

ICEST 2020
**International Conference on Economic and Social Trends for Sustainability of
Modern Society**

**FEATURES OF VALUE APPROACH IMPLEMENTATION IN
DIGITAL ECONOMY PROJECTS**

G. F. Kayachev (a), D. A. Loktionov (b)*, A. S. Pesegov (c)

*Corresponding author

(a) Siberian Federal University, 79 Svobodny, Krasnoyarsk, Russia, GKayachev@sfu-kras.ru, +7(902)941-0340.

(b) Siberian Federal University, 79 Svobodny, Krasnoyarsk, Russia, david@promarket.one, +7(913)534-09-50

(c) Siberian Federal University, 31 Uritsky St., Krasnoyarsk, Russia, metallurgkras@mail.ru, +79632614307

Abstract

In the modern world, there is a transformation of market interaction. Traditional forms of business organization are being transformed and adapted into a digital environment. In this regard, the roles of organizations, stakeholders and all subjects of market relations are changing. There is a transformation of the market entities interaction functions and new prerequisites for the concept of value management implementation are being formed. The value approach extends to classical organizations and platforms as economic entities, creating new requirements for managerial tools. The role of the information resource, the positive and negative aspects of increasing its value are described. The article demonstrates the transformation of the role of value creation actors on the example of digital economy projects and analyses the main stages: identification, creation, and transfer of value. An analysis of non-financial factors as the values and goals of the co-creation of value actors is made. A model of creating value in the course of two or more actors interaction is given. An example of a project implemented in the Russian Federation as part of the Digital Economy program is considered. Conclusions are drawn about the features of creating value in projects implemented in the digital economy, as well as about the possibility of applying the described approach in strategic, innovative and project management.

2357-1330 © 2020 Published by European Publisher.

Keywords: Project value, digital economy, non-financial factors, social responsibility.



This is an Open Access article distributed under the terms of the Creative Commons Attribution-Noncommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Introduction

The transformation of modern business in the form of the emergence of organizations embedded in the digital environment that implement online services on certain platforms in various segments of the economy has actualized the problem of value and assessment of effects for various stakeholders. Digitalization removes the constraints of spatial development and networking for businesses (Tapscott, 1994). The main trends in the tools of modern business (automation of operations through the introduction of robotics, artificial intelligence technologies, smart contracts, advanced analytics, blockchain, monetization of investments in IT technologies, digital financial assets) created the prerequisites for platform solutions. At the same time, the digital platform is turning into a special business model that creates value for various stakeholder groups, facilitating exchanges between two or more interdependent groups of participants. At the same time, there is a digital transformation of the basic functions of the interaction of market entities, and prerequisites are being formed for introducing the concept of value management in three key areas: maximizing value for business owners, effectively taking into account the interests of participants, and developing social responsibility of stakeholders.

The modern stage of the life cycle of digital platforms can be represented as the stage of generating market institutions in a new reality. Of course, this is not a competitive environment, there are no signs of a full-fledged market for digital platforms, especially the trend towards its monopolization. However, we see a new type of market organization on online platforms, where the value of interaction for each group of agents increases with the number of participants from the opposite group. The digital platform internalizes a variety of network effects in its operations.

However, it must be borne in mind that the value for contractors of a digital platform can be limited as a critical user base is created and when the platform itself begins to act as an entity that monetizes transactions and sells information opportunities, which, as the authors note, undoubtedly represent one of the most valuable resources in a new reality (Garifova, 2015; Regazzi, 2013). Consequently, the value approach extends not only to companies participating in the platform, but also to the platform itself as an economic entity.

2. Problem Statement

A new approach to the organization of socio-economic relations stimulates business to change the traditional management paradigm. There is a need for business to modify management tools. The requirements for it include a variety of factors such as:

- The emergence of the possibility of building new business models based on the capabilities of digital technologies;
- increased need for innovation;
- changing the structure of production, thanks to new opportunities for building global value chains and networked organization of production;
- the increased role of environmental and sociocultural factors.

The most important element of modern management tools is the value approach in the design activities of companies. The modern interpretation of the concept of "value" involves taking into account the interests of all interested parties, the effects for various economic agents. An analysis of the evolution of the value approach shows a steady trend of taking into account non-financial factors and socio-economic effects in the design activities of companies (Kayachev & Loktionov, 2019).

3. Research Questions

- What features are inherent to the subjects of functioning in the digital economy?
- How are management tools transformed under the influence of the value creation concept as one of the main factors of interaction between economic entities?
- How has the influence of non-financial factors on the activities of economic entities in the digital economy changed?

4. Purpose of the Study

To identify the features of creating value, based on the analysis of the stages of creating value by subjects, in projects implemented in the context of a digital economy formation in the Russian Federation.

5. Research Methods

Although financial indicators based on methods for evaluating the effectiveness of investment projects (NPV, DPP, IRR, PI) may be positive, they cannot fully account for the role of non-financial factors (Zamlely & Yu, 2014). At the same time, social and environmental factors not only affect the company's performance and competitiveness, but also are an additional tool for internal management (Blagov, 2017). In other words, additional motivation for company management may include indicators related to non-financial aspects (Kostin, 2015). Therefore, decisions in the field of non-financial activities of the company are made by all interconnected levels of corporate governance: company owners, boards of directors and management (Bataeva & Kozhevina 2015).

From the position of the role in investment activity, the influence of non-financial factors is different. In modern studies (Kayachev & Pesegov, 2019), 4 groups of non-financial factors are distinguished by the degree of influence:

- 1) act as a hard limiter: investing in a project is undesirable, as this contradicts the principles of corporate social responsibility;
- 2) have an avoidable negative effect: the investor needs to make additional financial investments to overcome the negative non-financial effect, or this negative effect may be insignificant, which does not require the need to raise additional funds;
- 3) do not affect the investment process;
- 4) can bring positive effects, both for the investor and for other stakeholders.

The influence of non-financial factors in digital economy projects is significantly different from their influence in traditional projects. Previously, the influence of non-financial factors was limited to the region and the interests of local stakeholders. In the case of “digital” projects, there are no clear boundaries of influence, since often, their scaling up to other regions or countries does not require significant investments, and representatives of different countries and cultures can participate in their implementation. In connection with the implementation of digital projects, the ways of assessing the influence of non-financial factors are changing. In this case, the main focus in assessing non-financial effects is directed at two elements (Khallaf, 2012):

- 5) improving the operating activities of the company (improving the work of business processes);
- 6) the satisfaction of new customer needs (to a greater extent associated with comfort and innovation).

Non-financial aspects in the projects of the digital economy determine the features of the value approach in the digital environment implementation. In particular, it is necessary to highlight:

- 7) strengthening the role of the client;
- 8) the growing role of human interaction and artificial intelligence;
- 9) features of the process nature of value creation.

The process of creating value can be divided into three stages: identification of value, value creation and transfer of value (Figure 01). If in the theory of stakeholders, the company, as an entity, determines the needs of stakeholders and creates a plan for the harmonious creation of value for all of them, then in the concept of joint value creation, thanks to modern technologies, stakeholders act as an equal actor. At the stage of identifying values, each actor - the company and the client, form their own value goals. At the stage of creating value, the actors exchange their value propositions and if each of the parties can solve its goals through the proposal of the actor and if this is supported by trust, then the process of creating and delivering the value takes place.

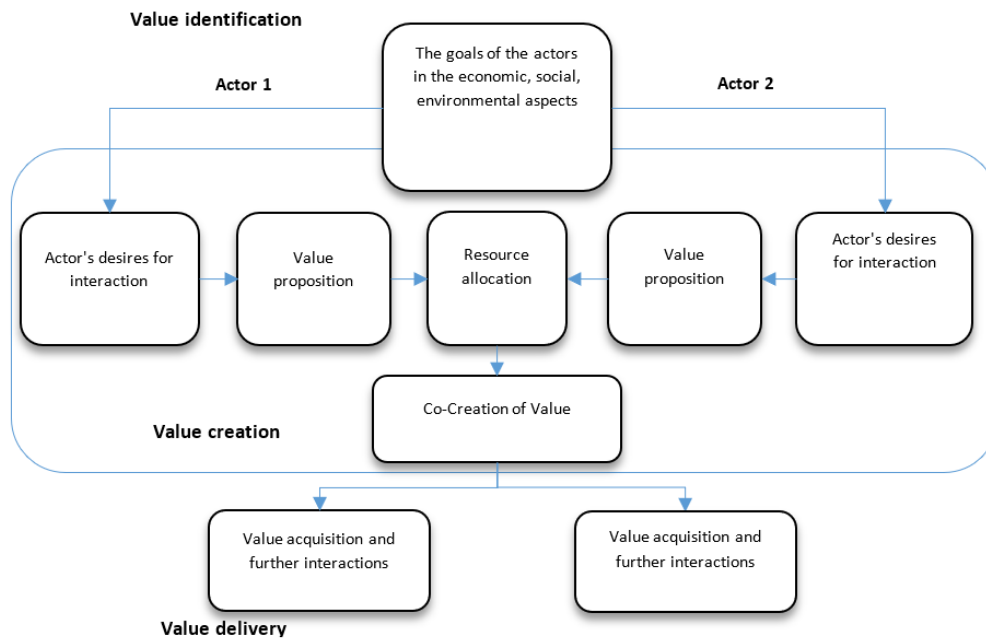


Figure 01. Co-creation model of value (based on Taylor et al., 2019)

An example of such interaction is the modern form of a business model related to sharing – joint usage of resources (Zemskova, 2019). For example, registering a client in a new car-sharing service (hourly use of a car without purchasing it through mobile applications) in the region. Consider the process of value co-creation by a similar service (Table 1).

Table 01. Stages of creating value using car sharing as an example

Value creation stage	Stage content	Actor 1 - Car sharing company	Actor 2 - client
1 Value identification	Personal interaction goals	Attracting many customers to the system for stable service operation	Getting the benefits of using a personal car without the cost of owning it
2 Value creation	Promotion of value propositions	Comfort, ease of registration and low cost of hours of use, personal offers in the future	Increasing the value of the service due to the fact of its use, feedback and communication of benefits in future social contacts
	Checking the strength of the offer by the resource	Requirement to indicate payment card number during registration	Studying reviews of other customers and car quality
3 Value delivery	Value acquisition and further interactions	Payment for using and increasing the service value for other participants and regular customers	The benefits of a comfortable trip and the opportunity to use the service in the future on personalized conditions

The described technique allows the analysis of a real project - a participant in the state program Digital Economy. Consider the value creation model using the example of a project presented as part of the digital transformation cases in medicine (Zorin & Safin, 2017).

The project is to create a digital processing system for chest x-ray. The solution uses artificial intelligence technology to quickly and accurately analyse medical images of chest fluorography. The system allows to cope with the shortage of specialists who are able to give a qualitative analysis of fluorography in small settlements, reduces the level of use of manual labour, improves the accuracy of research and the quality of these recommendations for the course of treatment. To participate in the project, a medical institution must have fluorographic equipment and pay a tariff of 150 000 rubles per year for one workplace. The results of the analysis of the stages of creating value are presented in Table 2.

Table 02. Stages of creating value on the example of a digital processing system for fluorography

Value creation stage	Stage content	Actor 1 - Service Provider	Actor 2 - Medical Institution	Actor 3 - Patient
1 Value identification	Personal interaction goals	System distribution	Reducing staff costs, improving the quality of services	Improving the quality of medical services
2 Value creation	Promotion of value propositions	Automated analysis system to reduce costs and improve the quality of services	Transfer to the system of real quality data, recognition of the effectiveness of the system	Trust in technology
	Checking the strength of the offer by the resource	Certified fluorographic equipment requirements and rules of procedure	Confirmation of the quality of the system, use by other clinics	Other patient experience
3 Value delivery	Value acquisition and further interactions	Payment for using the system, improving the system based on the data received	Optimization of internal processes, increasing patient satisfaction, prolongation of cooperation	Better service

Note that the project under consideration acts as a platform solution that allows creating value for both the patient and the medical institution. Therefore, the model analyses the stages of creating value for three actors at once. Consider the financial and non-financial results of the project for owners and users of the project. The results are presented in Table 3.

Table 03. Effects from the implementation of the project Digital processing systems for fluorography

Parties concerned	The effect of the project
For the project initiator	<ul style="list-style-type: none">• Reducing the burden on doctors when analysing medical images (chest x-ray) and preparing standardized descriptions - by 25%• Reducing the time for determining a diagnosis, the waiting time for a conclusion due to the high speed of qualitative analysis of one image (1 second), as a result, the timely start of treatment, increasing its effectiveness
For other stakeholders	<ul style="list-style-type: none">• Analysis of chest x-ray is performed remotely using artificial intelligence technology with instant detection of suspected pathological conditions and their labelling without human intervention• The average accuracy of recognition of pathological cells on chest X-ray is up to 91.3% (the number of false-negative results is 8.7%)• Reducing the time for determining a diagnosis, the waiting time for a conclusion due to the high speed of a qualitative analysis of one image (1 second), as a result, the timely start of treatment, increasing its effectiveness

Despite all the advantages of such a value-creating device, the flip side is the asymmetry towards the seller in terms of collecting information. Large service companies collect a huge amount of data about a specific user and have their so-called “digital avatar” on their servers (Fat’yanov, 2017). These data allow, on the one hand, to increase the value of the system: display of more relevant advertisements, recommendations based on behavioural models, personalized tariffs, and services, and so on. Successful analysis of “big data” can serve as one of the main success factors for a modern company (Bannister, 2013; Gretchenko, 2018). On the other hand, services receive tremendous power, including political power (take scandals related to political advertising on Facebook).

Information about each person, including privacy, at any time may become publicly available. Moreover, the real person will become less interested in the new world order. And the value of his twin - "digital avatar" will increase dramatically compromising character. It is a reality now, and in the near future the possibility of detailed tracking of a person’s movements, his purchases, contacts with other people with accurate identification of their personalities, receipt of money and their spending will become a common thing, and on the basis of this - the formation of his psychological portrait, forecasting his intentions and others. Such a digital information portrait of a person will be more detailed and objective than that which a person creates for himself, and they will inevitably come into competition with each other.

The second concern associated with the digital economy is the vector aimed at reducing the number of jobs and reducing the number of necessary professions in society. The transition to the digital economy allows the organization to retain a much smaller number of employees in the company, which is economically beneficial for the company, but can adversely affect society as a whole, creating the problem of unemployment. A similar problem can be illustrated by the numerous strikes of taxi drivers throughout Europe after the launch and development of the Uber service.

6. Findings

The analysis of the creating value main stages has demonstrated the transformation of traditional managerial approaches in the modern digital economy. First, value creation can no longer be seen as a one-way process, from producer to consumer. In modern digital business models, and especially in platform

solutions, value is created in the process of jointly putting forward value propositions by the "seller" and "buyer" and using the resources to achieve them. In the car sharing example considered, the value of the entire system is increased due to an increase in the number of users.

In the example of the digital X-ray fluorography processing system design, 3 equal value creation actors are distinguished, where the system allows medical institutions to replace the expensive and scarce resource of highly qualified personnel, and to patients to improve the quality of the service they receive, achieve some standardization, and exclude the human factor, regardless of where the service was received. At the same time, the system itself is increasing its own value, thanks to the connection of an increasing number of participants. Moreover, unlike traditional projects, where the sale of an additional unit requires the investment of resources in production, in the project under consideration connecting to the system of an additional medical institution will not require direct costs (until a certain point, until you need to increase the capacity of servers, etc.).

Secondly, the importance of non-financial factors as the goals of project implementation in the digital economy is increasing. An example of the development of car-sharing platforms and other resource sharing, in addition to economic benefits, include environmental (reducing the burden on nature by optimizing the use of resources) and social (availability of resources and comfort for wider segments of the population) values. The importance of consumers who act as full-fledged actors with their own goals and ideas in the field of economics, as well as in the social and environmental aspect, is increasing.

Thirdly, non-financial factors should not be considered separately from the subjects of interaction, but in relation to the participants in the interaction within the framework of the created digital platforms. This will allow you to create more relevant forecasts for the development of digital economy projects, including allowing you to identify possible risks, favourable and unfavourable environmental factors.

7. Conclusion

Thus, modern management tools in the planning and implementation of digital economy projects should include models for studying the goals and values of actors. Integration into the management and design tools being developed in recent decades by stakeholders models, corporate social responsibility, and non-financial factors, as well as the concept of "value" speaks of the transformation of views on the organization and its role in economic relations. The approach described in this article can be applied to any modern organization that operates in a digital economy that pervades modern society. Even traditional companies can theoretically be regarded as platforms where employees and customers act as agents of relationships with their own set of values and goals. Such an approach will allow shifting the managerial focus from the created product to the process of joint value creation. Thus, companies will be able to increase the value of their products in the eyes of consumers and society, increase their competitive position and achieve the goal of sustainable development.

The further direction of research may be aimed at improving the tools of strategic, innovative and project management with the aim of integrating into it the paradigm of joint value creation through the formation of platform business models, instead of the classical approach: seller-buyer.

References

- Bannister, D. (2013). Accounting for the value of (big) data. <http://www.bankingtech.com/147432/accounting-forthe-value-of-big-data/>
- Bataeva, B. S., & Kozhevina, O. (2015). Mekhanizm ocenki kachestva upravleniya nepublichnyimi rossijskimi kompaniyami v interesah gosudarstva i stejkkholderov: postanovka problemy i metodicheskie aspekty [The mechanism for assessing the quality of management of non-public Russian companies in the interests of the state and stakeholders: statement of the problem and methodological aspects]. *St. Petersburg. Bulletin: Basic Research*, 11, 559. [in Rus.]
- Belyaeva, I. Yu. (2016). *Korporativnaya social'naya otvetstvennost': upravlencheskij aspekt* [Corporate Social Responsibility: Management Aspect: Research Report]. Knorus. [in Rus.]
- Blagov, Yu. E. (2017). *Korporativnaya social'naya otvetstvennost': evolyuciya koncepcii* [Corporate Social Responsibility: Evolution of the Concept]. Graduate School of Management. [in Rus.]
- Fat'yanov, A. A. (2017). Bol'shie dannye v cifrovoj ekonomike: cennost' i pravovye vyzovy [Big Data in the Digital Economy: Value and Legal Challenges]. *Economy. Right. Society*, 4, 62-65. [in Rus.]
- Garifova, L. F. (2015). Infonomics and The Value of Information in The Digital Economy. *Procedia Economics and Finance*, 23, 738 – 743.
- Gretchenko, A. A. (2018). Bol'shie dannye v cifrovoj ekonomike: cennost' i pravovye vyzovy [The essence of the digital economy, the genesis of the concept of "digital economy" and the prerequisites for its formation in Russia]. *Scientific and analytical journal "Science and Practice" REU them. G.V. Plekhanov*, 10, 31. [in Rus.]
- Kayachev, G. F., & Loktionov, D. A. (2019). Evolyuciya cennostnogo podhoda v upravlenii kompaniej [The evolution of the value approach in company management]. *Leadership and management*, 4, 397-408. <https://doi.org/10.18334/lim.6.4.41377>
- Kayachev, G. F., & Pesegov, A. S. (2019). Metodicheskie aspekty ucheta nefinansovyh faktorov v ocenke effektivnosti investicionnoj deyatel'nosti kompanii [Methodological aspects of accounting for non-financial factors in assessing the effectiveness of investment activities of a company]. *Russian economic online journal, Moscow*, 4. [in Rus.]
- Khallaf, A. (2012). Information technology investments and nonfinancial measures: A research framework. *Accounting Forum*, 36(2), 109-121. <https://doi.org/10.1016/j.accfor.2011.07.001>
- Kostin, A.E., (2015). KSO v korporativnom upravlenii i ee rol' v razvitii kompanii [CSR in corporate governance and its role in the development of the company]. *Bulletin of the Finance Academy*, 14. [in Rus.]
- Regazzi, J. (2013). *Infonomics and Value Creation in the New Business of Free*. John J. Igi Global.
- Taylor, S., Hunter, G., Zadeh, A., Delpechitre, D., & Lim, J. (2019). Value propositions in a digitally transformed world. *Industrial Marketing Management*, 11. <https://doi.org/10.1016/j.indmarman.2019.10.004>
- Tapscott, D. (1994). *Digital economy*. McGraw-Hill.
- Zamlely, A. Yu., (2014). Finansirovanie investicij s uchetom nefinansovyh faktorov [Non-financial investment financing]. *Modern problems of science and education*, 2. [in Rus.]
- Zemskova, E. S. (2019). Shering kak otrazhenie cennostnyh orientirov potrebitelya v cifrovoj ekonomike [Sharing as a reflection of consumer values in the digital economy]. *Economics and Environmental Management*, 3. [in Rus.]
- Zorin, A., & Safin, A. (2017). Sistema cifrovoj obrabotki flyurografij organov grudnoj kletki [Digital chest fluorography digital processing system]. https://files.data-economy.ru/Reg/RegionCasesR11_10.pdf [in Rus.]