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The third issue contains articles by scientists from different countries, prepared on the basis of their scientific work. It is designed for university teachers, graduate students, undergraduates, practitioners in economics, finance, accounting and auditing, as well as other branches of economics.

EDITORIAL TEAM

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CHAPTER 1
CURRENT TRENDS IN ECONOMIC DEVELOPMENT

TASKS OF SUSTAINABLE DEVELOPMENT OF ISRAELI AGRICULTURE: ITS ACHIEVEMENTS AND OPPORTUNITIES OF COOPERATION FOR UKRAINE

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Abstract. *The article is devoted to the coverage of Israel's experience in the field of agrarian and rural development and justification possible directions of implementation in Ukraine of Israeli positive practices. Consider the experience of the development of agriculture in Israel in the context of prospects for cooperation with Ukraine. To analyse the prerequisites for intensive development of the Israeli agro-industrial sector. To determine the achievements of Israeli agriculture. To highlight the current state of bilateral economic relations between Ukraine and Israel in the agrarian sphere and to determine promising areas of cooperation. Comparative-descriptive, historical-analytical, relevant, extrapolation. The article uses general scientific methods of induction and deduction. The first involves a transition in the process of cognition from individual knowledge to general knowledge, from the accumulated y the process of learning reliable individual facts before establishing certain regularities of the historical process, formulation of laws, which, in turn, contribute to the knowledge of individual phenomena, facts, processes, i.e. serve the basis of deduction – the transition from the general to the individual. Thus, the deductive method greatly facilitates and accelerates the process of historical research and provides an image of a certain historical phenomenon in the background general historical processes. The article helps us to consider experience of development of agriculture of Israel in context of perspectives of cooperation with Ukraine; to analyze premises of intense development of agro-industrial sector of Israel; to define achievements of agriculture of Israel; to show contemporary condition of economic relations between Ukraine and Israel in agrarian sphere and to define perspective directions of cooperation. On the basis of theoretical generalizations, scientific and applied approaches to ensuring the self-reproduction of rural development have been developed, its main principles have been defined, the observance of which ensures the achievement of the goals of sustainable development, guarantees the preservation of rural areas, rural lifestyles and rural traditions along with increasing efficiency of agricultural production.*

Keywords: *farming; rural development; sustainable development; agricultural production; cooperation; kibbutz; export; newest techniques; imports; agricultural products; agro-food sector.*

JEL Classification*: Q 00, Q 01, Q 17, R 11*

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Introduction. The article is devoted to studying the Israel experience in the agrarian and rural development and offering possible directions for implementing Israel positive practices in Ukraine. The scientific and applied approaches to the provision of self-reproduction of rural development have been developed, its fundamental principles have been determined on the basis of theoretical summarizing. Its observance ensures the achievement of sustainable development goals, the preservation of the countryside, rural lifestyle, rural traditions and the increases of the agricultural efficiency.

Literature review. The analysis of literary sources on the implementation of foreign innovations in agriculture shows that a significant number of scientists studied this problem, namely: Shai Dotan, A. I. Gordiychuk, V. A. Ivanov, Ayal Kimhi, V. V. Kyrychenko, V. V. Lavruk, Yossi Offer, Alon Tal., O. I. Yankovska and others. However, taking into account the significant achievements of scientists, there is a need to further search for effective ways of implementing foreign experience in introducing innovations into the activities of domestic agricultural enterprises.

Aims. Consider the experience of the development of agriculture in Israel in the context of prospects for cooperation with Ukraine. To analyse the prerequisites for intensive development of the Israeli agro-industrial sector. To determine the achievements of Israeli agriculture. To highlight the current state of bilateral economic relations between Ukraine and Israel in the agrarian sphere and to determine promising areas of cooperation.

Methods. Comparative-descriptive, historical-analytical, relevant, extrapolation. The article uses general scientific methods of induction and deduction. The first involves a transition in the process of cognition from individual knowledge to general knowledge, from the accumulated y the process of learning reliable individual facts before establishing certain regularities of the historical process, formulation of laws, which, in turn, contribute to the knowledge of individual phenomena, facts, processes, i.e. serve the basis of deduction – the transition from the general to the individual. Thus, the deductive method greatly facilitates and accelerates the process of historical research and provides an image of a certain historical phenomenon in the background general historical processes.

Results. Israel has made significant progress in the development of its agro-industrial complex. Today, this country is a powerful exporter of fresh produce and a world leader in the field of agricultural technology, despite of the fact that Israel's geography is not optimal for farming. More than half of the country's area is desert and the climate and lack of water are not conducive to farming [1]. At the same time such factors only stimulated the rapid development of intensive agriculture based on the latest technologies. Historically, the idea of developing an agrarian economy was a priority for the Jewish population of Palestine. Although Israel has become an agrarian country, agriculture has been given special attention in the strategy of economic development for several decades. Only the rapid formation of Ukraine's post-industrial economy deprived the agrarian sphere of priority. The fall in the share of the agricultural sector was accompanied by a significant increase in the production of agricultural products, its intensification and deepening of export specialization. Israel's

agriculture is built mainly on the principle of creating joint social entities that were formed at the beginning of the 20th century. Kibbutzim (from the word «group» in Hebrew) are the largest formations, the members of which jointly own the means of production and share economic, social and cultural achievements depending on its needs [2]. The first kibbutz, «deganiya», was founded by Jewish settlers in 1910, 38 years before the birth of the state of Israel. Jewish immigrants had at best a weak idea of agriculture: in russia and other countries of Eastern Europe, where the first Zionist settlers came from, they were not allowed to own land at all. A firm principle of Zionist ideology was that the Jews would not achieve sovereignty until they learned how to work the land, as there were many socialists among the settlers, who opposed private farming in favor of communal ownership of the land, its cultivation and communal life in general. That is, it was in Israeli kibbutzim that a slightly modified communist slogan «From each according to his abilities, to each according to his needs according to the level of development of the collective economy» was implemented in practice. Another types of formation are «moshavs», which are built according to the principle of family farms united into a community, where the owners of land plots are jointly engaged in the production and sale of produced products. 80% of the country's agricultural products are produced in kibbutzim and moshavs. It is worth noting that over the past few decades, the structure has changed significantly, primarily in favor of modern agro-industrial complexes and a departure from the traditional equal distribution of economic gains. Currently, the largest income of Israeli kibbutzim does not come from agricultural production, but from other types of activities. There is also an intensive transition from common to private ownership [3]. Only 20% of Israel's land in natural conditions is suitable for agriculture. Today, agricultural products make up only 1.3% of the country's GDP and 4.2% of goods exports. It is interesting that almost 2.9 billion dollars or 2.2% of total exports is the export of agricultural technologies, scientific developments and services. Only 2% of Israel's workforce (about 65,000 workers) is employed in agriculture, while the country provides 95% of its own needs, importing only grain, oilseeds, meat, coffee, cocoa and sugar. It is considered that agriculture is efficient and highly productive if one farmer engaged in it, produces products necessary for the life of 30-50 people.

In Israel, one agricultural producer feeds 115 people, in the USA – 75 people. In Ukraine today one farmer feeds about 15 people. After Israel gained independence in 1948, the total area of cultivated land increased by 2.6 times to approximately 450,000 hectares and the area of irrigated fields increased by 8 times, reaching 254,000 hectares.

During the same period, the number of agricultural settlements increased from 400 to 900. 58% of the 450,000 hectares of agricultural land is used for the cultivation of vegetables, fruits and other crops, 19% – for citrus, 23% is used for growing flowers, this percentage also includes fisheries, etc. 130,000 hectares are used as pastures for livestock. Land in Israel is divided into privately owned and public land according to the Land Law [4].

More than 90% of all lands in Ukraine are owned by the state. The private sector includes land within settlements, sold by the state to the population and commercial companies for the construction of housing and commercial buildings. An electronic

database (Land Registry) has been created in Israel, in which all owners, tenants and users of land plots are registered. Any actions related to the transfer of ownership, lease and use of a land plot become legal only if there is an entry in the Land Registry about the ownership of the land. Land plots are provided by the state for long-term use (49 years) with further extension on a paid basis. The cost of renting a plot depends on its location and purpose. The most advanced technologies are widely implemented in Israeli agriculture. Resources are used very efficiently. The deserts are drained, the All-Israel Aqueduct is built, which supplies water from the north of the country (mainly from Lake Kinneret) to the arid southern regions.

The main agricultural crops are grain, vegetables (tomatoes, zucchini, cucumbers, peppers), fruits (apples, peaches, cherries, bananas, dates, melons, watermelons, citrus fruits, mangoes, avocados, kiwi), cotton and flowers. In recent years, more and more attention has been paid to the ecological aspects of agriculture, in particular to reducing the use of chemicals for pest control. Alternative techniques and methods, ecologically clean processing of agricultural waste, etc. are widely used. Arab farms located on the territory of Israel work together with the Jewish sector. Its main activities are growing vegetables, fruits and livestock (sheep, goats) [5].

Peasants in Israel are extremely respected, which is connected with their pioneering role in the formation and development of the young state. The state provides massive multi-level support to kibbutzim and farmers: loans at 10% per annum for 20 years, allocates quotas and pays 2/3 of the cost of water. Serious help is provided by the instruction service (Shaham) of the Ministry of Agriculture and Rural Development. Each agricultural producer has the right to 100 hours of consultations by specialists in technology and economics, and 70% of the cost of these consultations is paid by the state and 30% by the farmers themselves. A variety of coaching methods are used: individual consultations, one-day seminars, courses, seasonal meetings, telephone consultations, computer analysis, etc. A system for stimulating the introduction of new technologies and innovations has been developed in Israel [6].

The state subsidizes farmers up to 40% of the cost of purchasing and implementing new technologies. So, a farmer who built a modern greenhouse (the cost can be about 500,000 dollars) and put it into operation receives 30% of its value as a gift from the state (a third of the loan is repaid). In agricultural production, the marketing approach prevails, the entire system of post-harvest processing is subordinate to it: sorting, gas treatment, packaging, cooling, etc. The results of this policy are annual growth of agricultural production of 10%, and during the last decade the volume has increased by 2.5 times. Today, the annual needs of the domestic market of Israel in the mentioned products amount to 11.4 kg of consumption per capita [7].

The secret of the success of the country's agriculture lies in the close cooperation of farmers, in the development and implementation of improved methods in all branches of agriculture as well as in the use of technical innovations, modern irrigation technology and the latest agro-technical equipment. The achievements of Israeli genetics and biotechnology became widely known. For example, there are saucer-shaped zucchini, black watermelon, red banana, green and brown cotton. Almost everywhere in Israel, agriculture is connected with irrigation systems. However,

conventional sprinkler installations are rarely found, for example, in waste water disposal. In contrast, thin black hoses of drip irrigation can be seen almost everywhere: on banana, date and grape plantations, when growing vegetables and flowers, even on green roadside strips. Due to this technology, water loss is reduced by 20%, and with automated management, it is even more significant. Israeli scientists and engineers in close cooperation with the peasants have achieved a leading position in the world in this field [26].

Drip irrigation technology has recently been hailed as Israel's most important discovery since the founding of the state. Aquaculture in Israel accounts for 2.9% of total agricultural production. About 100 million m3 of water is used annually for the consuming industry. Fish production in farms ranges from 0.5 kg per one m3 of water of outdoor ponds till 20 kg per one m3 of indoor ponds [8].

It is worth noting that farms which use the bio-filtration system for indoor ponds reach a production level by 60 kg per m3 of water. Given the scarcity of natural water resources, many fish farms are located on the coasts of the Mediterranean and Red Seas for the cultivation of marine species of fish using the circulation of water from the sea delivery and vice versa. Production in such farms has increased from 900 tons in the 90s of the last century to 3,000 tons today. Israel's success in the field of aquaculture is clearly demonstrated by the fact that the country took third place in the world in terms of sturgeon caviar exports. In addition to fish for food, cultivation of decorative, exotic fish has become widely developed. The annual turnover of trade is about 8 million dollars [9].

Cooperation between Ukraine and Israel in the agro-industrial sector is developing successfully. Israel was among the top 20 countries with which Ukraine had the largest trade in agricultural products (15th place), ranked 11th in terms of exports and 61st in terms of imports. The share of Israel in the export of agricultural goods in 2020 was 2.7% and in the import – 0.2%. In 2020, the turnover of agricultural products between Ukraine and Israel reached to 403.8 million dollars, which is by 7 million dollars more than in 2019. Ukraine exported $263.2 million worth of grain and cereals to Israel, $58.4 million worth of fodder, $41.2 million worth of oil seeds (mainly sunflower) and fruits, $10.1 million worth of flour and cereals million dollars, natural oils – for 5 million dollars. Israel delivered significantly less agricultural products to Ukraine, only for 8.3 million dollars. These are mainly fruits, nuts and peels – for 2.5 million dollars; vegetables, plants and root crops – 1.5 million dollars; juices – 1.4 million dollars. Only in recent years have several meetings of the ministers of agriculture of Ukraine and of Israel, representative business forums on agrarian topics [10].

Almost 80 Ukrainian businessmen organized a visit to Israel to familiarize themselves with the experience in rural economy. Ukrainian specialists were interested in the latest technologies for increasing milk yield, the latest irrigation systems, the introduction of computer technologies in the management of agricultural processes, improvement of processing and storage of grown products, etc. In turn, their Israeli colleagues got acquainted with the agro-industrial potential of Ukraine, the prospects of investments in Ukrainian agriculture [12].

Table 1. Volumes of trade in agricultural products between Ukraine and Israel for 2018-2020 (million US dollars)

	2018	2019	2019/2018	2019	2020	2020/2019
Merchandise turnover	532,6	474,7	-10,9%	396,3	403,8	+1,9
Export	510,4	443,8	-15%	377,4	395,5	+4,8%
Imports	22,2	30,9	+39,1%	18,9	8,3	-55,9%
Balance	488,2	412,9	-15,4%	358,5	387,2	+8%

Source: compiled by the author on the basis [11]

In recent years, Ukrainian experts have regularly participated in multi-disciplinary research programs organized by the Israeli side. It is especially worth noting the cooperation with the Center for the Development of International Cooperation of the Ministry of Foreign Affairs of Israel «MASHAV». The center actively cooperates with Ukrainian organizations, experts and scientists in the field of agriculture, conducted constant consultations and training courses for agricultural circles of Ukraine.

On May 26, 2021, the round table «Agreement on free trade between Ukraine and Israel: features, opportunities, business perspective» was held. The event was attended by representatives of the Ministry of Economy, the American Chamber of Commerce in Ukraine, the Israeli-American Chamber of Commerce, and the Israel-Ukraine Chamber of Commerce and Industry. The conclusion of this agreement became a kind of advertisement for the strengthening of bilateral trade and business relations between Ukraine and Israel. Ukraine had a fairly significant export of agricultural products to Israel, and the agreement created additional opportunities for the development of this cooperation. But the most important emphasis should have been not so much on increasing direct trade, but on increasing production cooperation and increasing trade opportunities in other markets. With the beginning of the war in Ukraine any cooperation in this direction does not yet seem possible [13].

At one time, Golda Meir, a prominent Israeli woman, politician, statesman, visionary of the Jewish people, said: «Moses led our people for 40 years and brought them to a single place in the Middle East where there is no oil or gas». The witty phrase perfectly reflects not only the geographical or geopolitical situation, but also the climatic one: it seems that a person cannot live normally on this land, it is impossible to run a farm here, let alone a farm. It is impossible to grow fruits or vegetables, the soil is polluted, it is bad, infertile (remember what the Lebanese oak is, the only autochthonous tree of the Near Harvest), there is little precipitation, and it is so hot that even in October it is difficult to breathe [14].

However, the 70-year existence of the state of Israel eloquently proves that the impossible is actually possible. Even under such conditions and such a tiny territory, it is realistic to build an agro-industrial complex that will fully meet the food needs of several million people. Farms are everywhere here – on land below sea level, above and even in the sea.

The main companions of local economic life – drought and hail – have always been and always will be. As local farmers joke, there are no unbelievers among them.

Belief in God, in oneself, and in the fact that without technology there will be no progress, helps Israeli farmers to move forward and prosper.

In Israel, they are convinced that everywhere in their country has its own climatic differences; the areas of the land are very different. Great professionalism is to realize this. Just a few meters from a small group of trees – and we see a completely different land. Each area of soil needs different treatment – different amounts of fertilizers, pesticides, and moisture. Sometimes too much fertilizer or irrigation slows down the fruit's growth rate [15].

Agriculture does not play a significant role in Israel's economy. The share of agro-industrial complex in the total structure of the country's GDP is now only 2.6%, and the area of cultivated arable land is only 360,000 hectares. And the number of people employed in agriculture totals 17,000 people with a population of 8.6 million. After all, if the Ukrainians conduct their agriculture in the conditions of a moderate continental climate, the Israelis in the conditions of the subtropical Mediterranean. Despite of such significant differences, Israeli farmers can suggest some interesting technological solutions to their Ukrainian colleagues.

From the point of view of farming, Israel does not have the best natural conditions. The country is located in the Middle East near the eastern coast of the Mediterranean Sea, characterized by steppe and desert zones with significant fluctuations in day and night air temperatures, low relative humidity, cloudless, hot and dry weather. Average annual precipitation in this region does not exceed 500 mm per year, given that most of the territory (60%) is classified as arid and desert. Such natural conditions practically make farming impossible without irrigation. The problem of lack of water for agricultural needs is solved through the widespread introduction of innovative solutions for the use of wastewater and the use of the latest technologies and equipment for irrigation needs [16].

Israeli farmers are supporters of the intensification of agricultural production. If in China one farmer feeds five people, then in Israel – 115 people at once. They achieve an increase in labor productivity in the agricultural sector due to the automation of production. Of course, incentives from the state cannot be dispensed with here. In Israel, very few people live in rural areas, due to which there is a shortage of workers in the agricultural sector. Therefore, farmers have to hire foreign workers every year, because there are not enough of their own. However, you can hire only within a strictly limited quota. If a farmer bought equipment that made it possible to automate the process of soil cultivation and harvesting, then workers were «taken» from the farmer within the quota. Not every farmer can afford expensive equipment, so the government offered to cover 40% of such costs. It would be more profitable and cheaper for farmers to keep foreign hired workers. But farmers took a risk and bought equipment even on credit. We are talking, for example, about robots for picking strawberries. Or about machines for «shaking» almonds or apples [17].

The Israelis got a glimpse of this technology from the Americans, who in the 70s presented their machine for «shaking» apples. They adapted such a machine to weather conditions, but they calculate the optimal amplitude and frequency of tree oscillations independently. In the early days, it happened that the «shaking» machines simply

uprooted trees. Harvesting of grapes also takes place with the help of harvesters. One such machine costs 200,000 euros, but on the other hand, it pays for itself in 3 years and allows you to replace 100 workers at once. It is interesting that the Israelis copied their grape harvesters from Soviet models that worked in Moldova. In 2015, 2.2 million tons of vegetables and fruits worth 701 million dollars were collected from trees in tunnels and on suspensions. Such products are grown on 45 thousand hectares of «open ground», and 16 thousand hectares – in greenhouses or simply under cover. Some crops can only be grown in «closed ground» due to adverse weather conditions [18].

For understanding: 7 out of 11 climate zones pass through Israel at once. There are places where at the same time one hand can be burned in the sun, and the other hand will be soaked by the rain at the same time. However, no more than 500 mm of precipitation falls every year. Therefore, the interaction of the farmer and the consultant of the Ministry of Agriculture, who can suggest the best solutions for growing vegetables or fruits, is extremely necessary here. For example, strawberries in Israel used to be grown exclusively in «open ground», but they were massively affected by fungus. Farmers tried to fight it with poisons, but after that the fruits could not be used at all. So they switched to growing strawberries in so-called «tunnels» – drip irrigation systems are used to plant strawberries, and all this is under a polyethylene cover. Thus, the temperature for crops is created lower than that outside. Melons, cucumbers and tomatoes are also grown under polyethylene covering. In this case, it is necessary so that the desert sun does not burn the planting. At the same time, tomatoes are generally grown on mineral wool, which is impregnated with a fertilizer substrate. But farmers use bumblebees to pollinate vegetable crops, specially placing bumblebees in greenhouses, at the rate of 4 hives per 2,000 square meters. Of course, they also experimented with artificial insemination, but bumblebees turned out to be more effective. In «closed ground» farmers have by four times higher yields than in «open ground» [19]. Therefore, they selectively harvest tomatoes once every two to three weeks and cucumbers once a week. 250-300 tons of cucumbers are harvested from one hectare. For several years now, farmers have been experimenting with «hanging» cultivation of bananas and strawberries. That is, the root system of plants remains in the soil, but its stems are tied to sufficiently tall stems, so the fruits ripen already at a height of about two meters from the ground. This is done in order to give the fruits the optimal air temperature for ripening. The «hanging» height of the fruits may vary depending on the air temperature. Of course, the height of «hanging» is calculated not «on the knee», but with the help of the «phytomonitor» device. If the device shows that the stem of the plant has not grown even by a micron during the day, it means that you need to change the height of the «hanging» or the volume of watering the plants.

Difficult weather conditions in Israel create problems for animal husbandry as well. According to government regulations, a farmer must produce the same amount of milk throughout the year. Of course, in the summer, the milk production of cows drops significantly because of the heat. But this is of little concern to inspectors from the Ministry of Agriculture, who fine farmers for violating regulations. It is clear that it was necessary to find a way to «cool» the cows. But installing air conditioners in cowsheds would be very expensive. Then they decided to install water sprinklers in the

cowsheds. However, the cows ran away from the sprinklers. Then they put «shower booths» for cows next to the feeders and it paid off. The cows stopped running away from the «shower», and thus it was possible to achieve a drop in the temperature in the cowsheds by 2 degrees immediately and for the farmers to keep the standard of milk delivery at the proper level.

One of the main forms of business in modern Israel is the kibbutz, where the means of production belong to the collective and important decisions are made at general meetings. Currently, about a third of the country's agricultural products are produced in kibbutzim. Using the example of some Israeli kibbutzim, we will try to show their management experience. Kibbutz «Afikim» has 400 dairy cows, each of which milks 11,700 liters of milk per year. The farm is known for the development and production of automated herd management systems under the AfiMilk brand – a modern tool that allows more efficient use of resources, increasing the efficiency and profitability of the farm [20].

Livestock farms do not have its own veterinarians and artificial insemination operators. In Israel, there are special companies that provide appropriate services, which, by the way, are not cheap. Calves are kept for only two months after birth, and then sold to farms that grow them. Kibbutz «Afikim» also develops organic crop production. Vegetables are grown both in open and closed soil, 600 hectares are occupied by grain crops. Among the main pests of wheat are mice, which cannot be exterminated with the help of chemicals. Therefore, they decided to «call» for the help of owls. Special houses are made for these birds in the field, in which they live. Owls feed on mice, successfully protecting crops from them. To destroy aphids on vegetables, wasps of a certain species are bred. Kibbutz «Geva» keeps 350 dairy cows with an average annual milk yield of 12,500 liters. The farm is served by only 9 workers, including the manager. The animal husbandry system is intensive, feed for animals is bought. Everything that has been said is also true for Israel's largest dairy farm in Kibbutz «Ifaat»: 1,150 dairy cows with an average annual productivity of 11,500 liters are kept here. The milking process at the farm takes place almost around the clock. Fodder is imported. Due to automation and computerization, at any moment it is possible to obtain data about this or that animal, its physiological state, diseases, etc. All this makes work easier. At the same time, animals can withstand intensive exploitation for no more than three lactations [21].

However, there is no shortage of milk in the country, so it makes no sense to increase production on farms all the time. On the contrary, there are quotas for producers in Israel. If the farm produces more milk than is stipulated by the quota, it will not be paid for the surplus of delivered products. In Israel, there are practically no natural pollinators of agricultural crops, so bees are used here primarily not to obtain honey, but to pollinate cultivated plants. On bee farms, these insects are bred and sold to farms engaged in crop production. The experience of the Netafim company, which occupies a leading position in the world in the production of drip irrigation systems, greenhouses and the development of large-scale irrigation projects, is interesting. When you get to Israel, you are struck by the fact that different trees, bushes and flowers grow in the middle of the desert. All this is possible due to irrigation systems.

For example, when planting a date palm, first of all, a pit is dug for it, to which irrigation pipes are laid, then fertile soil is poured, the plant is planted, covered with earth and irrigation is also arranged on the surface. Israeli greenhouses make a strange impression, because they are built practically in the middle of the desert. Various crops are grown here, so as tomatoes, peppers, basil, etc. Drip irrigation is connected to each plant. The management of the irrigation system is computerized, due to which the intensity of watering is regulated, the necessary amount of trace elements is automatically added to the water for the plants. In general, fresh water in Israel is treated carefully, because there is not enough of it. Therefore, seawater desalination systems are used, and treated wastewater is used in the economy. They are trying to reduce the negative impact of agriculture on the environment. For example, they developed a film that completely decomposes in the environment during one cycle of plant growth [28].

An interesting fact is how the use of chemical plant protection agents is avoided. So, basil is planted on an area covered with a film, and the culture is grown for 3-4 years. After that, the film is removed, and the sun scorches the earth so that no pathogens of plant diseases, pests or weeds remain on it. After the land has been under the sun for a month, crops can be grown on it again. And on date palm plantations, weeds are fought with the help of... donkeys. The area planted with trees is fenced with an electric herder and animals are released there, which eat all the weeds.

So, we have collected 10 facts about agriculture in Israel [22]:

1. 76% of Israel's agricultural exports go to the EU.

This fact speaks of the high quality and safety of Israeli food products. The main region for growing export products is the Arabah desert.

2. Israeli farmers know how to change the taste characteristics of vegetables and fruits.

They can both enhance the taste of the fruit and make it more neutral. It is worth noting that a similar effect is achieved by breeding new varieties of plants by crossing existing ones.

3. Vegetables are sorted using photo equipment and computers.

Each fruit is photographed 32 times on the conveyor belt. From the obtained images, the computer generates a three-dimensional model of the fetus, determining its size, maturity and the presence of damage.

Based on the collected data, vegetables and fruits are automatically sorted. That is why Israeli strawberries are «one in one» on supermarket shelves.

4. Almonds and dates are not collected by hand, but with the help of a special harvester.

Harvesting is done by shaking the trunk with a combine harvester. This method not only does not harm the tree, but also strengthens its root system.

The assembly process takes an average of 30-60 seconds, unlike manual assembly, which takes several tens of minutes.

5. The state subsidizes farmers up to 40% of the cost of purchasing and implementing new technologies.

Software, irrigation systems, innovative harvesting equipment – all this is cheaper for Israeli farmers due to government subsidies.

6. In Israel, losses during grape harvest are extremely low.

The use of special harvesters allows to reduce losses from 10% (with manual harvesting) to 1-1.5%.

7. Milk yield is increased by dousing cows with cold water.

Today, Israel has the highest level of milk production from one cow in the world – an average of 12.5 tons per year.

For example, in Germany this indicator is about 8.5-9 tons per year, in the USA it is about 10 tons per year.

8. The egg-laying of chickens is increased with the help of colorful toys.

In order to eradicate cannibalism, colorful toys were hung in front of the hens in the chicken coops.

Thus, when chickens want to «let off steam», they do not peck at its nest neighbors, but at these toys. Thus, it was possible to significantly reduce the mortality rate in chicken coops.

9. In Israel, the process of combating insects is much more global and systemic than in other countries.

They don't even call it a fight. It is rather a systemic insect management that is included in the plant protection system.

Aniseed, basil and other oils and pheromones are sprayed in greenhouses and fields with the aim to exterminate and control insects.

10. The shelf life of potatoes is extended by treating additional buds with essential oils [23].

Additional tuber buds are treated with mint, eucalyptus and other essential oils, which prevents potato germination and, accordingly, extends its shelf life. This work is not performed by people, but by special programmed devices.

The Ukrainian Horticulture-Business Development Project (UHBDP) was an interesting experience of multilateral (Ukraine-Canada-Israel) cooperation in the field of agriculture within the framework of technical assistance projects, the purpose of which was to provide assistance to Ukrainian farms producing fruit and vegetables products by increasing their potential as producers and finding highly profitable sales markets for them [24]. The project worked in the southern regions of Ukraine (Zaporizhia, Kherson, Mykolaiv and Odesa) and was designed to support 30,000 small/medium farmers and small enterprises producing fruit and vegetable products. As a result, it was expected that small farmers with the assistance of UHBDP, would collectively increase their sales to 50,000 metric tons of fruit and vegetable products worth $40 million per year by the end of the project. Funding for this project (almost 20 million Canadian dollars) was provided by the Canadian Department of Foreign Affairs, Trade and Development (DFATD) and the Mennonite Economic Development Association (MEDA). The Center for International Cooperation of the Ministry of Foreign Affairs of Israel «MASHAV» acted as a partner in the implementation of the project. The grant assistance of this project was aimed at providing equipment, conducting training, as well as practical and methodical assistance in establishing

effective agricultural management for farmers and household owners (with the involvement of Israeli and Canadian specialists) [25]. Such a credit mechanism to support small and medium-sized farmers was created, which is aimed at facilitating access to financing, so that farmers themselves can make investments in the development of their own business. Local agricultural educational institutions were assisted in the development of new courses on efficient and environmentally sustainable management of small farms operating in the field of fruit and vegetable production. A similar project in 2015 gave the following result – for one dollar of investment the farm received three dollars of income [26].

Discussion. The fact that Israel have managed to create a strong, prosperous, innovative and highly competitive economy, even in the face of permanent military conflict, in the face of an arid climate and a lack of water resources, proves once again that determination and perseverance can be decisive factors. And here Israel's experience is invaluable for Ukraine [27]. This example clearly shows that despite Russia's external aggression and other economic challenges that Ukraine has faced, we can still achieve success if we clearly define our priorities and follow them [28].

Therefore, our intentions are clear — we strive to develop and deepen cooperation with the State of Israel. Today, We can say without a doubt that over the past year, we have made a significant breakthrough in bilateral relations in several directions.

Conclusion. Thus, Israel is one of the world leaders in the innovative development of agriculture. Before the war, Ukraine, having a significant natural potential, was approaching the world leaders in the production of agricultural products, in particular, sunflower oil, poultry meat, and other agricultural products. The agreement on free trade between Ukraine and Israel was supposed to ensure the diversification of Ukrainian exports. Taking into account that Israel has traditionally been a net importer of Ukrainian agricultural products, in particular, wheat, fodder crops, sugar, oil crops, a joint decision was reached on the maximum reduction of import duty rates on the part of Israel, access to its market of goods and the expansion of the list of Ukrainian products, which was exported to the crane. However, currently, Ukrainian-Israeli cooperation in the agricultural sphere is not limited to trade transactions. After all, Israel's success is largely related to many years of research in the field of agro-technological innovations. Acquaintance with these technologies, its implementation in agro-industrial production, attraction of Israeli investments in reconstruction after the war will provide an opportunity to take a significant step in reforming the agricultural sector of our country. Obviously, the combination of the capabilities of Ukraine and Israel will make it possible to significantly restore the agro-industrial potential, restore the position of our countries in the world market of agricultural products.

The success of Israel’s agro-food sector is due to close cooperation between farmers and science. The results of scientific research and development are instantly sent to the fields for practical testing and the problems that arise are transferred to scientists to find solutions. As a result, farmers receive the latest farming methods, crop cultivation, irrigation technologies and innovative agricultural equipment. The main share of scientific research and development in agriculture falls on the Organization of

Agricultural Research under the Ministry of Agriculture of Israel. Most research institutes dealing with agricultural issues maintain close connections with the United Nations Food and Agriculture Organization, thereby ensuring a constant exchange of information with other countries. The combination of the achievements of applied science and targeted government support created favorable conditions for Israeli farmers to modernize equipment and technologies and helped to adapt to changing geopolitical, market and climatic conditions, which created a solid foundation for the sustainable development of the industry.

Generalized principles of rural revival are successfully implemented in Israel, have confirmation in many EU countries and prove its effectiveness. None of the defined instruments cannot be implemented without state support. In this case, it is not only financial support (although it is important and difficult to be overestimated, especially for Ukraine), but also institutional, regulatory, informational and organizational, etc. The Ukrainian and Israeli prerequisites for agricultural production and rural development are significantly different, but the innovative approaches on which the development of the Mediterranean country is based, the knowledge-intensiveness of all production processes, the ways of revitalizing rural localities can be useful for bringing Ukrainian agricultural production to a new modern level and ensuring balanced social-oriented economic development of rural areas.

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SOLVING THE FOOD CRISIS IN THE CONTEXT OF DEVELOPING THE BIOECONOMY OF THE AGRO-INDUSTRIAL COMPLEX OF UKRAINE

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Abstract. *In modern conditions of the development of the agro-industrial complex of agriculture, the introduction of bioeconomy on a scientific basis is of particular importance. Overcoming global modern challenges: economic, ecological and social problems, including the food crisis, is impossible without a clear understanding of the development of the bioeconomy. The bioeconomy will contribute to sustainable development in order to ensure the long-term competitiveness of agriculture and forestry, food and chemical industries, as well as to mitigate climate change and greenhouse gas emissions. Due to the implementation of the bioeconomy, the following global problems can be solved: food shortages associated with population growth; depletion of mineral resources; environmental pollution and social aspects. Ukraine has a huge raw material potential for the development of the bioeconomy, while not reducing the level of food production. That is, today Ukraine not only provides itself with a sufficient amount of food products, but also exports a part of agricultural products; possesses a significant natural-economic, scientific and production potential for increasing the volume of production of agricultural products by improving the culture of agriculture, mastering innovative technologies. The article analyzes the development of bioeconomic strategies in the European Union based on their general characteristics. The analysis is based on 349 identified regional bioeconomic strategies (published and under development). It covers three categories of strategies according to the focus of the bioeconomy, i.e., specialized strategies, strategies with a strong bioeconomy focus, and strategies with minimal bioeconomy content. The state of the bioeconomy in Ukraine was analyzed and recommendations were offered for their structuring in accordance with the codes of Classification of Economic Activities by types of economic activity. Conclusions are made regarding the role of bioeconomy in the post-war revival of Ukraine.*

Keywords: *food crisis, potential supplies, competitiveness of a country, agro-industrial complex, agriculture, European integration, sustainable bioeconomy strategy, biomass.*

JEL Classification: E 20, O 13, Q 28, R 13

Formulas: 0; fig.: 4; tabl.: 1; bibl.: 22

Introduction. At the high-level conference "The Bioeconomy – Enabling the European Green Deal in Challenging Times" which took place on 6 and 7 October in Brussels, the conclusions of the "EU Bioeconomy Strategy Progress Report" [1], adopted in June 2022 and highlight the role of bioeconomy policy to enhance policy coherence and system thinking. A number of bioeconomy success stories from EU research and innovation will be presented, alongside evidence for a successful implementation of the EU Bioeconomy Strategy. There was also an opportunity to discuss how the bioeconomy can help to better manage certain trade-offs, by

addressing the question of how increasing biomass demand for energy and industrial needs can be matched with increasing climate and biodiversity objectives.

Bioeconomy encompasses all sectors and associated services and investments that produce, use, process, distribute or consume biological resources, including ecosystem services. From the food we eat to the furniture in our house and the clothes we wear, the bioeconomy, as one of the Union's largest sectors, is already present in our daily lives. Bioeconomy can be the natural enabler and result of the European Green Deal transformation.

The EU Bioeconomy Strategy Progress Report [1] states:

To meet the high stakes and ambitions of the European Green Deal it is essential to ensure environmental integrity and to close the projected 'biomass gap' between supply and demand of biomass for food, materials and energy. While the three action areas of the 2018 EU bioeconomy Strategy aim to close this gap, additional focus should be given to resolve multiple pressures on land for mitigation, nature protection and supply of biomass. Also, a better understanding of overall consumption of biological resources is needed to help shifting to more sustainable consumption patterns.

Following the unprovoked Russian invasion of Ukraine, the need to enhance the transition towards both clean energy and sustainable, resilient, and fair food systems has never been stronger and clearer. Future implementation of the EU Bioeconomy Action Plan will have to take into account the implications on food and energy prices, as well as prices of energy-intensive products, and global supply chains, and address resulting additional pressure on natural resources within ecosystem boundaries.

A strong EU Bioeconomy Strategy with a focus on all three dimensions of sustainability contributes to achieve the goals outlined in the European Green Deal. Progress of the 2018 updated Bioeconomy Strategy is promising and encourages to continue and further strengthen various activities. However, to in order to fully exploit the strength of the Bioeconomy Strategy, additional efforts are needed, especially with regard to further actions on resolving multiple pressures on land and sea and on the overall consumption patterns of biological resources.

Literature review. The aspects of the bioeconomy were studied by domestic scientists: V. Baidala, S. Belous, V. Bugaychuk, V. Butenko, O. Vdovichena, I. Grabchuk, I. Gushcha, M. Dobrivska, L. Ilkiv, T. Kachala, A. Klymenko, O. Kucher, O. Litvak, V. Lymar, I. Nesterenko, N. Petrukha, S. Petrukha, V. Proskura, S. Proskurina, A. Proshchalykina, O. Ryabchenko, M. Talavirya, V. Zhebka, M. Yaremova and others.

Bioeconomy research in the agro-industrial complex of Ukraine was carried out by: V. Baidala, V. Bugaychuk, V. Butenko, I. Grabchuk, I. Gushcha, M. Dobrivska, V. Zbarsky, L. Ilkiv, A. Klymenko, O. Kucher, O. Litvak, N. Petrukha, S. Petrukha, S. Proskurina, A. Proshchalykina, M. Talavirya, V. Zhebka, O. Shubravska and others.

Aims. The aim of the article is to study the bioeconomy in the context of the development of the agro-industrial complex of Ukraine to overcome the economic crisis and develop measures for their development.

Methods. Research methods: general scientific methods: analysis, synthesis, induction, deduction, systems approach and modeling – to study the theoretical issues of forming a strategically-oriented model of sustainable development; generalization method – for the formation of a strategically oriented model of sustainable development.

The research methodology involves the use of general scientific and specific methods used in economics, ecology and biotechnology, and is based on an interdisciplinary approach.

The scientific novelty of the obtained results is to determine the directions of development of Ukrainian bioeconomy based on the use of biotechnology in food, agricultural and environmental sphere.

Result. The current structure of the food system lies at the center of a nexus of global problems, stretching from poverty to environmental degradation. The increase in food production needed to meet the anticipated demands of the near future cannot be achieved by simply extrapolating current trends in production and consumption. A continuation of the recent historical trends of expansion and intensification will undermine the very resource base on which the food system itself depends.

The preservation of ecosystems and the future wellbeing of the human population are all centrally dependent on a structural transformation of the food system towards a sustainable and resilient state.

Global food and agricultural production have increased significantly since the end of WWII spurred by a combination of population and economic growth along with technological and cultural shifts in production practices. Due to increases in population, wealth, and urbanization, the world has seen an overall increase in food demand, coupled with a shift in dietary preferences towards more resource-intensive foods.

The Green Revolution played a significant role in establishing intensive agricultural production methods globally and shaping the reigning philosophies in mainstream agricultural practice. Global yields have steadily increased since the 1950s; there is more food produced today per person than ever recorded. Though widely credited with helping avert anticipated large-scale food shortages in the post-WWII era, the intensification practices brought on by the Green Revolution have also been critiqued for driving ecological degradation, unsustainable resource consumption, and entrenching dependency on non- renewable resources like fossil fuels.

Intensification, consolidation, and specialisation are some of the large scale behavioural trends inherent to the food system. Intensive practices dominate the system as a whole and a small number of actors in the fields of production, processing and retail control most of the food system and strongly influence policy making. Loopholes in trade agreements are widely abused by more powerful nations, resulting in unfair competition for developing countries, ultimately manufacturing dependence and eroding local food security.

Recent trends and policies towards growing non-food crops, like biofuels and biomaterials, are leading to re-assignment of land and other base resources, resulting in less availability of these resources for food production. Funding for agricultural

research and development is mostly available in higher- income nations, leaving lower-income nations behind. Research and development efforts have been focused on enhancing conventional production methods, with very little funding allocated to the development of sustainable agricultural techniques [2].

Climate change is a growing threat to our food systems, with impacts becoming increasingly evident. Rising temperatures, changing precipitation patterns, and extreme weather events, among other effects, are already reducing agricultural yields and disrupting food supply chains. By 2050, climate change is expected to put millions of people at risk of hunger, malnutrition, and poverty.

Aspirations for food systems are extremely high. Global summits in 2021 highlighted the central role of food systems transformation in the world's response to climate change as well as meeting multiple other development goals. Action to address climate change is underway but must be hastened by accelerating innovation, reforming policies, resetting market incentives, and increasing financing [3].

For the development of human society in the third millennium, a crucial role is assigned to biotechnological research, including those in the field of agrarian biotechnology and sustainable agriculture. Among many scientific concepts and views on ways to overcome the food problem, one can single out the main concepts. First of all, these are concepts that directly associate the provision of food to the population with the demographic situation on Earth. The second group should include technocratic teachings. Less numerous, but extremely versatile, is the humanistic direction.

The limits of the intensification of the production of agricultural products and food were determined by the possibility of using the renewable resources of the planet (energy, mineral resources for the production of machinery, fertilizers).

The statement of modern scientists and agribusiness representatives that "biotechnology will feed the world" is now being criticized by some economists. They believe that these technologies could certainly contribute to the growth of agricultural productivity and the solution of the food problem in poor and developing countries. However, they are practically inaccessible to local farmers. Therefore, agricultural biotechnology is currently not a sufficient condition for providing the world with food - they primarily ensure the maximization of the profits of farmers in developed countries.

Biotechnology has turned from an ordinary industry into a system-creating factor in the development of the economies of individual states and the world economy in general. A special term denoting this phenomenon appeared - bioeconomy and the field of bioeconomy based on relevant knowledge.

According to the forecasts of experts of the Organization for Economic Cooperation and Development (OECD), in the 21st century biotechnology will play a crucial role in political and economic stability in both developed and developing countries and will have an anthropogenic impact on the planet. Due to the achievements of biotechnology, humanity will be able to take full advantage of the plant in the coming decades as the cheapest and most ecologically safe factory for the production of most of the materials, food, medical drugs, chemical compounds, raw materials, etc. that are necessary for people. Biotechnology co the environment, because it reduces

the risk of toxic contamination of soils and groundwater, and increases the efficiency of agriculture. As a result, it will be possible to combine the provision of food for the constantly growing population with the cessation of environmental destruction trends [4, p. 185-186].

Throughout the development of mankind, the improvement of biological and agronomic technologies for obtaining food products took place along with the optimization of methods of soil cultivation, product processing and the attraction of new energy resources. However, during the millennia, the agricultural products themselves, obtained as a result of such development of agricultural technologies, have practically not changed. In this sense, biotechnologies can be conditionally comparable to evolutionary agricultural technologies [4, p. 192].

The specificity of the modern world food problem is that there is generally enough food to eliminate hunger in the world, but there is unevenness in its production and consumption, that is, the geography of food production does not coincide with the geography of their consumption. Developed countries, in which 21% of the world's population lives, account for 46% of the world production of grain crops (including wheat - 54%, potatoes - 58%, sugar - 32%, oil - 34%, meat - 45%, milk - 60%. The situation with providing food products of own production in the least developed countries, where 43% of the world's population lives, is difficult. They provide, respectively, 24% of the world production of cereals, potatoes - 19%, sugar - 24%, oil - 24%, meat - 9%, milk - 10%. The traditional system of agriculture, which provides the main part of food in these countries, is not designed for such a population.

Even more striking is the inequality in the distribution of the world consumption fund: the share of developed countries in the world consumption fund for all products (except rice) significantly exceeds the share of their population in the world. The uneven distribution of production and consumption in the world leads to a situation where in some countries there is malnutrition and hunger, and in others - excess production and consumption of food. This state of the world food system implies a mandatory increase in the intensification of production and an increase in the circulation of food products through the channels of domestic and foreign trade for the normal supply of food products to the global population. It is absolutely obvious that there is a need for further development and expansion of the capacity of the world agro-food market, as well as the equalization of its certain disparities, based on the search for new biotechnologies.

The main advantages of agricultural products obtained with the help of new biotechnologies include: – increasing the yield of crops due to providing them with specified properties and reducing losses from diseases and pests; – reducing the use of pesticides and herbicides and thus reducing the chemical impact on the soil; - releasing renewable natural resources, replacing them with more productive ones obtained with the help of biotechnology; – reducing the level of impact on the environment due to the use of less harmful methods of soil cultivation; - reduction of plant and animal disease level, etc. [4].

The global environmental and food problems of humanity in today's realities negatively affect both highly developed economies and the economies of developing

countries. Food shortages due to population growth, the depletion of mineral, raw and energy resources, environmental pollution, the spread of Industry 4.0 and smart technologies, the growth of consumption and the spread of the ideology of consumerism require the search for mechanisms to maintain a balance between the consumption of limited resources and the accumulation of waste, which cause ecological damage to the environment and the population of the planet.

The solution to the outlined problems is provided by the bioeconomy, the narrative of which is the human use of natural potential on a restorative circular basis in the sphere of realizing the goals of sustainable development.

Significant theoretical developments and best practices of implementing a sustainable bioeconomy in the countries of the European Union are an essential basis for intensifying research, determining directions and opportunities for the formation of a bioeconomy in Ukraine [5, p. 65].

Many European regions have multiple strategies in place, or under development, that are relevant to the bioeconomy or tackle it from different angles. This means that the number of bioeconomy strategies at regional level is considerably higher than the number of regions with bioeconomy strategies.

Research has revealed that there are 359 strategies (published and under development), at regional level in the EU-27 that are fully or partially dedicated to bioeconomy and contribute to its deployment across European regions (situation as of November 2021). Of these, 345 are strategies at (sub-national) regional or local level. In addition, 14 multi-regional strategies have been identified that cover different regions. Of these, 10 have a cross-border, macro-regional or interregional perspective, while 4 cover various regions in one country.

Of the total 359 regional and interregional strategic frameworks, 334 are published (as of November 2021). Of these 334, 324 are regional and 10 are multi-regional strategic frameworks. Of these regional strategies, 32 are fully dedicated to bioeconomy, 83 cover bioeconomy within a sectoral strategy and 209 treat bioeconomy as an embedded topic within a wider strategic framework (Figure 1).

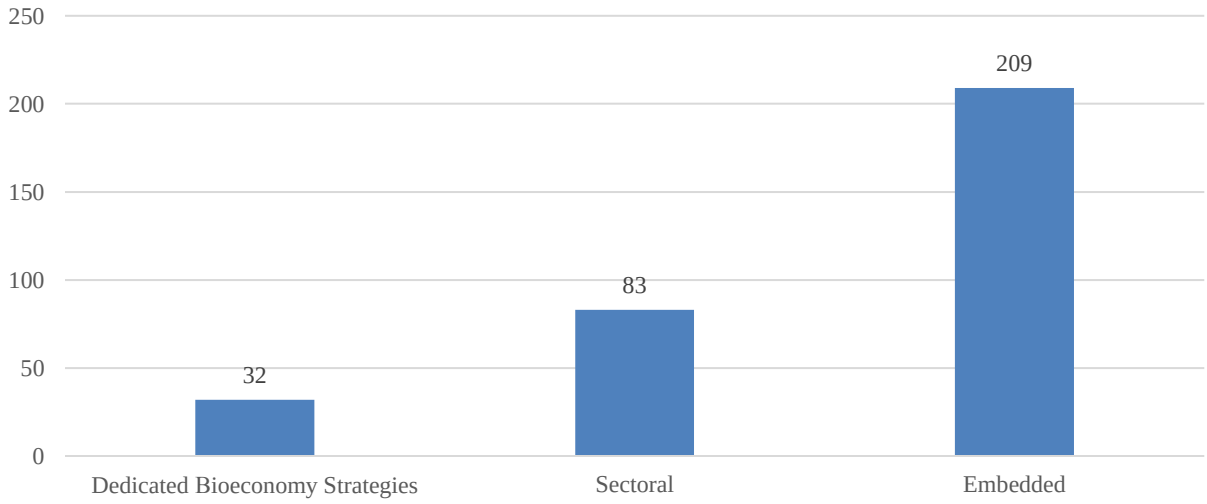

Figure 1. Regional strategies where bioeconomy is treated as a main theme, sectoral topic or is embedded in a wider strategic framework (no. of strategies) [6]

Overall, 41 strategies (32 regional and 9 multi-regional) are fully dedicated to the bioeconomy, i.e. directly focus on the deployment of the bioeconomy. Of those remaining, 97 strategies have a strong focus on the bioeconomy, whereas 196 have a minimum bioeconomy content.

Bioeconomy is addressed in sectoral strategies in 83 cases of the published regional strategies (Figure 2). In most cases, it is addressed in forestry plans/strategies (29), followed by waste plans (26), strategies on energy (13) or focusing on agriculture/agri-food (11). Bioeconomy is addressed in sectoral strategies on aquaculture/fisheries or algae (3) or on construction (1) in several cases.

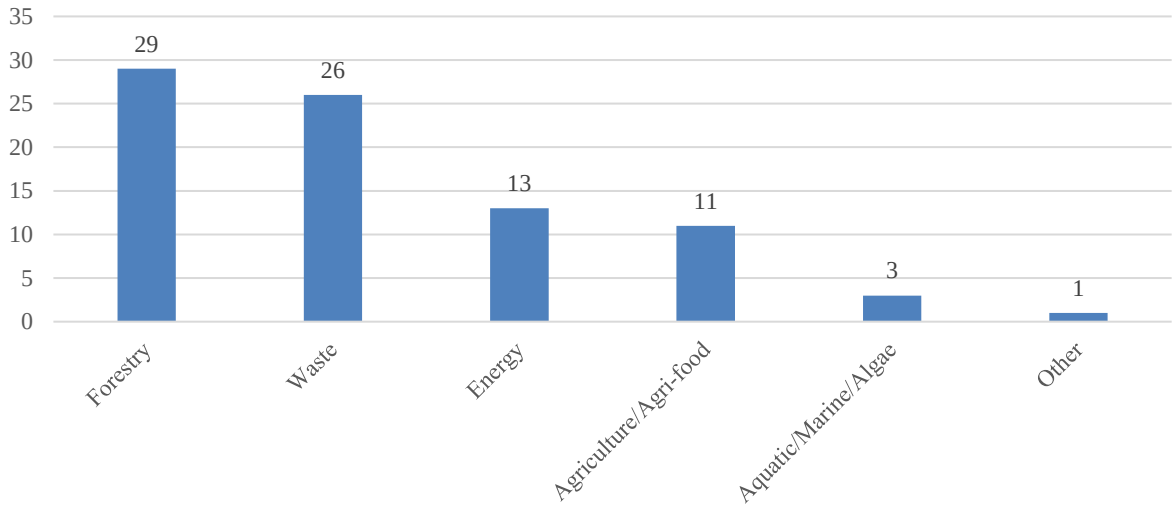

Figure 2. Bioeconomy covered in sectoral strategies (no. of strategies per sector) [6]

In 210 cases (209 regional and 1 macro-regional), bioeconomy is embedded into wider strategic frameworks (Figure 3). This is mostly the case within regional/territorial or rural development plans (54), within Smart Specialisation Strategies (49), within the context of circular economy strategies (31), within strategies for economic/industrial development or sustainable development strategies/plans (17), within climate/low-carbon plans (15), and within regional research/innovation strategies (12). In several cases, bioeconomy is part of green (5) or blue transition (3) strategies or of recent Recovery and Resilience Plans (RRP) at regional level (2).

The EU Bioeconomy Strategy [7] defines five objectives: ensuring food and nutrition security; managing natural resources sustainably; reducing dependence on non-renewable resources; mitigating and adapting to climate change; and strengthening European competitiveness and creating jobs. The analysis investigated which of these objectives are pursued by the regional strategies. The most prominent objectives of the different strategies are outlined below.

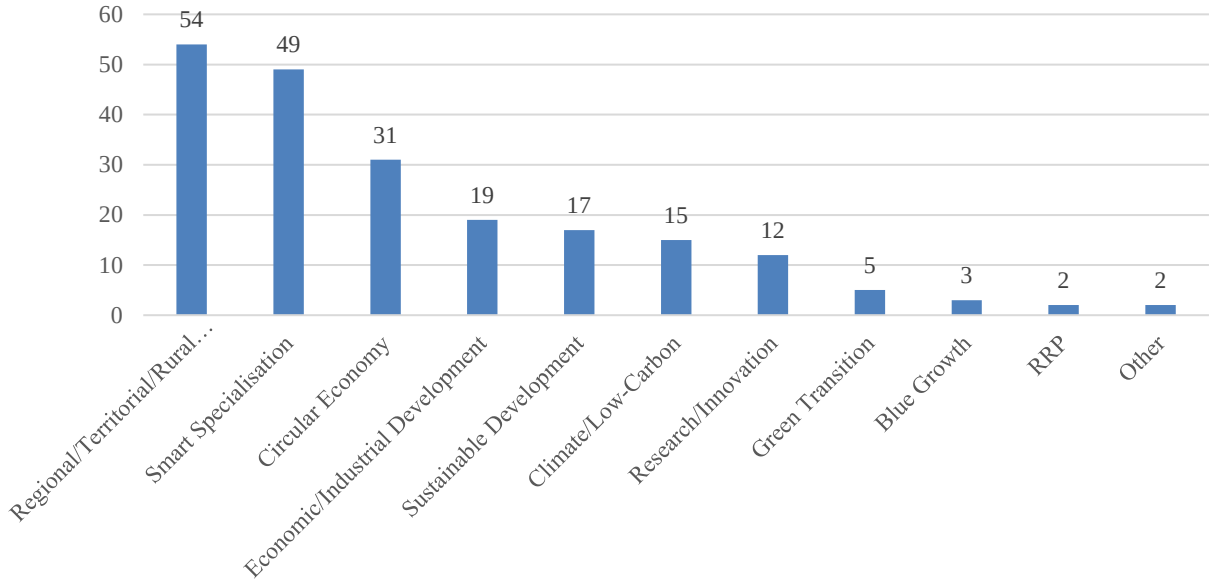

Figure 3. Bioeconomy embedded in wider strategies (no. of strategies per theme) [6]

Figure 4 shows the strong emphasis of all regional bioeconomy strategies on the sustainable management of natural resources (within 270 of 349 strategies, 77%).

Reducing the dependence on non-renewable resources is also one of the most extended goals of the regional strategies (236 or 68% of the strategies). Evidently, many strategies, especially those where bioeconomy is embedded in Smart Specialisation or economic strategies, refer to the aim of strengthening the competitiveness of the regions and creating jobs (220 or 63%).

Furthermore, most strategies are also aligned with Europe's overall goal of mitigating and adapting to climate change (200 or 57%), which is often inherent to the use of bioeconomy resources.

Less than one third of the strategies mentions ensuring food and nutrition security as a dedicated goal (95 or 27%).

The picture hardly changes if the analysis is limited to those strategies with a strong bioeconomy focus and the dedicated regional bioeconomy strategies. One difference that can be observed is that fully dedicated strategies pay greater attention to nutrition and food security (16 out of 32 strategies, 50%) than the average of all strategies analysed.

Today, the problem of limited fossil resources and the provision of food, medicine for the population, environmental pollution has led to the search for alternatives to traditional production. One of the effective directions is the use of biotechnologies, bioproducts and bioprocesses, that is, the development of bioeconomy. This issue is an extremely relevant direction for Ukraine, which will ensure the reduction of production energy costs, the restoration of soil fertility, the increase in the level of employment of the rural population, the provision of food and raw materials for domestic production [8; p.74].

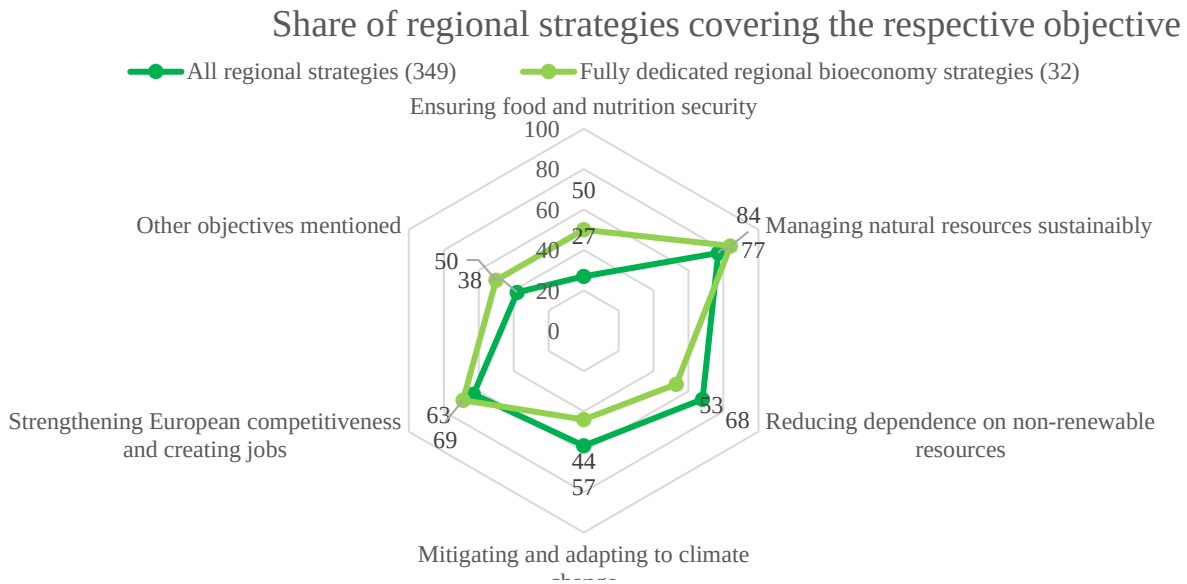

Figure 4. EU Bioeconomy strategy objectives in regional strategies (% of strategies) [6]

Modern bioeconomy is the production of materials, food and feed, fuel and many other biological resources. Bioeconomy can offer resource-efficient, ecologically safe and sustainable production systems of food, feed, fuel and agro-industrial products with added value and, therefore, a healthier and more prosperous future [8; p. 75].

In addition to reducing the impact on the climate, a sustainable bioeconomy can have various co-economic and social benefits, such as diversity of energy supply, easier access to energy, more sustainable agricultural practices, wider implementation of sustainable forest use, reduction of land degradation, economic development of rural areas [8; p. 75].

In the current conditions, the process of forming a bioeconomy, which involves the transition of the most important branches of production, including agriculture, to the use of renewable biological resources, is becoming extremely relevant. Bioeconomy is capable of solving a number of economic, ecological and social problems, namely: providing the population with high-quality food products, reducing production energy costs, transitioning to organic farming, restoring land resource potential, etc. That is, the bioeconomy, as a high-tech part of the economy, represents a new approach to the rational use of resources and their restoration, increasing energy efficiency, increasing the sustainability of agriculture and industry [9; p. 129].

Ukraine has all the prerequisites, sufficient potential and resources, for the effective development of the bioeconomy, as indicated by the SWOT analysis of the development of the bioeconomy in the agricultural sector of Ukraine [9; p. 133].

On the territory of Ukraine, the topic of deep grain processing has already gained a certain reach, has a number of supporters and even ardent supporters. Bioeconomy will allow, among other things, to bring the grain and elevator industries to a new level, include them in the chain of higher technologies and significantly expand business horizons.

At the current stage of the development of society, a resource-efficient and viable bioeconomy is the engine of progress, primarily in agriculture and the food industry, which have a tendency to further growth due to the increase in the population of the planet (in 2020 – 7 billion, in 2050 – 9 billion people).

In order to achieve high rates of economic growth, Ukraine must take a course towards the bioeconomy – to create a more innovative and low-emission economy by combining the needs of viable Ukrainian agriculture, food security and the sustainable use of renewable resources. The need for the development of the bioeconomy in Ukraine is determined not only by economic factors, but also by social, ecological and even political aspects.

The transition from fossil to renewable resources is an important element of the environmental transition envisaged by most developed countries. Weak integration of Ukraine's bioeconomy and biotechnologies into the economic space of the European Union is an obstacle to achieving the goals of a circular, sustainable bioeconomy of the EU [10, p. 191].

In order to better understand what real steps Ukraine should take in the field of bioeconomy, it is necessary to structure it. However, there is no single approach to the bioeconomy in the world, it covers many different sectors, which requires its own national methodology.

Based on the EU definition, the European Commission conducted a survey and classified the bioeconomy into 3 sectors: core, partial and indirect bioeconomy.

The main bioeconomy includes areas such as agriculture and forestry, fisheries, food industry, bioenergy and biofuels. The partial bioeconomy in the EU-27 includes chemicals, plastics, construction, pharmaceuticals, textiles, waste management and biotechnology. Engineering, technology, equipment manufacturing, trade, water supply and similar services have an indirect effect on the bioeconomy.

Such a classification allows the best calculation of the economic contribution of the country's economy to the bioeconomy, but it is difficult to use it to determine breakthrough technologies in certain industries. Therefore, it is proposed to carry out the structuring of the bioeconomy of Ukraine by sector (Table 1).

In September 2020, the Cabinet of Ministers of Ukraine approved the "Forecast of Economic and Social Development of Ukraine for 2021-2023", prepared by the Ministry of Economic Development, Trade and Agriculture, according to which most of these goods of the agro-industrial sector could be processed in Ukraine with high added value. in particular, corn and wheat by the method of wet grinding, and processing products – starches, fodder and bioethanol are guaranteed as raw goods, sold on foreign markets. Semi-drying corn oil could launch the paint industry of Ukraine, 90% of which is imported due to the lack of raw materials for its production in our country.

Ukraine's total need for investments in deep processing of grain, which means in the country's bioeconomy, is estimated at $15 billion, which is 2 times higher than the amount of investments necessary for the sustainable growth of Ukraine's economy. Such investments would create 85,000 high-paying jobs and, according to the American methodology of the state of Indiana, support 0.5 million jobs.

Table 1. Codes of Classification of Economic Activities and types of economic activity related to the bioeconomy of Ukraine [11]

Codes of Classification of Economic Activities and types of economic activity			Branches
A	01	Agriculture, hunting and related services	Agriculture
	02	Forestry and logging	Forestry
	03	Fish farming	Fisheries
C	10	Production of food products	Food industry
	13	Textile production	Textile industry
	20	Production of chemicals and chemical products	Chemical Industry
	21	Production of basic pharmaceutical products and pharmaceutical preparations	Pharmaceutical industry
E		Water supply; sewerage, waste management	Water supply
D	35	Supply of electricity, gas, steam and air conditioning	Green energy
F	41	Construction of buildings	Construction
I	56	Food and beverage activities	Food industry
M	72.1	Research and experimental developments in the field of natural and technical sciences	Scientific and research activities

A sustainable bioeconomy should be aimed at achieving neutrality of land degradation and restoration of degraded lands. Realization of this potential requires investments, innovations, development of strategies and implementation of systemic changes.

Climate change has already led to high summer temperatures, which negatively affect the yield of fields, especially in the south of Ukraine. To combat this problem, the government has already begun to formulate field irrigation strategies in the Kherson, Odesa, and Mykolaiv regions, and farmers are experimenting with seeds of drought-resistant hybrids. Solving problems with high temperatures and water supply can increase yields in these regions. At the same time, it should be understood that the heat is consistently moving to the north and the experience of the southern regions will soon have to be applied in the middle zone of Ukraine [12].

To overcome these problems, domestic scientists and the community propose gradual steps [13-19]:

The national policy of supporting the development of the bioeconomy in Ukraine should be effective in terms of indicators of economic and social efficiency, as well as environmental safety. Therefore, the formation of a long-term strategy of state support for the formation of a biosocial economy, which will be aimed at the following results, is currently becoming more and more urgent: improving the quality of life, improving the environment as a result of the involvement in the processing of biomass raw materials, as well as industrial, agricultural and household waste, the development of the agricultural sector on principles of sustainability and increasing its economic efficiency and competitiveness, as well as forestry and fisheries; reducing dependence on imported energy sources through the development of bioenergy; increase in employment, especially in rural areas; improving interaction between science, business

and society regarding the use of innovative biotechnologies; formation and development of the bioeconomy infrastructure as a result of the creation of agrobiotechnological clusters.

In our opinion, the strategy of long-term state support for the development of the bioeconomy should be aimed at:

1) for the development of the scientific and resource base, which includes areas such as improving the personnel training system for biotechnological enterprises, as well as for carrying out scientific research; creation of mechanisms that contribute to the acceleration of the development of the bioeconomy (formation of the appropriate legislative field); stimulating the use by enterprises of technologies related to the use of renewable resources; comprehensive support of the agricultural sector as the main resource base of the bioeconomy;

2) the development of a competitive sector of research and development in the field of biotechnology, which includes such directions as the development of the mechanism of commercialization and introduction of biotechnology; narrowing the gap between research and the market; coordination of the needs of science and production; promoting the formation of a positive image of biotechnological products; promotion and popularization of biotechnologies both among producers and among consumers; formation of "green thinking"; creation/development of a system of measures that facilitate the easier entry of bioproducts into the market;

3) support (facilitation) to the creation of agro-bioclusters on the territory of Ukraine, which includes such directions as the creation/development of a system of activities within the framework of social partnership that stimulate the formation of agro-bioclusters; rational use of biological resources as a basis for the creation and further development of territorial agro-bioclusters (based on the study of existing technological chains; development of alternative energy; positioning of Ukraine on the market of high-tech products.

A real direction in the formation of the bioeconomy in Ukraine can be the creation of bioclusters, where a network of enterprises that use by-products of production is formed around the main enterprise, for example, a large biofuel plant, and the general transport, logistics and social infrastructure is developed. Similar bioclusters are now being actively implemented in the USA. The cost of building bioclusters in the grain-growing regions of Ukraine is estimated by experts at 2 billion dollars. After the launch of bioclusters aimed at the formation of agricultural biotechnology, grain demand in the domestic market may increase by 12-15 million tons per year. At the same time, each plant, purchasing $100 million worth of grain annually, will be able to produce $500 million worth of products and will create at least 3,000 jobs at the enterprise and in related industries. In order to fully realize the possibilities of the bioeconomy, a systematic approach to its development is necessary.

In Ukraine, this direction is just starting to emerge, but it is already quite prospective. There are many opportunities of reuse of agricultural resource residues [4].

Discussions. Today, the bioeconomy of the EU-27 employs about 17.5 million people, which is 9% of the workforce. The bioeconomy generates 1.5 trillion euros (about 10% of GDP), including the tertiary sector of the bioeconomy (bioservices).

A sustainable bioeconomy can be a key tool of the Green Deal in the post-COVID-19 era, making the EU more sustainable and competitive.

In view of the above, in the future it is necessary to ensure sustainable management of the bioeconomy, protecting national states, business and the population from negative impacts by complementary implementation of progressive innovative biotechnologies.

As a result of the study, it was established that Ukraine can create a sustainable, innovative, resource-efficient economy, integrated into the global space, which combines food security with the sustainable use of renewable energy sources and resources for industry. Biomass can replace products obtained with the use of fossil fuel resources. Residues and waste, raw materials of agriculture and forestry can be used to ensure ecologically clean production.

As a result of the war in Ukraine, a catastrophic drop in GDP is expected. According to estimates by the World Bank, the economy of Ukraine will decrease by 45.1 percent in 2022, with the scale of the fall in GDP depending on the duration and intensity of the war [20]. It is also predicted that the rate of world GDP will decrease from 6.1% in 2021 to 3.6% in 2022, the countries of the European Union from 5.4 to 2.9%, respectively. Developed countries will lose 1.9% of GDP and have an increase of only 3.3%. Developing countries will suffer the most as a result of military actions in Ukraine, whose growth rates will increase from 6.8% to 3.8% in 2022.

We concluded that that the state policy of Ukraine should be aimed at the development and implementation of mechanisms for restoring production, preserving, and creating new jobs related to the reconstruction of the national economy, in infrastructure sectors, construction, industry and providing economic incentives for the labor force reimmigration [21].

It was determined that in the post-war period, the bioeconomy should become a priority to support the economic recovery of Ukraine, since a sustainable bioeconomy returns resources to the real sector, creates jobs, promotes an increase in the level of environmental friendliness of production and consumption, and allows optimal use of limited resources on a waste-free circular basis [22].

Conclusions. To overcome the food crisis, one of the most important is the agricultural direction and the development of the agro-industrial complex. It is a kind of core of the bioeconomy, as it serves as its main raw material base.

In the modern environment of globalization, the bioeconomy is the most important direction in the development of world economic activity. Biotechnologies open up new opportunities for mankind to create innovative products capable of solving many global problems, including food supply while simultaneously reducing the adverse impact on the environment.

State support for the development of the bioeconomy is necessary, since the emergence of a business in the field of biotechnology in the district will create new jobs, increase the added value created in the region by producers of agricultural

products, and compensate for rather harsh climatic conditions. Thus, maintaining economic growth and the growth of the population's well-being in the long term is possible only with the introduction of new technologies in the agro-industrial complex of Ukraine, which will allow solving current global problems, such as overcoming the food crisis.

Author contributions. The authors contributed equally.

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CHAPTER 2
DEVELOPMENT OF FINANCE, ACCOUNTING AND AUDITING

THE IMPACT OF RISK MANAGEMENT ON FINANCIAL PERFORMANCE OF BANKS: CASE OF TUNISIA

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Abstract. *The risk management play a vital role in absorbing the losses and inefficiencies of bank activities. It is interesting the study his effect on financial performance of banks. The aim of this research is to study the impact of risk management in financial performance in sample of 11 banks over the period (2000…2018). By using a method of panel static, we found the positive impact of credit risk management in ROA and ROE; and the significant impact of liquidity risk management on ROA and ROE. Credit risk management is the practice of mitigating losses by understanding the adequacy of a bank's capital and loan loss reserves at any given time – a process that has long been a challenge for financial institutions. The first step in effective credit risk management is to gain a complete understanding of a bank's overall credit risk by viewing risk at the individual, customer and portfolio levels. While banks strive for an integrated understanding of their risk profiles, much information is often scattered among business units. Also, effective liquidity risk management helps ensure a bank's ability to meet cash flow obligations, which are uncertain as they are affected by external events and other agents' behavior.*

Keywords: *risk management; bank; financial performance; Panel; ROA; ROE.*

JEL Classification: G15, G21, G31

Formulas: 7; fig.: 0; tabl. 7; bibl.: 21

Introduction. The risk management has a big importance in banking industry. Credit and liquidity problems may adversely affect the financial performance of a banks as well as its solvency if not properly managed.

Credit risk management has been an essential part of the loan process in the banking sector. Deposit money banks continue to spend huge resources in credit risk management modeling with the objectives of maximizing profits (Oniagbo, Daniel (2021)).

Also, liquidity risk management for banks focuses on the ability of the bank to finance its activities and fulfill its obligations on time and at reasonable cost. It also means the comparability between financial reserves and employment in various assets in the medium and short term.

In this article we aim to study the impact of risk management on bank financial performance. We used a methodology of three sections. The first section is devoted to literature review; the second section is concerned the empirical study. We make finally a conclusion.

Literature review. There are many studies about risk management and bank financial performance. Hallunovi; Berdo (2018) indicated that there is negative relationship between credit risk and ROA in Albania.

Nwade; Okeke (2018) investigated the impact of credit risk management on the performance of deposit money banks in Nigeria using the period (2000…2014). The findings reveal that credit risk management had a positive and significant impact on total loans and advances; return on assets; return on equity of deposits money banks.

Hacini and al (2021) studied the impact of liquidity risk management on the financial performance of banks in Saudia for the period (2002….2019). The results show that liquidity risk has a significant negative impact on the financial performance of Saudia Arabian banks.

Alim and al (2021) tested the effect of liquidity risk management on the financial performance of commercial banks in Pakistan. Financial data of all commercial banks operating in Pakistan during the period of study was taken from the years (2006…2019).

It is concluded that higher liquidity increases bank performance in commercial banks of Pakistan.

Al Mamari and al (2022) studied the relationship between risk management and bank financial performance in Sultanate of Oman. The findings revealed that risk management has a significant relationship with the return of assets (ROA) but risk management has no significant impact on ROE (return on equity).

Abaraman and al (2021) indicated the significant impact of risk management on financial performance of banks in Jordan.

Adesu and al (2014) indicated that risk management strategies generally include the transfer of risk to other parties, risk avoidance; reduction in the probability and negative impact of the risk; or acceptance of a few or all the actual or potential results of certain dangers.

Fadun, Oye (2020) analyzed the impact of operational risk management practices on the financial performance of commercial banks in Nigeria (10 years) (2008….2017).

The results showed that there is a positive relationship between operational risk management and the financial performance of banks.

Saiful and Ayu (2019) examined the influence of credit liquidity and operational risk management on performance of Indonesian banks. The sample used consisted of 26 conventional banks and 11 Sharia banks in (2012…2016). This study found that credit risk; liquidity risk management positively influence Indonesian bank's performance that measured by (ROA; ROE).

Hene and Amoh (2016) found that risk management is positively related to performance of banks in Ghana. But Oiteno and Onditi (2016) found a negative relationship between credit risk management and performance of banks in Kenya.

Liquidity risk reduces the ability of the bank to meet its financial obligations as they come due. When this risk remains unchecked; banks will lose customers thereby reducing the volume of deposits (Ahmdyan; 2017).

When deposits reduce the bank will share significant funds for other instruments, this significantly reduce the level of profitability.

Again, a high liquidity risk causes a run on the bank. This run is caused by the panic withdrawal of deposits from the bank.

Liquidity risk management is highly important for not only banks also for the total system since the consequences of liquidity insufficiency can be extremely fact on both scales form the bank to the full system.

Therefore, banks are responsible for sound management of liquidity risk; which focuses on conserving enough level of liquidity; more over being ready for face a range of preserve situations; probable losses; or weakness of funding sources (Sivaltana; Lara; 2017).

Shiftability theory says that bank's liquidity position can be maintained if its holds assets that be ready converted into cash or sold for cash. It can further be detailed that in order to ensure liquidity of a bank; the bank should always have assets that can be offered. Also, credit risk arises from a debtor being unlikely to pay its obligations or its financial capacity deterioration resulting in economic loss for the bank.

To loss could be equal to the entire amount of the loan on a part of the loan granted to the borrower. For the majority of bank loans are the most important and most visible source of credit risk. However, credit risk derives from other bank activities such as on and off-balance sheet activities.

Aims. The aim of this research is to study the impact of risk management in financial performance in sample of 11 banks over the period (2000…2018).

Methods. By using a method of panel static, we found the positive impact of credit risk management in ROA and ROE; and the significant impact of liquidity risk management on ROA and ROE.

Results. Under this section; we will identify the sample at the beginning and then we specify the variables and the models. After we carry out the necessary econometric tests. Finally, we show the estimation results of the models and their interpretations.

Sample. We will use 11 banks (BIAT; STB; BNA; BH; ATB; Amen bank; BH; BTEI; BT; Attijari bank) that below to professional association of banks in Tuniisa stock exchange over the period (2000…2018).

Estimation method. We will utilize panel static because it controls:

-The time and individual variation in the observable behavior across sectional times series aggregate.

- The observed or unobserved individual heterogeneity.

Specification of variables.

We will estimate the following model:

(1) ROAi,t = b0+ b1.Sizei,t +b2.CAPi,t +b3.TLAi,t +b4CEAi,t +b5.Tdepositi,t +b6 NPLi,t +b7 CDi,t +b8 TPIBi,t +b9 INFi,t +Ei,t

(2) ROEi,t =b0+ b1.Sizei,t +b2 CAPi,t +b3 TLAi,t +b4 CEAi,t +b5 Tdepositi,t +b6 NPLi,t +b7 CDi,t +b8 TPIBi,t +b9 TINFi,t +Ei,t

ROA = return on assets = net income / total assets ***(1)***

ROA show how to generate income from the assets of the bank (Chin; 2011).

ROA is considered as the best proxy of profit (Flamini and al (2009); Samad (2005)).

ROE = return on equity = Net income / total equity (2)

ROE reflects the ability of bank to use its own funds to generate profits (Yilmaz (2013))

This ratio showed the profit earned per 1 dinar of investment. This is an indicator of how well bank uses investor's money or generate profit (Chowikh; Blagui (2017)).

Size = Natural logarithm of total assets (3)

Size can show the economies of scale

CEA = operating expenses / total assets (4)

It is including personal expenses and other expenses. CEA shows the weights of operating expenses compared to total assets.

T deposit = total deposits / total assets (5)

Deposit include demand deposit and term deposit. T deposit shows the share of deposits compared to total assets. The more the deposit a bank collect ; the more the loan opportunities ; it will be to generate further profits (Menucci and Paolucci (2016)).

NPL = credits non performants / Total loans (6)

It is a credit risk management indicator (Brewer; Jackson (2006); Kauko (2012)). Low NPL is related to lower risk. Therefore, the allocation of bank risk management deeply relies on the diversification of credit risk to decrease the NPL amount (Ahmdyan (2017).

CD = total credits / total deposits = it is indicator of liquidity risk management (7)

Is the ratio that describes how allocation of funds in term of deposits; comparing to a number of funds which is obtained from savings (Widyastuti and al (2017)).

When the ratio is higher; it shows more risky conditions because the funds from deposits has been collected in more of credits.

Conversely the lower ratio indicated effective banks in lending decisions.

TPIB = growth rate of gross domestic product

INF = rate of inflation

It is known as a specific or sustained index in the actual price of the commodities in the economy over economic or certain period.

Inflation has a lot to do with the bank as it fluctuates of the bank to balance the economy (Almansour et al (2021)).

Table 1. Descriptive statistics

	Observations	Mean	Standard deviation	Minimum	Maximum
ROA	209	0.0117	0.0100	0	0.0975
ROE	209	0.1047	0.06077	0	0.2976
Size	209	15.013	1.017	11.93	18.29
CAP	209	0.1162	0.096	0	0.6739
TLA	209	0.7569	0.131	0.107	0.9817
CEA	209	0.02841	0.0063	0.000237	0.056
T deposit	209	0.7421	0.1519	0.0205	0.756
CD	209	1.5192	2.83	0.1852	36.75
NPL	209	0.054	0.0176	0.015	0.084
TPIB	209	0.03310	0.0147	0.0012	0.0811
Tinf	209	0.05529	0.05356	0.03	0.0781

Econometric Tests. Multicolinearity test.

Table 2. Correlation between variables

	ROA	ROE	Size	CAP	TLA	CEA
ROA	1.000					
ROE	0.3930	1.000				
Size	0.0158	0.3964	1.000			
CAP	0.2433	-0.2316	-0.4941	1.000		
TLA	0.0933	0.0639	0.1256	0.09781	1.000	
CEA	0.0524	-0.0157	0.1215	-0.0841	-0.0628	1.000

Table 3. Suit of correlation between variables

	ROA	ROE	Size	CAP	TLA	CEA	T deposit
T deposit	-0.0463	0.3751	0.534	0.7636	0.0528	-0.0738	1.000
NPL	-0.054	-0.1662	-0.081	-0.063	-0.074	-0.056	-0.0945
CD	0.2313	-0.1557	-0.3739	0.7434	0.0517	0.1049	-0.59
TPIB	0.0685	-0.1856	-0.3635	0.0522	-0.1881	-0.0532	-0.1314
TINF	0.0427	0.0486	0.1247	-0.0160	0.1440	0.0418	0.0753

Table 4. Suite of correlation between variables

	NPL	CD	TPIB	TINF
NPL	1.000			
CD	-0.0598	1.000		
TPIB	0.1226	0.0628	1.000	
TINF	-0.0834	-0.0186	-0.2389	1.000

Multicollinearity occurs when there is a high correlation between the independent variables in the regression analysis which impacts the overall interpretation of the results. it reduces the power of coefficients and weakness the substantial measure the test of the p value is identify the significant independent variables. All coefficients between variables are inferior to 80%. There is no problems of multicollinearity.

Table 5. Test of VIF

	VIF	1/ VIF
CAP	3.87	0.25
T deposit	2.97	0.33
CD	2.27	0.44
Size	1.74	0.57
TPIB	1.26	0.79
CEA	1.18	0.84
TLA	1.15	0.86
TINF	1.08	0.91
NPL	1.37	1.05

VIF quantifies the extent of correlation between one prediction and other predictions in a model.

High value signifies that is difficult to assess accurately the contribution of predictors to a model.

Hausman test. It is developed to give existence in deciding on electing between the field effects and random effects approach. The hypothesis of the Hausman test are:

H 0: Random effect are consistent and efficient.

H1: Random effect are inconsistent

In model 1 : Pv = 0.05058

In model 2: Pv = 0.073

Table 6. Estimation of result of model 1 and their interpretations

ROA	**Coefficient**	**Z**	**Z inferior to P**
Size	0.0015	2.072***	0.015
CAP	0.049	1.073	0.000
TLA	0.0023	0.663	0.0004
CEA	-0.1998	2.077***	0.014
T-deposit	0.0213	0.003	0.00013
NPL	-0.0084	2.756***	0.015
CD	0.00050	0.149	0.0006
TPIB	0.1090	2.029***	0.019
TINF	0.0064	0.611	0.0054
Constant	-0.040	0.002	0.0071

There is a positive relationship between ROA and Size (if Size increase by 1%); ROA will be increased by 0.0015%). The increase of size has a positive effect on return on assets. This result is similar to result found by Menicucci and Paolucci (2016); Serwadd (2018) but contrary to result found by Pasiouras and Kosmidou (2007); Athansgolou and al (2008).

Large banks might benefit from economies of scope (Menicucci and Paolucci (2016)). Also, there is a positive relationship between ROA and CAP (if CAP increase by 1%; ROA will be increased by 0.049%). The increase of capital has a positive effect on return on assets of bank. This result is similar to result found by (Trujillo; Ponce (2013); Dhouibi (2017)).

There is a positive relationship between ROA and TLA (if TLA increase by 1%; ROA will increase by 0.0023%). The increase of total credits by total assets has a positive effect on return on assets of banks.

There is a negative relationship between CEA and ROA (if CEA increase by 1%; ROA will decrease by 0.1998%). The increase of operating expenses has a negative effect on bank return on assets. This result is similar to result found by (Athansoglou and al (2008); Kosmidou and al (2005)).

The negative effect of cost means that there is a lack of competence in expense management since banks part of increased costs to customers and the remaining part to profits, possibly due to the fact that competition does not allow them to overcharges (Athansoglou and al (2008)).

There is a positive relationship between T deposit and ROA (if T deposit increase by 1%; ROA will increase by 0.0213%). The increase of deposits has a positive effect on return assets of banks. Besides there is a negative relationship between ROA and NPL (if NPL increase by 1%; ROA will decrease by 0.0084%). The increase of credits non performants has a negative impact on return on assets of bank. This result is similar to result found by Konde and al (2018). The higher the bank's NPL means that the lower the bank's performance.

Also, there is a positive relationship between CD and ROA (if CD increase by 1%; ROA will increase by 0.0050%). The increase of credits by deposits has a positive effect on return on assets. This result is similar to result found by Hassan; Bashir (2003); Baraoca (2018), Hadian; Phety (2021) but contrary to result found by Pruoko and Sudyatuo (2013).

There is a positive relationship between TPIB and ROA (if TPIB increase by 1% ROA will increase by 0.1090%). The increase of economic growth has a positive effect on return on assets of bank. This result is similar to result found by (Dietrich and Wanzenried (2011); Jawad and Lahsan (2018)).

But contrary to result found by (Blagui; Cheikh (2017)). There is a positive relationship between TINF and ROA (if TINF increase by 1% ROA will increase by 0.0064%).

The increase of rate of inflation has a positive effect on bank return of assets. This result is similar to result found by (Pasiouras; Kosmidou (2007)); Karadazic and Davlovic (2021) but contrary to result found by Almansour and al (2021); Ebhrahimi and al (2021)).

Table 7. Estimation of result of model 2

ROE	**Coefficient**	**Z**	**Z inferior to P**
Size	0.01668	3.37***	0.001
CAP	0.07381	0.95	0.341
TLA	-0.0068	-0.22	0.827
CEA	-0.062	-2.536***	0.015
T deposit	0.1295	3.66***	0.018
CD	0.0013	2.66***	0.017
NPL	-0.01495	2.25	0.0143
TPIB	-0.19	-2.67	0.011
TINF	-0.027	-0.38	0.7060
Cons	-0.23	-2.79	0.0050

There is a positive relationship between Size and ROE (if Size increase by 1% ROE will increase by 1.66%). The increase of size has a positive effect on return on equity of bank. This relationship is statistically significant at 1%. This result is similar to result found by (Topak and Talu (2017); Abobaker (2018); Bogale (2019)).

Financial literature suggests that large banks are said to exhibit lower returns because of the enchanced economies of sale which they may pass on their customers in the form of lower lending rates. There is a positive relationship between CAP and ROE (if CAP increase by 1%; ROE will increase by 7.38%).

The increase of capital has a positive effect on bank return on equity. This result is similar to result found by (Athansoglou and al (2008); Abobaker (2017)). This is contrary to result found by Gadegbi (2017)).

Banks with a high capital ratio are consistent to be insured against bankruptcy to have access to cheap funds to be more flexible in pursuing business opportunities and have to ability to absorb any unexpected losses .

There is a negative relationship between ROE and TLA (if TLA increase by 1%; ROE will decrease by 0.0068%). The increase of TLA has a negative effect on return on equity of bank. This result is similar to result found by Yaksul, al (2018)).

Therefore high level of loans means a possible deterioration of the bank asset quality with a negative effect on bank profitability (Alper; Anbar (2011)).

There is a negative relationship between ROE and CEA (if CEA increase by 1%; ROE will decrease by 0.062%). The increase of operating costs has a negative impact on bank return on equity.

There is a positive relationship between Tdeposit and ROE (if Tdeposit increase by 1%; ROE will increase by 0.1295%). The increase of deposits has a positive impact on bank return on equity.

There is a positive relationship between CD and ROE (if CD increase by 1%; ROE will increase by 0.0013%). The increase of credits by deposits has a positive impact on bank return on equity.

There is a negative relationship between NPL and ROE (if NPL increase by 1%; ROE will decrease by 0.014%). The increase of credits non performants has a significant impact on bank return on equity. This result is similar to result found by (Collaku; Aliu (2021)).

There is a negative relationship between TPIB and ROE (if TPIB increase by 1%; ROE will decrease by 0.19%). The increase of economic growth has a negative impact on return on equity. Also, there is a negative relationship between TINF and ROE (if TINF increase by 1%; ROE will decrease by 0.027%). The increase of inflation has a negative impact on bank return on equity.

Conclusion. Credit risk management is the practice of mitigating losses by understanding the adequacy of a bank's capital and loan loss reserves at any given time – a process that has long been a challenge for financial institutions. The first step in effective credit risk management is to gain a complete understanding of a bank's overall credit risk by viewing risk at the individual, customer and portfolio levels. While banks strive for an integrated understanding of their risk profiles, much information is often scattered among business units. Also, effective liquidity risk management helps ensure

a bank's ability to meet cash flow obligations, which are uncertain as they are affected by external events and other agents' behavior.

The main purpose of this article is to determine the effect of risk management on bank performance. We employ a sample of 11 banks in Tunisia between (2000…2018). By using a method of panel static, we found the significant impact of credit risk management (NPL) and liquidity risk management (credits/deposits) on bank performance (ROA; ROE).

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OVERVIEW PAPER ON MICROFINANCE THROUGH SELF-HELP GROUP-BANK LINKAGE PROGRAM FOR POVERTY ALLEVIATION IN RURAL INDIA

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Abstract. *Poverty is extensive in India even though it has enhanced any of the worldwide frugality in 1990s through the Structural Adjustment Program. The purpose of the article is to review documents on microfinance through self-help group and banks linkage program in poverty elevation in rural India. The main methods used in the research were methods of comparative analysis and generalization. The information base of the research was financial and statistical reports, as well as the results of conducted surveys. India's saving is flourishing at a faster rate but the benefits of it are not evenly delivered in the country. The ending from 1999-2000 to 2004-2005 proverb rapid tumor in the country frugality but it has not profitable to destroy the question of inaction. However, a excellent step towards the want relief was naive 1992 accompanying the establishment of the organization of Microfinance through the Self-Help Groups-Bank relation program popularized by National Bank for Agriculture and Rural Development (NABARD). The microfinance program by NABARD has originally begun in 13 recognized arrangement states that reports 70% of country weak community. The popular model in Indian data processing machine finance circumstances is the SHG-Bank relation model. The study erect that the microfinance program not only assisted in extermination of want but too in financial authorization of country mothers. It has happened in harvests, invention of more creative property and raised enrollment. But it has several questions in the way that extreme interest rate, undertaking costs, lack of skill, alternative in exercise etc.*

Keywords: *microfinance; empowerment; women; banks linkage program.*
JEL Classification: G15, G21
Formulas: 0; fig.: 0; tabl.: 0; bibl.: 23

Introduction. Poverty is all-present in the realm accompanying allure different ranges. However, it is more specifically in the undeveloped nation of Asia, Africa and Latin America. It has concerned the socio-economic and governmental reside these nations. Poverty is extensive in India even though it has enhance any of the worldwide saving and is increasing at a faster rate later the financial corrects in 1991.

A big section of the public are unprotected to want on account of their lack of approach to the money, enrollment hope and lack of able instruction. With due works from two together the administration and non-management instrumentalities the rate of want has lowered incompletely, even though it is not favorable to destroy it fully but to a abundant range it results expected advantageous for the Indian crowd. According to the National Sample Survey results, family living beneath poverty level (BPL) worsen from 36% in 1993-94 (50thRound, NSSO)1 to 26% in 1999-2000 (55th Round, NSSO).

India's saving is flourishing at a faster rate but the benefits of it are not evenly delivered in the country. Some family have increased their proceeds and living a standard growth on account of India's combine accompanying the all-encompassing

display in the way that the Information Technology (IT) Professionals. But skilled are some remainder of something the one are not crazy by this financial tumor to a degree the labors as they are immediately discharged accompanying machines and finishes. The ending from 1999-2000 to2004-2005 proverb accelerated progress in the country's saving but it has not favorable to destroy the question of inaction. During this ending the inaction rate remnants the unchanging for country males and cut down by just individual allotment for city male. On the other hand, inaction with women raised by individual portion for city and country women (61stRound, NSSO).

Therefore, to meet the demands of those state the one are impotent to enhance any of financial corrects in the country and to form bureaucracy capable to participate in the process of business-related growth a excellent step towards the want relief was naive 1992 accompanying the addition of the organization of calculating-finance through the Self-Help Groups(SHG) - Bank relation program made acquainted by National Bank for Agriculture and Rural Development(NABARD) . The growth arranging's and the tactics creators fulfilled that the question display or take public the forbiddance of the weak, particularly the mothers from the prevailing market as a important beginning of want in the country. The weak population are frequently disagreed credit, so the question was not the unaffordable agreements of the loan but their lack of approach to it. It is against this tradition the idea of microfinance was understood as an implement to achieve the twin aims of commercial addition and want relief (World Bank, 2007).

Literature review. Raghuram Rajan Committee (2009), named apiece Planning Commission of India, in all using report "A Hundred Small Steps on Financial Sector Reforms" views that "Micro finance(monetary inclusion) is not only about credit, but includes providing a roomy range of economic aids, containing harvests, reports, protection, and fee production. Credit supplying, outside enough measures to found occupation hope will not yield requested profits".

On the other hand, a Self-Help Group (SHG) is a recorded or not listed group of data processing machine managers bearing complementary friendly and economic education freely, meet to sustain narrow amounts commonly and together consent to help a prevailing fund for fear that to meet their danger needs on shared help (Shamim & Khan, 2010).

The idea of microfinance in India maybe tracked back to „bill cash reserves" all along fourteenth centennial.

The authorization of the Cooperative Credit Societies Act, 1904 maybe deliberate as the origin of modern microfinance in India. The first instance of microfinance in India may be tracked to the push begun for providing investment duties to the weak daughters working in the disorderly area of Ahmedabad city in Gujarat through the Self-Employed Women's Association (SEWA) Bank, arrangement as an city helpful bank in early seventies. The microfinance push of NABARD, that is SHG-Bank relation program has given through differing developments, it begun in 1992 as a ship project till 1995, mainstreaming all along1996 to 1998 and expansion because 1998 ahead (Mali, 2010).

The microfinance program by NABARD has originally begun in 13 labeled

arrangement states that reports 70% of country weak community; namely. Uttar Pradesh, Maharashtra, Orissa, West- Bengal, Madhya Pradesh, Gujarat, Rajasthan, Chhattisgarh, Jharkhand, Bihar, Uttarakhand, Assam and Himachal Pradesh.

Aims. The purpose of the article is to review documents on microfinance through self-help group and banks linkage program in poverty elevation in rural India.

Methods. The progress of the microfinance program of Government of India through the rhetoric using psychological terms group-bank relation program may be resolved from the dossier's accessible through miscellaneous research items, field study reports and differing administration magazines. NABARD in its report named „Status of Microfinance in India (2016-17) "has told that skilled was a net adding of 6.73 lakh SHGs all along the period 2016-17 accompanying growing the number of SHGs bearing stockpiles relation to 85.76 lakh till 31 March 2017. During the old age 2016-17, banks have disbursed loan of Rs. 38781.16 crore and it was 4% in addition the last period. Also, the funds superior of SHGs accompanying banks was 16114.22 crore till 31 March2017.

Barman and Bhattacharjya (2015) in their study of few SHGs of Kamrup District of Assam had raise that following in position or time touching the SHGs 88% of ruling class bought some fruitful advantage from what or which place they can produce salary. It is too told apiece appendages of the SHGs place most of ruling class were daughters that they can help the proceeds of the kin and has aided ruling class to overcome want extremely.11Ramesh and Rao (2014) in their field survey of two neighborhoods of on the east side of Uttar Pradesh that is to say Mau and Gorakhpur had erect that skilled was a significant increase in the profit of the appendages of SHGs. The weekly wage of the sampled appendages before touching SHGs was Rs.1885.71 that raised to Rs.3242.85 subsequently touching. It was too erect that those daughters the one was earlier sidelined to set their trade abilities in essence on account of lack of credit and support were intelligent commotion so following in position or time joining the SHGs. Another certain effect was that the appendages earlier 23% of the appendages had funds inferior Rs.50 per period but after wards touching the SHGs it raised to Rs.452.26 or even more.

Another field study by Upadhye and B.S.Rupnawar (2016) in the Raigad section of Maharashtra shows that lacking 280 sample appendages 90 accused had profit beneath Rs.2000 and 102 accused had proceeds middle from two points Rs.2000-4000 before touching the SHGs but following in position or time touching the SHGs 69 accused shows profit level of Rs.6000-8000 which is larger than before touching the SHGs.

Das (2012) in welcome research study of 3 happening block of Nagaon commune of Assam establish that on account of the partnership in the SHGs the offspring proceeds of the partners has raised almost three occasions. It was noticed that the average kin wage before touching SHGs was Rs. 3849.5 and it was raised to 9276.50 following in position or time touching the SHGs. Moreover,84.88% of the appendages of the SHG have signified a good bettering in their income, property, level of material comfort of the appendages and increase knowledge level on well-being, public and enlightening principles later touching SHGs.

A field study by Gupta and Agarwal (2017) in the Ghaziabad parish of Uttar Pradesh top 150 accused from the SHGs of two happening block told that before aid SHGs, 52% of accused received inferior Rs.4000 understood by 28% accused took betwixt Rs.4001 to 8000, 12% took between Rs.8001 to 12000 and 8% took above Rs.12000.

After touching the SHGs, 42% accused caught weekly gains middle from two points Rs.4001 to 8000attended by 21% of ruling class securing betwixt Rs.8001 to 12000 and 13% of ruling class accepting above12000. Thus an raised in the level of gains.

A field study in the Bokakhat West Development Block of Golaghat District of Assam administered by Bhumika Bhori in 2017 had displayed overwhelming increase in the level of proceeds. Before touching the SHGs skilled were no income above Rs.2000 between the 60 sample appendages but subsequently touching the SHGs, 17 sampled appendages revealed increase in proceed smiddle from two points Rs.2000-3000.16NABARD in allure report labeled „Status of Microfinance in India (2017-18)" told that all the while the period 2017-18 the number of SHGs raised by 1.67 lakh accompanying a matching increase in funds by Rs.3477.89 crore. During the period the banks have disbursed loans ofRs.47,185.87 crore. The harvests superior of SHGs accompanying Banks till 31 March 2018 isRs.19592.12 that was an all-time extreme.

Therefore, the same dossier shows the beneficial development of SHGs and their affect the increase salary of the benefits that approximately has provided to the relief of want from the country extents.

Results. The girls are depicted as the weakest of the weak. The Human Development Report (1995) stated that 70% of the 1.3 billion nation living on inferior US$ 1 per epoch are mothers.

"The Ninth Plan Development covering the ending 2007-2013 has acknowledged that still growth measures and constitutional permissible guarantees – mothers have delayed behind in principal part subdivisions. In India, the rise of liberalization and proliferation in early 1990s many mothers' employees the one were busy in disorganized subdivisions had extinct their occupation.

Despite in huge offering of daughters to the farming subdivision, their work is considered just a continuation of household rule and debris non-monetized" (Islam, 2012, p.122).

India being a usual humankind, the girls in the country districts forever wait under the four dividers of delegation of representatives and achievement business-related actions outside their family was close absurd for many of ruling class. The rise of the SHGs in the 1990s nevertheless has transformed the synopsis and mothers have got a time to play and used the benefits of the microfinance being likely apiece Government of India through SHG-Bank relation program. Their partnership in the microfinance program has promoted not only their financial tumor but again has aided ruling class to increase their friendly rank in the humankind and at the classification loose. In the 1970s and 1980s wives were chiefly enclosed to the resourcefulness's to a degree pickle, spices, papas etc. as they needed credit to do entity further it and likewise skilled were pressure from the offspring and the offspring still didn't supply bureaucracy some

possessions for the happening of their activities. "Women are frequently condensed in feminized professions to a degree sucking and education, commission work, care of the old and incapacitated- dubbed level pertaining to works segregation-place they likely to wait in lower task classifications than husbands" (Feroze & Chauhan, 2011, p. 48).

But the calculating-credit program in 1990s has assisted bureaucracy to take a good amount of services for fear that they can install it in added trades in the way that taper-making, water container Styrofoam parts etc. and enhance liberated. Another helpful facet of the SHG-Bank linkage program was that the country girls the one earlier had no approach to the correct fiscal organizations in the way that banks are immediately have approach to it through the SHGs.

Approach to it through the SHGs. They further have implanted the practice of savings and likewise influence the classification gains that has influence becoming empty the endless loop of want. It has still donated to the good condition among their classifications and most basically, they were immediately capable to transmit their infants to educational organizations that is a beneficial result of the SHG-Bank relation program apart from eliminating want from the country.

Moreover, it has resulted camp active with the mother's appendages that empower bureaucracy to be in a dispute or fight against public immoralities in the society in the way that female infanticide, dowry question, household intensity etc. The knowing gain in the group convergences aided them to raise their voice in best self-governing bulks (Jha, 2012).

Discussion. In the end, it may be declared that even though the microfinance institution through SHGs-Bank relation program have happened favorable in extermination of want from the country areas and that is appropriate from the data's determined for one miscellaneous management documents, field study reports and research work done in this regard but it may be analyzed on the ground of allure difference in allure exercise across the country and mainly the extreme rates of interest by way of the undertaking costs to a degree human capital cost of the arm, cost on the rent, electricity and added abilities to assert the buildings.

The depressed level of administration abilities is also a determinant that hinders ruling class to receive the decent benefits cause there is reduced level of information about new science and more as most of people as political whole are illiterate in the detached country extents they are skill to efficiently secondhand their credit which can produce more profit to ruling class accordingly on account of depressed-level of science many a time person engaged in private ownership of business is devoted in aforementioned activities that gives no profit.

Another escape is there is no uniform exercise in the whole country. The northward-on the east side of states lags behind distinguished to the different states of the country. Only the state of Assam and Tripura are availing allure benefit while the added states still didn't have correct abilities for these programs and it is ascribed on account of lack of experienced NGOs for establishment and maintenance of SHGs and more lack of uniformity in the groups in the specific states (Saha, 2015).

Other reason in the way that lack of condensed effects by banks, the failure of

banks to recognize NGOs accompanying funds and credit groups, lack of ambition between bankers, social configurations dominant in the domain maybe accredit allure depressed performance distinguished to all India average(Roy, 2013).

Another impediment in the relief of want through this program is stratum. Most of the country areas in India trusted in the social class arrangement and on account of that the superior social class people didn't be going to associate with the lower social class. It has obstruct the want extermination in those areas bearing forceful idea in this place social class scheme as the people from two together the superior and lower stratum cannot made together the SHGs and even though they made one skilled is continually a disconnection in their functioning that harshly belongings the working of the group and have weak results. Therefore, it may be submitted that skilled is a need of a uniform standard that will manage the functioning of the microfinance institutions and will specify a foundation for uniform rules concerning harvests, interest rates and improvement of the loans for fear that everyone can catch the benefit concerning this program and can make public of the shackles of want.

Conclusion. Poverty is extensive in India even though it has enhanced any of the worldwide frugality in 1990s through the Structural Adjustment Program. India's saving is flourishing at a faster rate but the benefits of it are not evenly delivered in the country. The ending from 1999-2000 to 2004-2005 proverb rapid tumor in the country frugality but it has not profitable to destroy the question of inaction. However, a excellent step towards the want relief was naive 1992 accompanying the establishment of the organization of Microfinance through the Self-Help Groups-Bank relation program popularized by National Bank for Agriculture and Rural Development (NABARD). The microfinance program by NABARD has originally begun in 13 recognized arrangement states that reports 70% of country weak community. The popular model in Indian data processing machine finance circumstances is the SHG-Bank relation model. The study erect that the microfinance program not only assisted in extermination of want but too in financial authorization of country mothers. It has happened in harvests, invention of more creative property and raised enrollment. But it has several questions in the way that extreme interest rate, undertaking costs, lack of skill, alternative in exercise etc.

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CHAPTER 3
MODERN MANAGEMENT TECHNOLOGIES

INVESTMENT MANAGEMENT: A SECURITY APPROACH

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Abstract. *The study of the essence of investments and their management in the context of ensuring the economic security of the state is relevant in the conditions of the full-scale invasion of Russia into Ukraine, at the same time, an important task of the state in the way of ensuring the upward trend of economic growth of Ukraine is to increase the level of its investment attractiveness, one of the main tools for ensuring which is implementation of investment management taking into account the experience of the leading countries of the world in the context of ensuring the economic security of the state. The purpose of the article is to research and develop theoretical and practical approaches and characteristics of the concepts of "investment" and "economic security" in the context of investment management, taking into account the feasibility of increasing the level of economic security of the state in the conditions of recovery of the economy of Ukraine in the post-war period. The object of the study is the process of investment management taking into account the security approach. The methodological basis of the article is the use of general scientific and special methods that serve as confirmation of the reliability of the obtained results and conclusions: in particular, such as: monographic, logical, comparison, economic-statistical, synthesis, generalization, etc. A study of the relationship between the categories "investment" (in the context of their management) and "economic security of the state" was conducted, and it was determined that investment management is an important factor affecting the level of economic security of the state. It was determined that in order to implement effective investment management, the state implements an investment policy that contributes to the creation of a positive investment climate in the country, which determines the expediency of conducting further research taking this into account in order to develop and implement a balanced investment policy adequate to modern conditions and implement an investment development strategy acceptable to Ukraine in order to restore the economy of Ukraine as soon as possible and ensure the upward trend of its growth.*

Keywords: *investments; investment management; investment policy, state; state economic security.*

JEL Classification: A10, A11, A19, E22, G11, G17, G19, O10, O30, O40.

Formulas: 0; fig.: 0; tabl. 2; bibl.: 20

Introduction. In modern conditions, which are characterized by external aggression from russia, an important task of the state on the way to ensuring the upward trend of economic growth of Ukraine is to increase the level of its investment attractiveness, one of the main tools for ensuring this is the implementation of investment management taking into account the experience of the leading countries of the world in the context of ensuring economic state security. In general, this situation

that has developed in the Ukrainian economy in the investment sphere is simultaneously a consequence of the military actions of the aggressor, as a result of which significant losses were caused to Ukraine in all spheres (economy, destruction of infrastructure – production, transport, critical, military, industrial, etc., social sphere, military, etc.) and the investment policy of the state and a signal of the existence of problems in this area, which generally indicates the expediency of implementing measures to improve the efficiency of investment management in the context of ensuring the economic security of the state. Last but not least, the use of the experience of the developed countries of the world in the field of managing their investment activities can contribute to the realization of the above.

Literature review. Taking into account the analytical review of scientific literary sources on the subject of the study, it should be noted that in modern conditions there are no single universally recognized definitions of the concepts of "investment" and "economic security" as categories, which made it possible to formulate several approaches to defining the essence of the concept of "investment":

1. Targeted approach - according to this approach, the criterion for classifying certain investments as investments is the purpose of their implementation. The company's investments, according to I.O. Blank [1, p. 38], is the investment of capital in all its forms in various objects (tools) of its economic activity with the aim of obtaining profit and achieving an economic effect. However, the goal of investment may be to achieve not only profit, but also social effect (if the object of investment is not a subject of entrepreneurial activity).

2. According to the second approach, the criteria for investing capital as investments are the terms of their use. Many domestic and foreign economists consider investments as a long-term investment of capital in various spheres and branches of the economy, infrastructure, social programs, environmental protection both inside the country and abroad with the aim of developing production, the social sphere, entrepreneurship, and making a profit [2-3].

Instead, the terms "long-term" and "short-term investments" are found in the literature [4], which has the right to life, especially in conditions of financial and economic crises, when it becomes necessary to minimize the investment payback period.

3. According to the third approach, investments are interpreted as the use of capital after a certain time as opposed to current consumption. Proponents of this approach, in particular, considered investment to be a renunciation of a certain value in the current period in order to obtain value in the future, but in increasing amounts.

Taking into account the versatility in the wording of the definition of "investment" and the vision of security in the most general sense as a state of protection from anything, which can be used for the protection of an individual as well as society and the state as a whole (this is a state of protection of vital interests at all levels from the individual to state from internal and external threats, taking into account the availability of sufficient resources of various types - as a result, security limits can be identified, the failure of which may indicate the existing level of security for a certain period of time [5-7]), it should be noted that in the context of investment management research

should be considered taking into account approaches to the characteristics of economic security in the conditions of the post-war recovery of Ukraine's economy.

Aims. The purpose of the article is to research and develop theoretical and practical approaches and characteristics of the concepts of "investment" and "economic security" in the context of investment management, taking into account the feasibility of increasing the level of economic security of the state in the conditions of recovery of the economy of Ukraine in the post-war period.

Methods. The methodological basis of the article is the use of general scientific and special methods, in particular such as: monographic, logical, comparison, economic-statistical, synthesis, generalization, etc.

Results. As world practice shows, countries with a post-industrial economy, including Ukraine, are unable to develop it without attracting and effectively using investments. Their qualitative and quantitative characteristics depend on the country's economic potential, its efficiency, the sectoral and reproductive structure of social production, and the direction of strategies for socio-economic development of the economy [8].

Foreign specialists in researching the economic content of investments emphasize the following factors: a) increase in operating capital; b) receiving additional income; c) rejection of a part of current consumption in favor of expected expansion of consumption in the future.

However, correct in their essence, such characteristics of investments do not fully reveal this complex economic category.

It should also be agreed with scientists that the concept of "investment" is the primary category that underlies the construction of the hierarchy of the remaining categories that reflect the reproduction of fixed and working capital. In view of this, we believe that investing is the process of accumulating funds in various forms (money, shares, securities, equity contributions, movable and immovable property, copyrights, etc.), transforming them into investment goods and resources, introducing the latter into production stage and transformation into transforming innovative factors - resources, and then into capital.

Such an understanding of the category of investments is an important theoretical and methodological basis for analyzing the state and organization of investment processes, the main sources of investments, the conditions for their transformation into factors of social reproduction resources, the state and prerequisites for the formation of a full-fledged market of investment goods [8], investment management (which is analyzed at the level state, industry, region, enterprise and individual investment projects and includes:

a) management of investment activity on a state scale (state, industry, region), which involves regulation, control, stimulation and support of investment activity by legislatively regulated methods;

b) management of individual investment projects, including planning, organization, coordination, motivation and control activities during the life cycle of the project by using a system of modern management methods and techniques;

c) management of the investment activity of a separate business entity – an

enterprise – involves the management of the enterprise's investment portfolio (formation, monitoring, quality assessment, reinvestment, etc.), management of working capital (short-term investments), etc. [9]) and an important factor affecting on the level of economic security of the state. Economic security as a category at various stages of world development played a significant role in the economic systems of countries, while going through a long path of evolutionary development from the point of view of human protection to the protection of the state from dangers. Mentions of security as a category, in particular economic, have been found in the lexicon since ancient times [6-7; 10].

In modern scientific literature, there is no single definition of economic security, there is a large number of scientific approaches to the characterization of security as a category due to the use of various objects and tools in its research, which is revealed in works [6-8; 10-17]. The scientific works of most researchers are mainly related to the study of economic security as a state of protection of the economy from external and internal threats for its further development.

When considering economic security, each phenomenon should be studied as a certain system of its constituent elements, as a unity of interconnected and interacting subjects, processes, and relations. Objects of economic security are the state, regions, enterprises, institutions of higher education, etc. At the same time, the state is both the object and the main subject of national and economic security. In the most general sense, security is a state of protection from anything and can be used to protect an individual, as well as society and the state as a whole. When considering security as a category, it is advisable to also take into account possible resources of various types, the presence of which in sufficient volume will allow to achieve a state in which the appropriate level of security will be ensured in order to be able to counter external and internal threats (the need for resources to ensure security is highlighted to one degree or another in scientific literature when it comes to the need to achieve a state of security, but in the definitions of the authors it is not separately highlighted) [6-8; 10-17].

The investment policy of the world's leading countries convincingly shows that it is aimed at attracting foreign investments (Table 1).

Table data 1 indicate a general (albeit unstable) tendency to increase the volume of direct foreign investment in the TOP-20 countries (which the authors do not include the aggressor country – russia), except for India and Germany. At the same time, the volume of investments in the South African Republic increased at the highest rate (almost 12.67 times). This trend, in turn, is associated with geopolitical and trade risks, deterioration of the global climate for international trade and investment, protection of domestic technologies and assets from foreign states and companies [19]. For comparison, according to [18], in 2021, 62,131 million dollars were attracted to the economy of Ukraine. US foreign direct investment, which is 17.5% more than in 2010 (US $ 52,872 million) and 15.03 times more than in 2000 (US $ 3,875 million). Thus, despite the fact that Ukraine did not enter the TOP-20 countries in terms of the volume of attracted foreign direct investments, there is a stable trend towards their increase.

Table 1. Countries that received the largest amount of direct foreign investment

Countries according to their location	2020 ranking	The volume of foreign direct investments, billions of dollars		Deviation	
		In 2020	In 2021	absolute, +, -	relative, %
United States	1	151	367	216	143,05
China	2	149	181	32	21,48
Hong Kong, China	3	135	141	6	4,44
Singapore	6	75	99	24	32,00
Canada	12	23	60	37	160,87
Brazil	9	28	50	22	78,57
India	8	64	45	-19	-29,69
South Africa	51	3	41	38	1266,67
Mexico	10	28	32	4	14,29
Germany	7	65	31	-34	-52,31
Israel	11	24	30	6	25,00
United Kingdom	16	18	28	10	55,56
Sweden	14	19	27	8	42,11
Belgium	20	12	26	14	116,67
Australia	17	17	25	8	47,06
Poland	19	14	25	11	78,57
Japan	21	11	25	14	127,27
United Arab Emirates	13	20	21	1	5,00
Indonesia	15	19	20	1	5,26

Source: Systematized, summarized and grouped according to data [18].

It is advisable to deepen the research by analyzing the volume of direct foreign investments from the TOP-20 countries (which the authors do not include the aggressor country – russia) (Table 2).

Table data 2 indicate a general (albeit unstable) tendency to decrease the volume of foreign direct investment outside the TOP-20 countries. At the same time, the volumes of investments from Saudi Arabia (3.8 times) and Belgium (almost 3.2 times) increased at the highest rates.

In general, in order to implement effective investment management, the state implements investment policy, which, in turn, is based on legislative, regulatory acts and measures that contribute to the creation of a positive investment climate in the country, which is formed under the influence of a number of factors, the main of which are: the expected pace inflation; interest rate on the market; risks associated with legislative, regulatory and tax norms [20, c. 326]. In order to increase the effectiveness of investment policy implementation, the developed countries of the world use various investment development strategies, the most common of which are the following [20, c. 324-327]:

Table 2. Countries that most directed foreign direct investment outside the country

Countries according to their location	2020 ranking	The volume of foreign direct investments, billions of dollars		Deviation	
		In 2020	In 2021	absolute, +, -	relative, %
United States	1	235	403	168	71,49
Germany	6	61	152	91	149,18
Japan	5	96	147	51	53,13
China	2	154	145	-9	-5,84
United Kingdom	166	-65	108	173	-266,15
Canada	7	47	90	43	91,49
Hong Kong, China	4	101	87	-14	-13,86
Ireland	165	-45	62	107	-237,78
Korea, Republic of	9	35	61	26	74,29
Singapore	10	32	47	15	46,88
Belgium	18	11	46	35	318,18
Netherlands	167	-191	29	220	-115,18
Luxembourg	4	103	25	-78	-75,73
Saudi Arabia	26	5	24	19	380,00
Brazil	163	-13	23	36	-276,92
United Arab Emirates	14	19	23	4	21,05
Denmark	17	11	22	11	100,00
Sweden	11	24	20	-4	-16,67
Thailand	13	19	17	-2	-10,53

Source: Systematized, summarized and grouped according to data [18].

1. Active intervention (common in Japan). The state directly participates in the implementation of investment programs through the state sector of the economy, and indirectly through institutions and promotes active financial support, provides significant benefits to both entrepreneurial structures and higher education institutions that independently perform R&D.

2. Decentralized regulation (received the greatest distribution in the USA and Great Britain). The state participates more indirectly in the investment development of organizations and business entities, uses tax and other incentives and creates favorable legal, investment and technical and economic conditions for this activity.

3. Mixed strategy (spread in France, Sweden), in those countries with a powerful public sector, in relation to which the state conducts an active investment policy, direct and indirect regulation. For the private sector, the strategy of decentralized regulation is mainly used.

In Ukraine, individual features of each strategy are observed, but they are not used in their pure form.

Conclusion. Taking into account the above, it should be stated that it is considered appropriate to consider investments and their management in the context of ensuring the economic security of the state and to conduct further research taking this into account in order to develop and implement a balanced investment policy adequate to

modern conditions and implement an investment development strategy acceptable to Ukraine. For the practical implementation of this, it is considered expedient to carry out in-depth research on better management of investments taking into account the security approach and to consider economic security through the prism of its connection with national security, economic security of the state, region, enterprise (business entity) [6-8; 10-17], which becomes especially relevant in the conditions of the Russian-Ukrainian war and the post-war period and will contribute to the recovery of the Ukrainian economy and ensure the upward trend of its growth.

Author contributions. The authors contributed equally.

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PECULIARITIES OF INVESTIGATING FRAUD IN CORPORATIONS

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Abstract. *The article is devoted to an in-depth study of the role of various methods in the investigation of fraud in corporations. The purpose of the article is to systematize types of commercial fraud and methods of its detection. The main research methods used in the article are general scientific methods of analysis and synthesis, as well as comparative analysis, which became the basis for obtaining research results. Based on the results of the research, the following conclusions can be drawn. The article summarizes the main types of fraud that can be investigated in corporations. The main sources of information used to detect fraud are systematized, namely: Structured, Unstructured, Semi-structured. After comparing the types of fraud and the types of data used to detect fraud, a matrix "Relationship between types of fraud and types of data used to detect fraud" was developed to help choose the right sources of information for detecting criminal activity. A study of the role of internal teams in the investigation of fraud was carried out according to such impact criteria as: The frequency of investigation of various types of fraud; The amount of time teams spend investigating fraud; Average amount of time required to conduct a fraud investigation; Average number of days it takes to close a fraud case.*

Keywords: *corporation, fraud, information, fraud investigation.*
JEL Classification: F23; F52; G20, G30
Formulas: 0; fig.: 6; tabl.: 1; bibl.: 8

Introduction. Fraud in commercial transactions is an urgent problem not only for the corporate sector, but also for governments, financial institutions and ordinary consumers. Every year, corporations lose millions of dollars as a result of various types of fraud. Modern methods of detecting and combating fraud are designed to minimize its negative impact. Traditional detection methods include the extensive use of auditing, where a trained person manually observes statements or transactions in an attempt to detect fraud.

Literature review. The issue of studying the problems of financial fraud is devoted to the work of many scientists. Thus, in the article "Corporate Fraud Prevention and Detection: Revisiting the Literature" (Mangala D. and Kumari P., 2015), an in-depth study of the literature related to corporate fraud was carried out in order to understand "why" fraud occurs and "how" fight with him. They analyzed studies published between 1984 and 2014, which demonstrate the prerequisites for the occurrence of fraud, as well as methods for detecting it and preventing its negative impact [1].

The article "Intelligent Financial Fraud Detection Practices: An Investigation" presents a comprehensive study of financial fraud detection practices using data mining techniques, with a special emphasis on computational analytics (West, J., Bhattacharya, M., Islam, R., 2015) [2].

The article "Corporate investigations" explains the requirements for conducting a corporate investigation and indicates that corporations must have effective corporate governance and compliance structures that are flexible and innovative to deal with new and emerging fraud (Coburn, N.F., 2006) [3].

The article "Auditors' Perceptions of the Effectiveness of Fraud Prevention and Detection Methods" aims to study the effectiveness of fraud detection and prevention methods used by the corporate sector (Mangala, D., & Kumari, P., 2017) [4]. The obtained results show that corporate governance is the most effective tool for combating fraud. The use of information technology, timely auditing, regular inspections and corporate policies and procedures also play an important role in deterring fraud in an organization.

The most complete classification of types of fraud is presented in the materials of the Association of Certified Fraud Examiners (Figure 1).

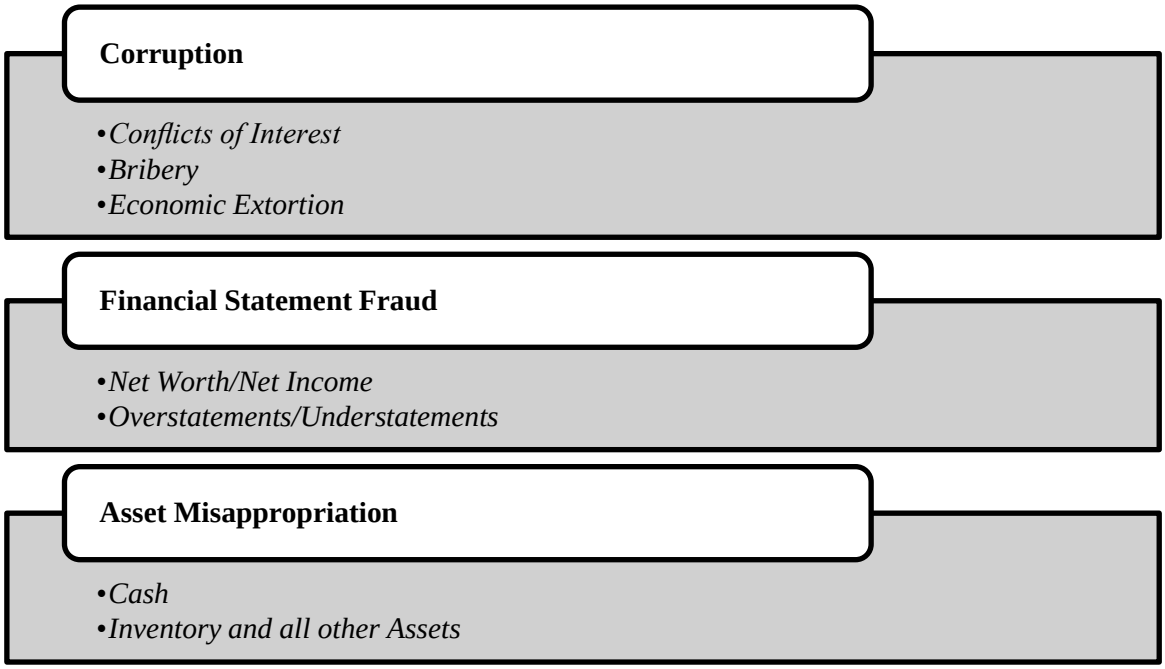

Figure 1. Occupational fraud and abuse classification system

Source: systematized by the author on the basis of Report to the Nation [5]

Unfortunately, most studies do not pay enough attention to the information support of fraud detection based on its individual types.

Aims. The purpose of the article is to systematize types of commercial fraud and methods of its detection.

Methods. The main research methods used in the article are general scientific methods of analysis and synthesis, as well as comparative analysis, which became the basis for obtaining research results.

Results. Based on the results of the research, we systematized the main sources of information used to detect fraud (Figure 2).

Analogous to the evolution of data types, methods for fraud detection experienced a rapid proliferation in the past decades. Especially in the post-pandemic era, due to the intensified motives, insidious forms, and intelligent schemes of financial fraud, it is becoming more difficult to identify fraudulent behaviors accurately and efficiently. Thus, recently, researchers tend to incorporate and exploit information from as many aspects as possible for comprehensive monitoring [6].

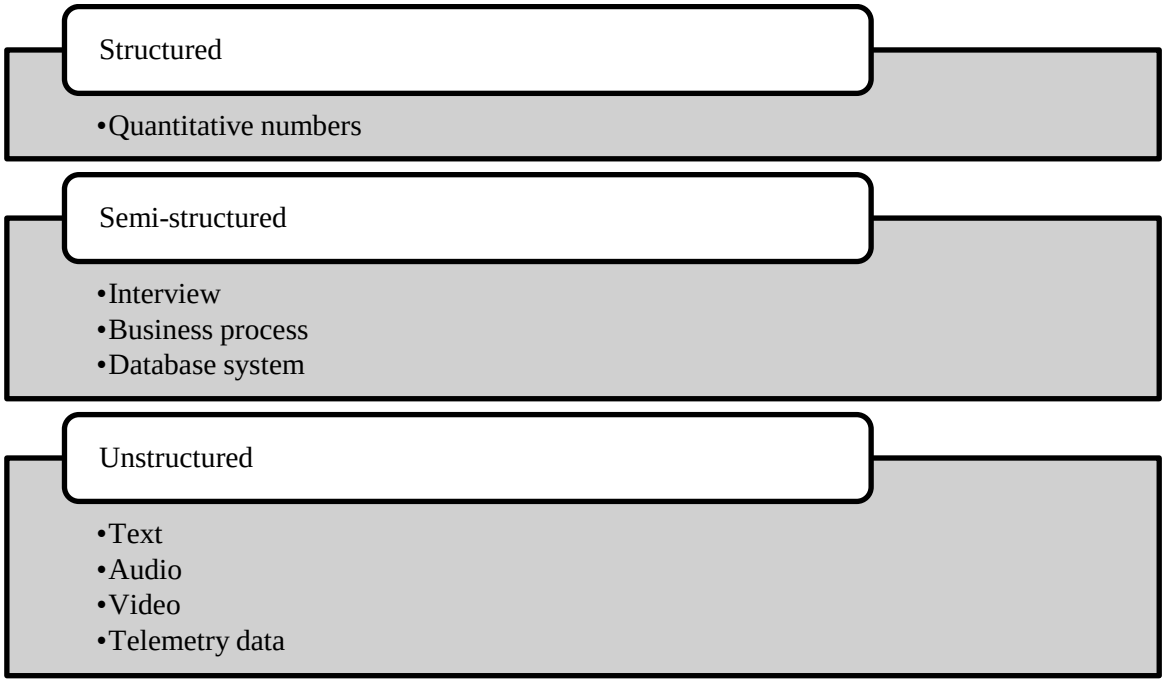

Figure 2. Types and examples of data used for fraud detection

Source: systematized by the author on the basis [6]

After comparing types of fraud and types of data used for fraud detection, a matrix was developed (table 1).

Table 1. Relationship between types of fraud and types of data used for fraud detection

Fraud type	Data type
Corruption	
Conflicts of Interest	Semi-structured
	Unstructured
Bribery	Semi-structured
	Unstructured
Economic Extortion	Structured
	Semi-structured
Financial Statement Fraud	
Net Worth/Net Income	Structured
	Semi-structured
Overstatements/Understatements	Structured
	Semi-structured
Asset Misappropriation	
Cash	Structured
Inventory and all other Assets	Structured

Source: systematized by the author on the basis [5-6]

A study of the activities of internal control departments, which conduct fraud investigations in corporations, was conducted.

The most common type of case investigated by the in-house investigation teams is employee embezzlement; 72% of teams frequently or occasionally investigate this type of fraud, and only 7% never do. Other types of cases that are commonly investigated include frauds committed by the organizations' customers, vendors, and contractors. Interestingly, 62% of the teams in our study also frequently or occasionally

investigate HR issues, in addition to fraud-related cases. While cybersecurity issues are an increasing concern for many organizations, 27% of the teams in our study never investigate these cases, and 30% investigate them only rarely (Fig. 3).

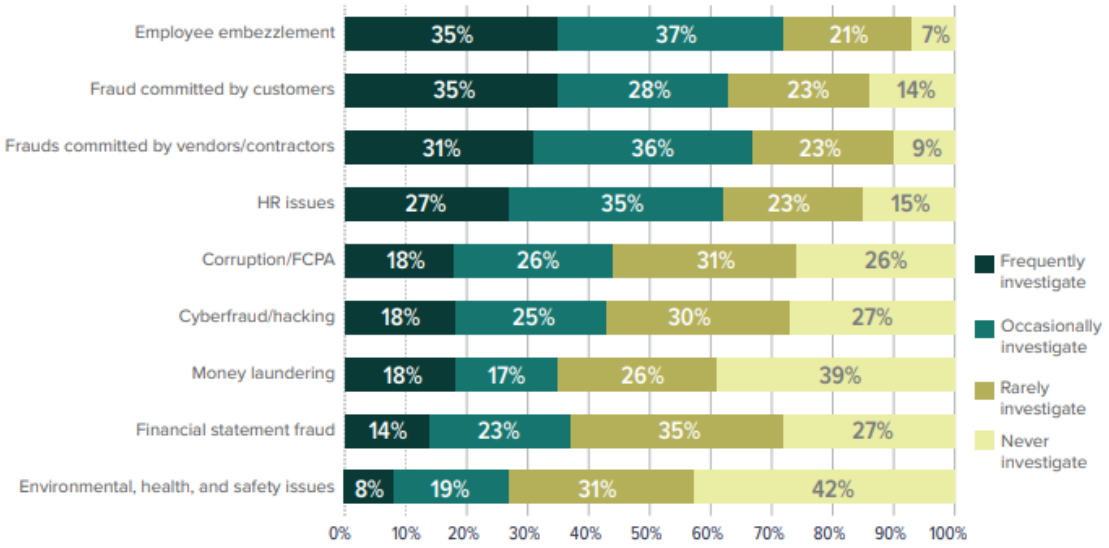

Figure 3. The frequency of investigation of various types of fraud

Recognizing that many teams in our study investigate non-fraud-related issues and likely perform some other functions, such as internal audit or fraud prevention activities, we asked respondents to indicate how much of their overall work time is devoted solely to investigating fraud.

From the responses, 46% of the teams are primarily focused on fraud investigations, with 32% spending more than three-quarters of their time on these engagements, and another 14% spending between half and three-quarters of their time investigating fraud. On the other end of the spectrum, 29% of the teams focus much more on other areas, spending one-quarter or less of their time devoted to fraud investigations (Fig. 4).

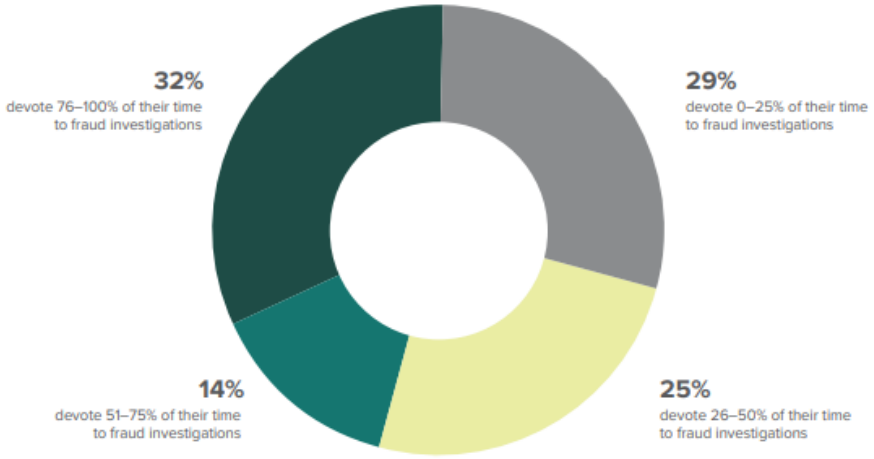

Figure 4. The amount of time teams spend investigating fraud

Many organizations handle more than one fraud allegation at a time. Depending on the size and industry of the entity, there might be numerous fraud cases under investigation each day. We asked survey respondents about the average number of fraud cases each investigator on their team handles at any given time. More than half (53%) noted that each investigator has an average caseload of fewer than five cases. Only 28% of investigators typically handle ten or more cases at a time (Fig. 5).

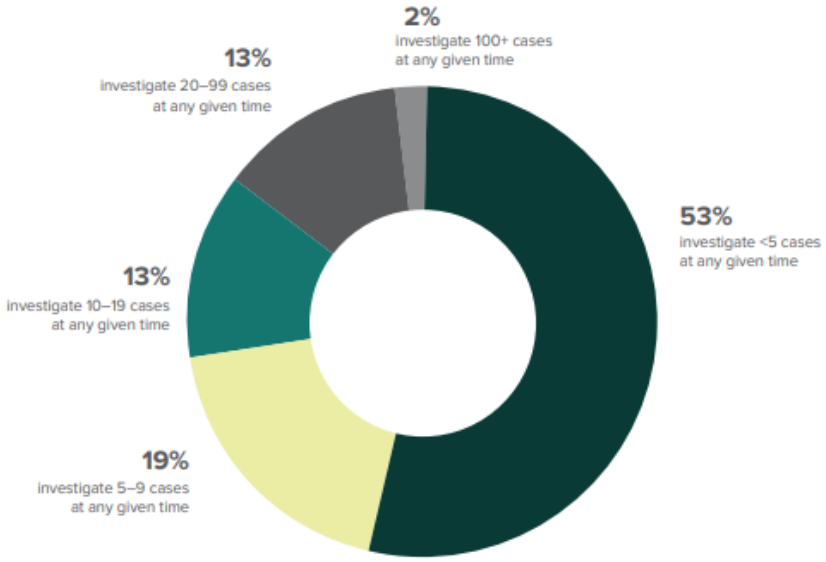

Figure 5. Average amount of time required to conduct a fraud investigation

Many factors can affect how long it takes to complete a fraud investigation, including, but not limited to, the complexity of the case, how difficult it is to obtain evidence, the resources available, whether travel is involved, and how many other cases that investigator is handling at the same time.

However, benchmarking the typical time to close a case can be helpful in assessing the efficiency of a fraud investigation team's activities. Figure 6 shows that most teams (59%) typically close their fraud investigations within one month, with another 21% closing cases in one to two months on average.

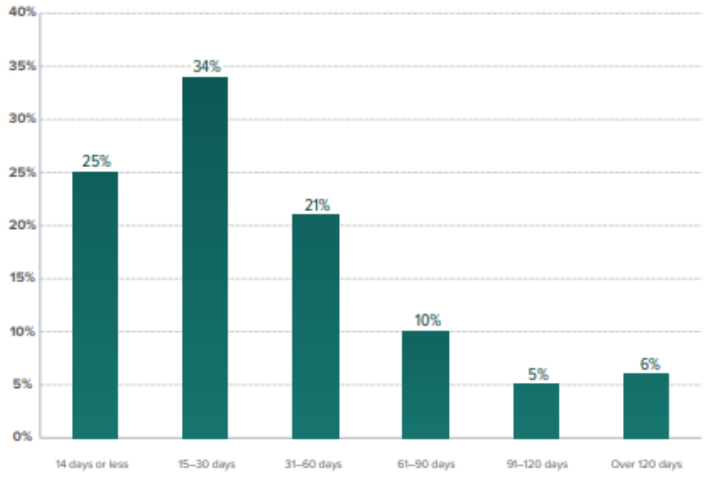

Figure 6. Average number of days it takes to close a fraud case

Even in organizations with an in-house fraud investigation team, it light be beneficial to outsource a portion of the company's fraud investigations to outside parties. This might be due to internal resource limitations, a need for specialized knowledge or skill sets, or geographical or language barriers. Of the internal fraud investigation teams in our study, 63% do not outsource any of their cases, while 29% outsource one-quarter or less. Only 2% of the teams outsourced more than half of their investigations to outside parties.

Management and those charged with governance often monitor the results of the organization's fraud investigations as one metric when assessing the company's overall fraud risks and the effectiveness of its anti-fraud initiatives. In evaluating these results, it can be helpful to know the case outcomes that other organizations typically experience as a benchmark.

The most of the in-house teams in our study (55%) are able to substantiate more than half of their fraud investigations, with almost one-third substantiating 76% or more. Disciplinary action is slightly less likely, indicating that not all substantiated cases end with the perpetrator being disciplined. In the findings, 43% of investigation teams see disciplinary action as a result in more than half of their cases, while 7% indicated that their cases never result in disciplinary action.

Similarly, criminal prosecutions do not necessarily follow substantiated cases or internal discipline; the percentage of cases that result in referrals for prosecution is notably smaller than the other two categories. Most organizations (71%) see one-quarter or fewer of their cases referred to law enforcement, and 13% do not have any of their cases result in a criminal referral.

Conclusions. Based on the results of the research, the following conclusions can be drawn. The article summarizes the main types of fraud that can be investigated in corporations. The main sources of information used to detect fraud are systematized, namely: Structured, Unstructured, Semi-structured. After comparing the types of fraud and the types of data used to detect fraud, a matrix "Relationship between types of fraud and types of data used to detect fraud" was developed to help choose the right sources of information for detecting criminal activity. A study of the role of internal teams in the investigation of fraud was carried out according to such impact criteria as: The frequency of investigation of various types of fraud; The amount of time teams spend investigating fraud; Average amount of time required to conduct a fraud investigation; Average number of days it takes to close a fraud case.

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SYSTEM OF STRATEGIC RISK MANAGEMENT FOR THE DEVELOPMENT OF YOUTH STARTUPS

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Abstract*. The purpose of the article is to study the features of a system of strategic risk management for the development of youth startups. The startup's activity is accompanied by great risks that must be skillfully managed. Formation of the system of strategic risk management for the development of youth startups has the number of advantages, which are discussed in this article. The authors attempted to examine the different aspects, elements of system of strategic risk management for the development of youth startups. The main elements of the system of strategic risk management of youth startups are the top management and department heads, divisions and spheres of activity, information about startup risks, information about what currently creates value for a startup, normative, methodical support for the development of the program, plans and strategy, financial and personnel management, information technology, management consulting, analytical support, goals, tasks, principles, functions, organizational culture that supports the development of the strategic risk management system, risk management strategy and new drivers for startup value formation. The importance of identifying all types of risks that have an impact on the strategic development of startups is emphasized. Creating value for business is the starting point of the process of strategic risk management of the development of youth startups has been indicated. Barriers to the formation of a strategic risk management system for the development of young startups have been presented.*

Keywords: *strategic, risk, management, development, youth startups, organization, business, value, support, organizational culture, strategic goals.*

JEL Classification: D22, D81, G22

Formulas: 0; fig.: 1; tabl.: 0; bibl.: 9

Introduction. Youth startups play an important role in solving social and economic problems: creating new jobs, reducing the unemployment rate, and training qualified personnel. Expanding opportunities and strengthening the influence of youth startups determines the need to use the potential. Today's youth and youth startups will define the image of the country in the future. The rate of economic growth and development of Ukraine depends on the development of modern youth organizations and youth business.

In a competitive environment, managers are faced with the need to make decisions under conditions of uncertainty and risk. Strategic risk management is often seen as an activity to prevent financial losses to a business. However, risk management must be applied throughout the organization. The formation of a strategic risk management system for the development of youth startups will help to partially eliminate problems in the organization. This will help the business to protect itself from a big part of the problem and reduce the existing risk to an acceptable level.

Literature review. Foreign and domestic scientists give substantial attention to the study of the issue of risk management of the organization, formation of the risk

management strategy of startups. Pukala, R., Sira, E., Vavrek, R. (2018) [6] devoted research to risk management methods and their efficiency, specific business activity of start-ups as well as the use of risk financing instruments available on the market by start-ups. Bialek R., Nowak R. (2018) [1] consider the problems of strategic management of young startups in Poland, finding methods of financing and development.

Kulkarni P., Mutkekar R. and Ingalagi S. (2020) [4] describe the features of strategic management on efficiency of start-ups, skill development of employee, and identify principal factors of strategic management. Zhang D. (2021) [9] believes that the trade-off between innovation benefit and risk control is worthy of investigation and is predictable for high-tech intensive start-ups. He questions the relationship between a firm's strategies on innovativeness and risk preference, especially for small, young firms in their initial stages of business. McConnell P. (2022) [5] analyzes strategic risk management of start-ups. Therefore, strategic risk should be a key focus for entrepreneurs and their investors. The author describes the key risks for any company and some of the key strategic risks facing start-ups.

Aims. The purpose of the article is to study the features of a system of strategic risk management for the development of youth startups.

Methods. During the research, the method of synthesis and analysis, induction has been used (in the study of elements of system of strategic risk management for the development of youth startups); structural and logical (to build a system of strategic risk management for the development of youth startups); schematic, graphic images for the visual display the received results of the study.

Results. Youth startups are independent organizations younger than five years, aimed at the development, improvement, and expansion of an innovative, technological product with high and rapid growth, created by young professionals under 25 years of age [3].

Youth startups are a special category of youth business and youth organizations. Youth startups determine the main tasks: development of strengths and weaknesses. To stimulate and create favorable conditions for the development of youth startups, various programs have been developed and are in operation. Therefore, there are 1,700 food and 533 service companies in Ukraine [2].

This type of activity is accompanied by great risks that must be skillfully managed. The strategic risk management system for the development of youth startups is a tool for supporting the effectiveness of the implementation of strategic and operational goals. The system allows getting information about the key risks of startups and guarantees the choice of an effective way of managing them.

The main advantages of implementing strategic risk management in organizations:

• fulfillment of requirements defined by legal acts and industry standards,

• limiting the uncertainty of decisions and actions taken by managers of organizations,

• optimal planning of the use of resources, investments, and innovations focusing on high-risk areas [7],

• prioritization of actions that contribute to the prevention of threats and improvement of business performance based on the detailed results of risk management,

• identification of critical risks and preparation of actions that can prevent or reduce losses in the event of a crisis,

• management of the organization, projects, based on comprehensive, reliable and analytical data,

• positive changes in the organizational culture and expansion of staff awareness as a result of the implementation of the risk management process.

The strategic risk management system for the development of youth startups is based on a set of subsystems (controlled and controlling subsystems) and elements. With the help of these elements, a cause-and-effect relationship is established.

To form a system of strategic risk management for the development of youth startups, managers need:

- normative, methodical support for the development of the program, plans, and strategy of risk management;

- financial and personnel management, information technology, management consulting, analytical support;

- goals, tasks of strategic development and risk management of the organization;

- management functions and principles, organizational culture that supports the development of the risk management system.

The system of strategic risk management for the development of youth startups is shown in Figure 1.

The basis of the strategic risk management system for the development of youth startups is the created value for business [8]. Business value includes key products and services that create a competitive advantage for a startup, unique operations to produce products and services.

Thanks to the organization of the strategic risk management process, it is possible to obtain information about the risks affecting the startup's achievement of its main goals. Here, it is important to apply strategic intent to risk identification and assessment.

Creating value for business is the starting point of the process of strategic risk management of the development of youth startups. That is why it is necessary to outline the plans for the growth of value in advance. For this, managers need to use new strategic initiatives that are outlined in the strategic plan (for example, launching a new product, acquiring a competitor, expanding online offers, etc.). The study of the organization's strategic initiatives should be included in risk analysis and decision-making.

The process of strategic risk management involves monitoring internal or external events that cause risks or threats to the business. A strategically integrated risk management process begins with an analysis of the factors that are most important to the business in the short term and lead to long-term success.

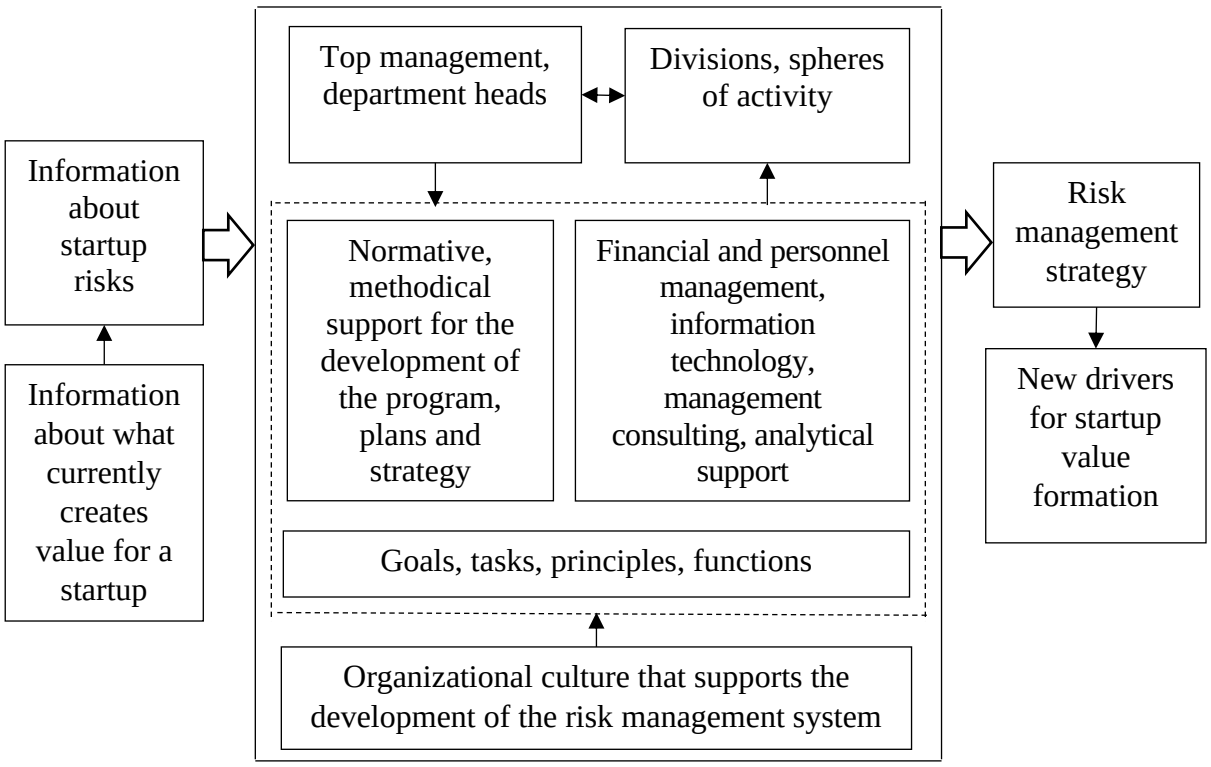

Figure 1. System of strategic risk management for the development of youth startups

Source: developed by the authors

It is necessary to take into account all types of risks (strategic, operational, etc.) during the formation of a system of strategic risk management for the development of youth startups. Risks must be continuously identified, measured, monitored, reported and remedied. It is important to stimulate personnel (individual or collective) to be involved in the risk management process and influence the strategic success of the organization.

In order to maintain the continuity of business development, managers must assess risk appetite in achieving strategic goals. Some types of organizations are risk-averse, while others foster a risk-taking culture. In addition, management styles and team structure vary significantly across.

Solving issues related to the development of startups and risks lies in the formation of the concept of organizational culture. The process of building organizational culture can focus on training employees to ensure they are aware of risk assessment methods and business performance tools.

Employees must have the appropriate skills and knowledge to implement a strategic risk management system in the context of divisions and business operations. Analysis of the strategic risk management system of the development of youth startups helps to eliminate the mistake that the organization can achieve effective risk management without making efforts. Educational programs and trainings can play an important role in improving the qualifications of employees, as it provides an understanding of the role and responsibilities in the formation of the strategic risk management system. In this case, managers can develop an effective training program

that will help staff acquire adequate skills and knowledge to create a favorable organizational culture. Managers can involve employees in training aimed at forming a risk management system.

The lack of a favorable organizational culture can become an obstacle to the implementation of a strategic risk management system. For example, the failure of joint teamwork between senior management and staff is often a limitation to the effective process of forming a strategic risk management system. Managers who do not support the implementation of a strategic risk management system can hinder the strategic development of a startup. The inability to develop an effective organizational culture is a key factor in the unsuccessful implementation of a risk management system in business operations.

The development of an acceptable organizational culture develops into the construction of risk response strategies. These strategies are needed to ensure an effective process of implementing a strategic risk management system.

One of the strategies is to create a collaborative work environment by ensuring a harmonious relationship between managers and employees in the process of implementing a strategic risk management system. Leaders take on the important responsibility of creating a positive business culture. An effective leadership process is an opportunity to improve organizational culture and increase organizational effectiveness. In addition, the development of positive interactions in the workplace contributes to the achievement of a competitive advantage.

After the analysis and assessment of risks, authorized persons must provide agreed results to various stakeholders, startup managers, operations specialists. It is important to choose indicators that are used to measure the effectiveness of strategic risk management, management strategy, and results.

The goal of the strategic risk management system for the development of youth startups is to develop a systemic view of risks. The responsibility for establishing directions of development and risk management lies with managers of functional structures.

The consequence of adopting the concept of strategic risk management is the need for independent centralized control by the team responsible for risk management in the organization. The head of such a team should be a person subordinate only to top management (risk manager). In turn, management should be aware that the result of creating a risk team may be internal conflicts. However, a bigger problem may be inadequate risk management at the scale of a startup. Therefore, it is important to develop strategic risk management throughout the organization. This can be achieved by organizing trainings, practical seminars.

Effective strategic risk management of youth startups can have many benefits. This primarily includes the reduction of business costs. This is possible thanks to the identification of areas that negatively affect the functioning of the organization. The first step is to diagnose the problem. Even small inefficient processes have importance and can affect the success of the business, however. Problems generate large losses, especially from the annual perspective.

Improvement of financial results is possible due to optimization of management

measures. Strategic risk management is reduced to improving management standards (normative support for the development of the program, plans, and strategy). A significant part of the procedures can be simplified, and actions can be standardized. This will make it possible to perform tasks faster and determine the responsibilities of employees.

The process of activity planning is also important over the course of strategic risk management. Managers find answers to questions that are fundamental to running a successful business and avoiding unpleasant surprises (for example, fines for non-fulfillment of bargain terms) thanks to careful planning. Other benefits of implementing a strategic risk management system include: increased internal efficiency and control, new business opportunities, or improved cooperation between employees in the organization.

Difficulties associated with the implementation of the system of strategic risk management for the development of youth startups include: the underdevelopment of the risk management strategy at all scales of organization, the lack of cyclically of strategic risk management, the lack of clear information about risks at all scales of organization, the low level of ensuring strategic risk management, the uneven level of the organization's readiness for risk management, the imperfection of assessing the company's capabilities and identifying gaps in current risk management processes, the complexity of formation the effective preventive measures.

Discussion. Managers of a youth startup must be able to develop a systemic view of business. They should be responsible for understanding the consequences, organizing the management process, monitoring the most significant risks affecting the startup. Senior management is responsible for the development and implementation of the strategic risk management process, contributing to the activation and support of this process. They determine the strategic orientations of the risk management process and the peculiarities of its functioning.

Successful implementation of the strategic risk management system of a young startup is a difficult task. This is partly due to the fact that the strategic risk management system requires cooperation between departments and startup personnel, research into the field of activity and business opportunities. In each case, the risks will be perceived as unique.

New scientific research is needed to better understand all the features of the practical implementation of the strategic risk management system of young startups. It is important to identify risk situations and factors that positively and negatively affect the emergence of risks in a startup.

Conclusion. Thus, a contemporary view of development of youth startups in which youth startups are independent organizations younger than five years, operating in conditions of increased risks and uncertainty should work on the basis of a formed system of strategic risk management for the development of young startups. The main elements of the system of strategic risk management of youth startups are the top management and department heads, divisions and spheres of activity, information about startup risks, information about what currently creates value for a startup, normative, methodical support for the development of the program, plans and strategy,

financial and personnel management, information technology, management consulting, analytical support, goals, tasks, principles, functions, organizational culture that supports the development of the strategic risk management system, risk management strategy and new drivers for startup value formation.

Author contributions. The authors contributed equally.

Disclosure statement. The authors do not have any conflict of interest.

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A STUDY ON CURRENT ISSUES PERTAINING TO FREIGHT FORWARDING AND CONTRACT LOGISTICS

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Abstract. *The article is the result of a preliminary study conducted by the author on behalf of Connect Freight logistics. The purpose of the article is to study current issues of freight forwarding and contract logistics. The research methodology is the results of a survey of respondents regarding logistics operations. It is argued that logistics is the management of the movement of resources between the point of origin and the place of consumption to meet, for example, the needs of consumers or organizations. Logistics resources can include both tangible goods such as food, materials, equipment, fluids, and personnel, as well as abstract items such as time, information, particles, and energy. Logistics of physical items often involves the integration of information flow, material handling, manufacturing, packaging, inventory, shipping, warehousing and, in some cases, security. The article suggests: Improving the quality of roads will speed up the transport process; Increasing the type of consolidation services will reduce the cost so that the products are available at a low and economical cost. The main recommendations proposed by the author are: continuous improvement of port facilities in Southeast Asia is recommended; an understanding of the supply chain process is required; the growth of logistics must be at the same pace as the development of FMCG.*

Keywords: *logistic; development; operation; logistics resources.*
JEL Classification: F10, F20, M21
Formulas: 0; fig.: 8; tabl. 9; bibl.: 4

Introduction. As Connect Freight logistics was working on their new operations, they had handed me an assignment to study the current issues in freight forwarding and Contract logistics and my project was based on these following TERMS:

1) *Freight Forwarding* - Logistics is the management of the flow of resources between the point of origin and the point of consumption in order to meet some requirements, for example, of customers or corporations. The resources managed in logistics can include physical items, such as food, materials, equipment, liquids, and staff, as well as abstract items, such as time, information, particles, and energy. The logistics of physical items usually involves the integration of information flow, material handling, production, packaging, inventory, transportation, warehousing, and often security.

2) *Contract logistics* - Contract logistics companies handle activities such as designing and planning supply chains, designing facilities, warehousing, transporting and distributing goods, processing orders and collecting payments, managing inventory.

Literature review. A large number of scientists investigate the theoretical and practical side of logistics operations. In paper "A content analysis of research approaches in logistics research" (Kovács and Spens, 2006), seeks to assess the use of the three different research approaches in logistics research; discuss the use of different

research methods within the three research approaches; find and discuss applications of the abductive research approach to logistics problems.

In paper "Logistics Value: Definition, Process and Measurement" (Rutner, S.M. & Langley, C.J., 2000) was clarify how value is created by logistics. Based on empirical research, definitions of value and value-added are suggested that are founded upon and related to the perspectives of practicing managers. Following a brief literature review, details are provided about the objectives and methodology of the research that was conducted. Last, managerial implications and the key messages for both logistics managers and researchers are presented.

Aims. The main research objectives are:

1) Basically, we're looking for delivery on time and no errors on quantity and products. There is also a massive trend towards reducing inventory levels. A lot of the freight forwarding companies would have traditionally had a very strong push mentality and that ends up with 30, 40, 90 days of inventory sitting in the retail operation. The retailers are now thinking more on a 15 to 20 days scale. So 3PLs that can manage that sort of challenge.

2) We want to understand the locational efficiency of freight forwarding company's manufacturing units

4) To find out Distances manufacturing units with ports near by and FMCGs in general, must be aware of the differentiations between the sales team and the operations team, at the risk of over-selling them. And for that they have to blow down the details in terms of really making sure the expertise, the know-how as well as the skills are actually available. For example, if you are shifting your supply chain from A to B, how long is it going to take you to go from A to B? And the shorter the time-span, the fewer the learning curves, the fewer mistakes that can happen, the more successful that transition will be. And I think that it is a combination of these things that an FMCG company should look for.

Methods. *Descriptive research* is used to describe characteristics of a population or phenomenon being studied. It does not answer questions about how/when/why the characteristics occurred. Rather it addresses the "what" question (What are the characteristics of the population or situation being studied?) The characteristics used to describe the situation or population are usually some kind of categorical scheme also known as descriptive categories. *Exploratory research* of research conducted for a problem that has not been clearly defined. Exploratory research helps determine the best research design, dat collection method and selection of subjects. It should draw definitive conclusions only with extreme caution. Given its fundamental nature, exploratory research often concludes that a perceived problem does not actually exist.

Exploratory research often relies on secondary research such as reviewing available literature and/or data, or qualitative approaches such as informal discussions with consumers, employees, management or competitors, and more formal approaches through in-depth interviews, focus groups, projective methods, case studies or pilot studies. The Internet allows for research methods that are more interactive in nature.

Freight forwarding and contract logistics continues to be a growth industry. Though such growth is expected to slow somewhat (from a high of 3 percent over the

past five years to about 1.5 percent in the near term), that rate will still likely outpace that of global GDP—a good situation to be in, considering current economic circumstances.

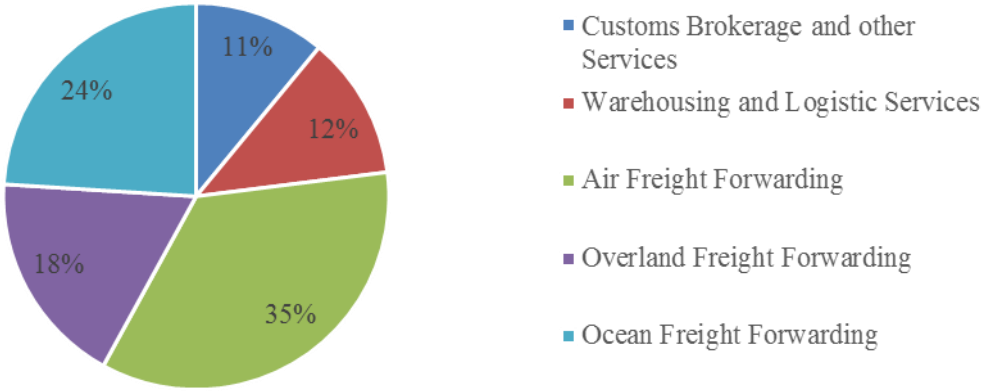

Figure 1. Analysis on Freight Forwarding

Even so, freight and logistics companies will need to deal with numerous issues in the years ahead. For example, as trade routes become more competitive and as freight rates fall, the industry's traditional bargaining power with its shippers—volume—will be challenged. One important strategy to counter this challenge is to use balance sheet strength to acquire niche players in important trade routes and geographies, especially in emerging markets.

Another key to growth and profitability will be the ability to analyze customers' needs and then respond quickly with differentiated and advanced logistics solutions. That will require better IT tools to improve internal process efficiency and to generate analyses that result in deeper understanding of customers' industries and business processes.

Industry background. As customers enter new markets, especially in emerging economies, they are demanding much more than traditional transportation and warehousing services from their freight forwarding and contract logistics providers. The ability to offer new, value-added services such as warranty processing, returns management and light manufacturing is now a differentiator, as is providing services such as customs and insurance brokerage, and trade and transportation management. In other words, the ability to become a "one-stop-shop provider" is emerging as a way to achieve differentiation and capitalize on cross-segment opportunities.

However, companies in the industry face multiple risks, particularly in light of continued global economic instability. Rising oil prices are a persistent threat. Industrial production slowed during 2011. Economic challenges in the European Union, political instability and unrest across multiple areas of the globe, and a series of natural disasters have highlighted the often-fragile nature of the freight forwarding and logistics business and the industry's customer environment.

Results. According to research, the following represent some of the most serious risks:

- *Flat growth for forwarders.* After heavy losses in 2009, the sector recovered moderately in 2010. The past year has been a difficult one, with profit growth being limited to volume growth, and with yields unlikely to improve as freight rates remain under severe pressure.
- *Pessimism about growth opportunities in air freight.* In the Asia-Pacific region in particular, the air freight business has suffered more than container shipping recently.
- *Ongoing overcapacity in ocean freight.* Shipping rates for all routes continue to decline.
- *Risk of cheap capacity.* Counter-cyclical businesses such as freight forwarding or contract logistics, with relatively flexible business models, are better able to keep margins stable in the downturn—but they risk sitting on cheap capacity in an upturn.

On the positive side, demand is rising for advanced logistics capabilities and industry-focused solutions, especially in emerging markets. The increasing number of assembly plants in these markets—including Turkey, Mexico and Thailand—has positively affected the dynamics of the logistics industry.

Companies are also responding to market and economic pressure by restructuring their logistics organizations—consolidating service providers and functions, sharing logistics facilities and centralizing management.

Domestic and international influence. Domestic and international freight forwarding is basically about providing logistical services. This involves coordinating with various cargo carriers and warehouses. It is about minimizing costs and finding the best possible routes. Although most freight forwarders merely serve as third-party agents, their tasks and responsibilities go beyond mere documentation and freight management. They also face other challenges such as legal or statutory regulations. These can include health-related issues, environmental issues, and political considerations.

The legal aspect of cargo forwarding includes both domestic and international regulations. Some regulations are highly specific to a particular country. Other regulatory provisions, however, are international in scope. These pose problems for freight forwarders in several ways.

The varying and sometimes conflicting jurisdictional and international regulations are problematic issues for freight forwarders and their respective clients. As the saying goes, "the devil is in the details." Some countries may ban certain items that are typically legal in other countries. Despite of free trade agreements and globalization, there are still many countries that have protectionist laws. These laws may prevent the importation or exportation of certain items at a commercialized or large-scale level. However, these items might be perfectly legal at small-scale or personal levels. Other custom laws are either outdated or plainly weird.

Some of the peculiar import-export laws are detrimental to small and medium enterprises. Hence, it is important for forwarders to be familiar with these local laws to prevent inconveniences on the part of customers. Some of these laws are weird such as

the prohibition of shipping maps, diaries and GPS systems to Argentina. It is also prohibited to ship a pair of matching shoes to South Africa, Mexico and India. Exporting dental-related products to Algeria is not allowed. Meanwhile, plastic flowers and wheelbarrows are not allowed to be shipped to Nigeria.

Cultural and political differences are the main reasons for the seemingly weird customs laws of some countries. In most cases, however, certain customs laws are perfectly rational. For instance, quarantine laws may apply to certain food products. These may also apply to live animals, plants and even people. The main purpose of quarantine is to prevent the spread of infectious diseases.

Aside from the logistical and legal challenges, cargo forwarding operations face potential losses due to civil unrest, bad weather and other natural disasters. The risks involved in the business are usually covered by insurance. The insurance coverage varies depending on the value and quantity of the items. The cost of insurance will also vary depending on the specific risks such as volatile political situation in a particular destination. Similar challenges are faced by freight forwarders in Australia.

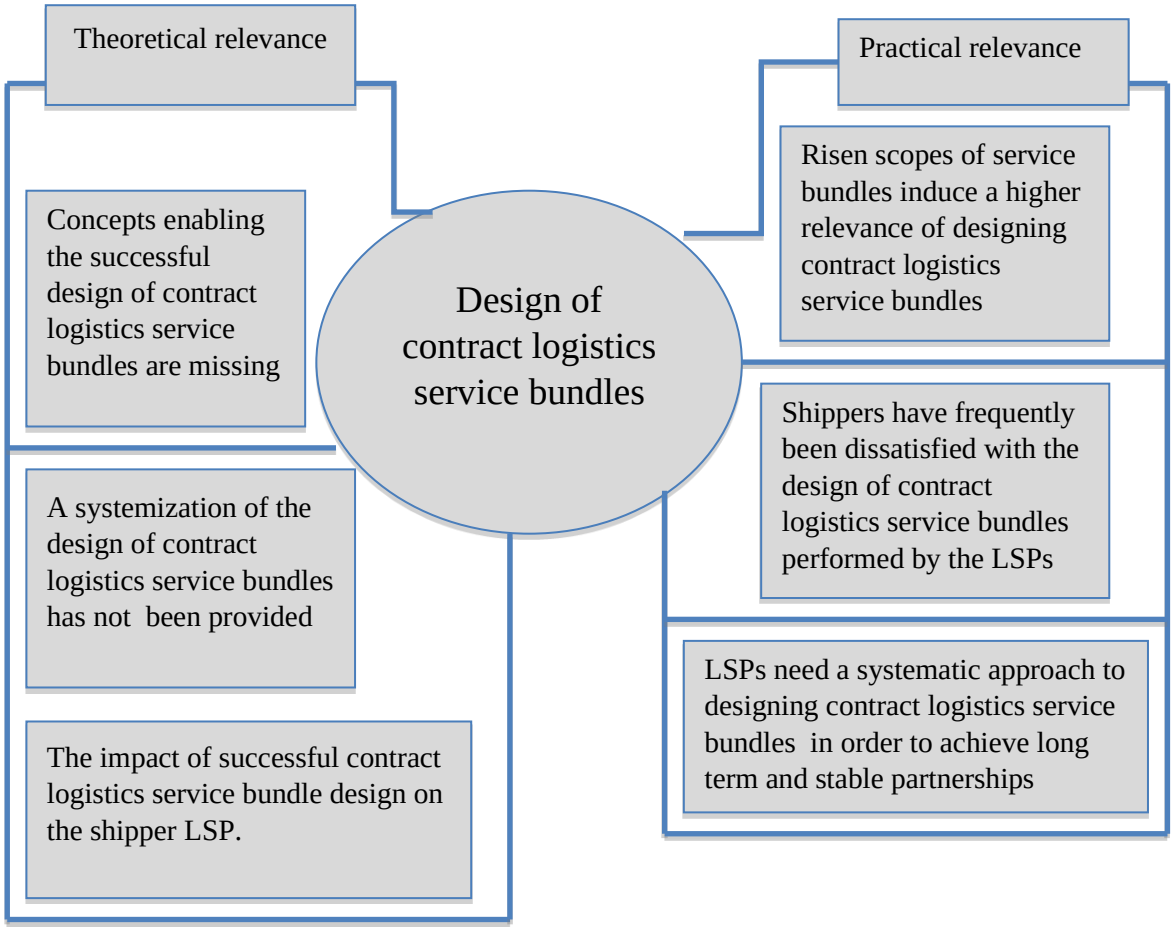

Figure 2. Design of Contract logistics

Techniques that address solution for both Freight forwarding and contract logistics:

1. **Market focus and position.** Due to a mixture of organic growth and strategic acquisitions, high performers not only have a strong presence in emerging markets such

as Brazil, Russia, India, China and Mexico, they also exert control over the most profitable trade lanes: Europe to Asia, for example, or North America to both South America and Asia. Moreover, by leveraging dominant positions in domestic freight (both air and road), they have managed to maintain volume growth without compromising their revenues.

2.Distinctive capabilities. According to our analysis and scorecard of industry players, three business capabilities stand out in particular.

- **Flexible business model.** The high performers know that time to market is critical in their industry—and they have the flexibility to respond with speed and agility to their customers' need for convenience. High performers have established new ocean freight links to growth geographies such as Africa. And they have opened multiple new service links that span the global trade routes over which they dominate.
- **Deep expertise in key customer industries.** Industry knowledge is growing in importance as customers extend their supply chains in response to globalization. High performers have been leaders in developing extensive expertise in the industries they serve, going well beyond traditional transportation and warehousing solutions. Increasingly, logistics companies are strengthening their ability to collaborate and are better aligning themselves with customers' operations, processes, industry know-how and technology.
- **Using IT to maintain 360-degree control.** The high performers have moved well beyond using IT merely as an enabler of internal process management. Instead, they leverage their proprietary customer-facing technologies to empower their customers, offering them end-to-end visibility across the entire supply chain. Important to ongoing success will be the ability to develop more "intelligent" services, more dynamic planning and increased alignment with customers' operations and processes.

Supply chain visibility remains a top operational priority for large customers. Customers generally struggle to achieve a unified picture of their supply chains because of the legacy information systems designed to operate within a single company, not across a network of companies. Thus, the ability to share real-time information with key customers, suppliers and partners has become critical in the freight forwarding industry.

3. Performance anatomy. With freight forwarding and contract logistics, performance anatomy relates not only to overall operational excellence but also to such procurement practices as the purchase of transportation capacity and the innovative use of shared services. Because of their relentless focus on productivity improvement, the high performers are masters of operational excellence, achieving significantly higher gross profit conversion.

These companies place much greater emphasis on process automation and on finding the right balance between volume commitments and spot buying—a strategy that enables them to achieve competitive rates in the most important trade lanes. And they have been enthusiastic adopters of shared services, not just for internal processes but also to improve customer services and supply chain management.

Table 1. Respondents' answers to the question "At what level does your company decide on logistics outsourcing?"

Organization	Respondents	Percentage
One factory level	14	70
Multi factory level	6	30
Total	20	100

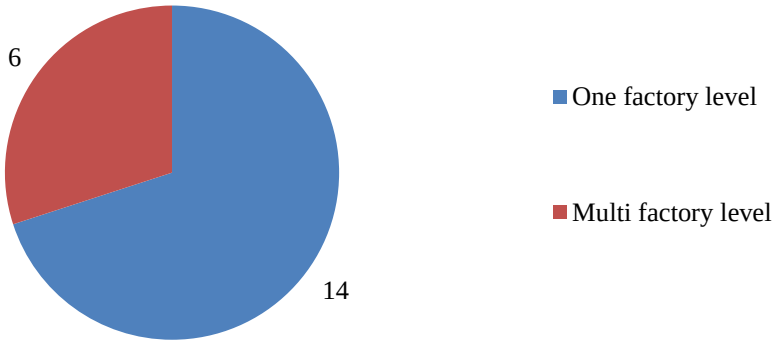

Figure 3. Respondents' answers to the question "At what level does your company decide on logistics outsourcing?"

From the above table it is inferred that 70% of respondents said that the decision of logistic outsourcing is taken at One Factory Level and 30% of respondents said that the decision of logistic outsourcing is taken at Multi Factory Level.

Table 2. Respondents' answers to the question "To what extent are you involved in logistics decision-making in your company?"

Organization	Respondents	Percentage
Highly	06	30
Moderately	10	50
Little bit	04	20
Not involved	00	00
Total	20	100

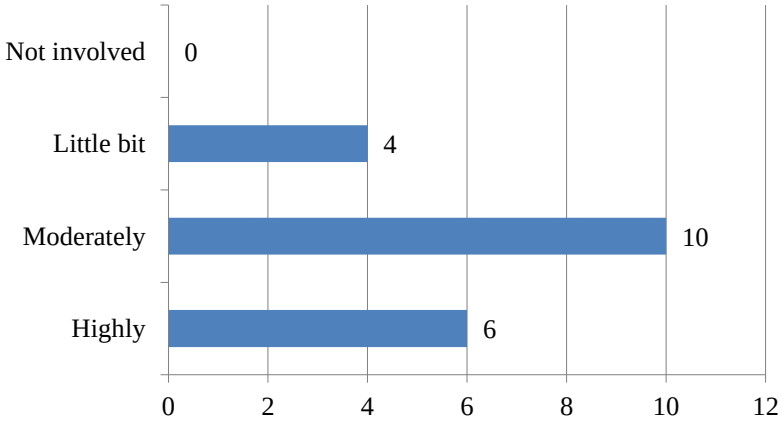

Figure 4. Respondents' answers to the question "To what extent are you involved in logistics decision-making in your company?"

From the above table it is inferred that 30% of respondents were highly involved, 50% of respondents were moderately involved and 20% of respondents were little bit involved in decision making of logistics in their company

Table 3. Respondents' answers to the question "How many product groups does your company have in India?"

Nomber of product groups	Respondents	Percentage
1	02	10
2	06	30
3	10	50
4	02	10
5	00	00
>5	00	00
TOTAL	20	100

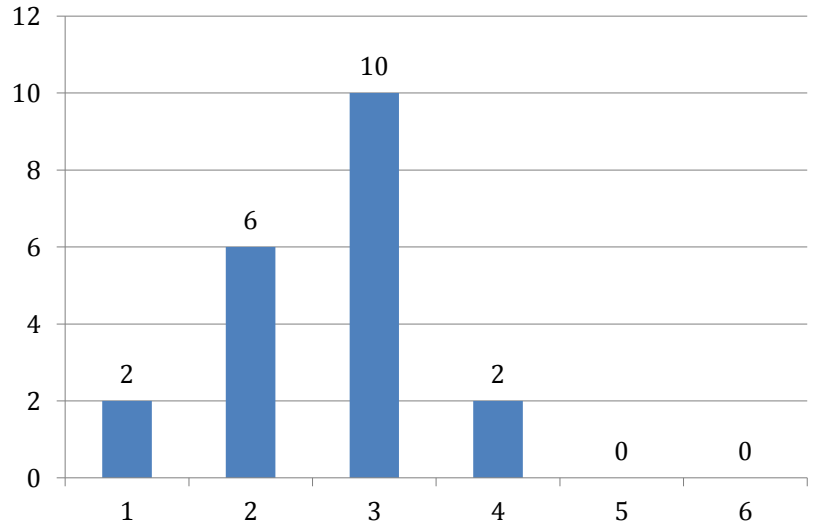

Figure 5. Respondents' answers to the question "How many product groups does your company have in India?"

From the above table it is inferred that 10% of respondents Had 1 product group, 30% of respondents Had 2 product group, 50% of respondents Had 3 product group and 10% of respondents had 4 product groups.

Table 4. Respondents' answers to the question "Do you think increase in consumption of Consumer goods will lead to decline in logistics cost?"

Organisation	respondents	percentage
Yes	16	80
No	04	20
Total	20	100

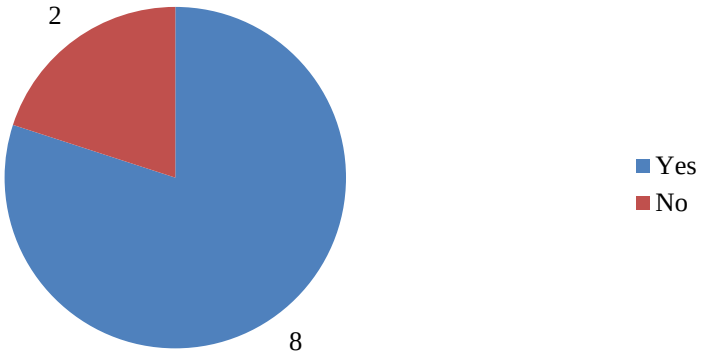

Figure 6. Respondents' answers to the question "Do you think increase in consumption of Consumer goods will lead to decline in logistics cost?"

From the above table it is inferred that 80% of respondents said yes and 20% of respondents said no when asked if increase in consumption of FMCG will lead to decline in cost.

Table 5. Respondents' answers to the question "Where do you think India will be among the Top FMCG consuming countries in the world in 2020?"

Organization	Respondents	Percentage
Top 10	02	10
Top 15	06	30
Top 20	08	40
Top 25	04	20
>30	00	00
Total	20	100

From the above table it is inferred that 10% of respondents said India will be among the Top FMCG consuming countries in the world in 2020, 30% of respondents said India will be among the Top FMCG consuming countries in the world in 2020, 40% of respondents said India will be among the Top FMCG consuming countries in the world in 2020 and 20% of respondents said India will be among the Top FMCG consuming countries in the world in 2020.

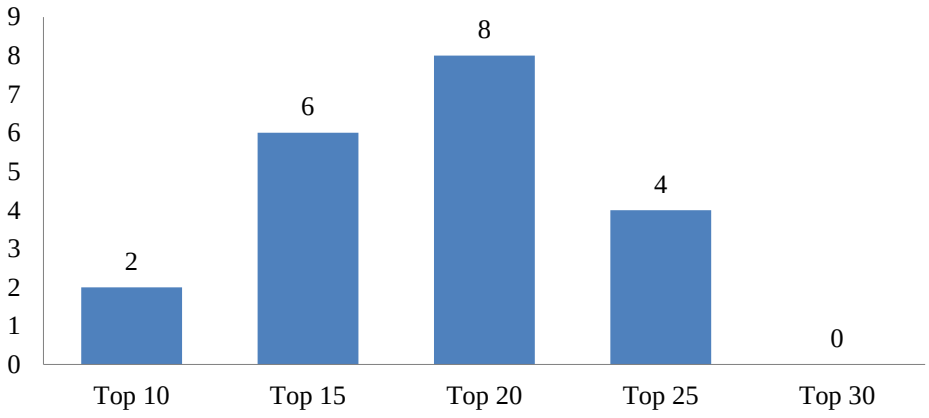

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Figure 7. Respondents' answers to the question "Where do you think India will be among the Top FMCG consuming countries in the world in 2020?"

Table 6. Respondents' answers to the question "Do you think India has well established logistics support systems?"

Organisation	Respondents	Percentage
Yes	08	80
No	02	20
Total	10	100

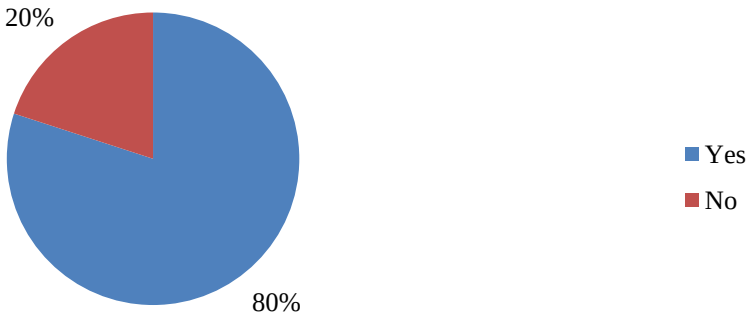

Figure 8. Respondents' answers to the question "Do you think India has well established logistics support systems?"

From the above table it is inferred that 80% of respondents said yes and 20% of respondents said no when asked if India has well established logistics system.

Table 7. Observed frequency: Involvement in decision making

Position of the Respondents	Highly	Moderately	Little bit	Not involved	Total
Logistic Manager	4	6	0	0	10
Financial Manager	0	2	2	0	4
Production Manager	0	0	2	0	2
Director	2	2	0	0	4
Total	6	10	4	0	20

Table 8. Expected frequency: Involvement in decision making

Position of the Respondents	Highly	Moderately	Little bit	Not involved	Total
Logistic Manager	3	5	2	0	10
Financial Manager	1.2	2	0.8	0	4
Production Manager	0.6	1	0.4	0	2
Director	1.2	2	0.8	0	4
Total	6	10	4	0	20

Table 9. Calculation of Chi – Square Value

O	E	$(O - E)^2$	$\frac{(O - E)^2}{E}$
4	3	1	0.33
0	1.2	1.44	1.20
0	0.6	0.36	0.60
2	1.2	0.64	0.53
6	5	1	0.20
2	2	0	0
0	1	1	1
2	2	0	0
0	2	4	2
2	0.8	1.44	1.8
2	0.4	2.56	6.4
0	0.8	0.64	0.8
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
Total			14.86

Degree of Freedom = (r – 1) (C – 1)
= (4 – 1) (4 – 1)
= (3) (3)
= 9

Table value at 5% level of significance with degree of freedom of **9 χ^2 = 16.92**

Result:

The calculated value X^2 value (14.86) is than the table value (16.92)

Calculated Value < Tabulated Value

14.86<16.92

Discussion. The main debatable issues studied in the article were:

- Distance between the respective FMCG manufacturing unit and nearest port.
- Efficiency of Container dedicated ports in south east Asian.
- Flow of supply chain operations.
- Functions of freight forwarding
- Location of Manufacturing units.

Conclusion. According to the results of the conducted research, it was established:

- FMCG has been growing tremendously over a period of time and has proven that the demand for its commodities will never decline;
- Peoples requirements and demand for FMCG has influenced logistics and supply chain.

The article presents suggestions, namely:

- Improvement in road quality would speed up the process of transport;
- Increase in consolidation type of services would lead to decrease in cost so that the products can be available at low and economic cost.

The main recommendations based on the results of the research are:

- Constant improvements in port facilities in South East Asia are recommended;
- Understanding of the process flow of supply chain operations is required;
- Logistics growth must be at the same pace as development in FMCG.

Author contributions. The authors contributed equally.

Disclosure statement. The authors do not have any conflict of interest.

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OPPORTUNITIES FOR COOPERATION BETWEEN BUSINESSES AND THE GOVERNMENT IN THE DEVELOPMENT OF ENVIRONMENTAL SUSTAINABILITY IN UKRAINE, BASED ON BUSINESS INTELLIGENCE

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Abstract. *Together, government agencies and businesses could utilize business intelligence solutions to promote the development of environmental sustainability. It is of the utmost importance that all stakeholders, including business, government, and society, participate in such cooperation, which will pave the way for non-regulatory cooperation in environmental sustainability development. Utilizing business intelligence for cooperation between government authorities, businesses, and society could pave the way for the next phase of environmental sustainability development in Ukraine, which will be one of the most crucial steppingstones in Ukraine's integration into the European Union. The purpose of the article is to study the possibilities of cooperation between business and government in the development of environmental sustainability in ukraine on the basis of business interview. In the research process, general scientific methods of analysis and synthesis, as well as methods of generalization and systematization were used to develop the submitted proposals. In a paper uncovered importance of environmental sustainability development facilitation for Ukrainian economy, discovered benefits business intelligence solutions could bring to this process. In a paper proposed opportunities and uncovered benefits of cooperation between government, public and private business utilizing business intelligence.*

Keywords: *business intelligence (BI), environmental sustainability, cooperation between businesses and government*

JEL Classification: D73, H40, O18

Formulas: 0; fig.: 3; tabl. 0; bibl.: 15

Introduction. In the nations of the European Union, issues of environmental sustainability are becoming an integral part of enterprise competitiveness. Considering the need to integrate the Ukrainian economy into the economy of the European Union, these issues should also become an integral part of the strategy for the development of domestic businesses and the overall economy. In the modern world, effective management of most processes is impossible without the effective use and analysis of data, especially in complex systems with numerous participants and influencing factors such as environmental sustainability development. Consequently, an increasing number of companies are utilizing business intelligence systems to manage environmental sustainability development abroad. Unfortunately, most Ukrainian companies are unable to independently implement effective sustainable development management systems based on business intelligence systems. Businesses, governments, and international organizations should collaborate to solve this problem. The article focuses primarily on the potential for cooperation between private business, the government, and international organizations in the field of managing environmental aspects of sustainable development with the aid of business intelligence systems, which should increase the competitiveness of the Ukrainian economy in comparison to the economies of the European Union.

Literature review. In IBM Institute for Business Value's article "The power of analytics for the public sector" [1], Izabela Wowczko's article "Business Intelligence in a Government-Driven Environment" [2] and the works of numerous other authors, the issue of business intelligence (BI) usage in the public and government sectors has been thoroughly investigated. Despite the obvious benefits recognized by private businesses, government and public organizations are still behind in implementing business intelligence into their processes, according to the findings of those studies. Despite this, there are numerous instances of successful business intelligence implementation in government and the public sector. From other side several studies have elucidated the utility of business intelligence in sustainability projects, and such authors as M. Petrini, M. Pozzebon have proposed well-developed tools for business intelligence-based management of sustainability development [3], [4]. Despite the well-researched nature of the problem's components, their intersection necessitates additional research and the incorporation of Ukraine's realities.

In this study, we aim to shed some light on how private businesses and the government in Ukraine could use business intelligence to achieve effective cooperation in developing environmental sustainability. This study's objective lies at the intersection of using business intelligence for sustainable development and government, public, and private business cooperation in Ukraine. This study illuminates a topic that is poorly illuminated by other research, and its further development could bring considerable advantages to Ukraine's future sustainable development.

Aims. The purpose of the article is to study the possibilities of cooperation between business and government in the development of environmental sustainability in ukraine on the basis of business interview.

Methods. In the research process, general scientific methods of analysis and synthesis, as well as methods of generalization and systematization were used to develop the submitted proposals.

Results. On the basis of the conducted research, we offer to study the possibilities of cooperation between business and government in the development of environmental sustainability in Ukraine on the basis of business intelligence.

Importance of environmental sustainability development for Ukraine. According to the Resolution adopted by the General Assembly on September 25, 2015, "Transforming our world: the 2030 Agenda for Sustainable Development," there are 17 Sustainable Development Goals set up. Among them are some goals that are directly connected to business, government, and social cooperation:

"Goal 12. Ensure sustainable consumption and production patterns

12.2 By 2030, achieve the sustainable management and efficient use of natural resources.

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities.

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature" [5].

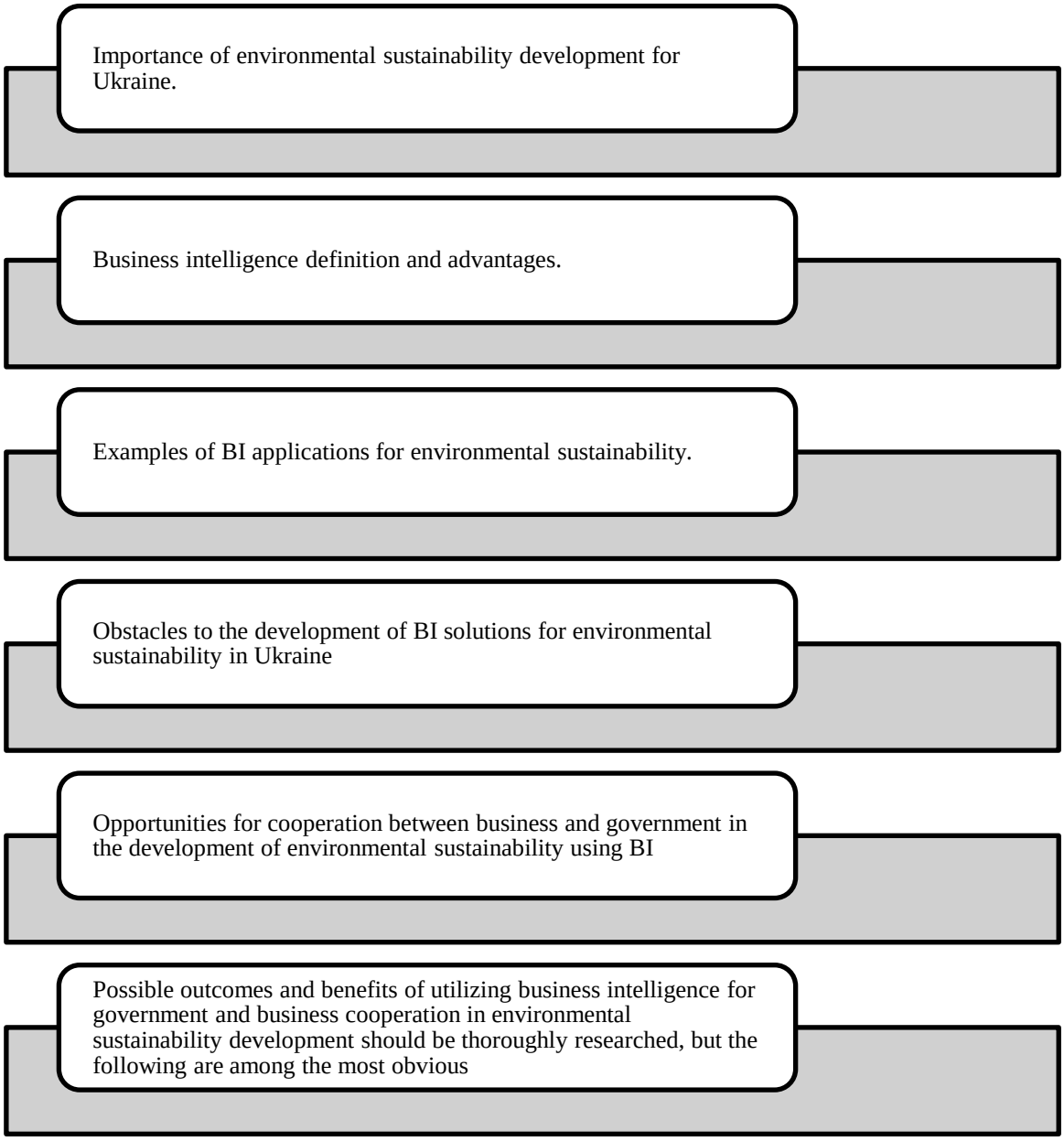

Figure 1. The main stages of study the possibilities of cooperation between business and government in the development of environmental sustainability in Ukraine on the basis of business intelligence

Sourse: develop by author

The European Union is harmonizing its legislation system according to United Nations sustainability goals constantly. As said on the European Commission website in the Strategy section: "The EU and the United Nations are natural partners in the efforts to shape a safer and better world for all. To that end, the EU supports effective

multilateralism and a rules-based international order with the UN at its core. As a major negotiating success of the EU, the SDGs are a useful vehicle to project globally the EU's values and objectives, and provide a shared framework, useful for international partnerships. Consequently, it is in the EU's interest to play a leading role in the implementation of the 2030 Agenda globally through its external action" [6].

The European Union is constantly developing sustainability legislation and implementing new tools like emissions trading systems (ETS), carbon taxes, and eventually a Carbon Border Adjustment Mechanism proposed by the European Commission in July 2021.

As said in the article "Carbon leakage: prevent firms from avoiding emissions rules": "As European industry struggles to recover from the Covid-19 crisis and the impact of the war in Ukraine, the EU is trying to honour its climate commitments, whilst keeping jobs and production chains at home" [7].

The European Commission proposed a Carbon Border Adjustment Mechanism in July 2021 as a part of the "Fit for 55" package, implementing the 2019 European Green Deal, which states the EU's ambition to reduce greenhouse gases by 55% compared to the level of 1990 by 2030 [8].

The mechanism would apply a carbon levy on imports of certain goods from outside the EU. If products come from countries with less ambitious rules than the EU, the levy is applied, ensuring imports are not cheaper than the equivalent EU product. MEPs want the mechanism to be implemented from 1 January 2023, with a transitional period until the end of 2026. It should be fully implemented by 2032. By 2032, the Carbon Border Adjustment Mechanism should cover power and energy-intensive industrial sectors [7].

Businesses from third countries oriented on export to the European Union need to immediately start to harmonize their environmental sustainability strategy according to European Union legislation and practices to stay competitive in the European market. The common trend in the European Union for environmental sustainability development is not just about legal requirements but also about society's demands for more environmental responsibility from businesses.

At the European Council on June 23, 2022, EU leaders granted EU candidate status to Ukraine. This step means the need for Ukrainian legislation and businesses to deep and fast integrate into the EU's sustainability management standards. To be competitive in the European market, it is critical to focus not only on harmonizing legislation but also on promoting an environmental sustainability culture across businesses and the population, and for Ukrainian businesses, this could be a critical factor in survival.

With time going by, EU sustainability regulations will become more and more strict, and even medium and small businesses will be affected. For Ukrainian businesses, it is necessary to start closing the gap in sustainability management and benchmark best practices from EU companies even before Russian aggression has ended.

Link between data and sustainability development. The SAP Insights research center conducted a survey of 7423 (5621 usable) business professionals to determine

the difficulties businesses face in halting and reversing environmental deterioration, as well as when they anticipate that environmental issues will have an impact on their operating performance or financial situation. The authors of the study assert that data influences sustainability choices as follows:

"Companies with more data tend to have a more holistic view of their business, which gives them more granular insights into the trade-offs they can make to deliver better overall outcomes. Data about sustainability is part of this broader picture".

"The consumer products industry offers an example of how a data-supported approach to sustainability might play out. Many consumer products are packaged the same way, whether they're sold in Stockholm or Shanghai. However, as governments begin to regulate single-use packaging for environmental reasons, a packaging design may generate different costs and benefits depending on where it's used.

With good data, a company can explore the financial effects of creating unique packaging for individual markets to attract more customers, pursue zero waste aspirations, or lower the costs of following local environmental regulations. The company would even be able to predict the most cost-efficient timeframe for developing new packaging rather than letting regulations force the issue.

However, even the most comprehensive data sets aren't perfect. Among all respondents, 79% report being dissatisfied with the quality of the data they collect about environmental sustainability".

According to the report, all respondents cite data-dependent uncertainty as the most significant obstacles to addressing environmental challenges. In addition, most respondents cited uncertainty on how to integrate sustainability into corporate processes and IT systems as the greatest barrier to sustainability action [9].

To comprehend the complexity of the data issue in environmental sustainability development, let's examine the packaging solution market presence of a single organization. UPM Raflatac is an example of a company that has integrated its sustainable strategy with the European Green Deal, launched the "The positive climate impact of -30 by 30" program, and aims to reduce the CO2 emissions of its supply chain by 30% by 2030.

Complexity of managing CO_2 impact and importance of data management is described in article "UPM requests emissions data from its over 20,000 suppliers" published by UPM Raflatac company. According to the article calculating the carbon footprint of a UPM product can take anywhere from a couple of weeks to several months and it is directly connected to complexity of the product. The more complex the product the more data is needed to understand all its environmental impacts which is often are indirect.

According to statistics compiled by UPM Raflatac, up to 70% of a company's carbon footprint is generated during the value chain. This is the case for many of UPM's businesses, so reducing emissions along the value chain in collaboration with our suppliers and partners is essential to achieving UPM's goal of zero net emissions.

Requesting and collecting carbon footprint data from its suppliers will give UPM a solid foundation for monitoring and reducing emissions in its value chain. The means

for reducing emissions are many, and the low-hanging fruit include energy and operational efficiency as well as technology-related improvements [10].

As demonstrated by the resources listed above, environmental sustainability management is crucial for organizations' future competitiveness. Adopting best practices and assuming a leadership role in a sustainable development is unquestionably required for the present and future economic success of Ukraine. To establish effective environmental sustainability management, organizations must collect, analyze, monitor, and share vast quantities of data from a variety of sources in collaboration with a large number of government and society partners. In this case, business intelligence (BI) comes into play. BI is a technology that facilitates data-driven decision making in a variety of industries and domains. There are already numerous instances in which business intelligence is used for environmental sustainability development.

Business intelligence definition and advantages. TABLEAU SOFTWARE, LLC determines business intelligence (BI) as combination of business analytics, data mining, data visualization, data tools and infrastructure, and best practices to help organizations make more data-driven decisions. Modern business intelligence is when you have an all-encompassing view of your organization's data and use it to drive change, eliminate inefficiencies, and quickly adapt to market and supply changes. Modern BI solutions prioritize adaptable self-service analysis, governed data on trusted platforms, empowered business users, and rapid insight delivery [11].

There are many providers of business intelligence platforms such as Microsoft (Power BI), IBM, Tableau, Oracle. The common trend is cloud-based business intelligence platforms.

The business intelligence platform is merely the system's programming component. In addition, performance metrics, descriptive analytics, statistical analysis, data visualization, visual analysis, and data management are essential components. A business intelligence solution is a very complex system that requires the work of numerous IT, business, and analytics professionals.

Existing companies offer pre-built business intelligence solutions that can be adapted to the needs of a specific customer or service utilized by numerous organizations, as well as the option to conduct one's own analysis and reporting within a pre-built business intelligence environment. Several of these instances associated with sustainability topics will be discussed below. Also, organizations may develop their own business intelligence solutions on existing platforms, but this requires a significant investment of time, money, and resources.

Examples of BI applications for environmental sustainability. There are already numerous instances in which business intelligence is used for environmental sustainability development.

IBM, for instance, provides Environmental Intelligence Suite, a business intelligence service that enables businesses to monitor, predict, gain insights, measure, and report their performance in environmental sustainability development [12].

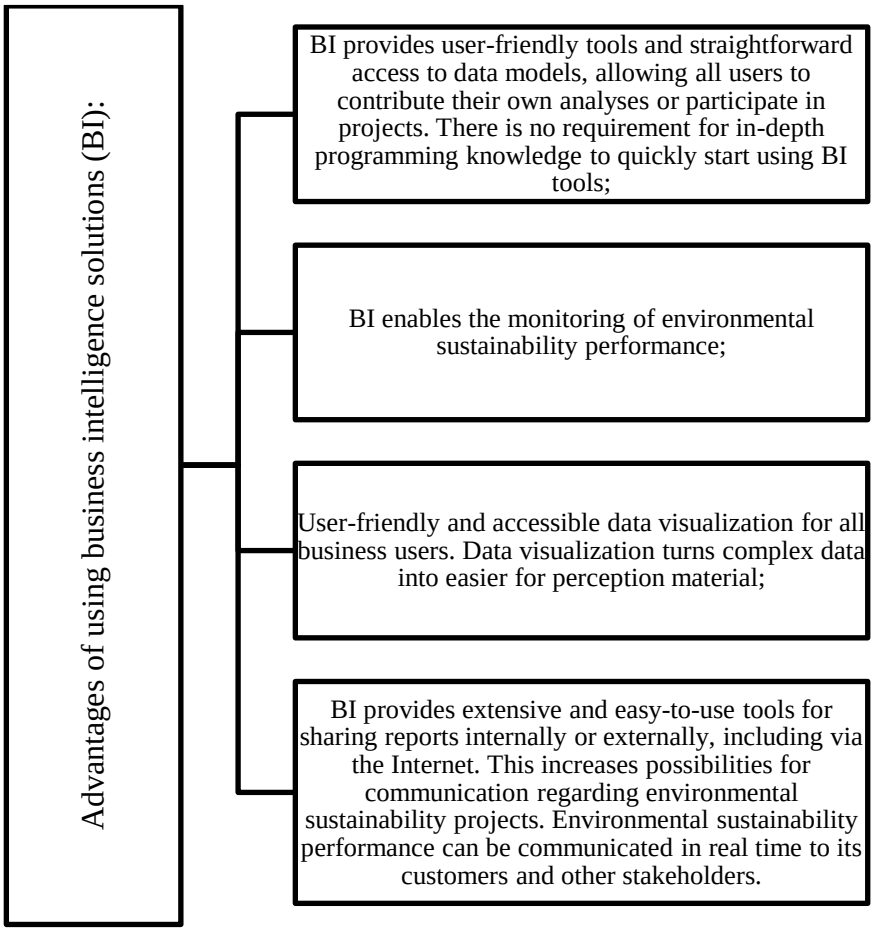

Figure 1. Advantages of using business intelligence solutions (BI)

Veolia Environnement S.A. (Veolia) is a French multinational environmental services firm that provides data-driven, sustainable solutions with Power BI and Azure. Water management, waste management, and energy services are the three principal service areas of the company. According to Veolia, its objective is to "resource the world" by assisting clients with their energy, water, and waste-related environmental and sustainability concerns. Veolia has been investing in Microsoft Power BI and Azure to centralize data in order to acquire insights that enable it to focus on client demands. Together with its clients, the company innovates and identifies chances to develop sustainable solutions with optimal reuse and low waste. Veolia has updated its presentation and its statistics in response to client input. The presentation uses the most recent Power BI capabilities, such as report tooltips to illustrate how customers' investments lessen their carbon impact, questions to assist users in exploring their data, and a bespoke "natural language infographic" to emphasize significant discoveries [13].

Saviant Energy Analytics Platform – SEAP, a real-time and predictive business intelligence platform for Water, Gas, and Electricity Utilities, is an additional intriguing example of the use of business intelligence in energy distribution. Using Azure Platform and the Cortana Analytics suite, the solution is the first and only analytics platform of its kind for utilities. The Saviant Energy Analytics Platform (SEAP) system assists businesses in energy conservation and consumer awareness. It

provides intelligent actions and insights based on existing data regarding energy distribution and consumption. According to the solution owner, it reduces Energy Distribution expenses by up to 20% over the following three to five years [14].

In a blog post, Isabel Gomez-Pineda Puebla (Agricultural Engineer) and Alvaro Adam (Environmental Engineer) from the Inter-American Development Bank (IDB) stated that the IDB made a commitment in 2015 to increase the number of projects aimed at mitigating climate change, which accounted for 16 percent of its portfolio in that year. By 2019, they accounted for thirty percent of the Bank's funding. Business intelligence provides a key opportunity for adequate project development and the efficient use of resources by utilizing data as a source for fostering knowledge-based technological solutions to problems such as climate change, biodiversity loss, water scarcity, resilient infrastructure, and urban overpopulation. In Latin America, for instance, a number of precision agricultural projects using the internet of things, artificial intelligence, and business intelligence are being studied with the goal of transforming agriculture into a science based on real-time data. These choices concentrate on collecting, processing, and analyzing vast quantities of environmental and crop data and combining them with farming techniques to produce solutions that support sustainable production [15].

Covered scenarios provide extensive opportunities for businesses and governments to apply business intelligence solutions to enhance the competitiveness of their economies, create environmental sustainability management, and collaborate with the progressive global community for the greater good.

Unfortunately, this topic has not yet been adequately developed in Ukraine, and in order to integrate into the progressive global community, Ukraine must rapidly embrace best practices in environmental sustainability development using business intelligence.

The following obstacles prevent Ukrainian businesses from implementing the most advanced business intelligence solutions for sustainable development (Figure 2):

- **Financial barriers.** During times of Russian aggression, investing in sustainability business intelligence solutions or subscribing to and implementing an existing solution, such as IBM's Environmental Intelligence Suite, is expensive for Ukrainian businesses.

- **Data barriers.** The accessibility of environmental sustainability data may also pose a problem, as data are frequently dispersed across a value chain, unstructured, represented in different formats, and unavailable in open sources. Absence of structured data not only reduces consumer awareness of environmental impact, but also impedes cooperation in business environments and between business and government in the development of environmental sustainability.

- **Environmental impact measurement.** Absence of environmental impact measurement and certification methodologies that are complex. The open certification system for goods and services will allow consumers (both individuals and businesses) to make environmentally responsible decisions based on data. Business intelligence could be used to evaluate the environmental impact of a product/service or company in a complex manner.

- **Return of investments.** Businesses in the middle of the value chain (mostly B2B businesses) have trouble communicating their environmental sustainability achievements to consumers and obtaining a satisfactory return on their investments in environmental sustainability development. Businesses will be motivated to implement environmental sustainability solutions if consumers are able to make decisions based on transparent and unbiased information about the environmental impact of products throughout the entire value chain.

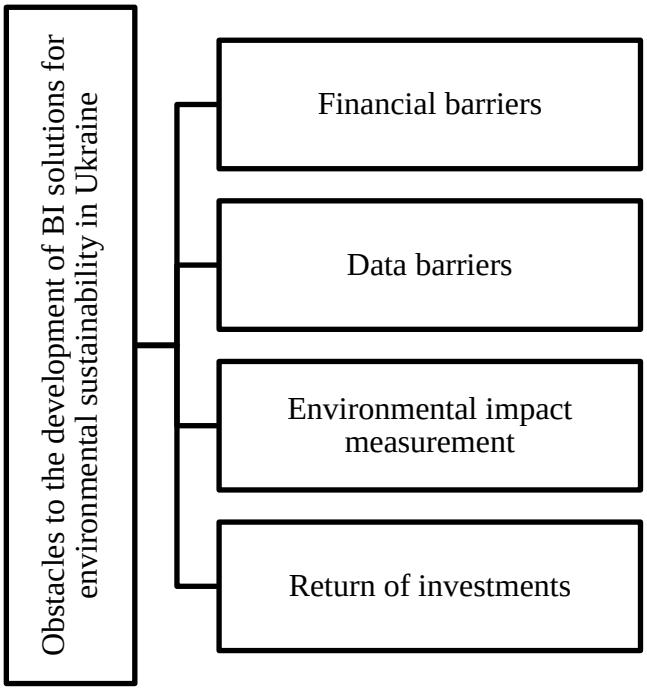

Figure 2. Obstacles to the development of BI solutions for environmental sustainability in Ukraine

Sourse: develop by author

Opportunities for cooperation between business and government in the development of environmental sustainability using BI. Listed below opportunities should be evaluated and expended in further studies. Among most important opportunities in using business intelligence for cooperation between business and government in the development of environmental sustainability we could name following:

- The government could provide businesses with a cloud-based software environment and a prebuilt framework for the development of a business intelligence system in the area of environmental sustainability, allowing businesses to monitor, predict, gain insights, measure, and report their performance in environmental sustainability development. This cloud-based business intelligence system could be free or partially free for most businesses that will be able to overcome financial obstacles. Government investment and leadership could help businesses take their first steps in environmental sustainability management. Government could apply for grants from international, European Union, and American institutions to cover initial expenditures.

- Creating a digital environmental passport for the company and product. Digital environmental product passports could include information regarding the environmental impact of the product (water consumption, CO2 emissions, energy consumption, percentage of recycled raw materials used, etc.), demonstrate the environmental impact of the product across the value chain, and include comparisons to similar products. This digital environmental passport could be accessible to the public and even via QR code on packaging. Using business intelligence systems, the consumer (population or business) will be able to compare different products based on important environmental metrics and find the most environmentally sustainable product. Digital environmental company passport could provide the public with a transparent view of a company's environmental impact and legally influence business decisions.

- Companies could publish and make publicly available reports on environmental sustainability development. It could aid environmentally responsible businesses in gaining market share, and such information from numerous businesses will be accessible through a single portal.

- Businesses may have the opportunity to analyze alternative raw materials/services on the market based on environmental metrics and reduce the environmental impact of their own products by employing more environmentally friendly materials/services.

- Country/local governments could publish interactive online maps and reports of air/water/land pollutions, indicating the main contributors to negative environmental impact. This would not only make environmental information accessible to the public, but it would also increase public pressure on businesses to develop environmental sustainability strategies. Using cloud-based business intelligence platforms will make real-time monitoring and reporting accessible to a broad audience.

- Cloud-based business intelligence platforms enable the creation of interactive maps that enable consumers (population and businesses) to obtain real-time information regarding locations/partners where they can recycle their waste. For households it could be specific waste such as old electronics, clothing, and batteries, and for businesses it could be the opportunity to find a recycling partner for production waste.

Discussion. Possible outcomes and benefits of utilizing business intelligence for government and business cooperation in environmental sustainability development should be thoroughly researched, but the following are among the most obvious:

- Boost environmental sustainability development within Ukrainian business.
- Society will have relevant information and awareness about environmentally sustainable development at local region, city, region, and country levels.
- Consumers will be able to make decisions based on real environmental impact data and not just marketing data supplied by businesses.
- Businesses will be able to communicate their environmental sustainability development to consumers and other businesses, thereby enhancing their competitive positions considering such developments.

- Enhance business-society collaboration on environmental sustainability development - Integrate environmental sustainability development practices into public procurement.

Conclusion. Currently, businesses and society in Ukraine are preoccupied with short-term survival strategies, a characteristic typical of wartime existence. However, for Ukraine's continuing development and integration into the European Union, it must pursue reform and implement sustainable development management across all sectors. Without employing effective methods of sustainable development management, it will be difficult for Ukrainian enterprises to succeed on the European market. The implementation of such a transformation requires a substantial amount of time, and the groundwork for it must be laid now so that the Ukrainian economy can be competitive with European economies within the next 5 to 10 years, especially given that European businesses are already several steps ahead in terms of sustainable development. To make up for this shortcoming, enterprises and government organizations in Ukraine should implement cutting-edge business intelligence innovations to manage sustainable development. State and foreign institutions should take the lead in this process and provide comprehensive support for the initiatives, as society and business in Ukraine typically lack the resources and strategic foresight to implement such innovations. Key factor of success in this field will be cooperation of government, international organizations and private business in Ukraine in building effective business intelligence environment for environmental sustainability development.

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ECONOMIC SECURITY SYSTEM MANAGEMENT OF TRAVEL INDUSTRY: MAKING MANAGEMENT DECISIONS IN CRISIS CONDITIONS

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Abstract. *Enterprises in the tourism industry quite often fall into crisis situations, as well as require the adoption of management decisions that negatively affect their economic security. The purpose of the article is to study the management of the system of economic security of economic entities enterprises of the tourism industry, as well as to determine the peculiarities of management decision-making in crisis conditions. The methodological basis of the conducted research was general scientific and specific research methods, namely: analysis and synthesis, visualization, systematization, logical presentation and generalization. The dynamism and change of factors affecting the functioning of enterprises, including the tourism industry, determine the expediency of forming the ability of the enterprise to respond promptly to various dangers, threats, risks of both the external and internal environment. The specified capacity of the enterprise should be provided by the economic security management system, in particular, taking into account anti-crisis management in it, which gives the enterprise additional advantages in the competitive struggle for achieving the strategic goal, the effectiveness of operational tasks. The level of economic security directly depends on the organizational and management model used by the top management of the enterprise. The modern business model of the enterprise must be able to predict the occurrence, implementation and impact of dangers, threats and risks, predicting the ability to neutralize catastrophic threats and eliminate material and non-material losses. The article proposes a general structural and logical scheme for making managerial decisions in the context of managing the economic security system in crisis conditions. The main tools of anti-crisis management of a tourist enterprise are systematized, namely: risk management in tourism; reengineering of business processes of a tourist enterprise; strategic management of a tourist enterprise; benchmarking in the context of anti-crisis management at a tourist enterprise; restructuring of the tourist enterprise; bankruptcy management (liquidation of the enterprise).*

Keywords*: enterprises of the tourism industry, economic security, anti-crisis management, risk, tools of anti-crisis management of a tourist enterprise.*

JEL Classification: D81, H56, L83

Formulas: 0; fig.: 2; tabl.: 0; bibl.: 14

Introduction. The functioning of enterprises in the modern market environment is characterized by the presence of such factors that can be defined as crisis conditions. The implementation of activities by business entities in crisis conditions implies the possibility of realizing danger, the threat of its transition from a stable state to a pre-crisis and crisis state. Taking into account the need to ensure the stability of the activities of enterprises, the proper level of their economic security, it is important and urgent to implement preventive measures in the economic security management system to prevent the realization of crisis conditions, a program of planned measures to overcome pre-crisis and crisis situations. The above, given the insufficient development of the problem, determined the relevance of the study.

An uncontrolled rise in the level of prices, which leads to a decrease in the purchasing power of consumers, a deterioration in the consumer sentiment of the population in conditions of uncertainty, riskiness, volatility of the exchange rate, etc., are among the prerequisites of economic threats, the impact of which can cause a crisis in the activities of enterprises. Preventing a state of crisis, bankruptcy, ensuring the effective operation of a business entity are important tasks that determine the main content of the management system at enterprises, which consists in the development of anti-crisis (stabilization) programs for ensuring economic security and making management decisions in pre-crisis and crisis conditions.

Literature review. The creation and functioning of the system of economic security of business entities are addressed in the works of such scientists as: Zhivko Z., Zakharov O., Liashenko O., Mihus I., Shemayeva L. and others [1-5].

In their works, I. Blank [6], M. Bryukhovetska, I. Buleev [7], L. Ligonenko [8], L. Sytnyk [9], A. Pushkar [10], A. Chernyavskyi [11], A. Shtangret [12] and others paid attention to the problems of enterprise management in crisis conditions.

Note that the conceptual apparatus of security, in particular, the definition of such categories as "economic security", "economic security of enterprises", "economic security of tourist enterprises", etc. is not unified and reflects the subjective opinion of scientists and specialists regarding the essence and content of these concepts, conditioning expediency of their review and revision.

At the same time, the scientific community has incompletely considered and worked out the problems of making managerial decisions in the context of managing the economic security system of the enterprise in pre-crisis and crisis conditions of operation.

The study of economic security in tourism enterprises facing crisis situations is quite new.

In view of the further development of the theory of economic security of business entities, it is urgent to review and unify both the essence of the economic categories mentioned above, as well as the improvement of methodological provisions regarding the management of the economic security system of the enterprise, taking into account the current state of methodological developments and practical tools.

Aims. The purpose of the article is to study the management of the system of economic security of economic entities, in particular, enterprises of the tourism industry, as well as to determine the peculiarities of management decision-making in crisis conditions.

Methods. The methodological basis of the conducted research was general scientific and specific research methods, namely: analysis and synthesis, visualization, systematization, logical presentation and generalization.

Result. Having analyzed the works of scientists and specialists [1–5], which became the theoretical and methodological basis for the study of the concept of "management of the system of economic security of an economic entity in crisis conditions", we came to the conclusion that under the definition of "economic security" the scientific world understands a system of ensuring stability of both the business entity at the local level and the national economy in general, which maintains its

integrity and ability to self-develop, despite adverse external and internal threats; with regard to the category "system of economic security", in general, this concept means a set of components (subsystems, etc.) of economic security of various subjects of economic activity: the state, legal entities (firms, enterprises, institutions, etc.), households and individuals.

Note that the enterprise's economic security system should usually work in two modes - normal and emergency. Under normal conditions, when there are no significant threats to the economic security of the enterprise, preventive work is carried out to prevent them, and the activities of all structural divisions of the service and the enterprise as a whole take place in a daily rhythm. In the event of a threat or a local problem at the enterprise, measures for its solution and elimination are carried out in a working order. Such traditional threats for domestic enterprises include: changes in current legislation; deterioration of the criminogenic situation in the country (region); appearance of unscrupulous competitors; changes in the dynamics of the company's development, caused by the adjustment of the strategy and tactics of economic activity, the emergence of new production technologies and access to new sales markets; change in the number of employees (high staff turnover, dismissal of highly qualified employees who possess valuable information and have access to commercial secrets, etc.); changing the list of data that make up the commercial secret and confidential information of the enterprise; improvement of the company's information network, etc.

In the event of emergency situations, there are threats with a high probability of causing damage to the enterprise. In such cases, a group of emergency situations (rapid response group) should work, which includes the most qualified and knowledgeable specialists with the involvement of employees from other units if necessary.

The effectiveness of management of the enterprise's economic security system is determined by one criterion - the absence or presence of material damages caused to it (their amount in monetary equivalent), moral damages. A reliable system of economic security of the enterprise is possible only if a systematic approach is used in its organization and management. This system provides an opportunity to assess the company's development prospects, develop its tactics and strategy, reduce the consequences of financial crises and the negative impact of new threats and dangers.

In general, anti-crisis management involves the implementation of such aspects (Fig. 1).

The successful functioning and development of tourist enterprises largely depends on effective management decisions to ensure their economic security. Enterprises in the tourism industry are particularly sensitive to changes in environmental factors, because their production and economic activity and labor products are characterized by specific features. As for threats to the security of the subjects of tourist activity, in the tourism sphere they can be defined as a concept that characterizes an action, process or phenomenon, as a result of which there is a possibility of reducing the competitiveness of a tourist product, which leads to a decrease in demand for it, failure to achieve the expected amount of profit or incurring losses by the enterprise [13].

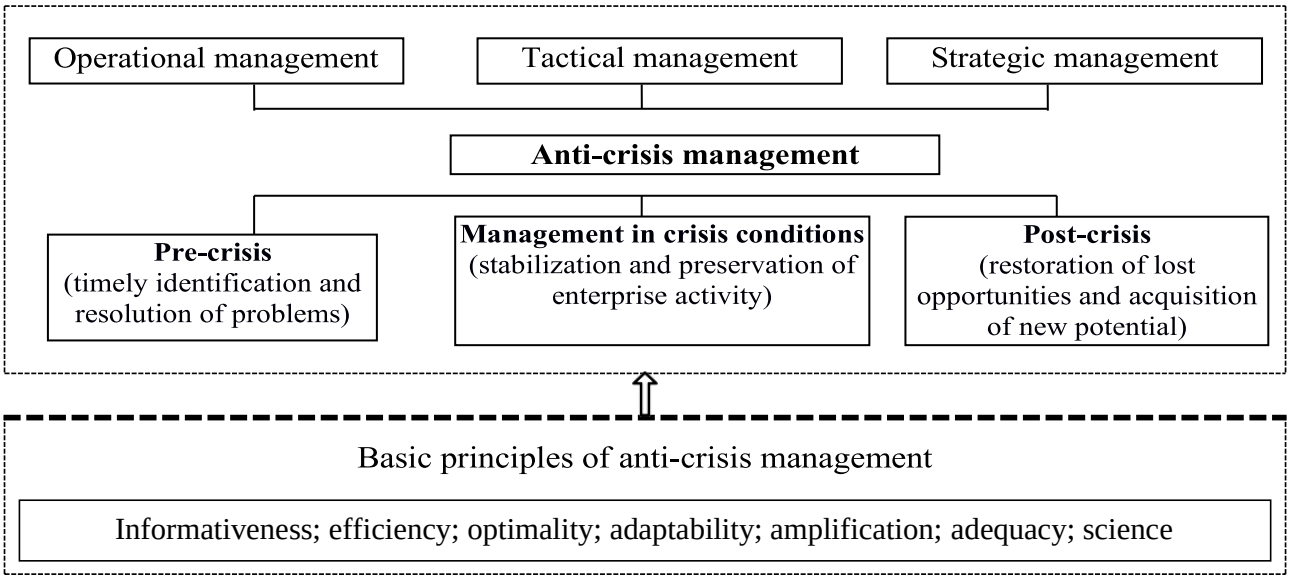

Figure 1. The general structural and logical scheme of the anti-crisis management of the enterprise

Source: compiled by the authors based on [12]

To improve the management of the system of economic security of economic entities, it is necessary to integrate the principles of anti-crisis management, the main ones of which are those whose definitions are formulated below on the basis of [14]:

- operational efficiency, which involves not only early diagnosis of crisis phenomena in the activity of a tourist enterprise, but also the urgency of responding to crisis phenomena, i.e., quick management decisions regarding the stabilization of the business entity's activity and the proper level of its economic security;
- adequacy – compliance of anti-crisis measures with the degree of threat to the economic security of the enterprise;
- informativeness, which involves collecting and analyzing the required amount of information;
- optimality – making objectively determined management decisions of anti-crisis management in the context of ensuring the appropriate level of economic security of the enterprise;
- adaptability – ensuring the ability of the economic system to adapt to the impact of destructive factors provoking the onset of a crisis and their impact on the enterprise's activities;
- amplification – application of such anti-crisis measures, the minor impact of which should lead to a strong effect;
- scientificity – taking scientific validity into account when developing anti-crisis measures and making management decisions.

In the modern conditions of integration processes, there is a need to develop, approve and implement a strategy for ensuring the economic security of the enterprise in the form of an appropriate program for the future; constant monitoring of real and potential security threats in order to identify them in a timely manner and develop measures to neutralize them.

Important from the point of view of ensuring the proper functionality of anti-crisis management in the system of economic security of the enterprise is the formalization of management decision-making, among the main components of which are diagnosis, decision-making, decision-making, implementation organization and control (Fig. 2).

One of the important characteristics of anti-crisis management is the correct determination of the person who chooses the decision (OOR) in each specific problem situation, which is a necessary condition for ensuring the effectiveness of management decisions on the economic security of the enterprise. In general, the following categories of individuals participate in the practice of management decision-making: owners; senior management; middle managers and other employees [15, p. 37].

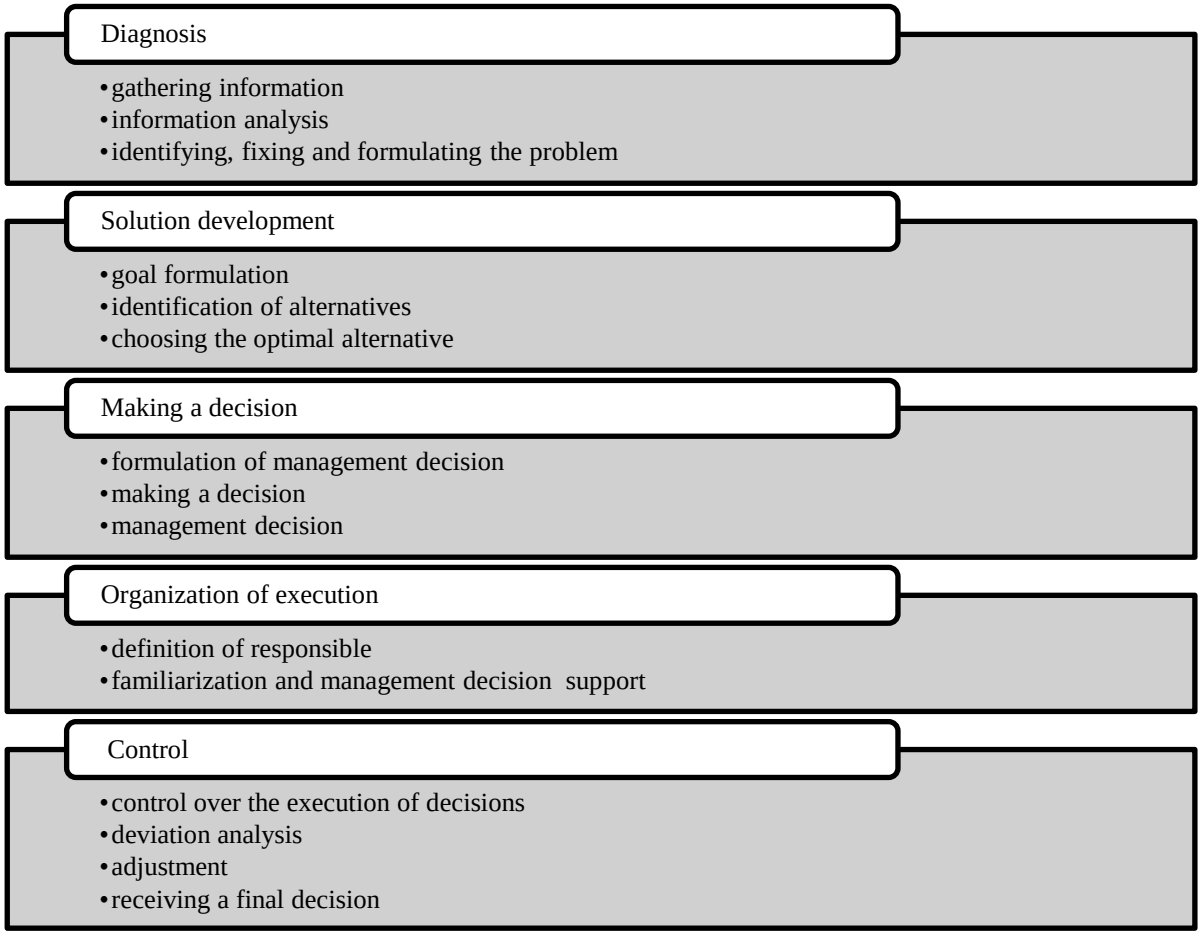

Figure 2. The general structural and logical scheme of management decision-making in the context of managing the economic security system in crisis conditions

Source: author's development

The main components of the toolkit of anti-crisis management of a tourist enterprise include: risk management in tourism; reengineering of business processes of a tourist enterprise; strategic management of a tourist enterprise; benchmarking in the context of anti-crisis management at a tourist enterprise; restructuring of the tourist enterprise; bankruptcy management (liquidation of the enterprise). Tools that are appropriate to use in the process of anti-crisis management of tourist enterprises can

exist as independent economic categories, while not necessarily related to the occurrence of crisis situations [14, c. 68].

Conclusions. The dynamism and change of factors affecting the functioning of economic entities determine the expediency of forming the enterprise's ability to respond promptly to various dangers, threats, risks of both external and internal environments. The specified capacity of the enterprise must be ensured by the economic security management system, by, in particular, taking into account anti-crisis management in it, which gives the business entity additional advantages in the competitive struggle to achieve the strategic goal, the performance of operational tasks.

The level of economic security of the enterprise directly depends on the organizational and management model used by the top management in the business entity's activities. The modern business model of the enterprise must be able to predict the occurrence, implementation and impact of dangers, threats and risks, providing for the ability to neutralize catastrophic threats and eliminate material and non-material losses.

In the future, we consider it necessary to improve the management mechanism, in particular, the anti-crisis system of the economic security of the enterprise in separate spheres of activity and to investigate the applied aspects of application, taking into account their features and directions of development.

Author contributions. The authors contributed equally.

Disclosure statement. The authors do not have any conflict of interest.

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