

## Developing the Information Infrastructure of Agro-Industrial Complex In the Republic of Kazakhstan

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**Abstract:** The article considers the activities of the joint stock company "KazAgroMarketing", which is today the only specialized organization providing a range of information, marketing and consulting services to the agricultural market participants in various branches of the agricultural sector. The availability of information resources for the subjects of agro-industrial complex has been studied. Provision of the agricultural sector with the information infrastructure facilities has been analyzed. The target audience of the marketing information system of "KazAgroMarketing" company is considered. The main distribution channel for the required information in agribusiness management has been determined. The need for the development of information and telecommunications market in the rural areas of the Republic of Kazakhstan has been revealed. The expansion of the marketing information system in the rural areas is outlined. Main activities for the information infrastructure development in the agro-industrial complex of the country are proposed.

**Key words:** Information • Information infrastructure • Agro-industrial complex • Information and marketing system

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### INTRODUCTION

To ensure the continued functioning of a market economy and to provide agricultural market participants with timely and reliable information there is a need in an appropriate set of institutions of information infrastructure. The information infrastructure is one of the most important preconditions for reform and establishment of the agricultural market. Lack of timely information prevents the formation of independent economic entities [1].

Producers and consumers of agricultural products do not have the room for maneuver in choosing price, place and time for the sale and purchase of products. Neither producers nor governments have information on the trends and dynamics of domestic and foreign markets [2]. Not being well-informed, they are taking actions that do not serve their own interests. Not only the leaders and agricultural experts, but all the residents of the settlements without the information infrastructure have serious problems in information provision.

It is expedient to assess the provision of agricultural subjects with information resources and information infrastructure facilities, so that managers and specialists of agricultural enterprises could use all available means

and methods of information exchange in the implementation of management functions [3]. The objective of the study is to develop practical recommendations for the development of the information infrastructure of the agro-industrial complex.

**Key Part:** In general, the situation in the agricultural sector has a positive impact on the overall economic climate in the country. Under the established conditions of the agricultural market development, the need of food producers to expand the markets, increase the turnover and improve the product quality increases. In this situation, the demand of agricultural producers for marketing information and consulting services is growing. All this creates a need in further enhancement of competitiveness of our economy, its diversification and harmonious integration into the world economic system [2].

In a market economy and at optimization of state support, the priorities are: the need for intense methods of production; development, improvement and introduction of science-based production technologies for sustainable use and conservation of natural resources and efficiency of agricultural branches. The implementation of these measures requires broad dissemination and clarification

among the members of the agrarian market. In this regard, at present the main task of agriculture is to create the most favorable conditions for the access of all participants to timely, high quality, reliable, complete and affordable data [1].

Therefore, in the framework of the State Agro-Food program in 2003, the joint stock company "KazAgroMarketing" (hereinafter - the Company) was established with 100% participation of the state in the share capital. The activity of "KazAgroMarketing" is aimed at monitoring the internal and external markets of agricultural products in order to develop strategic decisions and to ensure effective state regulation of the industry [4].

"KazAgroMarketing" JSC was created to address the backlog of issues in the field of information, consultation and marketing. The structure of the Company covers 3 levels (Republic - region - district) and has a centralized organizational and financial system. During the Company functioning, the representative offices were established in all regional centers and rural information and counseling centers were opened in 161 districts [4].

The Company weekly monitors the prices of agricultural products and processed products; the information is weekly posted and updated on the website of the Ministry of Agriculture of the Republic of Kazakhstan and in mass media. The analytical conclusions and the forecast of market conditions, as well as recommendations to improve the competitiveness of domestic agricultural products and to find ways to enhance its export potential, are developed.

"KazAgroMarketing" JSC is working to transfer the marketing information system to the new mode of operation, which allows more interactive exchange of information and reduction of costs for filling the departmental forms. The main forms of marketing information system are placed and run in a combined mode on the web-portal of the Ministry of Agriculture of the Republic of Kazakhstan.

Analytical and marketing information services are publicly available and are provided on a fee-paying basis. Total in the country from 2003 to 2012, 525 analytical and market researches were carried out in various fields of agriculture, more than 3,000 business plans were developed and about 7,000 advisory, analytical and marketing services were rendered to the agricultural subjects. Information and consultations are also provided through the issuance of brochures, manuals and newsletters [4].

The administration of the Web site of the Ministry of Agriculture of the Republic has organized its stable and smooth operation, has improved technical features of the site, optimized navigation, added new functions, arranged an exchange of banners, hyperlinks and other interactive applications with the web sites of government agencies, private and public organizations of the Republic of Kazakhstan, CIS and far abroad. Today, the site numbers more than 10,000 users [4].

To extend the functionality of the marketing information system the service of electronic dissemination of analytical, marketing, pricing and commercial information was designed and introduced (it is a prompt delivery of the relevant and accurate information to the email addresses).

At the moment, the number of subscribers of electronic dissemination service is more than 3000 users: government agencies (30%), mass media (15%), companies working in the field of agriculture (20%) and agricultural producers (35%) [4].

As part of the integration in the international marketing network, at present there is an organized and efficient contact with marketing information services in the countries of the CIS and far abroad. The exchange of marketing information between "KazAgroMarketing" and information centers in Russia, Ukraine, Uzbekistan and Kyrgyzstan has been established.

Currently, firms and companies operating in the field of marketing information and consulting services in the agricultural sector of the country have a narrow focus of activities, insufficient provision of information and no regional network.

Thus, "KazAgroMarketing" JSC today is the only specialized organization engaged in a range of marketing information and advisory services for agricultural market participants in various branches of the agricultural sector, including provision of a guaranteed amount of information services on a free-of-charge basis. Poor development of the market of these services is due to their commercial unattractiveness.

No one denies that in the agricultural production and other agricultural businesses, computer and Internet have been finally realized as necessary attributes of the production process. Prospects for the development of the agricultural sector largely depend on how quickly and adequately the agricultural market participants will penetrate in the innermost information, realize its benefits and achieve the highest level of mass media consumer culture [1].

The establishment of modern dynamic market economy with a mechanism of self-regulation is not possible in the republic without a reliable information system, which is an important factor in the investment climate and a prerequisite for the development of agribusiness.

Speaking of awareness, especially about the future deployment of marketing information system, we can not forget about its distribution channel, as the information must be communicated to the consumer quickly, reliably and completely. One can ask the question: "What kind of information distribution channel is more suitable for this project?"

Today, there are many types of information, among which the main four may be distinguished: broadcasting, printing, group and individual contacts and the Internet.

An important criterion for the information delivery is efficiency, i.e. the ability of a particular information channel to deliver the information in a short period of time. Given the duration of the processes in printing and the time required for the organization of individual or group interviews, we can distinguish broadcasting and the Internet among the listed information channels [5].

Compared with the World Wide Web, broadcasting has a wider audience, although it should be noted that the resources of the Internet are not limited by time and scope of information. In addition, given the requirement to organize a permanent access to the right information, it should be noted that the Internet has an indispensable advantage over other channels of information. Systems of wide search and information management by the user provide added bonuses to the Internet. The Internet has influenced and continues to strongly influence the formation and development of the global information community.

As the number of Internet users is already comparable with many traditional media, so it makes sense to assess: whether Internet users are part of the intended target audience? How much easier is to achieve it by means of the Internet?

In order to answer this question it is sufficient to characterize the current state and the operation mechanism of the marketing information system. The target audience and marketing information systems can be divided into 2 groups - corporate and anonymous.

The corporate audiences are government agencies directly involved in the system. These are territorial divisions and departments of the Ministry of Agriculture and Regional Agricultural Administrations of Akims (heads of the regional administration), which main

function is to collect, process and form the departmental statistics. Data is exchanged over the Internet due to advanced telecommunications infrastructure and established channels of communication between the district, regional and national levels. Reliability and smooth operation of telecommunications networks allows using the Internet as the main channel of information exchange [3].

Anonymous users can be the consumers of output information of the marketing information system that is disseminated through the Website, AgroVebPortal of the Ministry of Agriculture of the Republic of Kazakhstan and the customer e-mailing service of "KazAgroMarketing." Information and analytical data, market and marketing information, review of prices and commercial offers are available to all users of the Internet [4].

And so it is safe to assume that this is a global network that should serve as a platform for deploying the marketing information system in the rural districts. If the current state of the telecommunications infrastructure and transport medium in the rural areas does not meet these requirements, it is necessary to look for other possible solutions to the problems [6].

In this regard, to further develop the information infrastructure in the agriculture of the Republic of Kazakhstan it is necessary to solve the problem of different telecommunications in rural areas. To determine the potential of the Internet technology in rural areas we should study in detail the technical capabilities of telecommunications networks, communication technologies and means of telephony, installed and operating in the rural areas.

The development of the market of information and telecommunication services will provide free access to the Internet, thus giving farmers an opportunity to become users of a number of information systems in Kazakhstan and cross the threshold of the "digital inequality" [5].

The rapid development of the telecommunications industry in Kazakhstan is at present conditioned, on the one hand, by a significant unmet demand for the installation of home phones and on the other hand, by the emergence of a segment of the latest high-tech services: data transmission, mobile services and access to the Internet.

The main indicator of market development of public telecommunication services is the number of telephones per 100 residents, which is correlated with GDP per capita. For example, in Kazakhstan in 2012, the overall number of phones was about 2.9 million units, i.e. 18 phones per 100 residents (in the U.S. and Western Europe, 60 - 70 phones) [7].

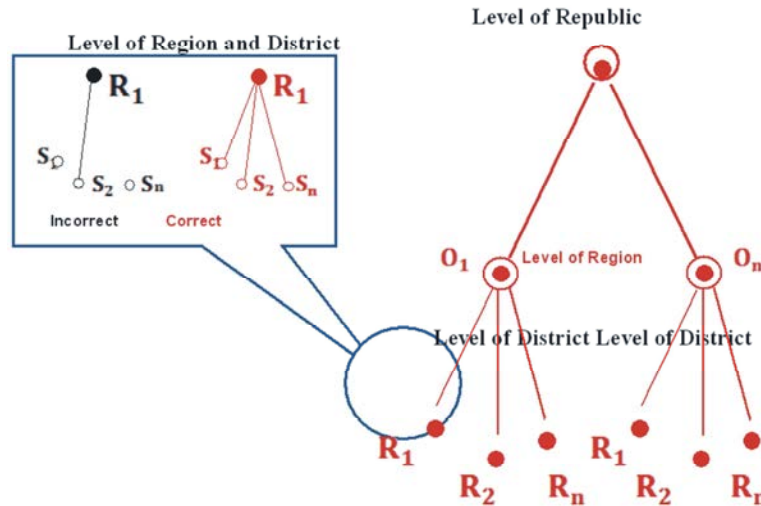


Fig. 1: The hierarchical scheme of marketing information system of the Ministry of Agriculture of the Republic of Kazakhstan.

A project of the National Information Superhighway, a base for innovative technological changes in the industry, is dynamically implemented. To address the telephony problems in remote villages "Kazakhtelecom" JSC realizes a pilot project on the wireless radio access in the 450 MHz band. The conventional model is a pilot area where the project will be implemented. According to the data of "Kazakhtelecom" at the end of 2012, the number of Internet users in Kazakhstan amounted to 4.8 million people [8].

The effectiveness of the deployment of marketing information system of the Ministry of Agriculture of the Republic of Kazakhstan at the rural districts directly depends on the telecommunications infrastructure of the pilot areas, including the level of communication facilities and capacity of existing equipment providing Internet connections.

The current situation with regard to communication in rural areas because of low population density and poor welfare standards of rural residents has led to a sharp imbalance in the provision of telecommunications services between urban and rural areas. The majority of the rural population lives in the conditions of limited information field or in informational isolation [9].

According to statistics in the Republic of Kazakhstan, there are 160 districts, 2257 rural districts and 7483 rural settlements. The largest number of rural settlements lacking telephone service is the regions of Kyzyl-Orda - 48% (132), Aktobe - 32% (137), Mangistau - 29% (14), Kostanaj - 28% (215), East-Kazakhstan - 21% (170) and Atyrau - 18% (35).

Thus, the telecommunications infrastructure of rural districts should be improved by installing advanced digital ATE that can provide subscribers with access to the Internet at a speed of over 56 Kbps per second.

This requires the establishment of agricultural information terminal, which operation will provide a framework for the deployment of marketing information system at the level of rural districts [10]. At the first stage, such agricultural information terminal will allow organizing electronic records management, which will have a positive impact on the culture of use of electronic data transmission channels.

In order to ensure the functioning of the rural information terminals in all rural areas of the region it is necessary to install modern digital telecommunications equipment. In terms of accessing the Internet and transmitting digital data the automated stations will allow reaching the maximum speed limit up to 56 kilobits per second, which is the main requirement for the deployment of marketing information system. The hierarchical scheme of marketing information system of the Ministry of Agriculture of the Republic of Kazakhstan is presented in Figure 1.

At present, the marketing information system of the Ministry of Agriculture of the Republic of Kazakhstan operates as a 3-level hierarchy consisting of the national (administrative unit), the regional level ( $O_1, O_2, \dots, O_n$ ) and district level ( $R_1, R_2, \dots, R_n$ ). For its deployment at the village level it is necessary to connect it to all the settlements ( $S_1, S_2, \dots, S_n$ ), being the administrative centers of the rural areas. Only this approach will allow

achieving the expected results from the deployment of the system. Otherwise, collecting information from primary sources, which is a rural area, the district administrator of the node will not be able to provide complete summary of the data.

### CONCLUSIONS

The research resulted in the following conclusions:

First, a project of the National Information Superhighway will provide an opportunity for innovative technological transformation in the agricultural sector, which in turn will help to solve the problem of telephony in remote communities;

Second, the deployment of marketing information system at the level of rural districts directly depends on the telecommunications infrastructure, so its development will determine the Internet accessibility for the rural districts, which will allow farmers to obtain necessary information in due time and in full for effective decision making in the agribusiness;

Thirdly, the deployment of marketing information system will allow for the further development of the information infrastructure of agriculture of the Republic of Kazakhstan.

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