Innovation development of agroindustrial enterprises: the use of a platform-based business model

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Abstract. We determined the possibilities of using multiple platforms not only to increase the number of users, and, thus, to produce a network effect and boost of sales, but also to develop the innovation activity of food and processing enterprises that adopted a platform-based business model. We studied the processes of value creation proper to the platform-based model of business organization. It was shown that network effects are a leading factor in the effective platform scaling that attracts users. We highlighted the advantages of a platform-based business model as compared to the traditional linear business model of enterprises in food and processing industry.

1. Introduction

Such leading global companies as Facebook, Apple, Amazon, and Google have significantly grown over several decades. Their success is often due to advanced technology and innovative culture. Although advanced technologies and innovations certainly help the companies grow, this is not the main reason why these companies have become so successful. As a rule, the success of these companies is due to business models based on multiple platforms. The main theoretical principles of multiple platforms were formulated in the early 2000-s by foreign researchers [1-3]. Currently, multiple platforms are gaining ground in many sectors of the economy [4]. Increasingly more companies that process agricultural products are interested in the opportunities of using a platform-based model of business organization. Therefore, the issues that are related to the multiple market behaviour, the description of platforms, and cross-network effects come to the fore in research of economists around the world. The development of multiple platforms as a new business stream, which has largely changed the mental attitudes of industry elites, is associated with the development of the Internet and digital technologies.

2. Results and discussion

A multiple platform is an organization that makes profit, primarily by providing the direct interaction of two or more different types of affiliated groups of participants, i.e. the parties [5]. Thus, a multiple platform is a business model that facilitates the exchange of values between two or more interdependent groups of participants, usually consumers and producers. The main condition for the existence of multiple platforms is the presence of two or more different users’ groups that are attended by the organization [6]. For example, creators (producers) of YouTube content exchange the content...
with viewers (consumers). The platform is focused exclusively on network creation and support. Multiple platforms do not have means of production - they are means of communication.

R. Fishman and T. Sullivan believe that a platform is not simply a matter of connecting brick-and-mortar businesses to consumers via the web. You need to do something to make it so that your platform actually makes the buyer-seller relationship work notably better – or even creating markets where none could have existed without the platform’s nurturing hand. [7].

Multiple platforms can be based on any product (article, service, technology, etc.). A product has the potential of a platform if it meets the following three criteria:

- it has at least one important function or solves the main problems for many entities in the area;
- it is easy to use;
- it is difficult to replace [8].

To understand the value of platform-based business models, it is necessary to understand how they differ from traditional linear business models. Non-platform companies that use traditional business models are defined as linear because their business processes are described by a typical linear chain of value creation.

The input materials from agricultural producers pass through the chain of value creation and become an end product that is sent to consumers. Enterprises that use a linear business model seek to lower the price of raw materials at the input and increase the price of the end product at the output.

Since the beginning of the twentieth century, all industrial giants have been linear, including General Motors (GM), General Electric, Walmart, Toyota, etc.

It is known that multiple platforms are better scaled than linear business. In order to understand how a multiple platform is scaled, we have to consider two main factors: network effects and the economy of information products.

When there are participants, a platform becomes a network. Network effects are an additional advantage gained by the users when a new user joins the network. For example, when a new taxi driver joins Uber, it benefits all the drivers who work on this platform.

A network has a positive effect if the utility of a particular product increases with an increase in the number of potential consumers of this product on the platform. Consumers rightly believe that multiple platforms with a large number of users are able to provide a greater number of additional products and services.

Network effects, which result from the growing number of participants, can be considered the basic factor for the attractiveness of multiple platforms, as well as their competitive advantage and a barrier that impedes competitors’ entry into the industry market.

Information products, such as applications, music and e-books, are efficient, because they can be reproduced and replicated at almost zero value. For example, to develop an original mobile application, you need about 500,000 USD, but creating a copy of this application for other users will cost almost nothing.

In the traditional model, scaling resulted from investment and growth of domestic business resources. But in the wired world, the scale depends on cultivating the external network. Let us compare the growth principles of non-platform companies (Marriott, Hilton, Intercontinental Hotel Group) and a platform company (Airbnb) (table 1). If Marriott or Hilton wanted to increase their capacity, they would need to build more hotels, or buy them at a high price. If Airbnb wanted to increase its capacity, it would just need someone to make a new post on their website. Airbnb does not need to build or acquire additional space - it needs to attract users.

Table 1. Development indices of hospitality companies.

| Company (year of establishment) | Hotel capacity | Market capitalization, billion USD | Real estate assets, USD |
|---------------------------------|----------------|-----------------------------------|------------------------|
| Airbnb (2008)                  | 1 million +    | 25                                | 0                      |
Marriott (1957) 1,1 million 16 985 million
Hilton (1919) 745 thousand 19 9,1 billion
Intercontinental Hotel Group (1988) 727 thousand 9 741 million

Obviously, the costs of a traditional business model decrease as the company achieves scale economy, but as the business expands the costs of getting every new customer increase. Thus, the market capitalization of a traditional linear business is limited by its ability to efficiently attend customers. In contrast, the costs of successful platforms typically do not grow as fast as their revenue due to network effects and low marginal value of production and distribution.

Not every platform company uses a purely platform-based business model, and goods and services are not always better realized and promoted through a technology platform. A traditional linear company can also create a multiple platform by adopting a new business model, changing its attitude to the way of value creation, key competencies and skills, and producing goods/services within a linear business model. A combination of platform and traditional linear business models makes it possible to attract and retain the clients who have already evaluated the company’s products, and then to develop the platform by attracting new clients and using network effects.

Some companies, such as Apple and Amazon, combine linear and platform-based business models. Combining these two business models can be extremely efficient, allowing businesses to take advantage of each business model.

Presently, the number of platforms is growing rapidly. In 2016, four of the five leading businesses in the Forbes list of most valuable brands were platform-based companies. And by the beginning of 2017, the five largest companies in market capitalization used the platform business model.

The main functions of a platform:

- Involving participants.
- Providing communications.
- Establishing rules and standards.
- Creating value for all parties (groups of participants).

First, interested parties should be invited to join the platform, and then they should be assisted in establishing contacts with each other and provided with a technology that facilitates transactions and rules that control the network.

User acquisition is the most important task at every stage of a multiple platform, because the significance of the platform for participants directly depends on the number of participants registered on the platform.

In order to attract more participants to a multiple platform, it is necessary to actively use social networks and apply marketing tools. There is an opinion [10] that a multiple platform should use aggressive strategies to attract participants.

Multiple platforms, as a rule, allow participants to directly interact with each other. One of the key tasks of a multiple platform is to facilitate interaction between the participants and increase the importance of communications for everybody. The more important the communications are for the participants, the closer the business model of the food and processing industry is to a “pure” model of a multiple platform.

A platform establishes “the input requirements” by defining the access rules, and develops technical standards, protocols for information exchange, conditions and contracts for certain types of transactions.

The interaction of various groups results in the multiple platform value, which is higher for its participants than it is when a seller and a buyer interact in a traditional way. For the food and processing industry, the created multiple platform value increases with an increase in the number of participants and the intensity of their interaction.
The platforms created by enterprises of the food and processing industry are unique because they make it possible to create two independent groups of participants (suppliers of agricultural raw materials and consumers of end products). In this case, the value results not only from the interaction of the enterprise with these groups, but also from direct interaction between the groups. Multiple platforms in the food and processing industry can generate multiple income flows from both ends of the supply chain: from interaction with suppliers and from interaction with consumers.

Presently, researchers distinguish three categories of multiple platforms (transactional, innovative, and integrated platforms). Transactional platforms are designed to provide interaction between different groups of participants, who would have difficulty in finding each other without a multiple platform. The most important task of innovative platforms - to assist platform members in developing new products or improving the existing ones (goods, services, technologies) - is solved by attracting and effectively using a remote community of specialists and experts. An integrated platform that combines these platforms will give the best results, including in the field of innovation.

One of the most important results of transitioning to the platform-based business model is that the enterprise employees have an opportunity to acquire new knowledge interacting with the participants (including feedback), and to use it in developing innovative products (goods, services, technologies, business processes, etc.). One of the peculiarities of innovation activities at Russian enterprises is that the resource base is formed by new knowledge. New knowledge has the properties of an innovative resource, as they can materialize in an innovative product. New knowledge is the innovative result of intellectual activity.

In the food and processing industry, an innovation platform can be used for crowdsourcing, i.e. experts in a particular field can be involved in solving the tasks of innovative development of the enterprise wherever they are due to the resources of the Internet. The enterprise sets tasks for the community of experts, and they elaborate proposals for solving these tasks under certain conditions within the established time limits.

Let us consider the possibility of using an innovation platform at every stage of an innovation process. Obviously, communication with the community of experts will be most productive at the stage of generating ideas. If properly applied, the Internet provides easy communication with experts and developers, and it can provide food and processing industry enterprises with new ideas and knowledge to solve emerging problems.

If an agro-industrial enterprise does not have design or technological services, production facilities for developing and producing innovative products, a platform helps find the optimal solution to these problems. The community of experts will help the organization to order external contractors for development and production or find partners for joint activities. The platform can be used for the promotion of innovative products in two main directions. First, the organization may ask experts to write content for their websites. In return, experts can get free links to their own sites. One of the easiest and most effective ways to attract the attention of consumers is content marketing. The content can have a variety of forms, including reviews, comments, videos, etc. Secondly, if the organization needs a new logo or an improved packaging design, it is enough to describe the desired result on the platform and name the price. Designers will respond providing sketches and, if necessary, revised prices (especially if the specified price is too low).

3. Conclusion

Multiple platforms as the most progressive and promising business models have several advantages:

- Activation of innovation.
- Network effect resulting from interaction of participants.
- Simplification of distribution.
- Reduction of market research costs and search for business partners.
- Possibility of obtaining feedback in marketing communications.
- Possibility of establishing business relations.
- Intensification of information exchange.
- Reduction of transaction costs.
- Increase in competitiveness due to better business scalability.
- Creation of barriers for competitors.

Enterprises that use a platform-based business model are able to quickly enter branch markets, change competition rules by creating added value due to more efficient interaction between the parties. Therefore, if an enterprise with a platform-based business model enters a market where there is competition between enterprises based on a traditional linear business model, it will usually become the leader. In order to remain competitive in the 21st century, every enterprise in the food and processing industry should aim at a platform-based model of business organization and become a provider of a multiple platform. Otherwise, this enterprise may later end up in one of the groups, on a platform created by another enterprise (a supplier of raw materials or a consumer of end products).

Currently, multiple platforms can become an effective tool for developing innovative activities of enterprises in the food and processing industry. They are based on the results of intellectual activity of experts’ and developers’ remote community (innovation platform), as well as employees’ new knowledge gained through interaction with participants of the transaction platform.

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