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## AGTECH – THE AGRICULTURE OF 21 CENTURE

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### ABSTRACT

**Aims.** Presentation of the perspectives facing technological agriculture nowadays. The industry that is least digitalized is turning agriculture into an unattractive investment field for innovative entrepreneurs. Through the activities that technology can and does apply in agriculture, it is believed that it can be technically supported to a stage where it provides more and better quality products.

**Materials and methods.** Literary review of current information about the new generation of agriculture.

**Results.** A brief overview of the current concept of agtech in agriculture.

**Conclusion.** The concept of AgTech is an innovative symbiosis between agriculture and technology. The technological concept is developing in the modern entrepreneurial environment, turning agriculture into an attractive area for young entrepreneurs. The combination of specific advanced software or hardware technology in the agricultural chain leads to an improvement in agricultural production. AgTech is an industry that includes a variety of solutions for almost every step in the food production process. The goal of technological innovation is to reach levels with the production of sustainable agriculture.

**Key words:** innovation, technology, innovative rural

### INTRODUCTION

The 21st century is marked by technological development in all spheres of our lives, agriculture is one of them. AgTech is the image of agriculture of the new century - solutions given by technology, business, driven by modern consumer demand and in line with market requirements. AgTech or technological agriculture is a symbiosis of applying specific advanced software or hardware technology in the agricultural chain to improve production. AgTech is an industry that includes a variety of solutions for almost every step in the food production process. The field of agriculture is specific in its structure and attractiveness for entrepreneurial activities. Today, technological agriculture is a

possible but also necessary to apply innovative and attractive technological business ideas that provide, facilitate and turn agriculture into an interesting area of development and business. Perceived as "new" agriculture has distinctive features associated entirely with interactivity, technology, information and communication. The information society redefines the role of startup entrepreneurship in a valuable resource for farmers and their technological support.

Started in the late 20th century and actively developing today, the technological revolution is a relatively new stage in the revolutionary development of agriculture in the world. This natural development of technology and its implementation in agricultural production is a necessary process that incorporates modernization and the need to improve processes in agriculture. It is the above that is the reason for the transformation of agriculture in an attractive force for the young generation, which has not been the case in recent decades, especially in Europe. At this stage, the results of the

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particularly attractive niche for youngentrepreneurs, in which it is not only

increasingly serious deepening of the relationship are already being observed.

The modern development of communication technologies, information security, innovations are the reason for the development of agriculture, which is highly dependent on technology. The topic, which in the 90s appeared in the form of a hint of technological transformations, does not surprise us today with its relevance. As part of the natural attainment of a stage of convergence of technology and science, today the current "green revolution" of the last century, gives way to the technological revolution in agriculture. The definite need to create a bridge between business and science for the implementation of much-needed innovations that facilitate quality and increase the quantity of processes that are implemented in agricultural activities. This new paradigm contributes to the modernization of agriculture, participates in technological progress. This kind of "new agriculture" looks at sparing methods of exploitation of natural resources in societies. Technology solutions address issues such as combating climate change, assessing natural resources and comprehensively reviewing agricultural policies. The introduction of technologies in the sector is a kind of technological revolution through which certain sector niches in agriculture are successfully "revived".

Overall, agro-innovation is not the solution to global agricultural problems, the purpose of technological support in agriculture is to influence the processes that take place in it, largely influencing more socially responsible activities in agriculture (1). Whether this new technological stage in agricultural development will be a new agricultural revolution or a natural transition in development and processes, only time will tell. Intelligent approaches to agriculture are still extremely well known and usable. Agricultural activities around the world use technological innovations to facilitate production. These are drones, robots, specific software solutions, sensors that perform activities such as monitoring herds of animals, determining the exact time for irrigation, the right approach to planting the crop, etc.

### **Unattractive - attractive agriculture**

Agriculture is classified by the McKinsey Global Institute's digitization index (2) as one of the least digitized major industries and compared to advanced industries and oil and gas, which have relatively high levels of digitization in the industry, agriculture has had significantly lower productivity growth. (3) Precisely due to the fact that agriculture is a low-digital industry, terms such as 'digital agriculture' or 'smart agriculture' are relatively new concepts for industry.

### **Funding in the field of AgTech**

Investments in technological agriculture are increasing and becoming a priority area. In leading global markets such as the United States, funding in the field of AgTech technologies is concentrated in accelerators, high tech incubators and venture capital funds. The European market is a major competitor to the American one and is so interesting that it is much more diverse in terms of types of financing and variety of methodologies, due to the differences in the countries of the European Union. As one of the priority areas in the last years for the Union, agriculture is financed through various financial instruments to stimulate innovative activities in the field. The EU has multiplied its financial accelerators for innovation in the agricultural sector, and on the continent the demand for affordable, healthy and safe food has multiplied with each passing year.

Digital agriculture is the new post-industrial revolution that agriculture needs, and statistics show that startups in Europe in the field of Agri-FoodTech have raised \$ 3.4 billion in funding in 2019 through 419 deals, an increase of 70% compared to the previous year. (4)

Today, the European Union is perceived as a "not very important player" in the role of a leader in the international policy of biotechnological regulation and this stems from the change in the internal policy of the organization. (5) The common European policy in the field of organic farming has undergone a dynamic development in recent years. The main reason is the growing field, which requires a change in the prioritization of methodologies and funding of project activities in the field. Over 76% of the total budget of the European Union is spent by five European Structural and Investment Funds. One of these key funds is the European Agricultural Fund for

Rural Development, which aims to address specific challenges facing rural areas. In the last decades of the last century, more than half of the Union's total budget has been allocated to agriculture.

The Union's investment programs direct funding to specific regions and projects and stem precisely from the partnership agreements signed between the Member States. Through financial promotion of key activities in the respective regions, the climate for business development is improved, economic agents are developed at the local level. Financial instruments, whose role is to provide start-ups, are extremely innovative in terms of ideology, methodology and implementation, because they are a symbiosis between the classic forms of financing new start-up projects and completely new methods of financial support for start-ups.

The enthusiasm of start-ups in the field of agricultural technology comes from the fact that this is an undeveloped area that allows for the creative development of technological ideas that will benefit the whole process of agricultural production. Increasingly, countries in Europe that are not as technologically secure as market leaders have the development of technological startups in the field of agriculture.

Europe sees the provision and development of agro-technologies in agriculture as an important goal. The continent is increasingly funding the start-up agribusiness sector as it becomes an increasingly attractive area for young entrepreneurs. Stakeholders in the process of technologicalization of agriculture - technological companies, researchers, funding institutions, policy makers should test the possible results of the introduction of technology in agriculture. The introduction of technologies leads to the creation and expansion of the phenomenon of sustainable agriculture.

In order not to turn the positive trend into a negative message, which would lead to unemployment in rural areas (6), it is precisely policies that should create rules for the necessary monitoring of the processes occurring in agriculture. The social significance of the introduction of innovation should not be underestimated. The positives brought by the

introduction of innovations and technologies in the agricultural process, provides and facilitates the work of farmers. The other side of the issue should be looked at - in addition to the benefits of agricultural technology, there are controversial issues such as the possible increase in the number of unemployed in the sector, social, ethical and environmental issues, which set the role of the fourth agrotechnical revolution as a transitional period. which gives a new perspective on agricultural development (7).

## CONCLUSION

Agtech is not a completely new concept that is still building its image in the entrepreneurial space - on the contrary, this concept includes real projects, examples of which are: a platform for automation of agricultural equipment, a self-driving tractor pulling a grain cart; beef storage software platform that automates the feed delivery process; an algae-based wastewater treatment process that recovers nutrients from wastewater; agricultural land software platform that serves farmers, landowners and real estate; developed aeroponic technology for indoor vegetable production, etc.

United under the concept of Agtech - agriculture and innovative technological entrepreneurship in the form of startups grow in an interesting combination in the modern entrepreneurial environment. AgTech is developing at an extremely fast pace not only due to the fact that technologies in recent decades have been incorporated into various stages of the agricultural process, but also that more and more young people who develop technologies prefer to engage in agriculture in a completely new and different form from what the ancestors of current entrepreneurs were engaged in.

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