associated with the types of capital used and the stakeholders that supply them. Analysis of the balance of interests of different groups of stakeholders, identification of those stakeholders whose interests are priority for the company;

4) analysis of the information component of the business model, identification of signs of the company using new approaches to doing business, attributes of exponential organizations [1], which can dramatically increase efficiency and survival, regardless of the sector to which it belongs;

5) a comprehensive assessment of indicators of the company's value for stakeholders.

Key aspects of the analysis are presented in fig. 1.

During the first stage, the company's ecosystem is identified, relationships with stakeholders are investigated. The composition of stakeholders is determined taking into account the sector of the economy to which the company belongs.

In accordance with the theory of the sectoral structure of the economy [9, 10], three sectors were initially identified in the economy: primary (extraction and processing of raw materials into semi-finished products, agriculture), secondary (industrial production, construction) and tertiary (production services and human services). Further, the "knowledge economy" was identified (the term was introduced into scientific circulation by Fritz Machlup in 1962) [11] and the quaternary sector was identified, which includes industries related to information, computer and other new technologies, that is, information economy companies [12].

Currently, the development of the Quaternary sector is characterized by such attributes as cloud computing, Big Data, predictive analytics, the Internet of Things, cyber-physical systems in production, etc. [13]. Experts note a noticeable increase in the share of the tertiary and quaternary sectors in total production [14].

The second stage analyzes the types of capital that a company needs regardless of the sector of the economy, as well as those types of capital that are key for each individual company belonging to a particular sector of the economy. Also at this stage, the financial condition of the company and indicators of its development are assessed.

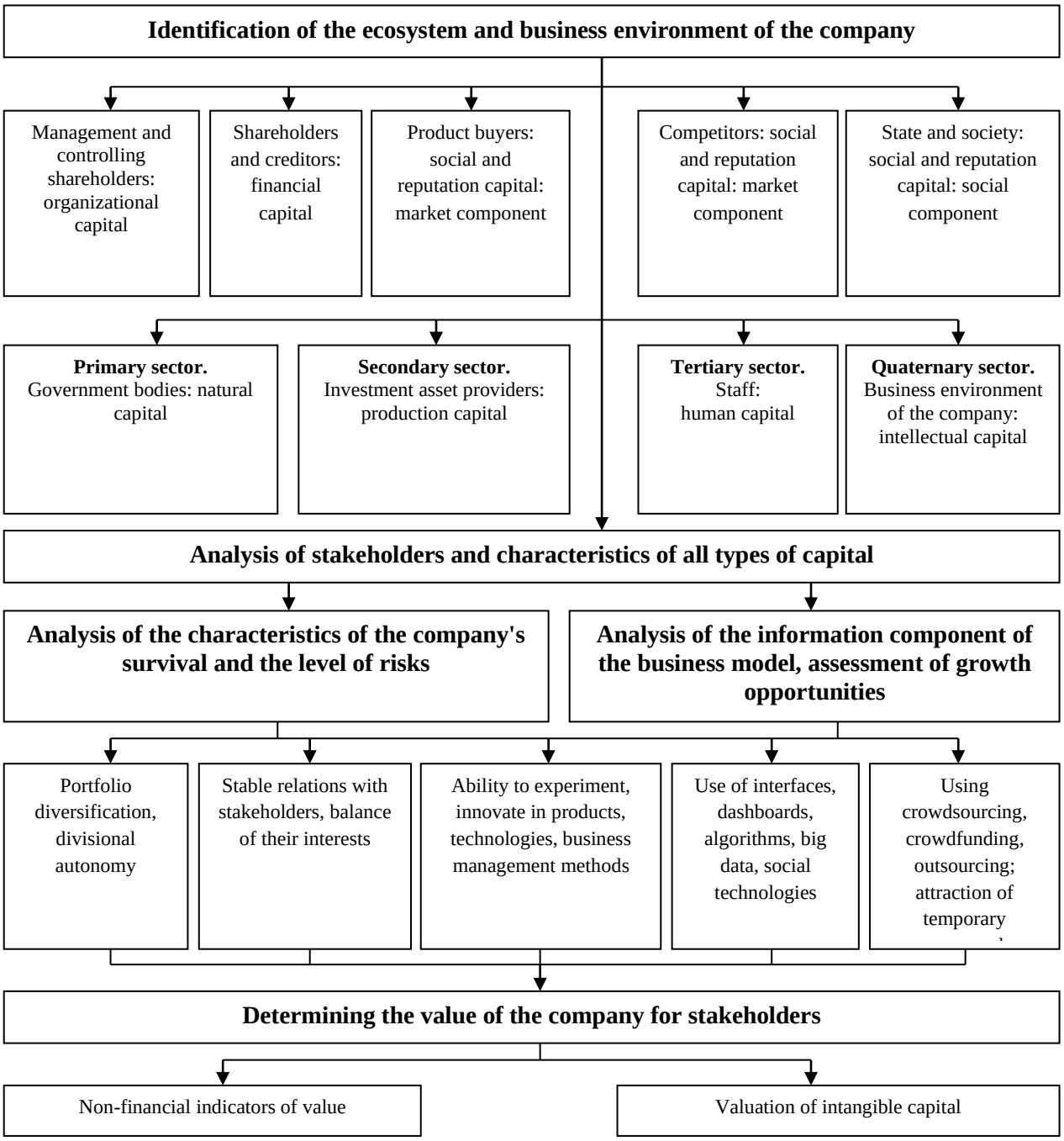

Fig. 1. Block diagram of the analysis of the company's ecosystem (Author's development)

It should be noted that the importance of information and digital technologies for all sectors of the economy leads to the fact that data are beginning to be perceived as a new factor of production [15], therefore experts distinguish another type of capital - digital capital (intangibledigital assets) [16], which is information-based intangible assets, including big data and how it is processed and applied. At this stage, this type of capital is considered as part of the intellectual capital, but in the future, it is likely to be transformed into a separate type,

especially since it has fundamental properties of capital, in particular, the ability to generate income in the form of information and innovation rent [17].

The analysis of companies in the Quaternary sector of the economy has not been sufficiently developed, since the need for development appeared not so long ago and intensifies as such companies emerge and develop. The complexity of the analysis is associated with the need to assess the ability of a company to generate, process and effectively use information based on knowledge, since this is what their productivity and competitiveness depend on [18]. Therefore, the key algorithm for analyzing companies in the Quaternary sector of the economy is the analysis of product, technological, marketing, organizational innovations, that is, the analysis of the renewability of the business model.

Thus, it is necessary to formulate the concept of analysis, taking into account the types of capital that are significant for the analyzed company and critical stakeholders, whose interests determine the development trajectory and strategy of the company, as well as analyze those types of capital that are significant for each individual company. In the course of the analysis, the financial condition of the company should be assessed (in the analysis of financial capital), as well as indicators of the development of all types of capital provided by stakeholders, in particular [3, p. 1883]:

- availability of capital in quantitative and value terms;
- capital movement, assessed by indicators of inflow, outflow;
- the condition of the capital, its qualitative characteristics;
- productivity, capital efficiency;
- risks arising from the use of capital;
- the value of capital for a company, which consists in the ability to provide sustainable competitive advantages at the expense of capital;
- the value (attractiveness) of the company for the stakeholders supplying capital.

At the third stage, the signs of the company's survival are investigated, the risks associated with stakeholders are assessed. The balance of interests of different groups of stakeholders is analyzed, stakeholders are identified, whose interests are priority for the company.

Tab. 1 [3, p. 1890] presents the relationship between the sectors of the economy, key types of capital for them, stakeholders - suppliers of the corresponding types of capital, and those risks that arise when interacting with stakeholders. In the process of analyzing the level of riskiness of a company, it should be borne in mind that the optimal strategy is not to avoid risks, but to accept them, actively and effectively manage them.

The most important trend in the analysis is the study of how adequately the company adapts to the external environment and manages risks; what is the margin of its strength; how ready she is for change.

Table 1

Interrelation of economic sectors, types of capital, stakeholders and risks

Sector of the economy to which the company belongs	Key type of capital	Stakeholders	Company risks in relations with stakeholders
Types of capital for companies in all sectors of the economy			
All sectors of the economy	Organizational capital (as part of intellectual capital)	Controlling owners, management	Strategic risk associated with errors in defining the company's goal and strategy. The risk of abuse associated with abuse of office
All sectors of the economy	Financial capital	Investors, lenders	Liquidity risk associated with debt burden. Market currency risk associated with unfavorable changes in the exchange rate of the borrowed capital. Market interest rate risk associated with unfavorable changes in interest rates for which borrowed capital is attracted
All sectors of the economy	Social and reputation capital (market component)	Consumers	Reputational risk associated with a decrease in the number of buyers. Market risk associated with adverse changes in product prices. Credit risk associated with default by buyers
All sectors of the economy	Social and reputation capital (market component)	Competitors	Market risk associated with unfavorable changes in product prices due to the actions of competitors. Reputational risk associated with a decrease in the number of buyers due to the actions of competitors. Risk of obsolescence of products, technologies and loss of the market due to the emergence of innovations from competitors
All sectors of the economy	Social and reputation capital (social component)	State. Society	Country and regional risks associated with the political and economic situation, geographical features in the country and the region. Legal risks associated with changes in currency and customs regulations, tax legislation, etc. Social risk associated with the attitude of society towards the company
Types of capital for a company in certain sectors of the economy			
Primary sector	Natural capital, land	State; bodies granting the rights to use natural capital, land	Legal risks associated with changes in regulation, tax legislation in relation to the use of natural resources, environmental protection, etc. Market risk associated with unfavorable changes in prices for extracted natural resources. Environmental risks associated with environmental pollution
Secondary sector	Production capital	Producer capital suppliers	Market risk associated with unfavorable changes in prices for acquired assets of production capital. Technological risk associated with obsolescence of production capital facilities
Tertiary sector	Human capital	Staff	Social risk associated with the availability, qualifications and remuneration of personnel, actions of personnel, social conflicts. The risk of abuse associated with exceeding

			official authority by personnel
Quaternary sector	Intellectual, including informational, social and reputation capital	Business environment of the company: consumers, suppliers, competitors, government agencies, personnel, management, investors, creditors, society	Technological risk associated with the rapid obsolescence of intellectual property

At the fourth stage, the signs of informatization of the business model are assessed, which ensure business development, including the digitalization of technologies, crowdsourcing of information, the renewability of products, technologies, and business management methods.

In the course of the analysis, it is necessary to assess the company's effectiveness in using new technologies and information capital. For objective reasons, not all sectors of the economy and not all companies are equally capable of development and subject to exponential growth due to the presence of digitized assets that open up access to new user scenarios, partners, ecosystems and business models [1]. Although such opportunities are more available to companies in the Quaternary sector of the economy, companies in the traditional economy (the first three sectors of the economy) should also take advantage of these opportunities.

Information itself, including data on markets, demand, customers, the state of production facilities, competitors, their products and technologies, becomes a source of innovation and new services [15]. Therefore, in the process of analysis, it is necessary to identify signs of the use of information capital, since it not only increases the company's survival, but also its efficiency. According to experts in the field of big data, data is becoming an important corporate asset, a vital economic contribution and the basis of new business models [15]. In the course of the analysis, it is necessary to specifically investigate the attributes of exponential organization, which is understood as the structure that best suits the requirements of the accelerating, non-linear, Internet-connected new world [15]. Such companies, mainly related to the Quaternary sector of the economy, are characterized by explosive growth and high efficiency, based on the use of a new business model, rapidly developing information technologies, crowdsourcing, etc.

Examination of the attributes of exponential organizations shows that some of them are identical to the rules of business survival. This means that companies using information capital have a higher survival rate.

Based on the study of the attributes of the exponential organization and the rules of business survival, the author substantiates the distinctive characteristics of the traditional, linear and

exponential organization (tab. 2). In the course of the analysis, the company should be assigned to one of these types.

Table 2

Comparative characteristics of linear and exponential organization

Characteristic	Linear organization	Exponential organization
The purpose of the organization	Narrow goals within activities	Large-scale, ambitious transformative goals that gravitate towards stakeholders, the entire business ecosystem
Organization tasks	Maximizing financial results, value for shareholders	Survival, development, stakeholder value maximization, social and environmental goals
Development	Consistent, stable, linear development, inflexibility in activities due to large material assets and permanent staff	Non-linear development: exponential growth, highly adaptable, mobility, flexibility through innovation, intangible capital and crowdsourcing
Key types of capital	Natural, industrial, human	Intellectual, including informational, social and reputational, human
Resource usage	Own resources, mainly material	External resources, crowdsourcing, minimal ownership of material resources, their use on a temporary basis. Key Resources - Intangible
Source of innovation	Internal sources	Business environment, stakeholders
Power	Centralized power and control	Distributed power and control
Organizational structure	Linear-functional, hierarchical, matrix, capable of controlling tangible assets and managing personnel, top-down management principle	Flat, the control principle is based on maximum autonomy; flexible structure capable of motivating stakeholders to innovate, accumulate and transform external information in the interests of stakeholders
Risk attitude	Risk aversion	Risk taking
Sectors of the economy	Primary, secondary, tertiary	Quaternary, selected companies in the primary, secondary, tertiary sectors
Staff	Stable staff	Focus on temporary staff recruited based on changing business needs
Marginal cost	Substantial	Strive for zero
Principle of operation	The law of diminishing returns	The law of accelerating returns
Contacts with stakeholders	Formal contacts	Close contacts, especially with consumers, crowdsourcing of information and ideas

Source: author's development

At the fifth stage of the analysis, the indicators of the company's value for all stakeholders included in the company's ecosystem are investigated, and the value of the company's intangible capital is estimated.

The most important stage of business analysis is the study of the company's value for stakeholders. The value should be sufficient to develop stakeholders and improve the capital supplied to the business, as well as to ensure that they do not have an incentive to withdraw capital and channel it to another business. To fulfill this condition, the value provided by the company to its stakeholders must exceed the possibility of alternative use of resources. Therefore, a successful company must channel part of the economic profit to stakeholders.

To analyze the value of a company for various groups of stakeholders, identify dominant stakeholders, as well as determine the most significant types of capital, a resource-based approach to analysis is used [19], according to which the company's resources and capabilities are the source of its sustainable competitive advantages. The high value of resources for a company should stimulate their adequate payment, therefore, to determine the most valuable and significant resources, resource intensity indicators are studied, calculated on the basis of company payments directed to pay for the types of capital raised.

The value of intangible capital is the capitalized deviation of net income before interest from the level determined based on the average market return. A positive value of the indicator indicates the effectiveness and value of intangible capital; negative - about negative organizational capital, that is, about ineffective business management. A high value of value is possessed by those companies that are characterized by effective organizational capital provided by management and controlling shareholders, have valuable social and reputation capital due to a high level of stakeholder trust, own intellectual property, and use information capital in their activities that ensures high efficiency and stimulates growth.

Thus, in modern economic conditions, the concept of business analysis must constantly transform. This implies a study in the course of analyzing the entire ecosystem of the company and its business environment, including both the types of capital and stakeholders that supply them that are common for companies in all sectors of the economy, and the types of capital that are critical for individual sectors of the economy, as well as the stakeholders supplying them. In a modern economy, analysis is impossible without assessing the prospects for business survival and risks associated with certain types of capital, researching trends in business digitalization and the effects that accompany these processes. Also, the analysis should investigate the value generated by the company for all stakeholders, which leads to multi-criteria in assessing the company's performance. The study of all these aspects provides an understanding of not only the current state of the business, but also the prospects for its survival and development.

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