

ROLE OF NEW TECHNOLOGIES IN CREATING COMPETITIVE ADVANTAGE

Ružica Milovanović*¹

¹Faculty of Economics, University of Kragujevac, Đure Pucara 3, 34000 Kragujevac, Serbia

ABSTRACT: In the last decades, producers have achieved remarkable success in food production as a result of the application of modern science and technology in agriculture.

The role of modern technologies is to enable production of sufficient quantities of high quality agricultural products and the production of adequate raw materials for processing in other industrial branches.

The paper shows that the core of modern technologies is information technologies (IT) too. Computers and modern IT fundamentally changes the way of production, consumption and distribution of goods and services.

Part of the paper deals with logistics as a new business function. The development of the logistics concept of operations has enabled overcoming of the difficulties caused by economic recession and opened the way for development. Procurement, storage, maintenance of supplies, transportation and distribution, as logistical processes, are vital activities for the survival and development. All they have to be complied with and among them there must be links in order to obtain the optimal product.

Keywords: *food, quality, safety, IT, logistics*

INTRODUCTION

The main problem of the Serbian economy is the insufficient level of activity, which shows data of the Serbian Institute for Statistics (7).

The Serbian economy at the end of 2009 was at 69% of the gross domestic product in 1989. and at 42% of industrial production. According to the estimate, Serbia in 2009 year in agriculture has achieved growth of its gross production value of about 2.58%. The structure of the estimated gross value generated in agriculture, shows that plant production has made 69.5% and cattle breeding 30.5%, with growing participation of plant production. Developed European countries special attention gives to agriculture, especially cattle breeding. For their economic policies question of priority does not exist, everything is priority.

In the economic conditions in which Serbian economy is existing, the share of the agricultural budget of the total state budget is decreasing with every crisis, from 5.3% to only 3%. With such a small separation and investment, agriculture, especially cattle breeding, can not be export-oriented. Great opportunity is investment in the real sector, which are, in addition to energy, telecommunications, and infrastructure and some selective parts of agriculture, such as production of organic food and higher level of processing. With such strengthening of agriculture, Serbia would avoid the role of food importer. It would directly reduce import costs and thus Serbia would have a positive impact on maintaining external liquidity.

Another important part is to establish a safe and efficient food production. An important step is acceleration of the process of inte-

*Corresponding author:

E-mail address: milovanovic@kg.ac.rs

gration into the European Union, because the formation of the same system and same regulatory mechanism, with use of long-term standards and rules of conduct, reduce regulatory risk and increase competitiveness.

Safe and efficient production as the base of competitive advantage

The strategy to achieve these goals is based on the effective management and quality management.

Standards are the basis for the improvement of the quality system and are part of the overall business process.

The largest number of countries uses management system based on international standards ISO 9000. In Serbia, they are adopted as JUS ISO 9000 (ISO 9000:2005, Quality system management).

Nevertheless, as was originally intended that the quality management system becomes mandatory for all primary producers within the European Union, the implementation of standards is not mandatory. Possession of the relevant certificate is not a formal requirement for the sale of products at the world market.

However, the quality management system is becoming increasingly important factor in competitiveness, because with it, trust between producers and consumers is faster established. The establishment of quality systems within the organization according to ISO 9000 is aimed at:

- creation, satisfaction, and overcoming the demands of customers,
- realization of policy and quality objectives,
- continuous improvement of the quality system
- balance in meeting demands of customers and other users.

The goal of many successful companies today is not only the satisfaction of basic expectations, but to overcome their expectations, that is, achieving added value for users.

In order to achieve this, it is necessary to

continuously monitor the market needs, which is partly achieved by measuring customer satisfaction (ISO 10003:2007, Quality management-Satisfaction of customers).

As a result of growing concern for production and trade of safe food the law on food safety is adopted. This completes the establishment of a system that unites producers, distributors and retailers of food products. So everyone in the supply chain from primary agricultural producers to retail outlets, becomes equally responsible for the safety of food products and their suitability for use.

An important part of this program is the use of information and communication technology in places where, traditionally, are not often applied.

Successful operation of information systems in agriculture requires the existence of adequate equipment and training personnel who will perform the collection, processing and transfer of information to end users (4).

The development of the speed of the computer microprocessors constantly progresses in the direction of facilitating problem, solving not only problems of technical and technological nature, but both economic and environmental problems.

Electronic data exchange is primarily used in the business, and this is the electronic exchange of information within the agreed standards and protocols for information sharing.

Electronic data exchange reduces data entry costs, reduce paper consumption, increase data accuracy and encourage faster responses. Ability that a supplier is in electronic connection with a consumer, with the electronic exchange of data, is changing the structure of buyer-supplier relationships (2).

Formation of reliable bases of data and knowledge would enable more efficient food trading, and easier quality and safety control.

Contemporary technology as a base of competitive advantage

Healthy food is undoubtedly one of the strongest export trumps of Serbia, since that 80% of the soil makes fertile ground for this production.

On the other hand, there is greater demand for organic agricultural products. The European Union's sale of these products has tripled, due to health differences (46%), and because of better taste (40%). It is evident that this upward trend did not reach any one economic sector, including information technology.

Increasing the scope and range of production methods for organic farming requires a modern organization in all its parts (from production to sales and marketing). It is necessary to standardize the area of organic production and products. Also, it is necessary to educate producers and inform consumers about the quality and benefits that organic products carry in themselves (6). The main goal of this production is the development of sustainable agriculture while preserving ecosystems, with obtaining quality food, rich and nutritious.

Maintenance of genetic diversity of agricultural and ecosystems, and reducing all forms of pollution that may be a result of agricultural production is mandatory. Part of the strategy to increase competitiveness, also must be and promotion of use of renewable energy sources.

Excessive and careless use of fossil fuels is causing serious environmental problems. The most important gas causing the greenhouse effect is carbon dioxide, also the main product of burning fossil fuels. In addition, it is founded the finality of conventional energy sources.

The result of this situation is the need for reconstruction of the energy capacity and achievement of environmental standards that apply in the developed world, while also promoting plans for the use of biomass and solar energy.

An important share of the competitive advantage would have capacities that produce electricity based on coal of high environmental standards.

Business logistics as base of competitive advantage

In terms of increased competition both in domestic and the world market, manufacturers are vying for leadership positions. One way to deal with the problems of globalization is the use of business logistics.

The main task of logistics as a business function is to optimize flow of materials, information and services, which is achieved by an integrated approach to all the constituent elements: transportation, warehousing, inventory, manipulation of goods, information and communications and organizational system.

In any system, integrated logistics creates a sustainable, competitive and strategic advantage (1).

Companies with advanced logistics concept of operations, can count on two types of economic effects:

Reduction of business costs, resulting from the reduction of the average amount of funds involved and the optimization of logistics costs,

Increasing sales volume, thanks to the benefits provided by the logistics service.

In order to achieve savings in material costs, it is necessary to systematically refine the organization of logistics functions, constitute the information system and apply the appropriate logistical instruments.

Logistics in the international marketing is of much greater importance than at the home, as internationally oriented companies are faced with significant market differences in the spatial, time and cost system.

It is estimated that logistics costs in international marketing, usually ranging from 10% to 25% of the total cost of delivering products to international deliveries. As a result, internationally-oriented manufacturers are increasingly focused on finding adequate solutions for logistics systems, which becomes increasingly important source of international competitive advantage.

The international competition is now largely imposed in the fight for consumers by: deadlines, delivery, reducing distribution costs, reducing complaints, ensuring the best possible conditions with the greater satisfaction of consumers.

In the structure of retail prices, logistics costs represent a significant item of total costs of international marketing. It is a part of international marketing activities in which it is possible to achieve significant downsizing.

For these reasons, any rationalization and reduction of logistics costs, either by applying an effective model of organization or hiring of modern technology, contributes to the improvement of international competitiveness.

It is estimated that 50% of all consumer complaints result of poorly organized logistics. Also, manufacturers with good logistics complete and quality services have 7% higher sales price and 8% faster growth, while profits are 12 times higher.

Statistics indicate that today logistics is an active factor in business and a significant factor in a profitable business.

The role of standardization in achieving competitive advantage

Requirement for trading in international markets is the compliance of national standards with international quality system.

European Organization for Quality promoted their vision of quality. That quality is integrated into all social areas and is the essence of survival and development of European integration.

EU quality system not only incorporates management of business processes and quality of life but has an important marketing dimension in conditions of free competition.

By improving product quality standardization is achieved, which, along with reducing costs and increasing productivity, enables better market access.

For these reasons, 84% of the worldwide business in its business use European and international standards, as part of a strategy for export.

Exchange of information and goods has improved using standardization, and in particular the internationalization of business.

The result of this process is the economic side of standardization:

- The macroeconomic impact on GDP growth is 1% per year and
- Microeconomic impact on increasing profits.

Recommended Principles of quality management system contained in the concept of TQM and excellence models represent the future for all stakeholders.

Strategies to achieve these goals, is based on the effective management and quality management by costs.

CONCLUSION

Globalisation increases competition at the market. This caused that companies are constantly trying to increase their productivity while reducing costs. Possible mechanism for achieving competitive advantage is the implementation of quality management. This means that you need to have an organizational structure of the company that fits the contemporary demands of conditional changes that have taken place and have implemented the system for transmitting information that will provide conducting activities without deviation. Quality management is the responsibility of all levels of government, but must be driven by top management. Its achievement includes all members of the organization.

Quality management consists of all activities of the overall management function that determine quality policy, objectives, and responsibilities implementing them through the planning, control, security and quality improvement within the quality system.

In addition to new technologies, business logistics has a major impact on business operations; above all, the correct application of the concept of company logistics brings many benefits (better economy of resources and time, lower costs, higher profitability). Without the successful operation of certain elements of business logistics such as transport, storage, handling goods, it is impossible to successfully implement manufacturing processes.

REFERENCES

1. Bloomberg D. J., Stephen Le May, Hanna J. B. 2006. Logistika, Zagreb.
2. Flečer K. 1995. Upravljanje marketingom i informaciona tehnologija, Prentice Hall Europe.
3. Juran J. M. 1993. Planiranje i analiza kvaliteta, *Mate*, Zagreb.
4. Ulrich D. A new mandate for human resources, Harvard, *Business Reviewer*.
5. Ušćumlić D., Urošević S., Jovanović L., Milovanović R. 2002. Komercionalno poznavanje robe, *Ekonomski fakultet* Beograd.
6. Živković V. 2004. Evropski akcioni plan za organsku hranu i poljoprivredu i njegov značaj za Srbiju, Evropsko zakonodavstvo.
7. Statistika poljoprivrede. 2009. Republički zavod za statistiku, Beograd.

