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DEVELOPMENT OF INNOVATIVE MEANS FOR INTERNATIONAL SUPPLY CHAIN MANAGEMENT OF GRAIN BUSINESS

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Abstract. The research area is devoted for assessment of innovative means in business supply chain of grain market and analysis of crucial factors of implementation of innovations, which can advantage company to be successful in long-term. Creating and developing innovative means is an interesting and attractive process, because no one has such high impact in business than future development directions and strategical marketing implementation. Each business will probably agree that the most effective way to achieve goals is to be ahead of competitors. The main function of developing innovative means is to help business to work easier and more efficiently. The need for an innovate work environment is widely recognised as being one of the key success factors in gaining competitive advantage in the global market place. International grain business is one of the most necessary markets in the world. This business sector is expanding and establishing new markets. Based on the research, developing an innovation for this market is crucial factor for future possibilities. No one has bigger impact in business than future development and strategical implementation in the supply chain. Within the agricultural realm, the circular economy approach suggests that the industry can achieve greater sustainability simply by keeping more resources and materials in use for as long as possible. This can be achieved in a number of different ways, including increased product durability, reuse and recycling. On the basis of literature analysis, sometimes the best way to compete is to collaborate with competitors to seek the best solutions and innovations. The purpose of the paper is to establish and select the most appropriate and innovative mean, which would help in management by easier way of work in the supply chain. Analysing scientific literature of development of innovative means, analysis of agricultural business specifics help in research analysis of main parts of agricultural business by assessment of opinions of farmers. To evaluate what are their desires, needs and wants the survey is provided. Lots of companies are working in an aged way, aren't trying to establish new innovative means in supply chain. Furthermore, the results show that generations are changing and young farmers want changes and much more easier ways of selling their production for the best price possible.

Keywords: innovation technologies, models, supply chain, competitiveness, international business, agriculture, grain market, growth strategy.

Introduction

Creating and developing innovative means is an interesting and attractive process, because no one has such high impact in business than future development directions and strategical marketing implementation. Each business will probably agree that the most effectice way to achieve goals is to be ahead of competitors. The main function of developing innovative means is to help business to work easier and more efficiently. The need for an innovate work environment is widely recognised as being one of the key success factors in gaining competitive advantage in the global market place. Author Ziegler (2017) offers to think about innovations not as competition, but as a collaboration.

International grain business consists of lots of components, like production, transportation, processing, marketing, distribution and export of agricultural products. Agro business is one of the most necessary markets in the world. It is food for people and feed for animals. From some grains like rapeseed it is created diesel, so this market is crucial in our society. Agricultural business plays a responsible function in the economic. This business sector is expanding

and at the same time establishing new markets for the supply sector. Both local and international agribusiness markets are facing a future, where it will continue to increase over time (Byerlee et al., 2013).

Based on the results of other studies and practical analysis, agricultural business is growing in a supreme pace. Lots of companies are working in an aged way, aren't trying to establish new innovative means in supply chain.

The agriculture business chain can be analysed in multi-layered form of management, first of all are producers, i.e. farmers, who are the main in chain. Some indicators of dynamics of growing grains are important there. Farmers sell their grains by different means, including portals, phone call, etc. Some of these means are not everytime beneficial.

Few years ago was released restriction with spreading services and advertisements, called GDPR. Companies need to have agreement from customers to share information and send information to them. Grain business is all about gathering quickly information, price analysing and revealing it to farmers. Every other companies purpose is to find great price and force clients to sell their production. Such a way like calling cannot be as effective as other ways.

Big part of farmers doesn't know real information about grain market and doesn't get needed articles and analysis what will be future prices and for what reasons prices are manoeuvering.

Some problems are connected with selling big amounts of grains. Mostly working with foreign companies and exporting grains with ships, trains. The amount of tones, while loading ship can be from 5000 tones to 100 000 tones of grains. While agreeing with contracts which are worth millions of euros, there is fear about other companies work, their promised payments. So the problem is, there are no serious possibilities to find real information about foreign companies work and their history.

Some means applied in agro enterprices (such as calls, when they can force and confuse the clients) are not the means of nowadays communnication. Prices for production have to be more open (and negotiations between producers and sellers have include more perspective models and means for the realization).

In this research authors would like to provide the methods for founding the best ways of communication and innovative means implementation in these stages of supplay chain management. Some proposals how to organize the surveys for better production realization and prices optimization are provided in the article.

The proposed new means can help and guide in realization of needs of farmers. By analyzing the grain business, it can be devided in some components, wthat are important in such type of business management. The agrocultural business needs in more innovative means by helping in supply chain processes and in all stages of such business. New kinds of systems for marketing and realization of production are very needful.

The research object is connecting with analysis of main agricultural business groups (human resources and types of specialists), supply chain stages, environment and market. Development of innovative means of international agricultural business supply chain.

For more comprehensive analysis the innovative means are analysed and some assumption are made for their applicability to supply chain of grain business. Gathering agricultural business specifics, objectives and environment.

The main aim of this research is to analyze needs and possibilities of development of innovative means for management of supply chain and agricultural business specifics.

Objectives of empirical research is related with developing of surveys (create a questionnaire) for the farmers.

Results are demonstrated by proposing the innovative structure of website in which customers could put their production and sell it for the best prices on-line.

1. Related works

1.1. The concept of developing innovative means

Innovation, understood as the recombination of existing ideas or the generation of new ideas into new processes and products (Watkins et al., 2015). Developing innovations is widely viewed as the main driver of growth in the modern world. According to Watkins et al. (2015) stated, that rewarding economic development is well linked to companies capacity to acquire, absorb the theoretical literature, aspects and then apply them to the modern environment. Although all new technological innovations don't take much time to be copied or even improved. The idea is while developing innovative mean there has to be endless progression, because in nowadays the economic growth is faster than ever.

Concept of innovative means is to offer business improvements or alternatives. Ziegler (2017) offers to think about innovation as a collaborative concept. His framework shows rather collaboration than competition, to offer a space for working together. The collaborative concept welcomes and seeks to explain a diversity of uses. It can be described as social innovation, when two companies are collaborating to seek new developments in their field. The last decades have seen a remarkable increase in social innovation research, projects and to a lesser extent even of social innovation policies. Ziegler (2017) stated that the popularity of the term social innovation has stretched the concept in so many directions that it is at a breaking point what social innovation means remains "ambiguous and vague" (Ziegler, 2017).

The solution for the problem you want to solve lies in the problem statement itself. Coming up with the right problem statements, which are derived from the root cause of the problem, they became the key to success (Figure 1). The problem statement should be as specific as possible and at the same time broad enough not to restrict the idea generation. Once you have a proper problem statement, go into the field and start with your research.

Whitley (2002) has stated that recent development of computer and biotechnology industries has showed variety of ways in which companies or even countries can develop innovative means. Author compares innovative firms across market economies in which they develop innovative means. Large production companies, new technology based firms are analysing internal and external resources and then bringing them to organization.

"Responsible innovation is an idea that is both old and new" by (Stilgoe et al., 2013). Authors are mentioned that responsibility has always been an important aspect of research and innovation practice. In the research of Stilgoe et al. (2013) is stated that in the first half of 20th century innovators had freedom from political accountability. In other words, the responsibility for scientists and innovators was to produce reliable knowledge. In the second half of 20th century science and innovation have become increasingly formalised within research policy and the freedom become strict.

Chesbrough (2003) is analysed the closed innovation paradigm and its mind-set how organizing industrial has led to many important achievements and many commercial successes. The closed innovation paradigm has success by changing landscape of knowledge. It is a new approach how different knowledge environment can develop a different perspective in innovating new means.

Another very interesting theoretical aspect of developing innovative means is strategic innovation in large companies. Kodama (2017) brings attention to dynamic properties of strategic innovation by positioning through new products, services and business models. New methods are needful for expresion how large co-operations maintain its competitiveness and establish sustainable growth. *"Large corporations have to be innovators that can reinforce their existing positions (businesses) through incremental innovation, while at the same time, constantly renew or destroy existing business through radical innovation"* (Kodama, 2017).

Pieroni et al. (2019) are touching with some business models of innovation for circular economy and sustainability. In this work authors are trying to provide some ways for circular economy and sustainability. Sustainability is a balanced assimilation of economic performance and environmental flexibility. Circular economy emerged in 2010 (Figure 1). It refers to economic model whose purpose is to produce goods and services in a sustainable way, by limiting the expenditure and waste of used resources. The main focus is to decrease the production of waste. These two business models are addressed as two separate areas, but there is a chance to use both models for benefiting. Talking

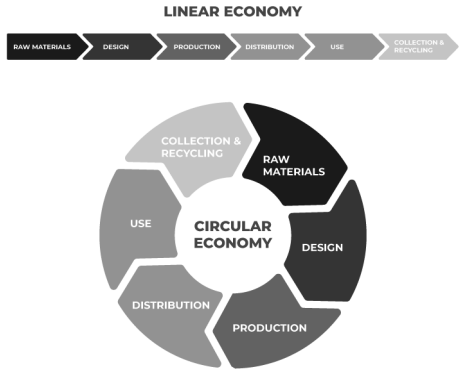

Figure 1. Difference between circular economy and linear economy (source: Innovation cloud, 2021)

about Linear economy is economy that isn't friendly with the world. It doesn't think about recycling or reusing production. For example, fashion industry produces about 20 percent of all global water waste. Over the last few years, the fashion industry and its consumers have finally started focusing on the problem and sustainability.

Taferner (2017) stated that the competition on every industry grows faster and faster. For some companies innovation is seen as the only way of surviving. Author deals with innovation model generation and points out some features of the provided model:

– the innovation development system is the core of the model;
– attention is paid for organization's vision and level of view;
– introducing of own area for discovering development fields and gaps;
– including the fundamental source of data;
– the four degrees of innovation are included;
– model is very well organized, particularly because of the stages;
– in the model have to be introduced own section for effectiveness.

While analysing the concept of developing innovative means, it is very abstract concept and it has a lots of meanings and models. All analysed authors have different perspectives, opinions and also models how to benefit businesses with innovations. Ziegler (2017) offers to think about innovations not as competition, but as a collaboration. This concept explains to companies to work together and seek developments together in the same field. Everyone has different perspective how to develop innovative means, but also everyone agrees that firstly you have to analyse literature, describe the problem, generate the idea and develop it. An interesting perspective on how to develop strategical innovation was touched by Kodama (2017). He stated how large companies establish themselves on the top. They constantly renew their services, products, invests in educating workers and knowing their customer's needs and wants and everyone has their own models. Learning about new business innovation model, which is circular economy and sustainability it is needed the new view in realization. A circular economy purpose is to feed back into its own development and also close the loop. It is advanced economic model aimed to minimize waste and maximize resources. Nowadays there are growing number of companies which have innovations in their entire business around for circular economy. Adopting a circular economy approach empowers businesses to move towards.

1.2. The implementation of information and communication technology for innovative business development

Information and communications technology (ICT) refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audio-visual processing and transmission systems, and network-based control and monitoring functions. In spite of the fact that ICT is regularly viewed as an all-encompassing equivalent for data innovation (IT), its extension is more expansive.

Nowadays many employees are more more using information communication technology as a part of their jobs. Day et al. (2012) studies have examined the impact of ICT on employee well-being. These professors developed a measure of ICT demands and supports. Based on the results of their studies, their found for ICT demands, what are the advantages and why it is crucial in business development. Other studies provide evidence that ICT specific demands, helps employees to reduce stress and strain (Day et al., 2010). In the near future, workplaces are likely going to be more technologically advanced. So the ICT will be become more familiar and will impact employees. It will help to analyze people work, their results and create organizational support.

The evolution of ICT increased when markets and people more and more got familliar with technologies. There has been a rapid growth in online-web based learning and new tools to help people learn. This includes communication systems (emails, conversation sheets, web chats). There are range of tools to facilitate information including business items and data entryways. Regardless of this, there is proof slow take in the use of these technologies within education (Britain & Liber, 1999).

While integrating learning environments, there is a lot dissmisive web information. The sheer volume availability is increasing enormasly. Data over-burden, combined with disarray of where to look, is progressively risky and, in spite of a development in the scope of looking through devices and gateways, it isn't obvious that the correct data is being dispatched to the correct clients in an opportune and quality guaranteed design (Conole, 2002).

Research in the use of ICT has expanded altogether in the most recent decade and there is proof that learning innovation as an exploration discipline is presently starting to develop. However, research actually will tend to focus mostly on particular case studies opposed to the improvement of supporting speculations and approaches (Conole, 2004).

Besides, little is perceived about the "affordances" of various technologies and, all the more explicitly, how these properties may be exploited specifically learning and teaching settings. On the basis of literature analysis, it is believed that a superior understanding of the nature and properties of innovations will lead a more orderly use of the ICT for learning and educating.

Based on the results on other studies, it is accepted that a superior understanding of the properties of innovations will lead a more orderly use of the ICT. The types of software tools, equipment frameworks and online environments have expanded variety and complexity, with devices now accessible to help everything from research distribution to online assessment and monitoring. These advancements have been met by a spectrum of perspectives, going from discount acknowledgment and calls for instructive re-designing and altering instructive frameworks, through to huge significant about the utilization and estimation of these new apparatuses. What's more, there are growing worries about the unintended results of these changes, for example, potential job losses, fears of expanded observation techniques (Bonk, 2001). Hovewer advancing ICT is expanding reange of innovative means and companies can create lots of perspectives to their businesses.

1.3. Theoretical aspects of the concept of business supply chain

Supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. Supply chain network includes different individuals, information, activities and assets. It represents what it takes to create the product or service groom its unique state to the client. Organizations create and develop supply chain so they can decrease their expenses and remain competitive in the business industry. Supply chain includes a lots of steps. Moving and transforming raw materials into completed products, transporting those items and then distributing them to the clients. The elements engaged with the supply chain include makers, merchants, warehouses, transportation organizations, dissemination focuses, and retailers.

The circular economy is progressively seen as potential solution to address sustainable development. Geissdoerfer et al. (2018) touches a topic – how economic system like circular economy can minimize resource input. They discusses the circular economy business models, how sustainability performance and circular supply chain is needed to be implemented to the organization. They proposes a framework how company can integrate circular economy models and circular supply chain towards business development. The research indicates how circular business and circular supply chain can help in growing sustainable company.

The evolution of supply chain, its theory and concept is analysed (MacCarthy et al., 2016). Supply chain is very important to the world economy and to modern life. Every time the industries are evolving and changing the perspectives. While economy is growing so fast it creates the need for businesses to adjust in develop their perspectives. *"Supply chains are not static – they evolve and change in size, shape and configuration, and in how they are coordinated, controlled and managed"* (MacCarthy et al., 2016). While economy is evolving it responds with new supply chains. For example, the new introduced product such as smart watches. From this innovation, other companies has to adjust they management and development of supply chain. *"It is argued that fundamental economic considerations are ultimately the determinants of supply chain parameters, determining shape, size and the nature of exchange"* (MacCarthy et al., 2016). Not to mention other causes, which can have major influence on the coordination or regulation of the supply chain. It is affected not only from economic and technology drivers, but also from administrative frameworks, sustainability agendas, political factors and critical choices. At some point every company have re-engineering properties in their supply chain networks to seek manufacturing or marketing strategy to better serve their markets. Over the years supply chain have evolved to meet the customer needs, environmental factors, natural resources. For some reason, some of the supply chains in different industries are mature and not changing, some are evolving and some are just new. Every business has somehow analyse the system, then evolve and adjust with the situation.

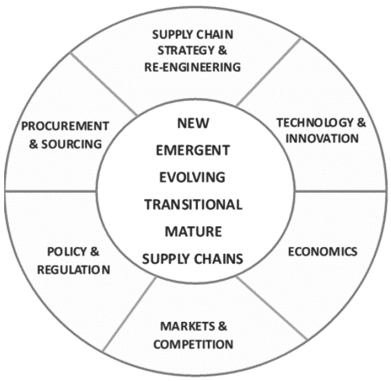

Figure 2. Factors influencing supply chain evolution (source: MacCarthy et al., 2016)

The sections recognize a scope of factors that can stimulate, impact and influence the development of supply chains. Here authors examine and discuss these under six headings (Figure 3). This is one of potential order that got from consideration of the literature and evidence of how supply chains have developed and changed. There are lots of factors which influences supply chain evolution. (Figure 2.)

In addition, some of supply chains change over economic adjustments, like market environment, political proposes and natural resources (Casson, 2013). Once the product transportation was limited with not enough of logistics, but now when product can be delivered by ships, planes or trains it is much easier. For example agricultural business. Some countries such as Saudo Arabia, Egypt, they don't have abilities to grow grains because of their land and weather. Thanks to big ships, all countries which produce grains can export them to different countries with big ships. These technological and strategical factors can potentially influence business development in their supply chains, how to evolve and grow.

Customer section and product type are two of many offered segmentation logics that may be used. It can be delegated as: product-related, customer-related, supply-related, and geography-related (Gattorna, 2010). Product related rationale include item life cycle, characteristics, demand uncertainty and forecast accuracy. Customer related logics consists of customer market, customer collaboration effectiveness, client ordering behaviour and buyer personality sample (Collin et al., 2009). The supply side can likewise show an assortment of vulnerabilities, which warrant a separated view on supply networks. The geographical rationale suggests a regionalisation of the market into explicit market sections that have cleat geographical boundaries. For example, combined duration of life cycle, time for delivery, volume, assortment, while combined physical size og the item and geological zones (Feldmann et al., 2013).

Supply chain management practice is crucial for companies. Setting explanatary examination, analyzing theoretical literature and existing market is very important for future development. Fernandes et al. (2017) provide a conceptual research and developed the framework, where principally focuses on instrument measurement and taxonomy. Their theory was based on resources such as human capital. If the resources cannot be copied or replaced by competitors, then firm can have sustainable competitive advantage.

In addition, in works of Alfalla-Luque et al. (2013) and Prajogo and Olhager (2012) are stated that if company wants a successful performance of supply chain, it has to integrate and handle the main components of information. Also for valuable supply chain, company has to acknowledge all needed information. For company to reach sustainability, there has to be supply chain management practices (Alfalla-Luque et al., 2013). If employees are committed to the organization, there is much bigger possibility for company to have higher internal and external performance.

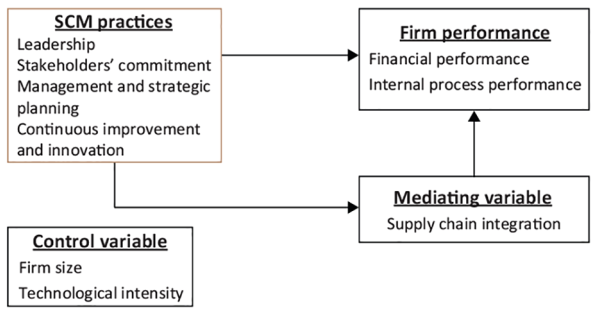

Figure 3. Benefits of supply chain management practice (source: Fernandes et al., 2017)

1.4. Agriculture business specifics

Agricultural business is a very wide meaning. It consists of lots of components, like production, transportation, processing, marketing, distribution or exporting agricultural products. Agribusiness starts from farmers, they are first who grow, supervise and whip the grains. Then comes companies who are trying to buy the grains from farmers as cheap as possible. Countries like Lithuania exports their 90–95% of their grains to other countries. A small amount of grains are used and it's for food markets or feeds. The majority of grains are going to ports, where companies are loading and selling big ships of grains to countries who cannot manage to grow it.

Agribusiness is one of the most necessary markets in the world. It is food for people and feed for animals. From some grains like rapeseed it is created diesel, so this market is crucial in our society. Agricultural business plays a responsible function in the economic. This business sector is expanding and at the same time establishing new markets for the supply sector. Both local and international agribusiness markets are facing a future, where it will continue to increase over time (Byerlee et al., 2013). Benin (2013) was revisiting Africa, for agricultural farm support. While visiting Ghana, he researched that their economy is agrarian. Agribusiness contributes a lot to economy, also about 55% of population is related with agriculture, while almost 25% to gross domestic product and exporting earnings (Benin et al., 2013).

Authors Kubata and Šimek (2016) deals with agriculture specifics in Czech Republic at land of size up to 500 hectares. Along side, country like Lithuania, has a law that one farmer can have up to 500 hectares. Talking about Czech Republic, author touches a topic about implementation and innovation of new means, because country has common to other countries problems such as climate, local conditioning and seasonal production, so how some new innovations in growing or cutting grains can benefit country's grower. In addition, in agricultural business, climate, seasonality and nature progress is hardly predicdable progress. Some farmers in this business doesn't find the right time to cut their grains. For company/farmer to get the most benefit from business, there has to be yearly seminars, where lots of company gather and shares their analysis, opinions and material (Kubata & Šimek, 2016).

Furthermore climate change is a real problem ir global food-crop production. Most business-as-usual scenarios for farming under changing climate changes project that the agriculture sector will be significantly impacted from increased temperatures and shifting patterns. Perhaps ironically, agricultural production contributes substantially to the problem with yearly greenhouse gas (GHG) emissions of about 11% of total anthropogenic emissions, not including land use change. It is partly because of this tension that Climate Smart Agriculture (CSA) has attracted interest given its promise to increase agricultural productivity under a changing climate while reducing emissions. Considerable resources have been mobilized to promote CSA globally even though the potential effects of its widespread adoption have not yet been studied. Here we show that a subset of agronomic practices that are often included under the rubric of CSA can contribute to increasing agricultural production under unfavorable climate regimes while contributing to the reduction of GHG. However, for CSA to make a significant impact important investments and coordination are required and its principles must be implemented widely across the entire sector (De Pinto et al., 2020).

2. Methodology for assesment of inovative means in supply chain of grain business

The main aim of empirical research is assessment of inovative means in supply chain processes of grain business. The survey is based on opinions of farmers and customers about development of innovative means in agricultural business supply chain. One of the main ideas to create a beneficial market for farmers for easier way of selling their production. Research is based on Lithuanian farmers opinion about future possibilities.

Secondary task of empirical research is about agricultural business manager survey. What are their desires, opinions and opportunities on future business and agricultural business innovations, what are the reasons and problems of such business is slowing down. Main part of this businesses farmers and managers, are not satisfied with old production selling methods. Same is with buying companies, who wish to have better business methods how to work more efficient and smarter.

One of the most profitable businesses in Lithuania is agriculture. Almost all of the production is exported to other countries. The advantage for Lithuanian farmers are that the land and weather is perfect for grain growing.

Research purpose is to explore farmers opinion on the effectiveness of innovative means. The researcher collected the opinions of the farmers through questionnaire. The researcher planned to email method of data collection to gather opinions of farmers.

For clearer understanding, the anonymous quantitative research is created and was conducted by using Internet survey method. Internet analysis will provide possibility to assessment of farmer satisfactions about development of innovative means. There are five attributes which impact on customer's satisfaction were extracted. It is service quality, the knowledge and the skills of the personnel, the respect, communication and the speed of level to respond.

2.1. Questionnaire for farmers

There was created demographic survet for farmers to know their gender and how old they are. The results show that bigger percentage of respondents are male. It is because farming is more of a male job and business. But from my aspect, they mentioned that farming is family business. Resulting showed male (70.2%) and female (29.8%). Talking about the age of respondents, majority of farmers are older. Biggest percentage was 41–50 years old people (40.4%). The majority of respondents are not that old, and they know how to use computers or internet. Especially nowadays, everything goes through internet, so it would be useful to create innovations such as website, which would help customers sell their production easier. All so, 20 years ago the narrative was that farmers are a low and not smart and educated people. It was a shame to tell somebody that you are a farmer. But know the narrative changed, farmers are very proud for being in this business and also know they have many rights. We have to remember, that more and more young people are coming to this business.

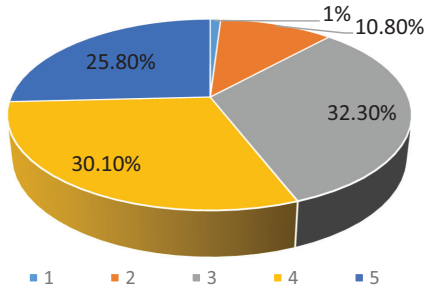

Figure 4. Evaluation of respondents according to their wants of innovations

This is a pie chart indicates how much farmers want innovations in agricultural business. Evaluation from 4 to 5 together got (55.9%). So it means that majority of farmers want innovations in this business and they wish to have improvements (Figure 4.) . Survey was made by recommendations of scientists Stein and Ramaseshan (2016), who shows effective research questions. The conducted information shows, that the old way by selling production through phone call is old. Managers can maniculate and talk the customer to sell.

2.2. Specifics of international company "Arla Foods"

Enterprise "Arla Foods" is multinational cooperative enterprice based in Denmark. It's the largest producer of dairy products in Europe. "Arla Foods" is one of the world's largest leading suppliers of added value, milk based ingredients to selected sectors of the food industry. This multinational company is exporting their production to Europe, Asia and the USA. "Arla Foods" intends to maintain and develop its position as a global supplier of added value, milk-based ingredients for biggest food producers in the world. In April 2000, "Arla" and "MD Foods" merged and created "Arla Foods" company that represent the first cross-border merger between two farmer-owned companies. Today, company is very successful and it's the largest dairy organization in Europe, a co-operatve association owned by 18 000 milk producers in Sweden and Denmark. The company employs approximately 23 000 people with their own production in eight different countries. Also they have sales offices in more than 23 countries. With Northern Europe as its domestic market, Arla Foods is providing consumers with a broad range of diary products. Success and growth was always the main part of this company's culture. The organization's strategy aims to focus on selected markets and sectors. At the same time, the organization follows an ambitious growth strategy, which, besides organic growth, contains a significant expansion in the form of mergers profitable dairy businesses in carefully selected markets.

2.3. Agricultural business expert evaluation and analysis

Based on the dynamics of the FAO (The food and Agriculture Organization of the United Nations) and Roger Betz, farm business management educator the monthly grain price index was unpradictable from 2014 until 2021 (Figure 5). At Agroplatforma, agricultural business manager Gatis Berzins stated that few years grain prices were relatively stable,

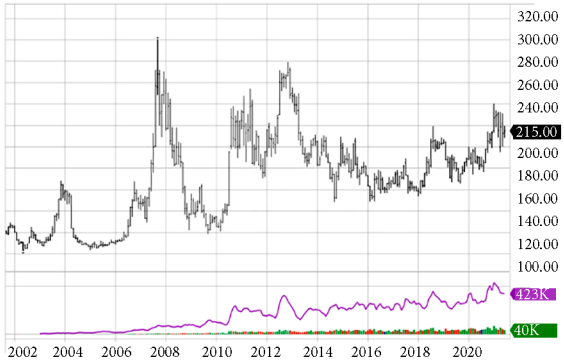

Figure 5. Dynamics of World wheat prices during last 20 years

because of world production and sustainability (Figure 5). However, since 2018 mid-prices began to rise and fluctuate, which has led to large price volatility in the market?

Also 2008 were recorded more than twice. So from 2016 to 2010 grain prices had a declining trend. However, since 2011 grain prices rose again. At the end of 2018 and at the beginning of the 2019 year the price of wheat was the highest under analysis during the period (Figure 5). These price changes were particularly significant, as Ronald Trostle, agronomy expert said that low production and poor climatic conditions, rising oil prices, increased grain prices.

Compared to the latest USDA (U.S. Department of Agriculture) grain market report, the International Grains Council is assessing the market situation for the 2021/2022 season in contrast. The USDA predicts a reduction in grain reserves in the 2021/2022 season to the lowest level in the last seven years, justifying a reduction in resources due to an increase need in animal feed. Therefore, on May 27 The International Council has reduced the previous month's resources by 14 million tons, and it is the lowest level since 2014–2015 season. This will be the fifth season in a row that global resources are experiencing declining tensions. The overall lack of reserves will be estimated at 60 million tons.

3. Results of implementation innovative application means in grain market

While farmers are elder people, they tend to use old fashioned way of business, but more and more farmers use new technologies. When selling grains, they tend to use application programmes applicable for mobile phones and implement the technique of messaging. This wastes managers and farmers time. But what if customers could sell their grains on App? The vision of App would be that every farmer can put their grains, commodity, and quality online. And then buyers can give their price or bid for that kind of grains. For that reason, farmers could get better prices, feel safer with the buyers. Online grain marketplace would have just approved buyers. Company could use their new App for advertising their own company.

App would offer (Figure 6):

– Online physical grain marketplace, where it's free to post and only fee is when purchase/sales order is done.

– Grain listing and negotiations available for just grains buyers and sellers.

– All grain buyers are officially verified on the platform.

– Could bring more buyers and sellers to the table. Develop an international marketplace.

– Less time for farmers to search for better prices. More money in the farmer's pocket.

– Farmers can get the best possible deal.

Cooperative for farmers is a united association of farmers for meeting their common social, cultural, economical needs. To start everything, Lithuania has a lot of small cooperatives, where some district famers collaborate and create cooperative. From my analysis and experience, when farmers creates it,

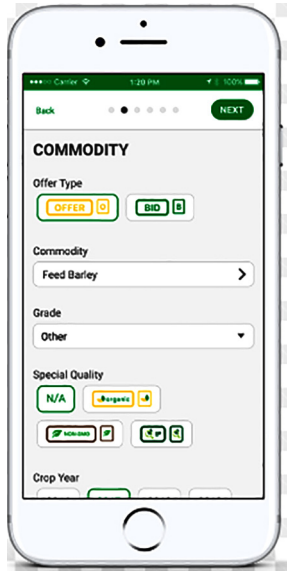

Figure 6. Example of Grain selling mobile application window

they do it because together they can easier build warehouses, drying rooms, buy all needed equipment. Farmers have a lot of their own work, to fertilize grains, feed them with needed supplements and at the end produce them. So they are hiring a team which are working for them.

Most of the farmers who are in cooperative, don't have dryers or warehouses, so they take advantage of cooperative which can fix the grains and at the same time try to analyze the market and find best prices for farmers. The best example is "Arla Foods" in managing of cooperation majority of farmers who have a place to put their production, don't worry about selling and getting best market prices. At the same time they can get a bigger valuable feeling that they are part of something big and important.

Conclusions

The first task was to analyze the theoretical part of agricultural business specifics, theory of internationalization, concept of innovative means. Different companies can have different opinions and analysis from which together they can benefit both. The only way to do it is to constantly renew services, products and invest in employees. That supply chain is all network, from distributing product to marketing it to final buyer. While working in this sector it was conducted a lot about grain marketing, stocks and distribution. It is much easier to think about possible internationalization opportunities for agricultural business.

Methodology conducted the information of farmer needs and wants. What they think about development of innovations. Research purpose is to explore farmers opinion. The best way was to collect the opinions of the farmers through questionnaire. Provided statistical data analysis, expert evaluation and opinion on grain market. While analyzing "Arla Foods" case studies can be mentioned that there are lots of examples how company can become international and succesful. Few years ago was released restriction with spreading services and advertisements, called GDPR. Companies need to have agreement from customers to share information and send information to them. Grain business is all about gathering quickly information, price analysing and revealing it to farmers. Every other companies purpose is to find great price and force clients to sell their production. Such a way like calling cannot be as effective as other ways.

Every company, which want to be successful has to develop innovations in their businesses. So there was made new improvements which can generate company's view. There were proposed some suggestions metters, where customers can tell their opinion. The most succesful part was about creating an app. Based on research, USA has this kind of App, and it is very successful, so why not now for Europe agricultural business. It would change the perspective of selling production. Farmers could get deserved satisfaction from it. It would be a site, where customers could tell their opinion. All so, big buyers could put their needed production, and farmers could reach to them. So this innovation would change everything in agricultural business. Also Lithuania doesn't have big cooperatives, just small with 30–50 farmers. With bigger cooperative there would be bigger opportunities and better prices for farmers.

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INOVATYVIŲ PRIEMONIŲ GRŪDŲ VERSLO TARPTAUTINEI TIEKIMO GRANDINEI VALDYTI VYSTYMAS

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Santrauka. Mūsų tyrimų sritis yra skirta inovatyvioms priemonėms grūdų rinkos verslo tiekimo grandinėje vertinti ir esminiams inovacijų diegimo veiksniams, kurie gali būti naudingi įmonei ilgalaikei sėkmei, analizuoti. Inovatyvių priemonių kūrimas ir plėtra yra įdomus ir patrauklus procesas, nes niekas neturi tokio didelio poveikio versle kaip ateities plėtros kryptys ir strateginis rinkodaros įgyvendinimas. Kiekvienas verslas tikriausiai sutiks, kad veiksmingiausias būdas pasiekti tikslus yra konkuruoti. Pagrindinė novatoriškų priemonių kūrimo funkcija – padėti verslui dirbti lengviau ir efektyviau. Inovatyvios darbo aplinkos poreikis plačiai pripažįstamas kaip vienas iš pagrindinių sėkmės veiksnių siekiant konkurencinio pranašumo pasaulinėje rinkoje. Tarptautinis grūdų verslas yra viena reikalingiausių rinkų pasaulyje. Šis verslo sektorius plečiasi ir kuria naujas rinkas. Remiantis tyrimais, naujovių kūrimas šiai rinkai yra esminis veiksnys ateities galimybėms. Niekas neturi didesnės įtakos versle kaip ateities plėtra ir strateginis įgyvendinimas tiekimo grandinėje. Žemės ūkio srityje žiedinės ekonomikos metodas rodo, kad pramonė gali pasiekti didesnį tvarumą tiesiog kuo ilgiau naudodama daugiau išteklių ir medžiagų. Tai galima pasiekti įvairiais būdais, įskaitant didesnį gaminio patvarumą, pakartotinį naudojimą ir perdirbimą. Remiantis literatūros analize, kartais geriausias būdas konkuruoti yra bendradarbiauti su konkurentais ieškant geriausių sprendimų ir naujovių. Darbo tikslas – nustatyti ir parinkti tinkamiausią ir inovatyviausią priemonę, kuri padėtų valdyti lengviau dirbant tiekimo grandinėje. Inovatyvių priemonių kūrimo mokslinės literatūros analizė, žemės ūkio verslo specifikos analizė padeda atlikti pagrindinių žemės ūkio verslo dalių tiriamąją analizę, įvertinant ūkininkų nuomones. Norint įvertinti, kokie yra jų norai, poreikiai ir norai, atliekama apklausa. Daugelis įmonių dirba seniai, nesistengia įdiegti naujų inovatyvių priemonių tiekimo grandinėje. Be to, rezultatai rodo, kad kartos keičiasi, o jaunieji ūkininkai nori pokyčių ir daug lengvesnių būdų parduoti savo produkciją už geriausią įmanomą kainą.

Reikšminiai žodžiai: inovacinės informacinės technologijos, verslo vertės modeliai, tiekimo grandinė, konkurencingumas, tarptautinis verslas, grūdų rinka.