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Editors

Réka POLÁK-WELDON

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Éva FENYVESI, PhD

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Réka POLÁK-WELDON

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FENYVESI Éva, PhD

Head of the Department of Economics

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THE FORMS OF AGRICULTURAL COOPERATION IN HUNGARY

Szilvia ERDEINÉ KÉSMÁRKI-GALLY

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ABSTRACT

In agricultural activities farmers work together with several individuals and organizations, and sign (oral or written) collaborations. These cooperations can be very different depending on horizontal or vertical form. Cooperation exists at many levels and takes place between individuals and organizations (e.g. farmers, producers, enterprises, employees, organizations, owners, and government agencies). Cooperation between and among parties is often referred to as a cooperative relationship. The cooperation concluded by participants are often analysed by the New Institutional Economics.

The development path of the Hungarian agricultural cooperatives was different from the Western European path from the second half of the 20th century. This situation caused the deterioration of trust between the partners in the agricultural sector. However, new cooperations and relationships were established based on product line collaborations since 1990.

It is important that the cooperation of partners can results in the agricultural sector and contributes to the success of agricultural actors because the transaction costs are reduced and the confidence between the producers and other stakeholders may gradually increase.

A new virtual system which makes connection between the demand and supply sides of the inputs can open prospective contacts and its findings are more than a traditional connection. In this work my main goal is to present the forms of the Hungarian agricultural cooperations and to develop a new cooperation system concept.

INTRODUCTION

During their agricultural activities the farmers work together with several individuals and organizations, and sign (oral or written) collaborations. These cooperations can be very different depending on horizontal or vertical form. Other difference can be the cooperating partners (e.g. farmers, producers, enterprises, employees, organizations, owners, and government agencies).

The early agricultural cooperatives in Hungary were similar to the other European Union member states (e.g. milk cooperatives from the end of 1800s, credit unions). While the cooperatives developed without socio-economic and political changes in the Western European countries, their development path was different in Hungary and in other socialist countries. Producer cooperatives transformed to organizations in the second half of the 1960s, which also had positive effects for the rural development after their solidification. However, many factors of this development path was different from the classic cooperatives, for example in the method of organization and the connection between members and cooperatives. The production of cooperatives continued jointly and not separately in the farms. The members were also employees of the cooperatives, so this is why the Hungarian and Central European cooperatives were mentioned as work-cooperatives.

The modernization of Hungarian agriculture took place mainly in the 1970's, when the co-operatives with the right to make their own economic decisions were the models of development, and renewal. In addition to the internationally recognized farming results, many samples were realized for the organizational modernization (such as production and service units by interest basis) structural expansion activities. Cooperatives cooperated with many advantages by integration of backyard which has been spread mainly in labour-intensive sectors (horticulture, vineyards, orchards, and livestock) and functioned on the basis of mutual interest. These changes and organizational solutions have helped the rural employment and livelihood. It is important to mention the specialized Hungarian cooperative forms, which brought together the producers of wine and fruit, that organized joint procurement and sales, but their activities were not significant.

The change of political system radically transformed the agricultural ownerships and organizational systems in Hungary since 1990s. The relatively well-functioning integrations, cooperation between large companies and small farms have been adversely affected by this change, while new private farms have been become market actors for which the integration would have been very important.

As time passed the private farms have been became more important factor, therefore it has become more urgent task to arrange common procurement, sale, and to mitigate of producers' vulnerability. However, after the political change the government initiatives (such as new types of cooperatives, organizing of cooperatives by product line) were less successful.

After so many changes it is important to ask the following questions: What forms of cooperation can be found in the Hungarian agriculture sector today? What novel and efficient interconnection options could be developed for agricultural actors?

MATERIAL AND METHODS

This study is built mainly on secondary research results, literature sources and international databases.

The main objective of this study is to present the current agricultural forms in Hungary because these models significantly transformed after the political change of 1990's.

After that it defines proposal for a new agribusiness marketplace which can help to develop the vertical and horizontal cooperation in Hungary and in line with the previous researches of the author could successfully be applied in Hungary.

RESULTS

Agricultural cooperation

Finding the exact definition of cooperation is a difficult task. One of the definitions is a joint action, which examined different aspects of the disciplines (MEK, 1992). In this case the participants take several actions with each other and repeat these actions. Cooperation is important because it allows people and groups to work together to achieve a joint goal or derive mutual benefits. Cooperative relationships can result in one-time collaboration between parties to achieve a goal or can involve recurring events to allow the parties to continue working with each other. The synonyms of cooperation are: assistance, collaboration, conformation, participation, partnership, etc. Cooperation can also be interpreted as a corporate strategy and feature of companies (Agárdi, 2004). The types of relationship between organizations can be the followings (Barrigen-Harrison, 2000):

- Differentiation of products and services connections.
- Increasing of market efficiency.
- Increasing of research, production, marketing.
- Influencing the governmental organizations.

In the Hungarian agriculture, the cooperation of producers is diverse, which are characterized by legal and unincorporated business organizations, as well as other secondary agricultural organizations were established. On one hand, the aim of these organizations is to meet with market demands, achieve a better market bargaining position by the purchases and sales. On other hand, their goal is to use funds for the establishment and operation of the organization. Cooperation can be grouped differently (see Table 1).

Table 1. **The characteristic of economic cooperation**

Aspect	Characteristic
Legal status	Formal, informal (HIGH et al., 2005)
Bargaining power	Symmetric, asymmetric (BALOGH, 2007)
Ownership	Independent, joint (ARTNER, 1995) Sectoral, geographical (HÖGBERG, 1977)
Size	Activities (BARRINGER – HARRISON, 2000) Participants (HORVÁTH, 2010)
Complexity	Actors, processes, environment (SAVERI et al., 2004)

Source: Bíró et al. (2015)

The direction of producer relationships can be vertical or horizontal by the agricultural co-operations (one or the other relationship clearly is rare).

Vertical integration means that cooperation connects production and/or sales activities of organizations with each other. The main goal of the vertical integration is to increase the technological and market efficiency, as well to strengthen the financial position of producers and their independence (Lengyel – Vasa, 2006). It is based on the supply chain, which is organized as a product line.

Horizontal integration involves cooperation with entities that function on a similar level. The integration linked together sequential features and actions in the product line, and these structures are usually realized in final product. Participating enterprises have similar size and market position. Cooperation is based on joint product, storage capacity, marketing and sales. Its main goal is to take advantages of the joint work (e.g. higher purchasing power, bargaining power, economies of scale). The driving force of horizontal connection between small and medium enterprises is to obtain resource needs, lower cost alternative, effective markets, learning and sharing of technology (Sáfrányné Gubik, 2008). Vágány et al. (2013) analyzed the relationship between collaboration and innovation.

Agricultural Cooperatives

According to the Act No. CXLI of 2000: „The cooperative is a business organization with legal personality that was established by registred document and defined the amount of share-equity. Its membership is open. It works according to the principles of variable financial capital. It helps its members to increase effectiveness and sometimes to get cultural, educational and social needs of members, employees and their dependents." Cooperative is a member-owned business enterprise which is controlled by the members and the benefits are allocated in proportion to the business activity (Barton, 1989). So agricultural cooperatives have legal personality and are owned by their owners.

Cooperatives provide an opportunity for more equal and fairer allocation of work and income. It has an important role in the development of human resource and reducing of social exclusion. Cooperatives are one of the pillars of national and international socio-economic development.

The main specifics of cooperatives can be summarized as follows:

- It is a volunteer organization that is open to everyone who accepts the obligations and responsibilities with the membership.
- Democracy member control: It means the active participation of members in leadership and decision-making process. One member has one vote. It is allowed to achieve a higher voting rate in each EU member state but they cannot determine their share of voting.

- Contribution of members and democratic control to the cooperative's assets, a part of the assets in joint ownership.
- Cooperation with third participant in the market (the democracy and the cooperative autonomy cannot be weakened).
- Participation of members in education and training in order to develop the cooperative. Informing the public about the nature and advantages of cooperative.
- Developing of membership with local, national, regional and international cooperation.
- Continuous and sustained improvement of members.

Their activities cover production, processing and distribution processes. Their cooperation may be first (formed at the beginning of the product line, mainly in production), secondary (along the product chain, production, procession, sales, logistics and marketing function) and third level (in the whole product chain, protection of interests, export promotion) (Horváth, 2010). Producer cooperatives can be found mainly in Denmark, the Netherlands and France. Neszmélyi (2016) also dealt with the role of Danish cooperatives. In the main market segments the share of agricultural products sold through cooperatives is between 30-90% of total sales of agricultural products.

In the agricultural market in 2013 42% of total net income realized by cooperatives with below of 0.5 billion HUF net income and 31.8% of total net income realized by cooperatives with more than 1 billion HUF net income (see Table 2).

Table 2 The main economy indicators of Hungarian agricultural cooperatives (2013)

Category of net income	**No. of co-operatives**	**Total asset value**	**Net income**	**Investment**	**Employees**
Billion HUF			**Rate (%)**		
0-0,5	89.3	50.5	42.0	40.8	58.2
0,5-1	7.4	26.5	26.2	20.8	26.7
1-5	3.4	23.0	31.8	38.5	15.2
5<	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0

Source: Bíró et al. (2015)

Producer Organization and Associations of Producer Organisations

In the European Union, the operation of producer organizations and their associations set out by EU Regulation No. 1308 of 2013. According to this regulation the producer organization may be recognized on application by the EU member coutries, which found in the agricultural sector. These organizations are under producer control, created by initiative of producers and defined the objectives.

Producer organisations and their associations are important participants which contribute to strengthening the position of farmers and growers in the food supply chain versus other downstream actors by carrying out a wide array of activities on behalf of their members. By working more closely, producers will be able to achieve economics of scales and synergies to process and market the products of their members.

Producer organisations are voluntary cooperations of producers of agricultural products. Producer organisations and their associations assume important functions on behalf of their members. They may concentrate supply, improve the marketing of products, optimise production costs, carry out research, and a wide array of other activities.

Two types of the associations can be identified: producer groups and fruit-vegetable producer organization.

Producer Group

According to the Regulation of Ministry of Agriculture No. 42 of 2015: „The producer group is organized producers' cooperation by the same product or group of products, which in order to strengthen their agricultural or forestry market positions, compliance with the rules of this Regulation voluntarily attached. According to the Act No. X of 2006 (Cooperative Act) producer group can be established only by cooperatives."

The number of members' producer groups should be at least fifteen producers and the registered capital has to be not less than 1.5 million forints. The minimum revenues are defined by sector and it resells the products without margin. Principles are the open membership.

Producer groups were established first in Italy, Belgium and France.

Recognizing the usefulness of these groups the 12 new EU member coutry were given opportunity to establish and support of producer groups.

Due to the supports of fruit and vegetable producer groups the number of groups increased to 201 in Hungary (see Table 3). The number of members was 13.339 persons (the natural persons rate is nearly 90%) in 2013.

Table 3. **Change of the main indicators of producer groups in Hungary (2006-2013)**

	Unit	2006	2010	2013
No. of producer groups	Piece	157	196	201
No. of members	Thousand persons	13.5	16.2	13.3
Average No. of members	Persons	86.0	82.7	66.0

Source: Bíró et al. (2015)

Fruit and Vegetable Producer Organization

The definition of fruit and vegetable producer groups drafted in the Regulation of (EC) No. 2200/96, 1580/2007, 1182/2007 and in the Regulation of Ministry of Agriculture No. 150/2012.

Producer groups may cover the following products: vegetables, fruits, mushrooms, nuts, citrus fruits. Sales may be made for fresh market and processing industry, but also operate their own processing plant.

Preliminary recognition plan may be made by cooperative or company that has minimum 10 founding members and the turnover is more than 150 million HUF one year before the submission of the recognition plan.

Recognition request for a producer organization may be made by cooperative or company that has a minimum of 15 producer members (in case of company minimum 15 business quota) and the value of products is more than 250 million HUF the year before the submission of the recognition request.

The aims of fruit and vegetable producer organizations are the coordination of production, adapting supply to demand, increasing of value added, product storage and sale, technology innovation, quality management, quality assurance, procurement of input materials, pre-financing, using of integrated plant protection, and direct relationships with customers.

80-90% of produced fruit and vegetables are sold trough producer organizations in Belgium and in the Netherlands. In Hungary the first fruit and vegetable producer organizations was established at the beginning of 2000s.

Table 4 shows that the number of approved producer organizations was 81, with 14.7 thousand members, while the total size of their land was 31.8 thousand hectares in 2013.

Table 4. **The main indicators of fruit and vegetable producer groups and producer organizations (2000-2013)**

	Unit	2000	2005	2010	2012	2013
No. of approved producer organizations	Piece	3	71	72	80	81
Total size of land	Thousand hectare	1.1	26.1	41.9	38.5	31.8
No. of members	Thousand persons	0.4	20.5	18.3	16.6	14.7
Total turnover	Billion HUF	0.9	32.9	38.2	40.4	44.8

Source: Bíró et al. (2015)

Fruit and vegetable producer organizations do not have independent legal status. The legal form of recognized organizations is cooperatives (69%), joint stock company (2%) and limited liability company (29%). 22 organizations are available in Szabolcs-Szatmár-Bereg County, 13 pieces in Csongrad County, 46 in other Hungarian counties.

In the Hungarian agriculture, several organizations of purchase, sale, and other services can be found. These organizations deal with the purchase of agricultural products, warehousing, sales, and materials needed for the purchase of agricultural production and the need for agricultural production and providing services. The purpose for their members is to provide procurement of raw materials for agricultural production with the purchase of large quantities and with the highest quality, to facilitate sales of products, to offer services for their members.

Agricultural machinery organization

The following types of machinery cooperations can be found in Hungary: association, rental organization, and machine-wage employment services (Takács et al., 1996).

The aim of agricultural machinery organizations is that the farm with shortage capacity can use properly extra capacity from other farms. Takács and Baranyai (2013) identified three machine cooperations forms in Hungary: working with machines based on reciprocity, lending of machines, joint ownership and using of equipments. Financing of operating costs is from the membership fees, contributions and support. These organizations are considered cost-effective and joint using of machines cooperation.

Agricultural machinery organizations can be found mainly in Germany (300 pieces, 200.000 members), Austria and Switzerland. In Hungary in the last decades the mechanization of farms was increased through the EU support to buy powerful tractors and combines. It demonstrates that the number of big engine power (over 60 kWh) tractors per farm four

and half fold increased, while the number of low engine power (under 19 kWh) tractors halved between 2000 and 2013 (see Table 5).

Table 5. **Change the number of machines in Hungary (2000-2013)**

	No. of machines (Thousand piece)			Change 2000=100%	No. of machines per farms (piece)			Change 2000=100%
	2000	**2005**	**2013**		**2000**	**2005**	**2013**	
Tractor	123.5	128.3	120.2	97.3	0.13	0.05	0.09	73.8
from this under 19 kWh	28.2	24.0	14.1	50.0	0.03	0.03	0.03	97.9
20-59 kWh	75.9	67.0	59.5	78.4	0.08	0.09	0.12	153.5
over 60 kWh	19.5	37.3	46.6	239.2	0.02	0.05	0.09	468.2
Harvester	12.1	12.1	10.8	88.9	0.01	0.02	0.02	174.1

Forrás: Bíró et al. (2015)

Integrators

During the production, the farmers need input materials and devices with good quality, as well financial constructions to help secure production. Multi-directional cooperation required for these tasks, which appears in the coordinated relationships of integrators. An agricultural entrepreneur has its produce financed with an integrator contract, and after the sale of the product it fulfils its liabilities toward the integrator. The integrator can be business organization or individual entrepreneur.

According to the integrator contract the integrator helps and coordinates the production of the integrated partner. The partner of the contract finance partly or totally the current asset needed to produce. Integrator buys up the product in order to processing or resell (be an exception). It demands technical and/or administrative services on request. The required subsidies and discounts will be passed for the integrator and it enforces them in the accounts.

In Hungary, today's modern integrators were established at the end of 1960s (Juhász – Mohácsi, 1995). The integrator holdings were continouos changed in the last 25 years and international integrators have also appeared in the market. Nowadays the integrators offer financial and credit opportunities, innovation transfer and other services (e.g. plant protection, storage) to the farmers.

Most agricultural cooperation (80%) made by integrators and cooperatives forms. The financial data (net income, total assets, profit before TAX, investment) and numbers of emploees are very important factors in the market.

Table 6. **The main data of agricultural cooperations by forms in Hungary (2013)**

Form	No. of organizations	Net income	Total assets	Profit before TAX	Investment	Employees
	Piece			Billion HUF		Thousand persons
Cooperative	597	118.1	159.7	7.6	13.0	6.3
Producer organization	79	54.7	50.1	0.04	5.6	0.6
Producer group	201	273.6	68.0	1.0	1.4	1.0
Integrator	615	1662.4	1190.1	43.9	72.7	29.3
Total	1472	2108.8	1467.9	52.5	92.7	37.2
			Rate (%)			
Cooperative	40.0	5.6	10.9	14.5	14.0	16.9
Producer organization	5.3	2.6	3.4	0.1	6.0	1.6
Producer group	13.5	13.0	4.6	1.9	1.5	2.7
Integrator	41.2	78.8	81.1	83.6	78.4	78.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Forrás: Bíró et al. (2015)

Clusters

The main reason for the development of clusters is that global companies have appeared in the market generating competition in supply and demand side.

"Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example, suppliers of specialized inputs such as components, machinery, and services, and providers of specialized infrastructure. Clusters also often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technologies, or joint inputs." (Porter, 1990)

The actors are linked mainly in knowledge generation and transfer, and innovative preferred solutions (Bíró et al., 2014), so it means cooperation based on mutual adventages between

the actors. Clusters are generally characterized by the key corporations of sector or region because they are able to grow and quickly expand production.

Clustering is a self-generating process. Cooperation between the sectors, institutions, infrastuctures, and industries will be started automatically after reaching critical mass. The adventages of clusters are the faster adaptation to the market, reduced transaction and transportation costs, faster and more accurate information transfer, easy input substitution, technology and organizational experience, and exchange of knowledge.

The number of agricultural clusters is very different in the EU countries. The rate of agri-clusters is 11.5% in Italy, 6,1% in France, 5,0% in Finland and 4,3% in Spain, but only 1,7% in Hungary (EUROPEAN CLUSTER OBSERVATORY, 2013) (see Table 7).

Table 7. **Number of clusters in the European Union (2013)**

Member states of EU	Number of clusters (piece)	Number of agri-clusters (piece)	Rate (%)
Germany	227	2	0,9
Italy	183	21	11,5
France	132	8	6,1
Hungary	118	2	1,7
Spain	116	5	4,3
Denmark	66	2	3,0
Finland	40	2	5,0
Portugal	34	1	2,9
Total EU 27	1131	48	4,2

Source: Bíró et al. (2015)

Professional and Inter-professional Organizations (product councils)

Professional organizations operate with different organizational structure in the European Union member states. In the Hungarian legal system, we can find the Act XCVII of 2015 on the agricultural product market, professional and inter-professional organizations. Professional and inter-professional organizations are non-profit and advocacy organizations of the agricultural participants with national professional competence. Their tasks focus on the coordinated action of production, marketing, monitoring, and participation in the preparation of legislation also. According to the Regulation of No. 88 of 2003 Product Line Committees were established in seven poduct lines in Hungary (cereals, dairy, meat, sugar, fruit and vegetables, grape and wine, and tobacco) which mainly carry out management, organization and agri-market regulatory functions.

An electronic agricultural marketplace

Today, the Internet is part of everyday life, because there are only a few segments of life that can not connect to web service/portal. Various Internet sites promote learning, information gathering, networking, and working and last but not least purchasing. Opportunities offered by the Internet become more involved in all segments of today's economy, more and more companies offer commercial support and other services via the Internet (Grotte, 2014). At present, mainly the medium and large companies are using this option, however, the recent development is significant and more and more retail businesses use it.

The electronic commerce (e-commerce) means all form of business transactions in which the parties are contacted in more electronic than physical or direct ways. The basis of its development was the Internet. The electronic marketplaces (e-marketplaces) have evolved as a result of the e-commerce development processes. The e-marketplace is a specific combined trading form, where many sellers and many buyers take part at the same time, but it is not simply electronically controlled trading process of a company.

The three types of e-marketplaces based on the operating service and on the major stakeholders (Fónai, 2006):

- Independent e-marketplaces that are operated by a third party. Independence means that the operator does not appear in the portal either as buyer or as seller. All the companies of the particular industry or region can participate in the trading.
- Sales oriented e-marketplaces operated by an industrial cooperation with limited number of participant are designed to effectively sell the products and services of the members of the consortium for customers. These portals have electronic ordering and payment system and adequate logistical background.
- The members of the cooperation arrange their purchases through a supply oriented e-marketplace. The lower price is achieved by the management of procurement. The indirect sources, which are required in daily operation, maintenance, are often purchased on the portal.

The adventages of e-markets are the followings: significantly simplifies the traditional sales structure (the trading sector excluded), reduces transaction costs, users do not have to finance the development of its own web site (assuming the coordinator). One of the most critical aspects of the marketplaces is that users do not have personal contact with each other. This is not a problem in some cases (e.g. well-standardized and known products), but could also be specifically disadvantaged (e.g. by the purchase of used agricultural machinery).

The strategic options of the customer have been strengthened during the online shopping. While possibilities of the customer are restricted by geographical position during the classic purchasing process, these barriers significantly loosened in the internet age. The buyer has

opportunity to overview a wide range of offers available on the Internet and it can also be graded (e.g. on the website).

The most important factors of e-commerce are the confidence and the so-called critical mass (network effect). The network effect is based on the principle that the value of a network is proportionate to the square of the number of related items (users), and therefore the demand for access to the network (the demand of network) is proportionate to value of the network. There is a critical mass beyond which further new connections stimulated new connections, but until this point the network is vulnerable.

The adventages of a company, what it can expect from the use of an e-marketplace, are influenced by several factors. On the one hand, it depends on that the company want appear on the buyer or seller side, on the other hand it depends on the company's internal operation and on the selected e-marketplace as well (Fónai, 2006).

Advantages of the customer's point of view:

- May expand the supply base, because new suppliers can be contacted via the Internet.
- It is easier to obtain information about the business partners and the offered products and services; it is also easier to compare them. More information is available to make purchasing decisions, a greater selection of offers are on the same site (in one place) which help comparison.
- More efficient, error-free purchasing process, as semi-automated process takes over the manual procurement.
- The costs are more transparent because it can compare the prices and choose the right product/service at the right price. The products of competing companies are comparable.
- Nonstop trading, comfort, termination of geographical boundaries.

Advantages of the supplier's point of view:

- New sales channel, which means a wider customer base and higher revenue.
- Lower marketing costs.
- More transparent and lower transaction costs, more efficient and faster process execution.
- The entry and access is relatively cheap.

- It is easier to obtain information about the customers, their satisfaction and needs, and about the competitors.

Disadvantages of the customer's point of view:

- Customer cannot touch or just take a look at the product.
- Safety issues, whereas the risk of identity theft exists and buyers are wary of electronic payment methods.
- Specific customer base.
- Delivery problems may occur.

Disadvantages of supplier's point of view:

- The margin may decrease.
- There is no personal contact with the customers, which is an advantage by the traditional markets, because it is possible to inform immediately the customer about a particular product, so it is not possible to persuade the buyer.
- Competition can occur quickly due to the low barrier of entry.

An important advantage of the e-marketplaces is cost reduction, since experience shows that an average user can reduce their costs by 10-20% (sometimes up to 30-50%). Cost reduction is an important feature, as this is the most effective and safest way to increase profits.

As described above, the use of worldwide commercial IT networks provides the opportunity to promote businesses. It is a competitive factor, which must be exploited, if a company wants to survive. The services that can be used away from the service provider (such as electronic marketplaces) are spreading rapidly on the world networks.

It can be established that the general existing marketplaces in Hungary can have large agri-section, where the trade processes are partly supported by the marketplace itself. There are also marketplaces, with more or less state participation, that serve as an export-oriented agricultural products' catalog of the country, where large range of producers and products can be found, but the deals are taking place outside of the marketplace. Based on these thoughts it can be concluded that there is currently no real and viable electronic agricultural procurement marketplace in Hungary. A system is needed to fill these market gaps, which can keep close contact with producers, can solve the effective lobbying, as well as can increase the innovation activity.

The proposed agricultural marketplace can be perceived as commercial and industrial systems as well, which should take into account the followings:

- The producers are managed as autonomous and equal individuals/entities which must be placed in the best decision-making positions, and whose production decisions cannot be restricted.
- The production must meet requirements and conditions set by the market.
- The system must meet various boundary conditions (such as environmental regulations, subsidies).

The main inputs in agriculture are bio-products, chemicals, technical systems, human, and material factors. Dynamic developer-renewal activities can be experienced in the field of inputs and it results in supply dominance. The users of marketplace are farmers, input producers (e.g. machine builders, distributors, producers of pesticides, fertilizers, etc.) and partner organizations (strategic partners: research institutes, universities, professional organizations, book publishers, and operational partners, etc.). Users can belong to different sectors in terms of structuring (e.g. crop production, livestock production and mixed farms). The planned marketplace concept design primarily provide support for farmers within the scope of essentially small and medium-sized enterprises by procurement and efficient utilization of production inputs, by production and product development, by establishing business relationships, and by effective sale of the products. Other important goal is to support the cost effective sub-processes of the production chain between input producers and farmers.

The producers, regardless of size and spatial location, may contact each other in order to joint purchase of input materials or to cooperative use of inputs (e.g. joint use of technical tools, achieve more efficient access to funds, etc.). The system must create transparency, comparability and, last but not least, traceability. It is also important to create competition among the input suppliers, to expand the supply side, to loosen up the rigid commercial structures in order to create the most favourable purchasing conditions. To do this it is needed a system that enables to request joint bid of the producers, which would result a more favorable position by contracting through the competitive tendering (see Figure 1). In recent years, the information technology is involved more and more in the operation of markets and the marketplaces helps to implement these tasks more cost-effective.

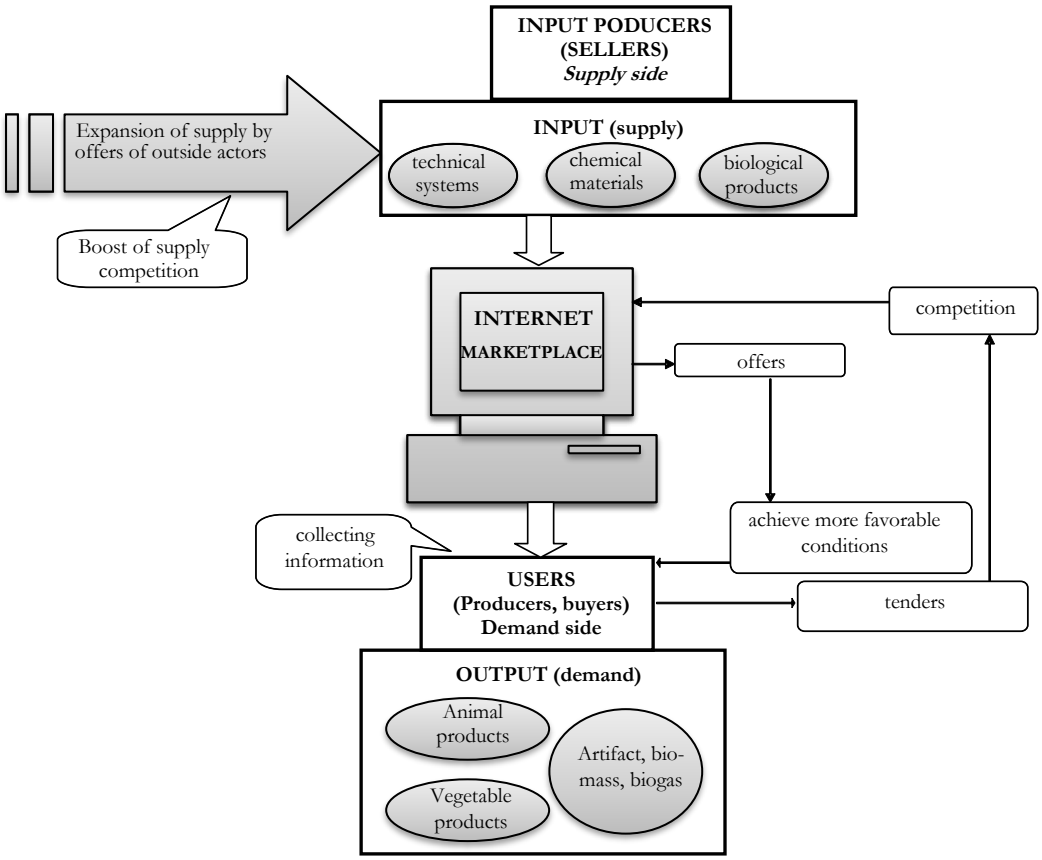

Figure 1. **A simplified model of the agricultural marketplace**

Source: Erdeiné Késmárki-Gally (2014)

The marketplace gathers information to users (producers) and it helps to draft the purchasing and sales tenders, as well to compete suppliers and customers. Exact data of input consumption, their timing, quantity and quality characteristics can be obtained from the information system. Producers can achieve better positions in the level of purchase price, quality, and other characteristics of the input substances using this system. In addition to the faster flow of information cost reducing will also be realized, in case of financing the management of outstanding debt is an important matter of corporate management (NAGY, 2015).

Agricultural production carried out primairy by small and medium-scale farmers. Financing of Hungarian agricultural farmers can be different (Kozma et al., 2016). Through this system the coordination of production intensity should be achieved on a higher and more extensive level by involving more producers; however it is difficult to achieve the required market

concentration to obtain the market benefits for the farmers. The marketplace can provide efficient information flow as well through the full range of users.

The supply and demand market participants will be competing with each other, but there will be also advantages because the supply-demand market of inputs can be more predictable and more transparent, the penetration to the market becomes easier for the participants and thus increases the efficiency of their trade. As a result of this system the number of participants of the supply market may increase gradually as the system calculates with new actors, thus the competition will increase between the input distributors (e.g. compare prices, offer simplification), the number of offered products will grow and their quality standards will improve. Shortening of the commercial chain results increased engagement of producers, while cost-effective support of sub-processes is expected. It would be able to achieve a better bargaining position for small farmers with joint procurement. The quality will be improved and the risk of fraud will be decreased by the traceability of business track record of individual operators, distribution statistics, and the feedback of partners. The marketplace would be an integrated platform to follow general market trends and information that would help the sector's participants to strengthen their role in the market through improving the economic efficiency.

The uniqueness of the system is that all submitted information is according to the specifics of the given farmer (e.g. property size, location, conditions). This means that the producer receives personalised production information in optimal case. The horizontal development lines are created "spontaneously" by the system, because several sub-elements may be the same by the product line, and along the activities related development, where the treatment can be done similarly.

CONCLUSIONS

The development path of the Hungarian agricultural cooperations (including cooperatives) is radically different from the Western European model with lots of controversial changes in the second half of the 20th century. This situation has been resulted in the deterioration of confidence between the partners in the agricultural sector. However, new types of cooperations began to be organized after the political changes.

An interconnection between the actors can contribute to the success of the agricultural companies, as it will reduce transaction costs, increase confidence, save time between producers and other participants in the sector.

A novel system, which connects the producers, the input sellers and buyers, can open such contact options, where the outcomes go beyond the traditional connections. The goal of the development concept is to provide support for farmers and suppliers (basically small and medium-sized farms) by procurement and efficient utilization of inputs, by the production and product development and establishing business relationships. The purpose of this sytem

is to help the agricultural producers, to improve their economic efficiency, to strengthen their role in the market.

To sum up, currently there are examples of various B2B marketplaces availability of agricultural products, or even B2C marketplace based on profit-oriented platform. There is neither domestic nor international level advanced solution that brings together an integrated system of procurement, innovation, communication and trade issues while creating the transparency, comparability and the traceability.

An integrated electronic-agricultural marketplace with advanced IT technology can provide broad access for all users of the marketplace to offer customized information via variety of portal modules and by the use of partnership opportunities.

A comprehensive agricultural market ecosystem can be created that provides a marketplace-based advanced integrated technological approach to agricultural production, communication, and commerce. This marketplace system creates business opportunities based on the real marketplace, where it can assist users by every level.

A more detailed analysis of this concept is required.

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