MARKETS ON TRADE SHOW PLATFORM: ASPECTS OF BUSINESS COMMUNICATIONS AND TRANSACTIONS MANAGEMENT

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Abstract
Fall in demand for services of exhibition company operating based on product business model in trade shows segment means outflow of trade shows participants, which is accompanied by reducing in the intensity of transactions between them, decrease in exhibition services value, and deterioration of the company's competitive position. Such phenomena are observed in the Russian exhibition market now. The desire to minimize these negative challenges determines the response in form of searching for opportunities to ensure more effective management of business interactions intensity of exhibition events participants. The purpose of the study is to modify the approach to managing interactions and transactions between exhibitors and visitors of trade shows, bringing the situation in line with current trends of the economy. The methodology of the research is based on two-sided markets and network effects theories, event management and exhibition marketing, logistics approach, and experiences of exhibition activities. All this scientific and practical knowledge helped to justify the expediency of equipping exhibition companies with a "two-sided market" business model. The results of the investigation proved that a two-sided positive cross-network effect occurs at trade shows and that the exhibition platform is nothing but a two-sided market. By analyzing the economic processes occurring in the exhibition ecosystem, it is shown that in a discrete sequence of trade show sessions, the intensification of business interactions and transactions can be achieved by increasing the number of exhibitors and visitors through the model of a two-sided market and positive network effects triggered by subsidizing access to expositions for target visitors. These findings contribute to the development of the applied field of exhibition two-sided markets theory, which assists in scientific support of exhibition market activities. The toolkit, which is recommended, allows managers of exhibition organizing companies to stimulate filling of network market sides and to maximize benefits for trade shows participants. This is the first study aimed at investigating the feasibility of applying the model of two-sided markets in the exhibition business.

Keywords
Trade show; platform; network effects; logistics system.

Introduction

The exhibition sector of the economy plays a significant role in production and sales activities. The exhibition industry was formed in response to the economy's request for periodic short-term trade and industrial shows, where suppliers and consumers could meet F2F and negotiate, establish and formalize business relationships, thus initiating the production of a sufficient number of products for the market. All this has a beneficial effect on the development of territories where exhibitions are held and on the economy as a whole (Xiaoming, 2012; Simonov, 2015). Due to exclusive marketing qualities (Kumar, 2015; Freestone & Amati, 2014), the competitive advantage allowed exhibition activities to develop. Annually 32 thousand B2B trade shows are held all over the world. Their total net area is 125 million sqm, the number of guests is more than 300 million,

the number of participants is 5 million. Every year all these events involve professionals and business people from 180 countries (UFI, 2020).

Enterprises of the exhibition sector develop Expo projects and work to ensure their implementation. The so-called organizer heads a project as a whole and prepares each separate periodic short-term trade show session. The organizer is a company that focuses on creating and promoting of exhibition projects, and also on managing and providing related intermediary services. Organizers usually manage several such projects, which are implemented in a sequence of periodic expos of a certain topic[2] . By managing the totality of its projects, the organizer plans workload distribution between partners, contractors, and suppliers, coordinates their activities, and controls the spending of resources, minimizing costs. "Just-in-time" technology helps to effectively use the overall potential, avoid unnecessary costs, and at the same time meet prescribed deadlines.

In addition to organizers, exhibitors and visitors are directly interested in trade shows (Figure 1).

Figure 1. Trade show stakeholders
(Developed by the author)

Exhibitors are products suppliers, who rent exhibition space from the organizer for the duration of the trade show and order to construct booths there to place their product samples and staff. Exhibitors are the main partners of the organizer. In addition to exhibits, they provide informative content on their productions and products for the exhibition catalog and promotional materials, as well as make an advance payment for the organizer services. Their relations with the organizer are regulated by contracts.

Visitors are representatives of the customers, analyzing the prospects of procurement. The organizer has no formal obligations to them, nor do they have any obligations to it.

[2] Large exhibition companies are centers that own exhibition venues; They both hold trade shows themselves and receive guest events.

The business goal of organizers is to generate revenue based on the value created by communications and transactions between exhibitors and visitors. The amount of this cost depends on the financial weight and intensity of economic exchanges, which are proportional to the number of groups of exhibitors and visitors. Therefore, the formation and recruitment of them become the most important managerial problem for organizers. Meanwhile, in recent years the trend of falling demand for services of the exhibition industry has dominated. The decline is accompanied by a decrease in the activity of agents and by a reduction in the profitability of the exhibition business. To minimize this negative impact, a concept for managing communications and interactions between exhibitors and visitors based on the latest theoretical achievements is in demand.

Over the years, various authors have created several theoretical models for trade shows, the most notable of which are the following: a descriptive model of the trade show budgeting decision process (Lilien, 1983), a three-stage model of industrial trade show performance (Gopalakrishna & Lilien, 1995), a learning model of trade show attendance (Tanner, et al., 2001), a model of knowledge sharing in a trade show (Reychav, 2009), a model of trade fairs as communication (Blythe, 2010), a model of exhibition brand preference (Jin & Weber, 2013), a model of B2B interactions at trade fairs and relationship quality (Sarmento, 2014), fit model between participation statement of exhibitors and visitors to improve the exhibition performance (*Magro* & *Recio* 2015).

Purposes, methodology, literature review

The purpose of this study is to present how the combination of platform economics theory and two-sided markets theory, marketing, and logistics theory helps to modify the approach to managing interactions between suppliers and consumers, bringing it in line with current trends and state of the economy.

In the research the following problems are solved:

- to offer an approach to determine how to achieve the business goals of the organizer and to systematize functions of the main stakeholders;
- to work through the transition of exhibition organizer from a linear business model to a platform-based one;
- to create the process for preparing a transactional platform and to consider managing the interaction of exhibitors and visitors in a sequence of trade show sessions taking into account network effects.

The study is based on the establishment of priorities, analysis, and synthesis. The analysis involves the decomposition of an object and the study of its components, clarifying their place and role in the overall structure. Synthesis is used to combine fragments of an object into a single structure. Since the study focuses on transaction management in the exhibition two-sided market, a brief reminder of the general theory of two-sided markets is coincided to be important. It was started by Gale and Shapley (1962), who applied the new term to markets, where agents interact without money and intermediaries. Then the theory was developed in investigations by Shapley and Scarf (1974) and Roth (1982; 2002)[3], who developed algorithms for forming stable

[3] In 2012 they were awarded Nobel prize for their theory of two- sided markets.

combinations of agents on market sides (Zhelesova et al., 2013).

Platform-type markets were described and named as two-sided markets by Rochet and Tirole (2003). The signs of these markets are as follows:

- there are numerous disjoint groups of economic agents on both sides of the market;
- the market is created and exists because of a firm-platform that forms groups of agents;
- there should be a two-sided positive cross-network effect of the interdependence of parties' demands for platform services.

Following Rochet and Tirole many authors have devoted their researches to this category of markets. These studies consider the advantages provided by platforms (Hagiu, 2007; Hagiu & Wright, 2015), discuss defining features of these markets (Rochet & Tirole, 2006; Auer & Petit, 2015) and options for defining terms "two-sided platform" and "two-sided market" (Evans, 2003; Armstrong, 2006). After summarizing them the following wordings can be offered.

If economic exchanges between agents of groups of suppliers and consumers are made using a platform that is owned and operated by a certain company, then the latter's business model is a two-sided platform. Or else: a two-sided platform is a company's business model, through which agents of two disjoint groups can interact[4]. The two-sided market of Rochet and Tirole is a two-sided platform with mutual dependence of groups of economic agents, which manifests itself as a positive two-sided cross-network effect.

A notable place in studies on the theory of two-sided markets is given to the comparison of different points of view on the validity of attributing different markets to two-sided markets (Auer & Petit, 2015), as well as to the topic of management (Hagiu & Wright, 2015; Evans, 2003; Roson, 2005; Hagiu & Yoffie, 2009) and also to the topic of external network effects (Hagiu & Yoffie, 2009; Evans & Schmalensee, 2007) combined with price structure strategy of the platform (Weyl, 2010).

The topic of platform-based two-sided markets attracts the attention of Russian scientists and economists. This is evidenced by analytical reviews (Yablonskiy, 2013; Kovalenko, 2016; Shastitko & Parshina, 2016), where it is considered and where the relevance of the development of management issues is noted. However, the available literature does not affect the specifics of the two-sided exhibition market.

Results and insights

Models of exhibition business

The economy has undergone significant changes. Simultaneously with changes in GDP, the effective demand for services of the exhibition sector changed. Organizers need to transform their business models when the supply-demand ratio changes.

[4] For short, a two-sided platform is both a company that acts as a two-way platform and a platform where interactions occur through the intermediary of this company.

The organizer offers to product suppliers its services on arranging a trade show, where suppliers can demonstrate their market offers and make economic exchanges with visitors. The organizer forms a group of exhibitors from product suppliers, who applied. When the demand for the organizer's services exceeds the supply, it can successfully make business as a product company-based on the classic value chain model.

After receiving applications from potential exhibitors to participate in the next trade show, the organizer makes contracts with them for the provision of services. After prepayment applicants acquire the status of exhibitors. The amount of the exhibitor's payment depends on the size of leased exhibition space and its price, as well as on discounts and allowances that take into account the importance of the exhibitor for the trade show and the location of its' booth. Formally, the amount of payment is calculated in proportion to rented space, but it implicitly includes a share of the cost of all organizer's services. These payments fill the trade show budget.

Having decided on applications for services in connection with the upcoming trade show, the organizer creates value chains that close to exhibitors from subcontractors, to which it outsources activities that go beyond its core competencies. Managing these chains from the position of integrating link the organizer delivers "in a package" equipped exhibition area (exposition) ready to receive visitors (Figure 2).

If demand falls the company's supply of services may exceed it. This will make it difficult to implement even projects that are already in production. To prevent losses, the production company must modify the business model in accordance with changing conditions, but to try to retain customers, who used services provided following the previous technology.

Exhibition companies have the potential of a two-sided platform. An essential feature of such a platform is the relation between the forming of participant groups: for example, the more agents are in the group of exhibitors, the more visitors will appear on the other side of the platform. Moreover, vice versa: the influx of consumers causes an increase in the number of suppliers. The ability to cyclically increase the number of agents on both sides of the platform through a positive feedback mechanism indicates a two-sided cross-positive network effect. These features allow us to identify the exhibition platform as a two-sided market, where created value is partially going to the organizer. Therefore, the market network is the most important asset.

The organizing company must create conditions for choosing successful options for transactions. To do this using the network effect more participants should be attracted to the platform, and exhibiting companies should produce products that provide increased financial significance of transactions.

Along with the novelty, the business model will have a product fragment. Therefore, the organizer can use the previous method of calculating revenue as a part of the cost that will be created in a two-sided market network. However, the price per unit of the exhibition area should be increased due to the cost of additional services.

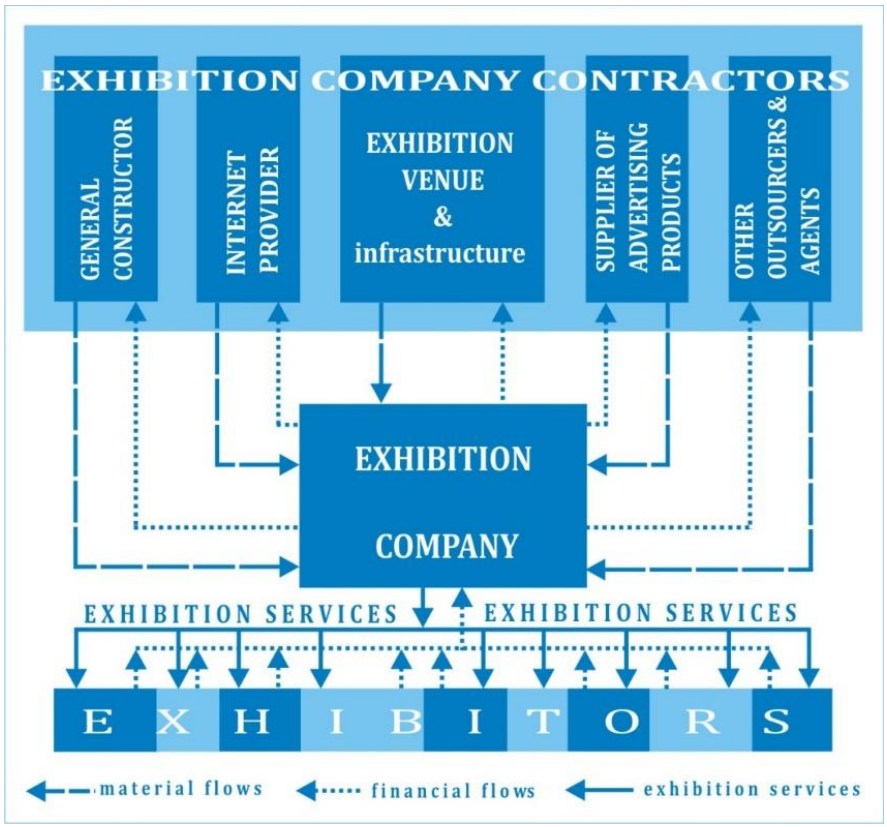

Figure 2. The scheme of joint business activities on exhibition services creation
(Developed by the author)

Technology determined the sequence of actions of the organizer, the main components of its business model, and their relationships are illustrated by the main business process (Figure 3) and by the scheme for converting the flow of economic resources into the flow of exhibition services[5] (Figure 4). The diagram allows us to see the branching of resource flow paths following functional areas of logistics and to watch the process of creating services that exhibitors and visitors need to complete transactions at consecutive exhibition sessions.

[5] Exhibition services are services provided by the organizer of a trade show with the participation of exhibitors and visitors that allow them to enter into business interactions for the purpose of making transactions and exchanging information.

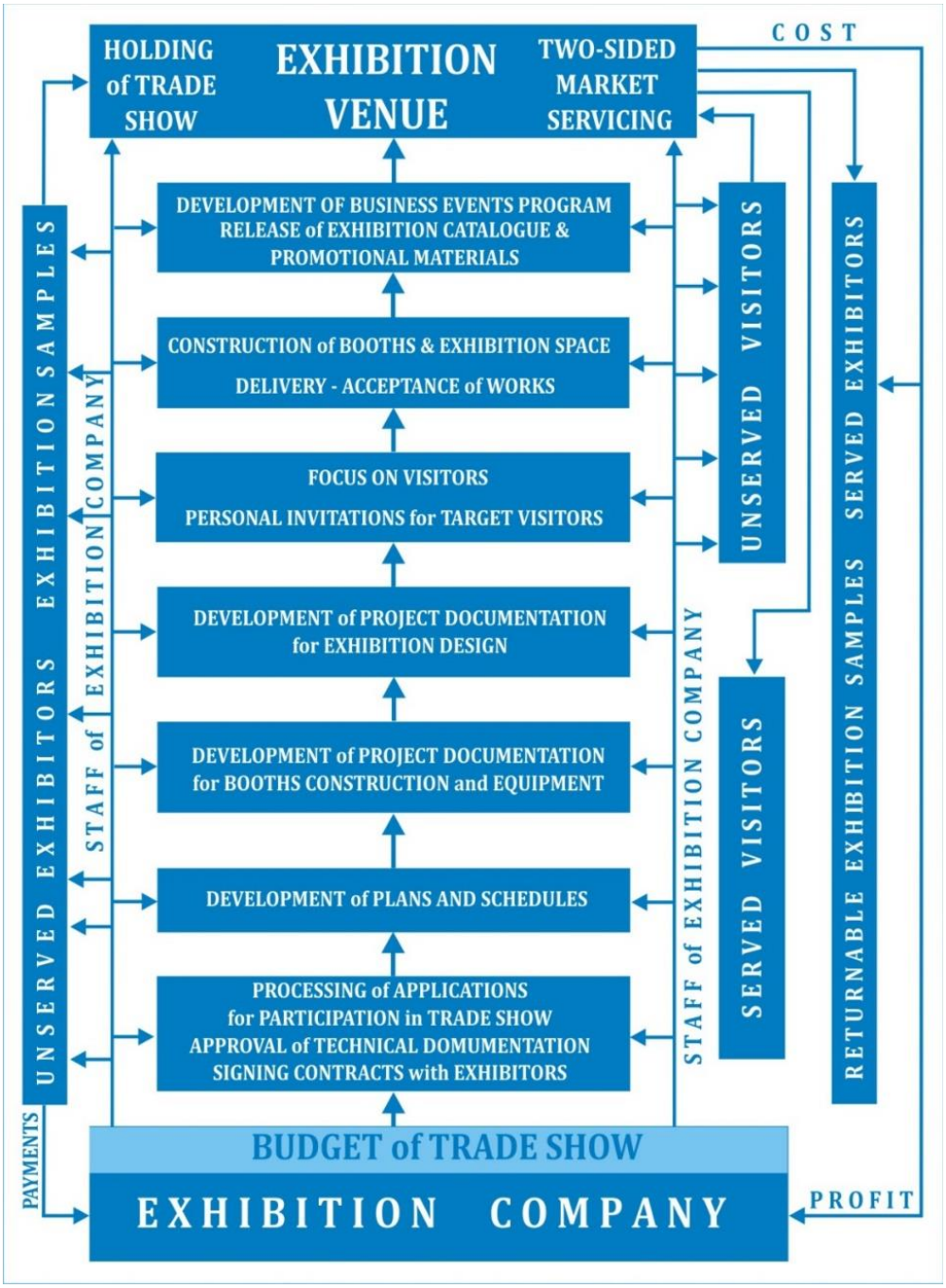

Figure 3. The basic concept of exhibition company profit creation process
(Developed by the author)

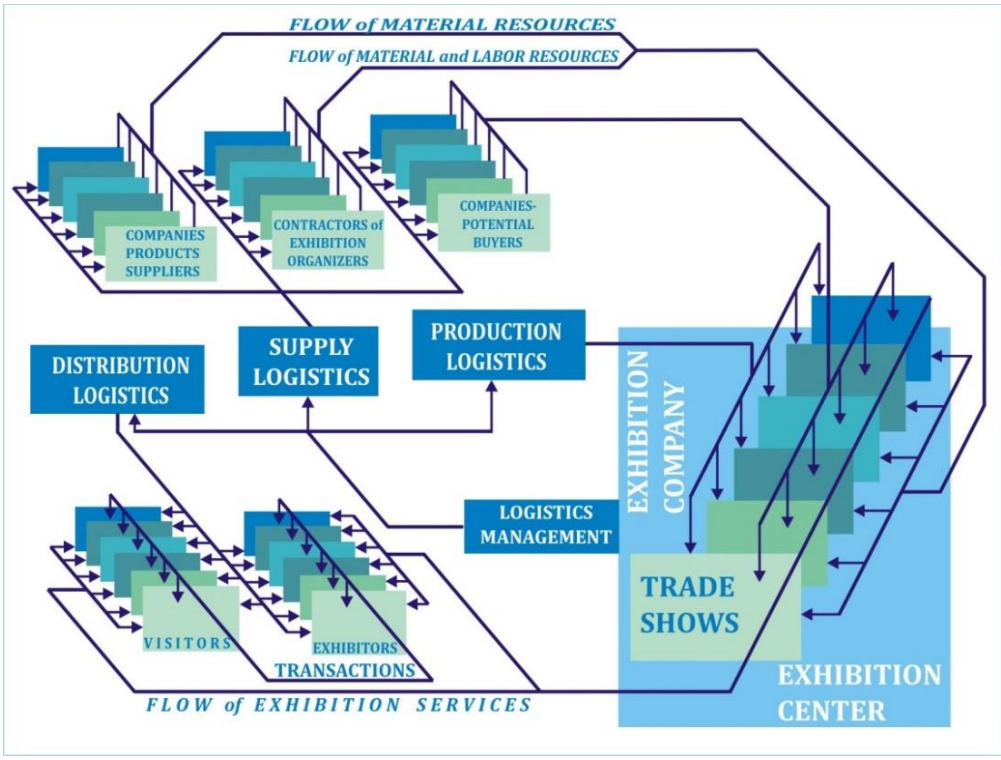

Figure 4. The process model of exhibition services creation and consumption (six consecutive trade shows)
(Developed by the author)

The exhibition platform, which is a material component of the organizer's services, in combination with the intangible component of services becomes a communicational and transactional platform. Its functional purpose is to provide exhibitors and visitors with a place and conditions for market interactions. The organizer manages this platform. However, it does not interfere with the content of these interactions before, during, or after the trade show and does not act as a guarantee of their success.

Quasi-continuous network exhibition market

The arrival of visitors to the exhibition completes the phase of the main business process associated with the creation of a tangible component of the organizer's services. At this point, the transition to the maintenance phase of starting an exhibition network micro-market is made. Its' sides are formed by groups of exhibitors and visitors, who have the opportunity to be acquainted with the exhibition content and to engage in direct communication with each other (Figure 5).

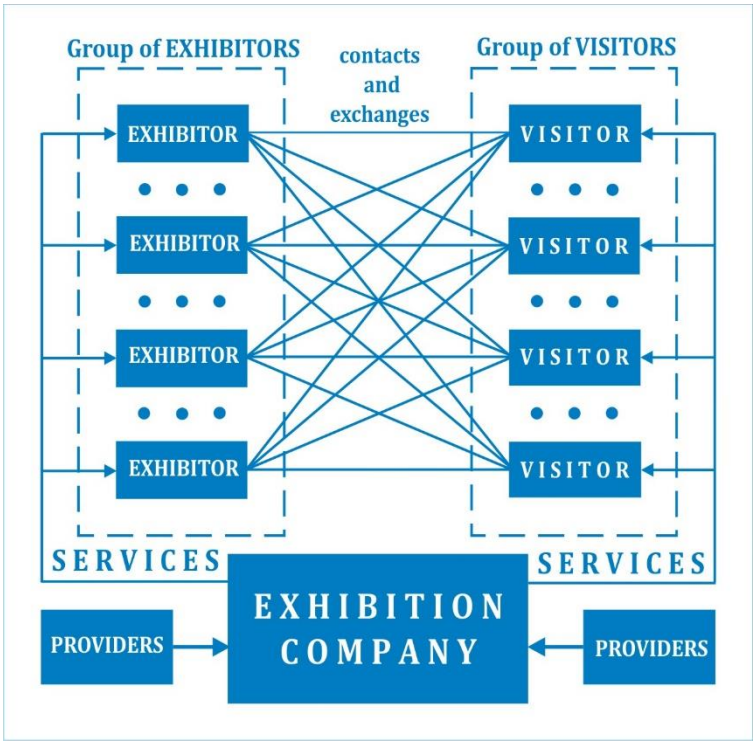

Figure 5. Trade show two-sided network market
(Developed by the author)

The implementation of the exhibition project involves periodic (with an interval of several months to several years) holding of short-term exhibition events, during which and in between, exhibitors and visitors negotiate and make transactions. Therefore, the network micro-markets on the discrete sequence of trade shows form thematically separate quasi-continuous network market. Each project corresponds to a certain sequence of trade show sessions, series of micro-markets, and a thematically specialized quasi-continuous two-sided network market. The number of such markets is equal to the number of projects passing through the exhibition center. The time duration of each market is limited by the lifetime of the corresponding project.

Logistics interpretation of the process of exhibition business management

On the way to the business goal of each trade show session, the organizer solves two tasks. First, it prepares the tangible component of services. Then it gives agents from supplier and consumer groups the opportunity to engage in business communication. This is how the network micro-market starts. The organizer must effectively serve it since the profitability of its business depends on the turnover in this market. The solution of tasks is provided by a management system that allows providing timely services that meet the obligations of the organizer.

Based on the logistics approach the analysis of the structure of the organization for managing the preparation of the transaction platform and the network micro-market allows us to identify two types of logistics systems. Let's call them "market" and

"platform" (Figure 6). The latter has an organizer as a focused company and consists of groups of exhibitors and visitors, as well as supply chains of components for the arrangement of the exposition.

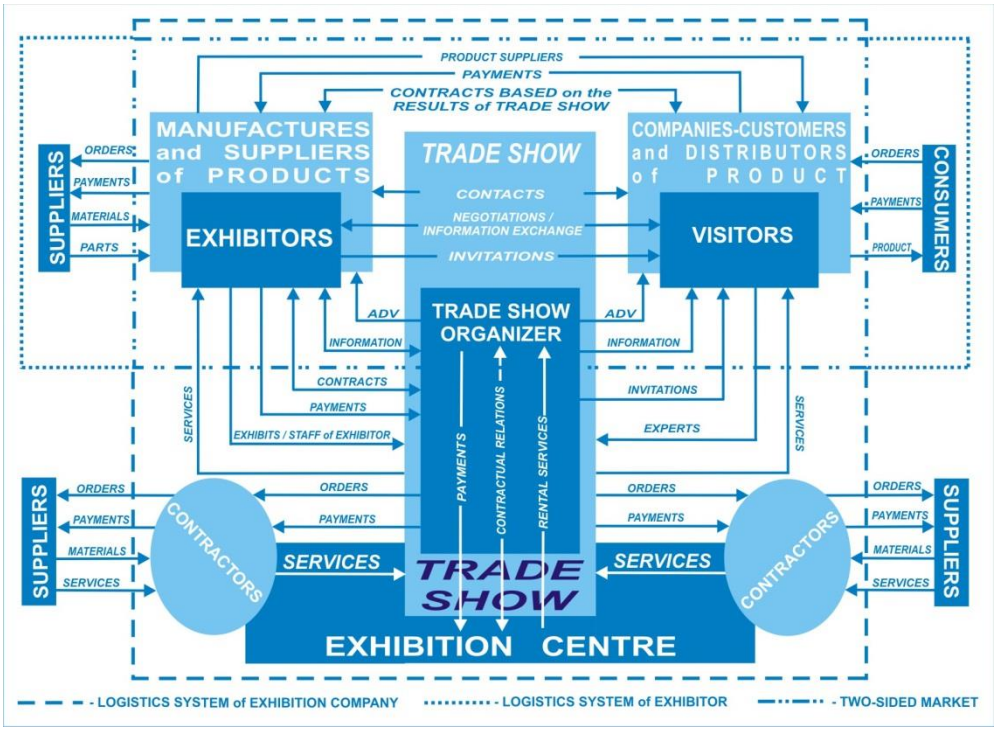

Figure 6. Logistics interactions network on the platform of trade show
(Developed by the author)

In market logistics systems the focus is on exhibiting companies. Every logistics system unites the exhibitor and its contractors, as well as suppliers of this exhibitor and final consumers of contractors. In addition, in every logistics system, the organizer represents helping exhibitors and visitors to interact.

Every exhibitor being an investor, partner, and supplier of the organizer, as well as a central figure in market logistics systems turns out to be only a link in the platform system, having ceded part of its focal powers and having transferred its resources allocated for participation in the trade show to the control of organizer. The latter also appears in two guises: as a focal company in the platform logistics system and as a link in all market systems, where it serves agents of the network market, which is formed in the zone of combining both platform and market logistics systems, i.e. in the field of harmonization of economic interests of all project stakeholders (Figure 6).

The exhibition project should be managed so that its participants perceive it as a continuous process of functioning of the network market created, supported, and controlled by the organizer, so that trade show sessions are organically intertwined with this process so that the pauses between sessions are filled with remote business communication with clients that meets their interests. In this approach, the product of

the organizer's activity is a continuous flow of intermediary services in the sequence of trade show sessions controlled by the system that provides the organization of flow processes (Figure 7).

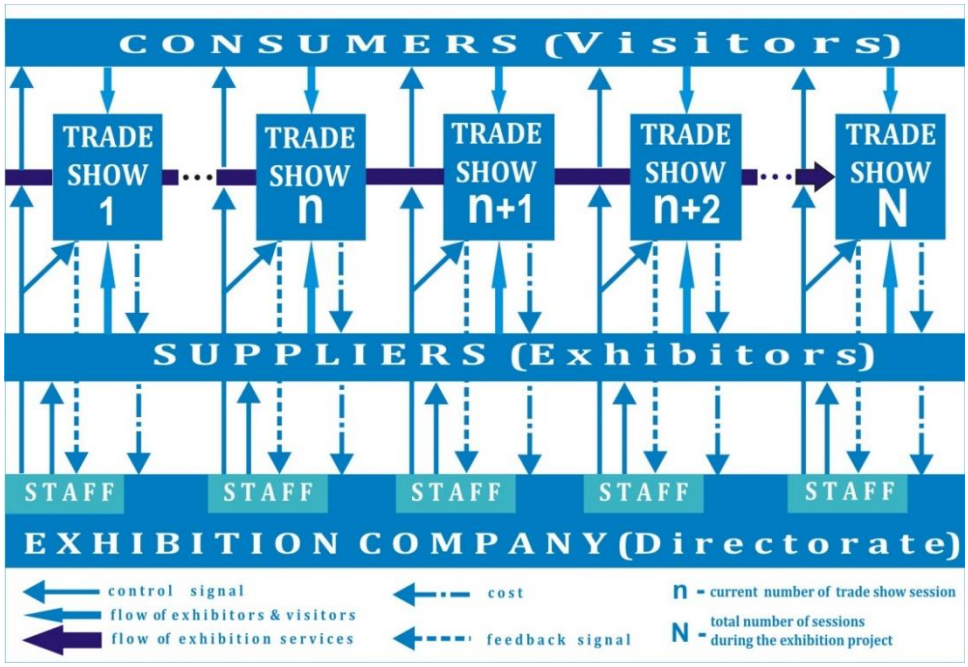

Figure 7. Business process on sequence of trade shows
(Developed by the author)

Network effects and interaction management in exhibition projects

The two-sided positive cross-network effect allows increasing the number of trade show exhibitors and visitors, contributing to an increase in the intensity of transactions. However, this effect becomes noticeable when the number of agents is brought to a specific threshold level for each specific market. This should be a significant number of agents in the group, the formation of which is associated with serious work by marketers.

Exhibitors are attracted to the trade show by the prospect of expanding the sphere of business communication and getting benefits from the promotion and sale of products. Therefore, promotion of the effectiveness of exhibition marketing should be supported by increasing the quality of the organizer's services and commercial performance from one trade show session to another. Much depends on the activity of target visitors, without whom any exhibition loses its' significance, and who are not only consumers but also indispensable participants of exhibition services creation. In addition to traditional advertising, personal invitations with information about exhibitors and their products are used to attract visitors. However, the most effective way for the organizer to attract more visitors is to choose such a pricing strategy, when free of charge access to the exposition is provided for target visitors at the expense of exhibitors. This technique allows using a positive network effect to attract agents to the exhibition market (Rochet

& Tirole, 2006). Both theory and practice show that subsidizing visitors pays off by the increase in market turnover.

Network effects related to the consumption of the organizer's services both cross (indirect) and one-sided (direct) require increased attention since they affect the intensity of economic exchanges.

First, it should be taken into account that the two-sided positive cross-network effect is a manifestation of the positive feedback mechanism of the demand of exhibitors and visitors for the organizer's services. So on the positive momentum of demand of one party the other increase, and on negative - decrease in demand. For example, the loss of a sensitive number of visitors is accompanied by the reduction in the number of exhibitors, subsequent decrease in the number of visitors, and a further decrease in the number of exhibitors, etc. The final result may be the termination of the exhibition project if measures are not taken to slow down the market degradation that has begun.

Secondly, one day a group of exhibitors may reach such a size that it will take up too much of the exhibition area. As a result, visitors will experience congestion and darkening of the aisles left for them to move and will feel the negative impact of an increase in the number of exhibitors due to the negative cross-network effect. After experiencing inconvenience and spending extra time, some visitors will find the service unacceptable and refuse to be loyal to this exhibition project. The drop in demand for the services of the project organizer from target visitors and the corresponding reduction in their number may be so sensitive that further situation will develop as it was described in the previous paragraph.

Third, it is necessary to monitor the impact of direct network effects on the content of the exhibition market sides. Positive effects contribute to the intensification of transactions between the trade show participants. Potential clients, who never visited this trade show before, being attracted by the example of colleagues, who have already become participants, join to market sides. The negative direct effect reveals itself in the curbing of the intensity of economic exchanges due to a drop in demand for the organizer's services caused by withdrawal from the project of disappointed and following their example participants, as well as by the abstention of potential clients from participation.

Negative network effects weaken the influence of positive ones as the parameters of the exhibition market approach the limits preventing them from being exceeded.

Discussions

Business models of platform types are in demand now. Using the companies that occupy minor positions in the markets can become leaders.

Russian exhibition business based on the product business model rapidly developed until 2008. But today, demand for its services has fallen below the level of 2008 and lower the supply. This change in external conditions focuses the attention on platform-based business models, through which the most flexible exhibition companies could strengthen their positions.

The results of the research presented in the article are both theoretical and practical. Along with the conceptual aspects, the economic and technological features of managing the value creation mechanism that is relevant for the exhibition business practice are considered. Also, an approach to modifying the business model in accordance with the strategy of the trade show organizer is proposed. There is also a description of tools for exhibition managers who have realized the importance of the timely transformation of their company models to intensify communications and transactions between trade shows exhibitors and visitors.

The main results of the study can be formulated as follows.

1. In the field of exhibition activities business relationships between direct stakeholders fit into the format of an objectively existing model, the potential of which is not fully used. The model has features that make it a two-sided platform: the organizing company provides intermediary services that make it easier for groups of suppliers and consumers to engage in direct interaction.

2. The value of an exhibition for one group of its clients is higher, more agents are there in the other group. The manifestation of this interdependence indicates a two-sided positive cross-network effect and, consequently, that the exhibition platform is a two-sided market.

3. As a result of transactions in the network of the two-sided exhibition market the value is created. To increase its trade show organizer should contribute to committing the most profitable economic exchanges among participants. This involves the need to attract the maximum possible number of exhibitors and target visitors to the market. The organizer can manage the content of the market sides by using a special marketing toolkit, positive network effects, as well as by setting different prices for its services for exhibitors and visitors as a means of activating a positive network effect.

4. The toolkit described above allows managers of exhibition organizing companies to stimulate the filling of network market sides and to help to maximize the benefits of exhibitors and visitors as participants of economic exchanges. The greater a benefit the newer agents will come to the market and participate in trade shows to make transactions.

5. Mobilization of business potential to gradually implement a modified business model in pilot exhibition projects does not imply to refuse from the product business model. It can help to keep loyal customers and will prevent an unmanageable cyclical decrease in the intensity of exchanges.

6. Two-component business model concept provides the opportunity to generate value using both models. However, in a two-sided market network, the cost can be multiplied due to positive network effects.

Conclusions

Theoretical implications

As a result of system analysis based on the joint application of tools provided by logistics theory, platform economics theory, and two-sided market theory:

- the business model of the exhibition company is classified as a multi-sided platform;
- the role of the exhibition business platform model in determining the management goals and objectives is interpreted;
- the exhibition two-sided network market is classified as a platform two-sided market;
- a logistics interpretation of the exhibition two-sided market as a product of harmonization of business interests of two logistics systems created under the management of the exhibition company is provided;
- regularities of filling the market sides with suppliers(exhibitors) and consumers (target visitors) through positive external network effects are described.

The concept of a two-component business model is a significant contribution to the development of the theory of two-sided exhibition markets.

Managerial implications

The practical importance of the research is reflected in the following conclusions addressed directly to practitioners of exhibition activities:

- due to the processes taking place in the economy, it is advisable for linear exhibition companies that are striving to develop to adopt platform-type business models;
- currently, the model of the two-sided market offers an approach to solving relevant for the exhibition business problem of managing the intensity of communications and transactions between exhibitors and visitors;
- for the practical implementation of such a model, an appropriate platform is needed; in this case, this role is assigned to the organizer's service, the tangible component of which is created using a linear business model;
- the practical application of powerful tools in the form of network effects to manage the intensity of economic exchanges requires the preliminary development of certain skills; it should be accompanied by careful monitoring of the content and the interaction of market parties to prevent any undesirable effects promptly.

Limitations and future research

This study is not without limitations. The fact is that the exhibition business is increasingly using Internet resources, IT systems, computers, video and audio equipment, cellular telephony, transmitting, and recording mobile devices. There is no doubt that in the near future, no trade show will be possible without the entire range of dynamically developing digital solutions and innovative tools, including fifth-generation wireless communications, big data, virtual and augmented reality, artificial intelligence and speech bots, the Internet of things, new gadgets and mobile applications, NFC, iBeacon, RFID technologies, etc.

The rapidly increasing demand for digital toolkit in the exhibition sector in the context of the digital transformation of the economy should be taken into account when further

modifying the approach to managing the interaction of exhibitors and visitors of trade shows, bringing it in line with current trends and the state of the economy. This way future research will assist in strengthening the business case for managing economic exchanges in the exhibition two-sided market. Interested scholars are invited to carry out this further research.

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