Conceptual Framework for Creating a Digital Business Ecosystem Based on Marketing

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Abstract. The growth of market competition, its transition to regional and international levels, the development of information technologies as well as dramatic changes in consumer behaviour determine the development of global market trends, which necessitates the study of a methodology to form distribution channels, from the viewpoint of digital connectivity and transition to a more complex global system. The paper discusses the conceptual framework for creating a digital business ecosystem as a combination of three components: the consumer’s ecosystem, the producer’s ecosystem and the communicative connecting core. The object of research is a distribution system that operates in a market environment. The research is based on the application of the descriptive-analytical and comparative methods as well as the method of semantic and structural analysis, the method of monitoring the content of terminology in theoretical and applied papers within the chosen field of study. Significant development trends have been identified in the theory of global value chains and supply chains, the strategic goal of which is not to dominate, but to keep the balance that generates added value. The ecosystem formation theory terminology is enriched by introducing the concept of “a digital ecosystem” into the scientific circulation. The role of the consumer as a full participant in the business ecosystem, who is engaged in the process of creating additional consumer value, is determined.

Introduction

The development of the global economy, the growth of outsourcing and intercompany cooperation, the transfer of production and innovation centers to developing countries have contributed to the intensified research in the field of global chains formation.

The structure of product value influences the operation of value chains, reorganizes the distribution systems functioning, allows phased reduction of both fixed and variable costs and facilitates converting products into services. These approaches transform the structure of distribution channels, creating scalable digital ecosystems that reduce marginal costs to zero and, from the economic viewpoint, equalize the supply curve and shift it down.
The paper mainly aims at studying the concept of relationships within the distribution channel basing on the empirical material from domestic and foreign enterprises and in the framework of the theoretical approach presented in the article. To achieve the purpose it is necessary to solve the following tasks: 1) to prove that the marketing aspect is dominant in the evolution of the supply chain management concept; 2) to explore the nature of relationships in the digital ecosystem of enterprises; 3) to determine the direction of consumer engagement into the ecosystem, drawing on the theoretical research base of marketing.

1. Methods

A selective review of two areas of academic writing has been conducted: the value systems creation and the consumer value formation based on marketing of engagement, relationships and value co-creation. Academic publications search has been carried out using the following key databases: Scopus, Web of Science, Semantic Scholar and Research Gate. The analysis is performed using the instruments of the descriptive-analytical and comparative methods as well as the method of semantic and structural analysis, the method of monitoring the content of the terminology of theoretical and applied papers within the chosen field of study. Publications are analyzed using the parameters expressed in the title and the purpose of the article. Using this method, the nature of existing studies in this field, epistemological assumptions and methodological approaches have been determined.

Global value chains are becoming a single complex and comprehensive whole, which requires companies to develop competencies for integrating consumers and partners into interaction within the framework of business models being created, and developing co-competition in the value chain creation in business ecosystems [1]. In this regard, the review of approaches, the key points and development of the global value networks concept and the ways of ecosystem formation are of academic interest.

According to S. Frederick, modern research in the field of industrial organization focuses on how individuals (including companies) are connected, how companies and processes (activities in a chain) are located to each other in the global economy. At the same time, a common element of industry organization research is the use of value chains for the organizational structure of a leading company that owns key assets [2].

On the one hand, global value chain analysis is part of the strategic analysis of the company and allows you to determine the place of the company in the global division of labour and in the process of creating value on an international scale. On the other hand, the value chain analysis allows governments to optimize the institutional environment of the economy, industrial policy and the state regulation policy for domestic markets, stimulating the participation of national companies in the global division of labour and international cooperation.

Within the framework of strategic management, M. Porter introduces the concept of “a value system” as a set of value chains of interconnected suppliers and customers [3].

The value chain analysis can be used to identify the structure and importance (role) of external and internal participants in the value creation process and their activities (types of activities) that directly or indirectly affect decision-making. Conceptual studies of the value chain can also be used to analyze the competitive position of a company (or a geographic location) in a given industry in relation to other companies or locations.

R. Kaplinski and M. Morris have made a significant contribution to understanding the value chain concept in their monograph *Guide for the Study of Value Chains*, for the first time describing an approach to create industrial commodity chains that could be used to analyze both company networks and intra-company networks locally and globally. This conclusion leads to creating macro and micro connections between companies, assuming the presence of connections contained within global, national and local elements of the analysis. “The value chain covers the full range of activities necessary to ensure that the product or service passes the full cycle from the moment of its creation through the intermediate stages of production (including a combination of physical transformations and the contribution of various producer services) to final delivery and disposal after use,” according to the authors [4].
In Russia, research on value chains (the term “added value chain” is also used) has been carried out mainly by economists, such as O. U. Yuldasheva, I. N. Trefilova, O. V. Chkalova, K. S. Nefedev and others, who devoted a number of their papers to empirical studies of the organization and functioning of value chains in Russia.

The global value chain includes the full range of activities that enterprises carry out to produce goods and services, from the creation of the concept to the final use and disposal of the product [5,6]. These activities include manufacturing, distribution, transportation of the product (supply chain) as well as value-added or intangible activities, including research and development, design, marketing and support services.

2. Results and Discussion
Faced with the globalization of business and aggressive competition, modern companies are forced to look for new sources of competitive advantage. At the same time, the focus of the search begins to shift from increasing efficiency by reducing costs (development in this direction has reached a certain limit) towards increasing the supply value for the customer. Thus, the supply chain management sees the formation of marketing competencies associated with increased value for the consumer and creating additional value chains. The need to create additional value, rather than just effective demand support, is determined by the changing role of the consumer in the transaction. The consumer is currently gaining an almost unlimited information access, thus reducing information asymmetry. Various researchers have also stated that, in the chain, companies focus on the end customer [7].

The search for new ways to increase efficiency has led to the emergence and development of a classical approach to supply chain management. Now the marketing vector is one of the dominant directions to develop the concept of supply chain management. The classical approach to supply chain management has logistical roots, so it mainly aims at the economic efficiency of the material flow and, accordingly, of companies. The followers of the marketing approach adhere to a slightly different logic: the ability to effectively reduce costs in the supply chain is exhausted, and a new resource is needed to optimize the chain, and this resource is the value of the final product, jointly created with the buyer involved in the production process.

The marketing approach to supply chain management makes it possible to increase the supply price following an increase in value and requires additional study of this process, which, in turn, should lead to a profound reorganization of the approach to supply chain management. To address this issue, an understanding of the nature of relationships within the supply chain is required.

Connectivity enables a more effective use, transfer and exchange of almost any tool and thing. In the “vicious circle of supply”, even a new stage appears — recycling, due to which the recycled waste plays a new unexpected role [8, 9, 10]. The world of supply chains will be much more reliable if its formation is guided by combining the ideas of the value-based approach, value chain and network, resources and competencies into a holistic view of distribution channels representing the structure of the value chain. Such a structure should combine various types of activities for the creation, production and delivery of value to consumers, as well as determine the partners who are involved in creating value (both core and additional) and form a business ecosystem.

In 1993, J. F. Moor summarized the recent trends in the field of maintaining innovative leadership in the business community, which consists in the use and development of strategic networks to create new values (innovations), and proposed using a new term to describe the approach to forming a business community that develops innovations and new consumer values — “a business ecosystem” [11].

The prospect to introduce the category of “a digital ecosystem” into the scientific circulation is offered alongside with considerations on the possibilities of its application. This is to conceptualize the term “a business ecosystem”, taking into account modern digital contexts for the functioning of enterprises.

What is the difference between an ordinary business ecosystem and a “digital ecosystem”? First, the latter is used to create an environment for the most convenient interaction of many participants in a sector or an industry. Today, it is difficult to give examples of developing or developed
public ecosystems which can be considered digital solutions of business ecosystems. Google, Facebook, Apple and the Alibaba Group are closest to the implementation of this idea; many large companies plan to form such structures in the near future.

Secondly, and even more importantly, digital structures and business ecosystems should automate end-to-end business processes in distribution channels [12]. In this case, the entire process of obtaining products is simplified to sending a single electronic request. It is such automation of holistic business processes with the participation of many counterparties that significantly intensifies economic activity and uses the advantages of the digital structure which becomes possible through the application of information technologies and ecosystem principles.

In order to transform the circulation processes in the new contexts of technological innovation, globalization, turbulent and digital nature of economic development, it is necessary to carry out the activities of the enterprise exclusively by informatization of its organizational and economic instruments and by distributing tasks in business ecosystems, thereby creating a co-competitive digital environment [13]. The current stage in the development of economic relations shows the need to transform traditional distribution systems into more integrated structures, such as digital ecosystems.

A digital ecosystem is an integration of relationships of all participants in the distribution channel, both producers and sellers, other recipients and consumers, based, as a rule, on platform formations, creating optimal value for all actors of the ecosystem, due to digital infrastructure and marketing balancing of value.

Figure 1 presents a model of a digital ecosystem, which consists of three parts: the consumer’s ecosystem, the producer’s ecosystem and the communicative core. The function of the consumer’s ecosystem is to ensure that all the needs and requirements of users are satisfied and to attract them by convenience and functionality. The function of the producer’s ecosystem is to provide support functions, facilitating business and lowering the barrier to entry into it. The digital ecosystem core provides a marketing and communication component, infrastructure needs, the necessary technological basis and innovative potential of enterprises that also implement functionalities for interaction between consumers and manufacturers.
The consumer role in the business ecosystem is determined through the marketing focus of the activities of all ecosystem participants based on customer experience creation and on engagement and value co-creation marketing. The qualitative transformation of the distribution sphere, the strengthening of its role to ensure sustained macroeconomic dynamics and the spread of network forms of interaction among trading participants have led to the replacement of autonomous trading operators and open markets by international and national retailers, to the systematization of communications with the participation of entities representing national and subnational networks that have a growing impact on the level and quality of life [14,15].

The concept of experience incorporated into marketing and consumption is first disclosed by Holbrook and Hirschman (1982) [16]. In academic papers on consumer behavior, the consumer is considered as a rational person making decisions in the information field as part of the trading process. C. Homburg, D. Jozić and C. Kuehnl argue that elements of pleasure, beauty, symbolic meaning, creativity and emotion can enrich and expand understanding of consumer behavior [17]. Technological advance and changes in the lifestyle of a modern individual have led to the emergence of social media and cloud services [18]. Interaction and communication between the individual and society has reached a new level. For consumers, the digital environment is a space where modern individuals communicate...
with friends and relatives, where they look for answers to their questions, make purchases and have fun. On the other side of this environment there is a company that can fully control relations with consumers and see how online communication with consumers affects the process of selling online and offline. Various web analytics tools are available for this, there are different algorithms and methods for data analysis.

Creating value in a relationship embraces customer’s concepts, the company’s ability to respond efficiently to interactions with them, enhancing customer influence, and managing customer value. This can improve performance and its customer-oriented, relative performance (Ramani and Kumar, 2008) [19]. Researchers such as P. Kotler and K. L. Keller also emphasize that the company should focus on the customer (Kotler & Keller, 2006) [20].

The need to engage the customer into the innovation development process has become a prerequisite for the survival of companies in the contexts of one-to-one markets development, where each customer requires a specific product and service, according to D. Elvers and C. Hoon Song [21]. Trade aims at targeting each consumer; according to Prahalad and Krishian [22], these trends will inevitably lead to the creation of a world with coordinates N = 1 and R = G. This concept is applicable to the retail sector and can be applied to the open innovations model. N = 1, means the focus of the trade enterprise on the needs of each individual buyer.

Among Russian researchers on consumer integration in the value creation processes, O. Yuldasheva et al. should be noted for the theoretical and empirical studies of sustainable development values in the consumer behavior of Russian consumers [14]. I. N. Trefilova provides evidence for the mechanism to integrate consumers into the innovation process, offering to engage consumers at each stage of development and implementation of innovations through crowdfunding, testing and focus groups [23].

Studies of the customer experience creation, which results from the interaction between customers and retailers, are not sufficient both in domestic and foreign academic publications [24]. In 2012, S. Rose, M. Clark, Ph. Samuel and N. Khair published their results developing and empirically testing a model of the relationship between the premises and the outcomes of the online customer experience creation based on online store websites and using an international sample of these variables, as well as cognitive and affective components [25, 26]. Issues on innovative trade in goods in the context of the digital environment are addressed, in the framework of the academic school lead by S. G. Bozhuk et al [27, 28, 29].

According to P. C. Verhoef et al., the concept of customer experience creation is holistic in nature and includes customer’s cognitive, affective, emotional, social and physical responses to the seller [30]. This experience is created not only by those elements that the retail outlet can control (e.g., the service interface, atmosphere of the trading process, assortment, price), but also by elements that are outside the retailer’s control (e.g., the influence of other individuals, the purpose of shopping). Customer experience includes general experience, including search, acquisition, consumption, and after-sales experience, and may include several retail channels. This holistic conceptualization of customer experience differs from most studies in the academic literature, which focus on studying the elements of the retail environment that are controlled by the retailer and on how these elements influence specific customer responses.

3. Conclusions

Before the introduction of information technologies, enterprises used to carry out their activity mainly in a physical place: they focused on tangible goods and customer transactions. To attract consumers, enterprises fell into complete dependence on a place, such as a bank branch, a department store, an audience of students in an educational institution and a medical clinic, and on individuals as sales personnel, insurance agents, store sellers, etc.

Sectors of the modern economy, developing at different speeds, are moving into digital space. Their proposals are becoming less tangible, relying more on services and focusing on customers, and business is carried out mainly with the help of computers, mobile devices and applications [30]. Most company executives understand that the success of their business largely depends on how quickly they can adapt
to market requirements and incorporate new technologies into the day-to-day operations of the enterprise.

1. The paper has described the conceptual foundations of forming a new model of a business ecosystem from the perspective of economy digitalization by ensuring the continuous interconnection of process participants, creating value at all levels of the distribution chain.

2. The basic structure of the digital ecosystem has been developed and presented from the perspective of the global approach, the essence of which is to provide the very possibility of direct communication and to facilitate the interaction between the distribution channel participants. This system combines both buyer’s environment and the distribution channel, the core of the system is the connecting element performing marketing functions and providing the communicative component of the interaction.

3. The consumer role has been revealed as a full participant in the business ecosystem. This role is determined by the relevant areas of consumer involvement in the business ecosystem: the concepts of customer experience creation, customer engagement and value co-creation marketing. At the same time, customer engagement marketing and customer experience creation can increase the effectiveness of both operational internal indicators and socially significant ones. The need of each customer for a specific product enables the concept of creating value together with the consumer. It allows enterprises to rationally use their own and public resources as well as to meet customer needs in a more efficient way.

Customer Experience Creation

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