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CONTENTS

CONCEPTUAL DIMENSIONS OF ELECTRONIC GOVERNMENT AND ELECTRONIC GOVERNANCE IN THE DOMAIN OF DIGITAL DEMOCRACY

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ABSTRACT

Further development of the domain of electronic (digital) democracy, which represents the result of implementation of electronic government and electronic governance, and implies the smart use of digital tools, substantially depends on how correctly is defined their conceptual dimensions and determined their functional purposes. E-government and E-governance (as terms and concepts), known as multidimensional, multifaceted and multidisciplinary phenomenon, are often treated as synonymous and used interchangeably in the academic literature or formal documents. Therefore it is becoming increasingly difficult to set a common definition (Roy, 2003) or clear existing conceptual ambiguity between them. There is no universally accepted definition of both abstractions. Such conceptual uncertainty has a negative impact on the development of digital democracy. The research objective of this article is to provide a deeper understanding of e-government and e-governance concepts through empirical studies and scatter the existing ambiguity in differences between these two concepts as this variety is not just questions of academic nuance. Based on a comparative analysis of e-government and e-governance definitions and conceptual meanings, this article offers an approach according to which e-government and e-governance represents two various but closely related and co-existing concepts. Furthermore, in the concluding section of the article, there are suggested recommendations regarding development a new grand term or concept in which both multidimensional conceptual visions will be combined.

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Introduction. Since the late 1990s, society has witnessed an increasing interest in reforming the public sector by using information technology as a platform for communication with and providing services to citizens and businesses. Technological amplification has expended the involvement of information and communication technology in public sectors and enhanced governmental dependence on information systems. It is recognised in research that the public sector has been transformed into a networked, open and more flexible, informal and interactive governance structure.

This rapidly growing phenomenon, labelled as "e-government" and / or ''e-governance'', has been considered as an important managerial public reform over the past decade. Their development is often seen as a result of the emergence of an ideology in the public sector called New Public Management (Osborne, 2006).

Numerous factors have impacted and contributed to the growth and institutionalisation of e-government and e-governance. Generally. It is attributable to the need to respond to the particular pressures or challenges (including increasing budgetary pressures, rising expectations, growing inequality and declining public trust, e-commerce and etc.) facing governments in developed and developing countries (Hannah, 2010). The growth of e-government and e-governance in developing

countries have mainly been driven by external forces, notably the international financial institutions (such as the World Bank and the IMF) (infoDev, 2002; OECD, 2003; Heeks, 2002) and internal issues, primarily the demands for public safety and security within national borders have necessitated re-thinking on the role of digital facilities in the delivery of services to the public.

Many countries (including Georgia) are now developing, implementing, and improving their strategies to transform government services using information and communication technologies (ICTs). This transformation of services is referred to as e-Government, e-Governance, digital government, online government, or transformational government (Gupta et al., 2007)

E-government and e-governance are an area causing debates for the researchers to define them as they does not have a common meaning for all researchers and stakeholders (Seifert and Relyea, 2004; Yildiz, 2007).

A unified conceptual or grand vision, regarding e-government and e-governance, has not been achieved yet and the conceptual boundaries of both phenomenon are unclear. Moreover, it is uncertain whether e-government includes both internal and external aspects of public service, such as governance. Nonetheless, there are some commonly agreed notions including: government efficiency, effectiveness, empowering citizens, organization through access to information, strengthening levels of democracy, citizen participation, and transparency (Oyomno, 2004).

E-government and e-governance are a multidimensional, multidisciplinary and still immature field (Jaeger, 2003), therefore it is becoming increasingly difficult to set a common definition (Roy, 2003) or clear existing conceptual ambiguity between them. As they are a multidisciplinary field, therefore this involves a number of disciplines; such as, Information Systems (IS), Computer Science, Public Administration, and Political Science (Heeks and Bailur, 2007).

E-government and E-governance (as terms and as concepts) are often treated as synonymous and used interchangeably in the academic literature and formal documents. They provide definitions for e-government that encompass almost the same elements as those argued to be in the realm of e-governance. However, some researchers argue that there is a difference in the perspectives between the two (Saxena, 2005; Rossel and Finger, 2007; Collins, 2009; Misuraca and Viscusi, (2013); Larsson and Grönlund, 2014).

According to Giritli Nygren, (2009a), the concept e-government is moving at the boundaries between the public sector, new technology and changed administrative forms (Giritli Nygren, 2009b). Heeks (2006) defines e-government as "all use of information technology in the public sector". DeBenedictis et al. (2002) defines e-government as the use of primarily Internet-based information technology to enhance the accountability and performance of government activities.

Some scholars contend that e-government constitutes only a subset (though a major one) of e-governance - e-governance is a broader concept and includes the use of ICT by government and civil society to promote greater participation of citizens in the governance of political institutions, e.g., use of the Internet by politicians and political parties to elicit views from their constituencies in an efficient manner, or the publicizing of views by civil society organizations which are in conflict with the ruling powers (Howard, 2001; Bannister and Walsh, 2002).

Based on the activity, as stated by Perri (2004), e-government has been divided into four distinct areas, namely: e-democracy, e-service provision, e-management, and e-governance.

As Kim (2003) point outs, the models of e-government have progressed through four steps: bureaucracy, information management, citizen participation, and governance. Social diversity and maturity are significant factors to improve e-government. E-government is therefore not a product technology, but rather one of society, culture, and politics. Here are the four models of e-government:

(i) The bureaucracy model has the main policy goal of being focused on efficient administrative functions in government structure and individual sector;

(ii) The information management model is a linkage between government and citizens in terms of electronic public service:

(iii) The citizen participation model has positive and strong citizens' participation in policy decision through two-way interactions;

(iv) The governance model explains that various civil groups and citizens actively participate in all policy decision processes and express their opinions through the Internet.

Cook et al. (2002) and Snellen (2006) think that e-government encompasses all aspects of public service delivery and governance. Accordingly, e-governance is a much broader concept, as it encompasses the use of information communication technologies (ICT) in a state's institutional arrangements, decision-

making processes, and the implementation of all kinds of changes in relationships between the government and the public; e-government, on the other hand, seems to be essentially a subset of e-governance. Pina eí/í/ (2006) suggests that e-governance includes e-government (UNESCO 2011).

By Sheridan and Riley (2006), Grönlund and Horan (2005), Rossel and Finger (2007), As-Saber and Hossein (2008), and Jayashree and Martandan (2010) and Larsson and Grönlund (2014), e-governance is a broader, more encompassing concept that that deals with the whole spectrum of the relationship and networks within government regarding the usage and application of ICTs whereas e-government is limited to the development of online services. It involves not only public institutions but private ones as well. E-government is then more limited than e-governance and focuses on resource coordination and distribution in the public sector alone. Following Gjelstrup and Sørensen (2007).

Other scholars, such as Anttiroik (2007) describes e-government and e-governance as two completely different concepts. E-governance is a broader term comprising a range of relationships and networks in the government, related to the use and application of ICT. E-government is a more restricted area associated with the development of direct (online) services to citizens, paying greater attention to such government services as e-taxes, e-education or e-health. E-governance is a concept that defines the impact of technology on governance practices, the relationship between the government and the public, NGOs and private sector entities. E-governance covers the entire range of government steps develop and administrate, and to ensure successful implementation of e-government services offered to the public. The original idea of e-government has been attributed to the public's need for access to the government decisions and documents via electronic means, later appeared the need of public electronic services, and finally – a search of opportunities to participate in the decision making process, to consult with the government institutions.

Grönlund and Horan (2005) also pointed out the difference between Electronic Government referring to what is happening within government, and Electronic Governance (EGOV) referring to the whole system involved in managing the society. Similarly, "e-Governance comprises the use of information and communication technologies (ICTs) to support public services, government administration, democratic processes, and relationships among citizens, civil society, the private sector, and the state" (Dawes, 2008).

Estevez and Janowski (2013) put forward their own definition of Electronic Governance (EGOV): Electronic Governance is the application of technology by government to transform itself and its interactions with customers, in order to create impact on the society with the former referring to the process of sharing and reorganizing of power across all stakeholders and the citizenry while the latter is more focused on public service delivery. It is possible to perceive the concept of e-government and e-governance very differently depending on their focus (Yildiz, 2007).

Existing conceptual uncertainty in substantive contents of e-government and e-governance is illustrated in following contradictory academic views:

(i) E-government has been classified in terms of activities and delivering models into four categories: Government to Business, (G2B), Government to Citizen (G2C), Government to Employee (G2E), and Government to Government (G2G) (Carter and Belanger, 2004). This classification of e-government is similar to Business to Business (B2B), Business to Consumer (B2C), and Consumer to Consumer (C2C) classification of e-commerce. Further, e-government phenomenon shares some common characteristics of private sector's e-commerce system, such as service delivery, applications, and their organizational impacts (Scholl, 2006);

(ii) Based on interactions, divides e-government into three categories, namely: government and business (GnB), government and citizen (GnC), and government and government (GnG), which are further divided into government to business (G2B) and business to government (B2G), government to citizen (G2C) and citizen to government (C2G), and government to government (G2G) nationally and internationally respectively (Ghayur, 2006);

(iii) E-Governance is the application of Information and Communication Technology (ICT) for delivering Government Services, exchange of information, communication transactions, integration various standalone systems and services between Government and Citizens (G2C), Government and Business (G2B) as well as back office processes and interactions within the entire Government frame work (Saugata and Rashel, 2007);

(iv) Some digital interaction tools (G2G, G2C, G2B, G2SC, C2C) is discussed as of e-government or e-governance or e-administration: Government -to-Government (G2G) – belongs to definition of e-administration (example: establishing and using a common data warehouse; Government-

to-Citizen (G2C) – belongs to definition of e-government (example: government organization Web Sites, E-mail communication between citizens and government officials); Government-to-Business (G2B) – belongs to definition of e-government, e-commerce, e--collaboration) (example: Posting government bids on the Web, e-procurement, e-partnerships); Government-to-Civil Society Organisations (G2SC) – belongs to definition of e-governance (example: electronic communications and coordination efforts after disaster); Citizen-to-Citizen (C2C) - belongs to definition of e-governance (example: electronic discussion groups on civic issues) Yildiz (2007).

It is clear that considerable confusion exists in explaining e-government and e-governance domains. Follow this, we attempt to resolve such ambiguity and come up with non-overlapping understanding of both phenomenon by reviewing and analyzing existing conceptual framework that provides details and establishes relationships of key variables or similarities.

Clearing Ambiguity between E-government and E-governance

E-government and E-governance Terms Components

Putting an "E" as a prefix to both concepts of government and governance refers to governing with the help of electronic tools. The "E" part of both e-government and e-governance stands for the electronic platform or infrastructure that enables and supports the networking of public policy development and deployment (Sheridan and Riley, 2006).

Government is an institutional superstructure that society uses to translate politics into policies and legislation. Governments are specialised institutions that contribute to governance. Governments are bureaucratically organized and constitutionally legitimated. They serve as both the highest forum for policy making within their jurisdictions, and as the final court of appeal within their jurisdictions for dissenters to those policies. Most of the work of governments consists of actually implementing policies through service delivering programs. Individuals and groups assess governmental performance in terms of their own perception. Governments often face the need to rationalize discrepancies amongst people's desires to achieve their own ends (Godse and Garg, 2011).

There is no single definition of the term "governance" that most researchers would agree on (Jordan et al., 2005; Löfgren, 2007). The term contains a lot of meanings. Bekkers et al. (2007) argue that governance is understood as that public administration is not one entity. It is made up of several actors, that other actors apart from the public try to influence societal development and that the public administration acts in policy networks where power, resources and strategy are important components (Bekkers et al., 2007). von Bergmann-Winberg and Wihlborg (2011) define governance as "steering in cooperation, and the network governance that is characteristic of modern societies".

Governance is the outcome of the interaction of government, the public service, and citizens throughout the political process, policy development, program design, and service delivery. The institution of government involves a narrower range of considerations than the wider functions of governance. Governance is distinct from government as it concerns longer-term processes rather than immediate decisions. Governance is a set of continuous processes that usually evolve slowly with use unlike government. The governance focuses on processes instead of decisions. Governance takes the larger view of social objectives, so it involves the coordination of efforts rather than the implementation of specific programs. This is the systemic perspective as opposed to a focus on the individual practice, or player, or process. The "bottom line" for governance is outcomes rather than the outputs of government (Godse and Garg, 2011).

Definitions/Conceptual Meanings of E-government.

The concept is currently still without a universally agreed standard definition. Egovernment definitions vary according to different types of perspectives, such as technological, political, business, citizen, process, and government function (Tambouris, 2001; Seifert and Petersen, 2002; Jain, 2002; Weerakkody and Dhillon, 2008; Irani et al., 2006; Halchin, 2004).

The concepts of e-government differ among international agencies, governments, scholars, and so forth (Tab. 1). As a result, we have diversity of e-government definitions in various perspectives:

(i) Information technology (technical) perspective is indicated in definitions given by UNPAN (2011) and Scholl (2003) - "Electronic government is the use of Information Technology to support government operations, engage citizens, and provide government services";

(ii) Government Process is underlined in definitions offered by World Bank (2010) and Kasubien et al. (2007) – "E-government "is a sophisticated process based on using information and communication technologies with different kind of services as result designated for satisfying stakeholders needs";

(iii) Government Benefits focused definition is proposed by Ke and Wei (2004);

(iv) Citizens‟ focus represents main characteristics of the definition suggested by Burn and Robins (2003) - "E-government as seamless service delivery to citizens or governments‟ efforts to provide citizens with the information and services they need by using a range of technological solutions";

(v) Political point is future of the definition by Dada (2006) - "To use technology to achieve levels of improvement in various areas of government, transforming the nature of politics and relations between the government and citizens."

Table 1. Definitions/Conceptual Meanings of E-government

Definitions / Conceptual Meanings of E-government
"E-government has been employed to mean everything from 'online government services'' to 'exchange of information and services electronically with citizens, businesses, and other arms of government. E-government can thus be defined as the use of ICTs to more effectively and efficiently deliver government services to citizens and businesses. It is the application of ICT in government operations, achieving public ends by digital means. The underlying principle of e-government, supported by an effective e-governance institutional framework, is to improve the internal workings of the public sector by reducing financial costs and transaction times so as to better integrate work flows and processes and enable effective resource utilization across the various public sector agencies aiming for sustainable solutions. Through innovation and e-government, governments around the world can be more efficient, provide better services, respond to the demands of citizens for transparency and accountability, be more inclusive and thus restore the trust of citizens in their governments." United Nations
"E-government is defined as utilizing the Internet and the world-wide-web for delivering government information and services to citizens." United Nations (AOEMA report)
"E-Government" refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions." World Bank
"e-Government refers to efforts by public authorities to use information and communication technologies (ICTs) to improve public services and increase democratic participation. E-Government aims to improve government efficiency through the reduced cost of electronic information management and communications, the reorganization of government agencies and the reduction of administrative silos of information." EU Parliament
"The term "e-government" focuses on the use of new information and communication technologies (ICTs) by governments as applied to the full range of government functions. In particular, the networking potential offered by the Internet and related technologies has the potential to transform the structures and operation of government." OECD
"E-government is the use of information and communication technologies (ICTs) to promote more efficient and effective government, facilitate more accessible government services, allow greater public access to information, and make government more accountable to citizens. E-government might involve delivering services via the Internet, telephone, community centers (self-service or facilitated by others), wireless devices or other communications systems." Working Group on E-government in the Developing World
…"electronic Government' means the use by the Government of web-based Internet applications and other information technologies, combined with processes that implement these technologies, to - ''(A) enhance the access to and delivery of Government information and services to the public, other agencies, and other Government entities; or ''(B) bring about improvements in Government operations that may include effectiveness, efficiency, service quality, or transformation; information and services to the public, other agencies, and other Government entities." United States of America

Continuation of table 1.

"This term can be defined as the use of ICTs to more effectively and efficiently deliver government services to citizens and businesses. It is the application of ICT in government operations, achieving public ends by digital means. The use of or application of information technologies (such as Internet and intranet systems) to government activities and processes in order to facilitate the flow of information from government to its citizens, from citizens to government and within government. Refers to the use of new information and communication technologies (ICTs) by governments as applied to the full range of government functions." IGI Global
…"the continuous optimization of service delivery, constituency participation, and governance by transforming internal and external relationships through technology, the Internet and new media." Gartner Group (2000)
"Electronic government (hereafter e-Government) refers to a situation in which administrative, legislative and judicial agencies (including both central and local governments) digitize their internal and external operations and utilize networked systems efficiently to realize better quality in the provision of public services." (Bashar, Rezaul and Grout, 2011)
"e-Government implies the implementation of information and communication technology like internet, to improve government activities and process, with the aim of increasing efficiency, transparency, and citizen involvement. On the other hand. e-Government may be defined as the integration of information and communication technology, in public administration, i.e. to various government processes, operations, and structures with the purpose of enhancing transparency, efficiency, accountability and citizen participation. It facilitates: Greater level of efficiency and effectiveness in government activities and process. Enhances quality of public services; Simplifies administrative processes; Improves access to information; Increases communication between various government agencies; Strengthen support to public policy; Enables seamless government." Key differences (2017)
"E-government can be defined as the use of Internet-based information technology to enhance the accountability and performance of government activities. These activities include government's activities execution, especially services delivery; access to government information and processes; and citizens' and organizations' participation in government". DeBenedictis et al., (2002)
"The electronic provision of information and services by governments, 24 hours a day, 7 days a week." Norris and Moon (2005)
"The use of information technology within government to achieve more efficient operations, better quality of service, and easy public access to government information and services." Kraemer and King, (2003)
"The entire range of government roles and activities, shaped by and making use of information and communications technologies." Brown (2005)
"The uses of information technology to support operations, engage citizens, and provide government services." Cook, Lavigne, Pagano, Dawes and Pardo (2002)
…"is defined e-government as a way for governments to use the most innovative information and communication technologies, particularly web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes." Fang (2002)
…"e-government involves the use of ICTs to support government operations and provide government services." Fraga (2002)
..."e-government goes even further and aims to fundamentally transform the production processes in which public services are generated and delivered, thereby transforming the entire range of relationships of public bodies with citizens, businesses and other governments." Leitner (2003)
"E-government services as the use of ICT to enable and improve the efficiency of government services provided to citizens, employees, businesses, and agencies." Carter and Belanger (2005)

As Homburg (2008) outlines, e-government is hence multifaceted and has been implemented in a variety of forms and shapes, further complicating the process of trying to determine a single, universal meaning.

E-government, characterised as a multifaceted concept, has different meanings to different constituents (Gauld and Goldfinch, 2006): for politicians e-government plays role an engine for reform and to meet the aspirations of new public management; for the general public, e-government is viewed as a source of greater information and influence on government; for the bureaucrats, e-government is viewed as a managerial tool to improve their service delivery.

E-government is perceived differently in connection with its theoretical background. According to Garson (1999), e-government is conceptualised within four theoretical frameworks. The first framework involves the potential of IT in decentralization and democratization. The second normative/ dystopian framework underlines the limitations and contradictions of technology. Third, the sociotechnical systems approach emphasizes the continuous and two-way interaction of the technology and the organizational–institutional environment. The fourth framework places e-government within theories of global integration.

E-government has been discussed in different aspects: in the context of technology (Zhiyuan, 2002); from a service delivery perspective (Norris and Moon 2005); from a citizen-centric perspective (Roy, 2007); from a functional perspective (Selfert and Petersen, 2002); from a social fabric perspective (Brown, 2005); and from a radical change perspective (Kraemer and King 2008).

E-government concept is generally based on three main viewpoints:

(i) Technical determinism is focused on technology. It is limited by the criteria of technical determinism and by the development of information technology to minimize the concept of e-government;

(ii) Social determinism is focused on restructuring the public service by improving the management procedure to support efficiently the introduction of information technology;

(iii) The means for economic development is traditionally defined by improved recognition of strategic means. That is, e-government is the concept to recover national competitiveness and economic activation based on developing the pioneering information industry by supporting directly and indirectly the information communication industry with supply distribution and network infrastructures (NCA, 1996, 1997).

The initial objective of e-government was to increase governmental efficiency. In modern society, the ideal purpose of e-government has become realising democracy and assuring human life. Due to the advancement of information technology and the increased participation by citizens, the new concept of e-government has focused on efficiency as well as democracy. This trend has placed an emphasis on democracy and participation leading to the development of e-democracy (Fuchs and Kase, 2000; Norris, 2001).

From the above motioned definitions it is clear that the role of e-government is to enhance access to information, offer effective delivery of services, offer reduction in paper work, and offer transparency in service delivery to the citizens using advance ICT.

E-government is considered to follow in the footsteps of NPM and refers to the governmental bodies´ use of tools and systems made possible by ICT that affect the organisation of public administration. It aims to provide improved internal efficiency as well as better public services to citizens and businesses.

Definitions/Conceptual Meanings of E-governance

Just as there are many conceptual views of governance, there are many conceptual approaches of e-governance (Godse and Garg, 2011) (Tab. 2). Although they do not always run inline, generally e-governance refers to the ICT-based networks of services and administration in NPM settings including both public and private actors.

Depending on the particular conditions and governance requirements or activities, Halachmi (2007) suggests five important models of e-governance:

(i) The Broadcasting Model of dissemination of useful governance information to have informed citizenry;

(ii) The Critical Flow Model of routing information of critical value to the targeted audience;

(iii) The Comparative Analysis Model of assimilation of best practices in the field of governance for developing countries to empower their people;

(iv) The E-Advocacy/ Mobilisation and Lobbying Model of adding the opinions of virtual communities so that the global civil society can have an impact on global decision-making processes;

(v) The Interactive-Service Model of individuals' direct participation in governance processes to bring in greater objectivity and transparency in decision-making processes.

Table 2. Definitions / Conceptual Meanings of E-governance

Definitions / Conceptual Meanings of E-governance
"E-governance is about the use of information technology to raise the quality of the services governments deliver to citizens and businesses. It is hoped that it will also reinforce the connection between public officials and communities thereby leading to a stronger, more accountable and inclusive democracy." Council of Europe
"E-governance is the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective. E-governance involves new styles of leadership, new ways of debating and deciding policy and investment, new ways of accessing education, new ways of listening to citizens and new ways of organizing and delivering information and services. E-governance is generally considered as a wider concept than e-government, since it can bring about a change in the way citizens relate to governments and to each other. E-governance can bring forth new concepts of citizenship, both in terms of citizen needs and responsibilities. Its objective is to engage, enable and empower the citizen." UNESCO
"Electronic governance (e-governance) applications are related to both the usage of technology and citizen participation in politics. "Electronic" indicates the technological capacities of our age and "governance" is a new perspective in government paradigm. Innovations in both technology and perspective create new understandings for governing such as "governing with people." ÖKTEM, DEMİRHAN (2004)
…"meaning 'electronic governance' is using information and communication technologies (ICTs) at various levels of the government and the public sector and beyond, for the purpose of enhancing Governance." Bedi, Singh and Srivastava (2001), Holmes (2001), Okot-Uma (2000)
"Governance implies the processes and institutions, both formal and informal, that guide and restrain the collective activities of a group. Government is the subset that acts with authority and creates formal obligations. Governance need not necessarily be conducted exclusively by governments. Private firms, associations of firms, nongovernmental organizations (NGOs), and associations of NGOs all engage in it, often in association with governmental bodies, to create governance; sometimes without governmental authority." Keohane and Nye (2000)
"E-democracy builds on e-governance and focuses on the actions and innovations enabled by ICTs combined with higher levels of democratic motivation and intent." Clift (2003)
"E-governance is defined as the, "application of electronic means in (1) the interaction between government and citizens and government and businesses, as well as (2) in internal government operations to simplify and improve democratic, government and business aspects of Governance." Backus (2001)
"Electronic Governance is the application of Information and Communication Technologies (ICTs) for delivering government services through integration of various stand-alone systems between Government-to-Citizens (G2C), Government-to-Business (G2B), and Government-to-Government (G2G) services. It is often linked with back office processes and interactions within the entire government framework. Through e-Governance, the government services are made available to the citizens in a convenient, efficient, and transparent manner." IGI Global
"A technology mediated service that facilitates a transformation in the relationship between government and citizen." Oakley (2002)
"The commitment to utilize appropriate technology for a variety of ends including greater democracy and fair and efficient services." Riley (2001) cited by Saxena (2003)
"Propose a framework for differentiating between e-government and e-governance. In their model, e-governance is concerned with internally focused use of ICT or manage organizational resources and administer policies and procedures; e-government is outward and citizen directed." Palvia and Sharma (2007)
…"deals with the whole spectrum of the relationship and networks within government regarding the usage and application of lCTs." Sheridan and Riley (2010)
"The use of ICT to improve the quality of services and governance." Chen and Hsish (2009)

Continuation of table 2.

... "a technology-mediated relationship between citizens and their governments from the perspective of potential electronic deliberation over civic communication, over policy evolution and in democratic expressions of citizen." Marche and McNiven (2003)
"ICTs provide interactive communication channels, which are important in the transformation of the current governing process to a governing process that is open to the collaboration and deliberation of different actors in the processes of service provision and information delivery." Dawes (2008), Potnis (2009)
"E-governance refers to the use of ICTs to reach the aims related to governance. Governance can be explained in terms of its main components. These components are participation, transparency and accountability, information and service delivery, and communication and interaction in governing processes." Pina et al., (2007), Sandoval-Almazan and Gil-Garcia (2012)
"E-governance is related to the use of information and communication technologies in policymaking, legitimating, auditing, accounting of government application, providing transparency and accountability of governments, and service delivery." Lean, Zailani, Ramayah, and Fernando (2009), Yildiz (2007)
"A form of e-business in governance comprising of process and structures involved in deliverance of electronic service to the public, viz. citizens." Prabha (2004)
"The impact [from e-government interactions] on government, public service and citizens throughout the political process, policy development, program design and service delivery." Kettl (2002)
"A technology mediated service that facilitates a transformation in the relationship between government and citizen." Oakley (2002)
…" defines e-government as the use of ICT to improve the process of government.In a narrow sense it is sometimes defined as citizen's services, re-engineering with technology, or procurement over Internet." Gordon (2002), Signore et al. (2005)
…"e-government denotes the use of information technologies and the Internet for better delivery government services to citizens. It denotes also a more efficient management and improvement of interactions between government and citizens." Spremić et al. (2009)
…" interactions between economic, political and social actors. Indeed e-government allows businesses to transact with each other more efficiently (B2B) and brings customers closer to businesses (B2C). Also, e-government enable links between government and citizens (G2C), government and businesses enterprises (G2B) and interagency relationships (G2G)." Marthandan and Tang (2010)
"E-governance is a concept larger than the concept of e-government since it can bring about a change in the way how citizens relate to government and to each other." Signore et al. (2005)
…"e-Governance means governing or administering a country/state or organization, with the help of information and communication technology. Electronic governance, shortly known as e-governance refers to the utilization of information and communication technology (ICT) for providing government services, disseminating information, communication activities, and incorporation of miscellaneous stand alone system and services between different models, processes and interaction within the overall structure. E-governance is a tool, that makes available various government services to citizens in a convenient way, such as: Better provision of government services; Improved interaction with different groups; Citizen empowerment through access to information; Efficient government management." Key differences (2017)
..."e-governance is focused on the democratic processes." Margolis and Moreno-Riano (2010)
…"e-governance is the use of information and communication technologies in public administration in order to improve the information and public service, encouraging the citizens' participation in the decision-making processes and making the government more accountable, transparent and effective." Budd and Harris (2009)

The common theme behind these definitions / conceptual views is that e-governance involves the automation or computerization of existing paper-based procedures that will prompt new styles of leadership, new ways of debating and deciding strategies, new ways of transacting.

Conclusions. In this work, we have set a goal to find out whether e-government and e-governance are various or multifarious concepts and scatter the existing ambiguity in differences between these two concepts, as this variety is not just questions of academic nuance.

A comparative analysis of e-government and e-governance reveals that discussed concepts have to be considered as two distinct (Tab 3). but co-existing abstractions (Sheridan and Riley, 2010) based on following main strategic pillars: e-government is a system whereas e-governance is a functionality; e-government is a one-way communication protocol. On the contrary, e-governance is a two-way communication protocol (Kafle, 2018).

Table 3. Deference between E-government and E-governance (Mazimpaka and Andersson, 2019)

	E-government	**E-governance**
Terminology	A narrower discipline dealing with the development of online services to the citizen (government services)	A wider concept that defines and assesses the impacts technologies are having on practice and administration of governments and the relationships between public servants and the wider society
Approach	An institutional approach to political operations	Procedural approach to co-operative administrative relations
Goals/Directions	Short term goals and immediate decision	Long term goal and strategy
Functionality	Electronic service delivery	Electronic Consultation, efficiency and effective service
Process	Electronic workflow and voting	Electronic controllership and engagement by setting policy and regulations

E-government has to be considered as an institutional approach to jurisdictional political operations and a narrower discipline dealing with the development of online services to the citizen, more the e on any particular government service – such as e-tax, e-transportation or e-health, such as not for profits organizations, NGOs or private sector corporate entities.

E-governance has to be determined as a procedural approach - co-operative administrative relations - the encompassing of basic and standard procedures within the confines of public administration. It is the latter acts as the lynchpin that will ensure success of the delivery of e-services. E-governance is a wider concept that defines and assesses the impacts technologies are having on the practice and administration of governments and the relationships between public servants and the wider society, such as dealings with the elected bodies or outside groups. E-governance encompasses a series of necessary steps for government agencies to develop and administer to ensure successful implementation of e-government services to the public at large. The differences between these two important constructs are explored further in this essay.

It was indicated that e-government and e-governance are often used interchangeably as synonyms which has a negative effect on the development and implementation of strategies related to each concept. To avoid the negative consequences arising from such uncertainty, there is an objective need to develop new grand term or concept (for instance "Electronic Government/Governance" - "E-G/G" or "E-2G") in which both multidimensional, multifaceted and multidisciplinary conceptual views (including their digital interactive tools) will be combined (Tab. 4). Such an innovative approach will provide us with an opportunity to define, analyze and implement them as a unified phenomenon.

Table 4. Electronic Government/Governance" - "E-G/G" or "E-2G" Digital Interaction Tools

Electronic Government/Governance" - "E-G/G" or "E-2G" Digital Interaction Tools	
Digital interaction tools of e-government and e-governance	**Definition**
Government -to-Government (G2G)	Belongs to definition of e-government, e-administration
Government-to-Citizen (G2C)	Belongs to definition of e-government
Government-to-Business (G2B)	Belongs to definition of e-government, e-commerce, e-collaboration
Government-to-Civil Society Organisations (G2SC)	Belongs to definition of e-governance
Citizen-to-Citizen (C2C)	Belongs to definition of e-governance

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ОПЫТ ФРАНЦИИ В СОВЕРШЕНСТВОВАНИИ КАЗНАЧЕЙСКОЙ ИНФОРМАЦИОННОЙ СИСТЕМЫ В УСЛОВИЯХ ВНЕДРЕНИЯ ЦИФРОВОЙ ЭКОНОМИКИ В РЕСПУБЛИКЕ УЗБЕКИСТАН

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ABSTRACT

This article discusses the need to introduce foreign experience in the field of the information system of the treasury of the Republic of Uzbekistan. The advantages of introducing foreign experience in the context of the introduction of the digital economy are noted. Questions about the shortcomings of the current state of the information system in the treasury are considered, as well as a number of reasons hindering the development of this area. Based on the analysis of the experience of foreign countries, especially the experience of France, a number of proposals are given by the co-authors to introduce a new mechanism for the operation of the treasury information system in the Republic of Uzbekistan in the context of the introduction of the digital economy. The digital economy is changing our socio-economic development of society in an unprecedented way, while creating both huge opportunities. New technologies can make an enormous contribution to the achievement of a country's sustainable economic development goals. However, obtaining positive results requires studying foreign experience. In order to unlock the full socio-economic potential of digital technologies, while avoiding undesirable consequences, it is necessary to strengthen international cooperation as soon as possible.

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Введение. Важной предпосылкой развития общества является правильная политика в финансовом, бюджетном, налоговом и банковском секторах. Система казначейства, используемая при исполнении государственного бюджета, представляет собой совокупность организационно-правовых отношений, направленных на эффективное управление доходами и расходами государственного бюджета в соответствии с приоритетами государственной политики. Эти вопросы находятся в центре реформ управления государственными финансами в Узбекистане, поскольку они охватывают вопросы, связанные с исполнением доходов и расходов государственного бюджета. В нынешних условиях реформ в стране важно сосредоточиться на совершенствование казначейской информационной системы, развитие электронного

документооборота и эффективном использование международного опыта в этой области. Бюджет отражает все финансовые ресурсы, необходимые государству, и в то же время определяет приоритеты фискальной политики страны. Развитие каждого государства напрямую зависит от таких факторов, как рациональное использование государственных финансовых ресурсов.

В частности, Казначейство является органом, ответственным за финансовую политику и управление экономикой страны. Ему поручено усилить контроль за целевым использованием государственных средств в системе экономических отношений и направить средства на реализацию социальной политики. Следует отметить, что многие экономически развитые страны, такие как США, Австралия, Израиль, Канада, Новая Зеландия и Франция, осуществляют исполнение бюджета через систему казначейства.

Основная причина этого заключается в том, что казначейство резко сократит использование бюджетных средств. Временные сбои наличности в казначейской системе будут устранены, и все первичные платежные документы будут находиться в руках казначейства. В результате обеспечивается максимальная прозрачность бюджета, качество и скорость анализа.

Улучшение работы по организации государственного бюджета не может быть достигнуто без казначейской системы. Это связано с тем, что казначейская система позволяет собирать доходы и расходы бюджета в одной руке. Казначейство управляет государственным долгом и контролирует движение денежных средств. Например, в Канаде осуществление процесса право установления по организации расходной части кассового обслуживания исполнения бюджета возложено на Совет казначейства, возглавляемый его Президентом, который входит в состав Кабинета министров. Министр финансов по должности является вице-Президентом Совета казначейства; в состав Совета казначейства также входят еще пять членов Правительства. Как правило, они возглавляют те министерства, которые имеют наибольший удельный вес в расходах федерального бюджета [3]. Совет казначейства Канады является органом, который разрабатывает политику управления государственной службой в целом, отвечает за вопросы контроля над деятельностью федеральных ведомств, прежде всего, финансового, получает и анализирует ежегодную отчетность федеральных ведомств, разрабатывает методические указания по ее составлению, рассматривает проекты бюджетов федеральных ведомств.

Материалы и методы. В мировой практике существуют банковские, казначейские и смешанные системы исполнения государственного бюджета, среди которых казначейская система признана наиболее эффективной формой, и она широко используется в мире, а также по исполнению бюджета система казначейства в зарубежных странах используется не одинаково. Функции органов казначейства варьируются по-разному на разных этапах. Основными функциями казначейской системы в управление финансовыми операциями со стороны государства являются управление государственными финансами, исполнение бюджета, учет, контроль и оценка. Например, во Франции государственное казначейство регулирует управление и учет государственных финансов средств [7]. Оно управляет государственными обязательствами, привлекает внутренние и внешние средства, ведет их счета и готовит ежегодный отчет о государственном долге [6]. Казначейское исполнение государственного бюджета обеспечивает привлечение и расходование бюджетных средств государственным органам или специализированным исполнительным органом, регулирует сроки исполнения и объем бюджетных обязательств по Единому счету казначейства и бюджетных обязательств бюджетных организаций по специальным полномочиям этого органа [14].

У такой совершенной казначейской политики есть свои принципы. Приоритеты реформы бюджетной системы Франции таковы:

1. Повышение эффективности государственных расходов за счет установления ответственности за достижение ощутимых результатов в бюджетном процессе.
2. Усиление роли парламента в надзоре и исполнении государственного бюджета.
3. Осуществление среднесрочного финансового планирования.
4. Повышение прозрачности бюджетного процесса в казначействе.

Кроме того, во Франции в соответствии с «Общим законом о финансовых положениях» бюджетные оценки должны объединяться в программе для оценки результатов и должны соответствовать конкретным задачам, которые имеют среднесрочные и долгосрочные цели развития [5]. Это привело к созданию единого подхода, основанного на оценке ключевых показателей эффективности, согласованию целей и задач, достижению самых высоких целей

государственной власти в долгосрочной и среднесрочной перспективе. Французская государственная казна управляет как внутренним, так и внешним долгом. Она контролирует выпуск государственных ценных бумаг и решает вопросы, связанные с их объемом и сроком погашения. Во Франции эффективно используется государственная финансовая информационная система [7]. В этой системе осуществляются подготовка бюджета, публикация и реализация бюджетных документов. Во Франции получение сводной информации о казначейских векселях является лишь вопросом времени, и более подробная информация доступна каждый день. В связи с этим важно проанализировать и изучить лучшие практики казначейской системы во Франции [9]. Если рассмотреть управление Единым казначейским счетом казначейства на основе опыта Франции, то управление финансовыми средствами путем Единого казначейского счета во время исполнения бюджета является одной из важнейших задач и в этом случае роль Единого казначейского счета высока в бесперебойном выполнение государственных обязательств [5].

Результаты. Из опыта Франции ясно, что основными принципами казначейского исполнения государственного бюджета должны быть единая касса, а также единообразие учета и отчетности.

Обсуждение. Однако в настоящее время существуют проблемы в банковской системе при исполнении бюджета в Узбекистане:

1. Недостаточная эффективность в управлении бюджетными ресурсами из-за несоответствия между поступлениями на банковские счета и отчислениями в местные бюджеты.
2. Не поступает своевременно информация о доходах и расходах бюджета финансовым органам автономной республики Каракалпакстан, областей и города Ташкента. Это поднимает проблему своевременного выявления дополнительной потребности в государственных средствах.
3. Необходимо разработать новые методы ускорения поступлений и эффективного перераспределения налогов, которые уменьшают проблемы бюджетных организаций в регионах.
4. Регулярный и текущий контроль за движением государственных средств и их использование означает, что эффективность мониторинга должна быть повышена.

Тем не менее, определенные расходы государственного бюджета могут быть покрыты за счет дополнительных доходов, полученных от выделения временно свободных средств коммерческим банкам, а также повышения ликвидности государственного бюджета при одновременном совершенствовании бюджетирования, кассового планирования и планирования бюджета для улучшения управления государственными финансами. Осуществления казначейских операций на Едином казначейском счете означают, что в результате именно банки играют важную роль в совершенствовании механизма управления [14]. Управление, защита, контроль и учет государственных финансовых ресурсов стали серьезной проблемой. Поэтому, необходимо создать исполнительный орган управления, обеспечивающий практическую реализацию требований управления государственными финансами [7]. Оперативный сбор, обработка и анализ бюджетов на всех уровнях, а также обеспечение ежедневного мониторинга кассового исполнения государственного бюджета и расходов требует создания специального департамента при Казначействе Министерства финансов Республики Узбекистан [9]. Контроль со стороны казначейства за ценами на определенные товары, покупаемые бюджетными организациями, определение средней цены определенных видов товаров, которые устанавливаются Министерством финансов требует создания механизма для доведения информации об этом. Таким образом, предложения и рекомендации, направленные на повышение эффективности казначейского исполнения государственного бюджета, повысят эффективность деятельности казначейских органов, оптимизируя управление государственным бюджетом и улучшая экономическую политику страны.

Создание автоматизированной базы данных казначейства (Схема-1) на основе централизации и иерархии требует использования эффективных серверов и мощных корпоративных баз данных при создании автоматизированной обработки данных и оформлении документов. Создание информационной системы в казначействе позволит сократить количество избыточных или ненужных документов, представляемых в казначейские органы бюджетных организаций, с учетом коллективного создания и использования документа [18]. Это, на взгляд соавторов, может предоставить собой безбумажную технологию работы с казначейскими

органами в режиме электронного офиса. Таким образом, данная модель (Схема-1) централизованного казначейства предусматривает следующие три приоритетных рейтинга:

а) точный и своевременный график платежей;

б) контроль за соблюдением бюджетных статей;

в) соблюдение сроков погашения дебиторской и кредиторской задолженности.

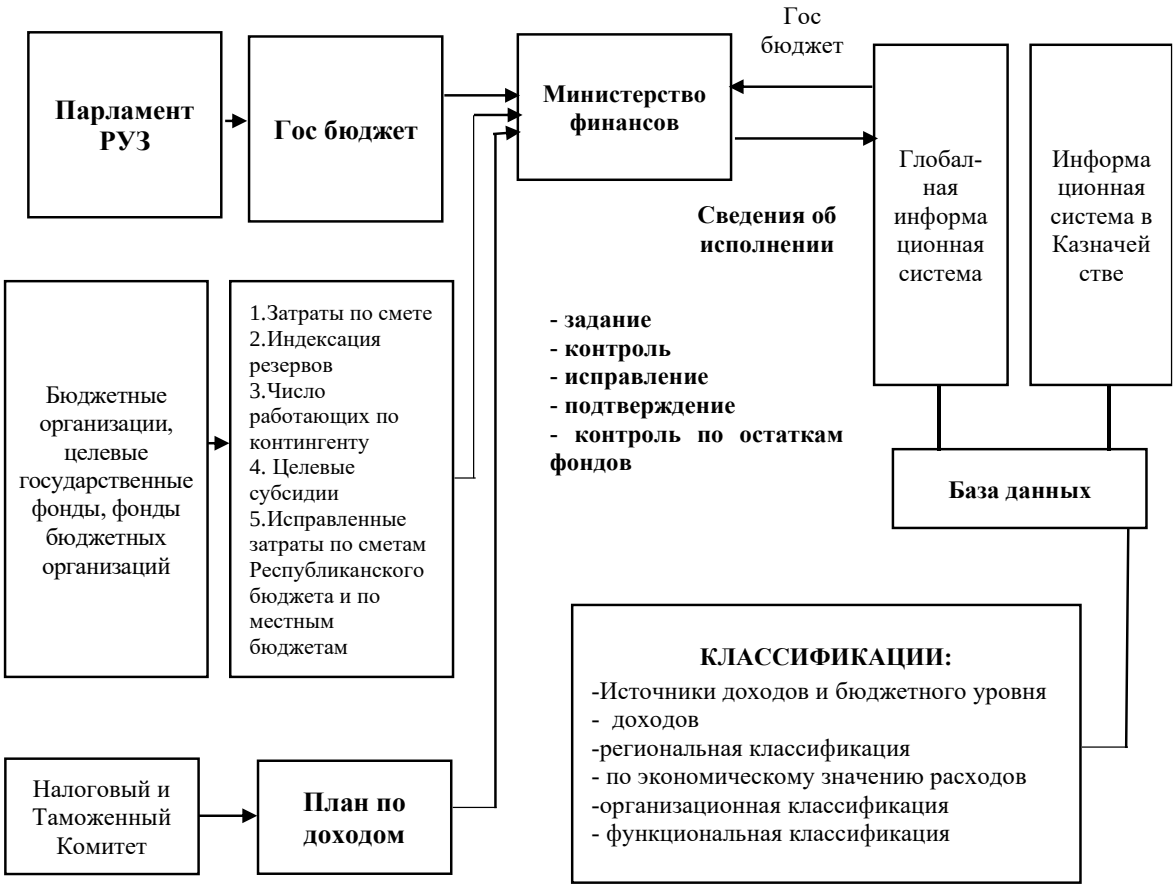

Схема 1. Взаимодействия участников бюджетного процесса по обмену информацией. Автоматизированная база данных.[1]

Изучение опыта использования информационных технологий в казначействе зарубежных стран показывает, что, несмотря на эти процессы, они всегда разрабатываются, обновляются и были рекомендованы развивающимся странам при прямой финансовой поддержке и помощи Всемирного банка в качестве эффективной формы исполнения бюджета [2].

В настоящее время в странах мира, где были введены казначейские информационные системы, эта система остается одним из факторов, обеспечивающие эффективное и целевое использование бюджетных средств и эффективный контроль.

До настоящего времени Всемирный банк оказывал финансовую поддержку казначейским информационным проектам в 143 развивающихся странах, из которых 103 были полностью выполнены, 28 находятся в процессе выполнения и 12 были временно приостановлены. На эти цели были потрачены более 5 миллиардов долларов [2].

Необходимость реализации принципов финансового менеджмента в управлении потоком государственных средств при исполнении расходов государственного бюджета позволяет отразить этот процесс с точки зрения казначейских расходов государственного бюджета. Основными направлениями совершенствования исполнения бюджета в казначейской системе стали реформирование учета доходов и расходов региональных и местных бюджетов, в том числе районных и городских, расширение источников финансирования их дефицита, внедрение современных информационных технологий на этапах и уровнях бюджетного

[1] Модель дополнена соавторами

процесса а также, необходимость работы с электронными документами и использования электронных платежных систем, повышения квалификации и ответственности сотрудников казначейства, стимулирование финансового контроля за исполнением бюджета. В зарубежных странах Казначейство отвечает за управление государственным долгом страны. Например, в России Федеральное казначейство фактически является «кассиром» всех участников бюджетного процесса и осуществляет платежи от имени бюджетных организации [10].

Казначейское исполнение бюджета означает консолидацию двух потоков в теле одного органа: потока доходов и расходов, что позволяет концентрировать, централизовать, экономить, эффективно использовать и планировать денежные потоки в бюджетном финансировании [16]. Однако крупномасштабные операции Казначейства, выполняемые этим органом, не могут обрабатываться и контролироваться вручную. Поэтому без современных информационных технологий невозможно решить проблемы реализации реформ и управления бюджетом [17]. По мнению экспертов, поток информации об этапах бюджетного процесса растет в геометрической прогрессии, а бюджетная система является точкой пересечения информационных потоков [11]. Чтобы успешно управлять объемом информации, стратегически важной для страны, необходимо управлять потоком информации и решать проблему широкого использования информационных потоков на всех уровнях бюджетной системы страны [4]. А глубокие реформы и преобразования в экономике Республики Узбекистан увеличили спрос на государственное финансирование через систему казначейских органов [12]. В связи с этим в финансовых службах и казначейских системах получателей бюджета появились важные, дополнительные функции [19]. Другими словами, возникла необходимость существенно изменить усложненные процессы управления финансами секторов и придерживаться научным критериям повышения эффективности расходов в финансовую систему через казначейство [20]. Конечно, без внедрения современных информационных и коммуникационных технологий (ИКТ) практически невозможно решить эти проблемы. Мировой опыт бюджетного финансирования предприятий и организаций, объединенных в единую отраслевую или ведомственную подчиненность, и тот факт, что информация становится ценным ресурсом для всестороннего развития общества, свидетельствует о том, что уровень и темпы развития ИКТ позволяют создать эффективную систему бюджетирования [3]. В то же время необходимо унифицировать и стандартизировать процессы финансирования на основе современных информационных и коммуникационных технологий [8].

Сегодня информационные технологии проникают во все районы мира. Несмотря на то, что Узбекистан поднялся на 8 позиций в Международном индексе информационных и коммуникационных технологий в 2019 году, мы все еще сильно отстаем [13]. Это правда, что большинство министерств и ведомств, предприятий полностью свободны от цифровых технологий. Конечно, не вопрос, что для формирования цифровой экономики требуются необходимая инфраструктура, много ресурсов и трудовых ресурсов.

Следовательно, широкое использование зарубежного опыта в развитии института казначейской службы для исполнения государственного бюджета значительно повышает эффективность использования бюджетных средств [9]. В связи с этим по-прежнему важно проводить масштабную работу по укреплению материально-технической базы структуры казначейства при Министерстве финансов Республики Узбекистан на высших уровнях, по широкому внедрению программно-информационных систем и дальнейшему совершенствованию механизма финансирования бюджетных организаций [20].

Заключение. Исходя из вышеизложенного, основными принципами безопасного исполнения бюджета в национальной казначейской системе являются единый кассовый аппарат, централизация учета и потоков доходов и расходов, полнота и соответствие бюджетной дисциплины, законность и объективность, предсказуемость и гибкость, прозрачность, надежность, адресность, экономичность, оперативность и эффективность. Исходя из международного опыта в системе национальной казны, основными направлениями улучшения исполнения бюджетов на разных уровнях должны быть следующие:

- внедрение в бюджетную практику международных стандартов бухгалтерского учета по исполнению доходов и расходов республиканского и местных бюджетов;
- не только расширить финансовые источники для покрытия дефицита республиканского и местных бюджетов, но и разработать для бюджетных организаций

механизм, где бюджетные организации самостоятельно либо путем подачи заявок смогут разместить свободные средства, которые находятся в едином казначейском счету на депозиты коммерческих банков. В результате чего станет возможным сбалансировать доходы и расходы местного бюджета и сократить дефицит местного бюджета;

- внедрение современных информационных технологий на уровнях и этапах бюджетного процесса;

- совершенствование системы электронного документооборота и электронных платежей;

- предоставление счет-фактуры в Казначейство в электронном виде для усиления государственного финансового контроля за казначейским исполнением бюджета.

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УПРАВЛЕНИЕ ЗЕМЕЛЬ АВТОМОБИЛЬНОГО ТРАНСПОРТА И ДОРОЖНОГО ХОЗЯЙСТВА В КОНТЕКСТЕ ЭКОЛОГИЧЕСКОЙ БЕЗОПАСНОСТИ: ОПЫТ УКРАИНЫ

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ABSTRACT

The article considers the impact of emissions from mobile sources of environmental pollution and human health. The dynamics of morbidity of the population due to inhalation of extremely polluted air from various sources, including transport, has been determined. The content of the state policy of Ukraine in the sphere of environmentally friendly use of land of road transport and road facilities has been formed. The features of land management in the performance of land management works on the use of land of road transport and road facilities are allocated. The main types of land management works on the placement, construction and operation of roads, which is a complex land management and legal procedure, are considered. There are proposals to improve the mechanism for approving land management documentation for the allocation of land for placement, construction and operation of road facilities.

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Введение. На сегодняшний день от качества транспортных коридоров зависят экономические, социальные, экологические, культурные показатели функционирования как регионов, так и страны в целом. Поэтому экологобезопасное использование и правовое благоустройство земель автомобильного транспорта и дорожного хозяйства ориентирована на установление границ автомобильных участков, идентификацию всех объектов в полосах отвода, проведение подсчета объемов ремонтных работ на определенных участках позволит упростить проведение землеустроительных работ на определенных этапах. Экологобезопасное использование земель автомобильного транспорта и дорожного хозяйства является достаточно актуальной проблемой, на решение которой, в том числе, направлены работы по землеустройству. Следует отметить, что выполнение работ по землеустройству для нужд автотранспортной отрасли является достаточно трудоемким процессом из-за отсутствия точной и актуальной информации о протяженности автомобильных дорог, полос отвода.

Методы и сбор информации для исследования. Изучая проблематику данного исследования был использован метод системного анализа, что позволило провести детальный анализ и систематизировать аналитические данные, что помогло сформировать основные факторы, влияющие на комплексное решение вопросов указанной проблематики. При формировании основных результатов исследования и выводов использовался абстрактно-логический метод.

Основные исследования направлены на выявление особенностей выполнения землеустроительных работ земель для нужд автомобильного транспорта и дорожного хозяйства, а также формированию государственной политики Украины по основным направлениям сохранения экологической ситуации в стране.

Основными источниками загрязнения воздуха в Украине является промышленность и транспорт, из которых именно на транспорт приходится около 35%. Но в каждом городе соотношение по источникам загрязнения разное. Так, в Киеве за 90% загрязнения воздуха ответственен именно транспорт, еще 10% – стационарные источники загрязнения. Весной и осенью 2020 года Киев время от времени попадал в тройку самый грязный мост мира или вообще возглавлял антирейтинг. Даже в ясную погоду на момент написания этого текста Киев занимает 13 позицию среди городов с самым грязным воздухом [15].

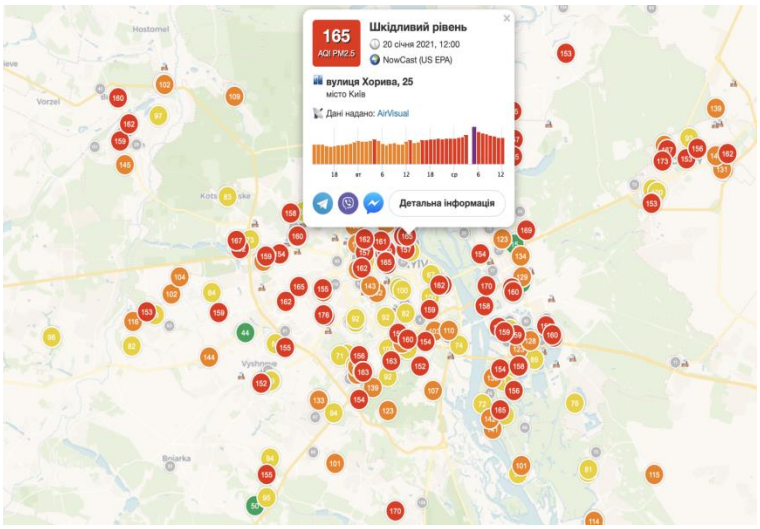

Рис.1. Мониторинг качества воздуха в г. Киеве (ул. Хорива, 25) [15]

Хотя согласно данным saveecobot, показатели загрязнения города Киев превышают норму в 3-4 раза, однако современный город невозможно представить без транспорта. Следует отметить, что с вышеуказанным видом загрязнений бороться достаточно тяжело и сложно. Двигатели автомобилей выбрасывают в атмосферу значительное количество оксидов карбона, углеводных соединений, оксидов азота, соединений свинца и других токсичных и канцерогенных веществ. И чем больше автомашин в городе, чем интенсивнее их движение, тем выше уровни загрязнения окружающей среды, тем ощутимее вред здоровью человека. Смог все сильнее наступает на Киев, а загазованность атмосферного воздуха – одна из причин экологического кризиса мегаполиса.

Приводим показатели удельного веса автотранспорта в загрязнении атмосферы продуктами сгорания. (табл. 1) [13].

Таблица 1. Объемы выбросов продуктов сгорания автотранспортом, млн т/ч [13]

Продукт сгорания	**Источник продуктов сгорания**	
	автомобили	**электростанции, промышленность**
Оксид углерода	59,7	5,2
Углеводороды и другие органические вещества	10,9	6,4
Оксид азота	5,5	6,5
Серносодержащие соединения	1,0	22,4
Микрочастицы	1,0	9,8

Содержимое разного вида токсинов и твердых частиц, выделяемых при работе автотранспорта в воздух и попадающих в организм человека, прежде всего через органы дыхания, поскольку выхлопные газы накапливаются в нижних слоях атмосферы, то есть в зоне дыхания людей. Диапазон заболеваний людей, вызванных влиянием выхлопных газов автомобильного транспорта, достаточно широкий, начиная от незначительного кашля, ринита до отека легких, расстройств дыхания, астмы и даже летальных исходов, что приведено в таблице 2.

Таблица 2. Воздействие выбросов от передвижных источников загрязнения окружающей природной среды на здоровье человека [7].

Вредное вещество	**Уровень токсичности**	**Воздействие на здоровье человека**
Свинец	Высокий	Влияет на работу нервной и кровеносной системы, нарушает снабжение кислорода в головной мозг.
Кадмий	Очень высокий	Накапливается в почках, печени, костных тканях. провоцирует развитие бронхитов, кишечные кровотечения, нарушения и даже рак репродуктивных органов
Углеводороды	Высокий	Вызывают головные боли, головокружение, тошноту; снижение кровяного давления, вялость и замедление пульса; нарушение работы сердечно-сосудистой системы
Оксид углерода	Очень высокий	Кислородное голодание, нарушение работы центральной нервной системы человека; замедление рефлексов, возможная потеря сознания и наступление смерти
Оксиды азота	Высокий	Незначительное раздражение слизистых глаз и носа, а при увеличении концентрации – отек легких
Твердые частицы (сажа, пыль, аэрозоли)	Средний	Возможность задерживаться в лёгких человека; поражение верхних дыхательных путей, слизистых глаз, носоглотки.
Озон	Средний	Уменьшение устойчивости организма к простудным заболеваниям, возможно обострение хронических заболеваний сердца, а также астма и бронхит.

Таким образом, все вещества, которые попадают в окружающую среду от работы автомобильного транспорта, оказывают существенное негативное влияние на здоровье человека. Выбросы, попадающие в атмосферу, обладают высоким или очень высоким уровнем токсичности.

Как свидетельствуют показатели заболеваемости среди всего населения Украины, наибольшая доля приходится на болезни органов дыхания (2015 г. – 44,27%, 2016 г. – 45,98%, 2017 г. – 45,22%) [1, 7]. Они возникают вследствие вдыхания людьми воздуха, чрезвычайно загрязненного различными вредными веществами от различных источников, а больше всего от выбросов автомобильного транспорта и транспортной отрасли в целом (рис.2). [7].

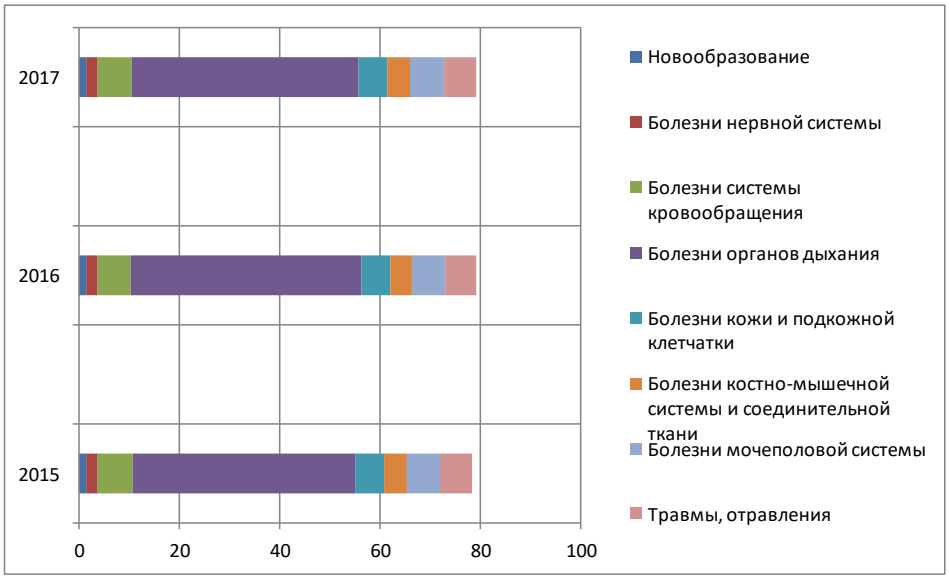

Рис. 2. Структура заболеваемости населения Украины, 2015 – 2017 гг., % [7]

Автотранспорт является серьезным источником шума, свинцового и других видов загрязнения почв и сточных вод вокруг дорожного полотна.

Шум от транспортного потока значительно зависит от его скорости. Приблизительная зависимость показана на рисунке 3.

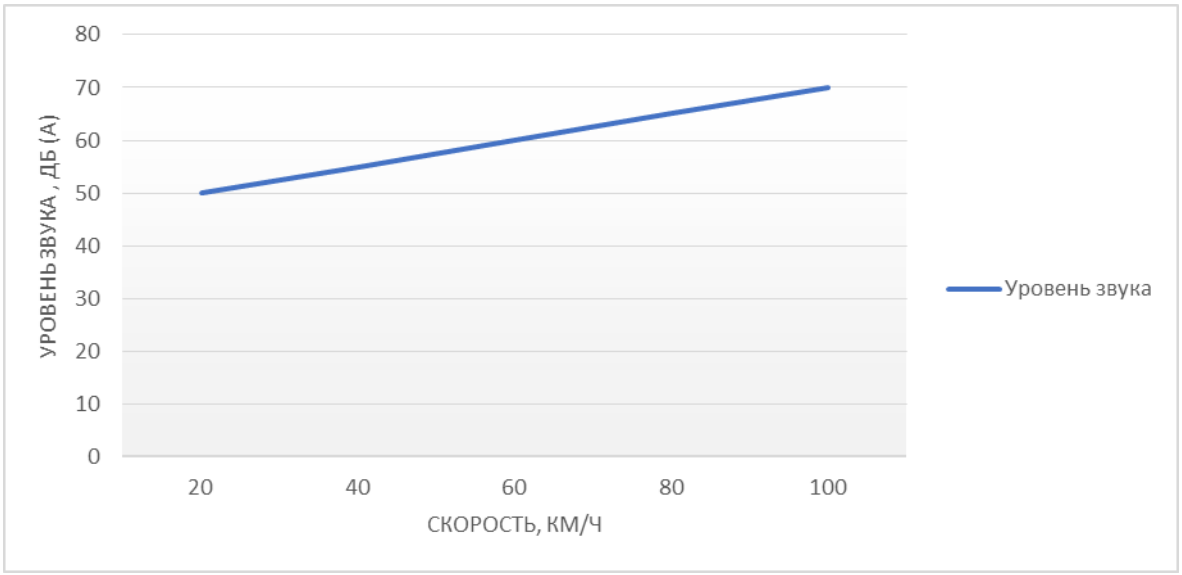

Рис. 3. Зависимость эквивалентного уровня звука от скорости транспортного потока [13]

Что касается концентрации загрязнений в дождевых водах, то она существенно меняется с течением времени и максимальна в начале дождя и постепенно снижается с его продолжением. Концентрация некоторых загрязнений в водах поверхностного стока приведена в таблице 3 [13].

Таблица 3. Концентрация некоторых загрязнений в водах поверхностного стока для характерных мест, мг/л

Характер бассейна водосбора	**Дождевой сток**		**Сток от таяния снега**	
	Взвешенные вещества	**Нефтепродукты**	**Взвешенные вещества**	**Нефтепродукты**
Центр города с высоким уровнем благоустройства и низкой интенсивностью транспортного движения	400-600	7-12	1300-1600	10-12
Новый благоустроенный район города со средней интенсивностью движения	700-1000	10-5	1500-1700	12-15
Промышленный район с интенсивным движением	800-1200	12-20	2000-2500	12-20
Современная автомагистраль	800-1000	15-20	250-3000	20-30

Следует отметить, что сегодня наблюдается стремительный рост количества автомобильных транспортных средств, интенсивности движения, сети международных и национальных транспортных коридоров, что с одной стороны оказывает положительное влияние на экономические показатели страны, а с другой – приводит к негативному влиянию на различные экологические системы. Поэтому достаточно важным направлением государственной политики в сфере экологобезопасного землепользования автомобильного транспорта и дорожного хозяйства является организация упорядочения указанных земель. Необходимо подчеркнуть, что после отмены мораторий на продажу земель произошло урегулирование процесса преимущественного права, без которого рынок бы полноценно не заработал, была введена единая проверка

документации по землеустройству (отменилась необходимость лишних разрешений и дублирования процедур проверки документации по землеустройству и т.п.), главной задачей такой является формализация проектных решений, суть которых заключается в разработке документов относительно определенного земельного участка, землепользования, территориальной зоны, административно-территориального образования с определением его пространственных характеристик, правового режима, решением социальных, экономических, экологических, санитарно-гигиенических, инженерно-технических аспектов [11].

Нужно отметить, что подкатегории земель автомобильного транспорта и дорожного хозяйства необходимо начинать упорядочивать с отвода земельных участков для размещения, строительства и эксплуатации объектов автодорожного хозяйства, что является сложной землеустроительной и юридически правовой процедурой, которая делится на следующие основные виды работ:

1) выбор и согласование месторасположения земельных участков в случае, когда размещение таких объектов не определено соответствующей градостроительной или землеустроительной документацией (генеральные планы населенных пунктов, проекты детального планирования, другая градостроительная документация, технико-экономические обоснования использования и охраны земель административно-территориальных единиц, проекты землеустройства по упорядочению территорий населенных пунктов и т.п.);

2) разработка проекта отвода, принятия решения об его утверждении, изъятии и предоставлении земельных участков; перенос проекта в натуру (на местность), изготовление документов, удостоверяющих право пользования земельными участками, регистрация этого права.

Действующим законодательством Украины предусмотрено выполнение землеустроительных работ, связанных с предоставлением земель для нужд автомобильного транспорта, в три этапа:

1. выбор и согласование местоположения земельных участков;
2. разработка и утверждение проекта землеустройства по отводу земельных участков;
3. перенос проекта землеустройства на местность, удостоверение права использования и регистрация правоустанавливающих документов.

Первый этап землеустроительных работ включает в себя подготовительные работы и процедуру согласования. При выполнении подготовительных работ производится:

• идентификация прохождения полосы отвода автомобильных дорог в пределах административно-территориальных;

• обработка информации земельного кадастра, необходимая для определения правового статуса земельных участков в пределах полосы отвода автомобильной дороги;

• составление кадастровых карт (планов) земельных участков, которые изымаются (выкупаются), передаются в аренду на период строительства, отягощены сервитутами и используются с ограничениями на территории отдельных сельских (поселковых, городских) советов и по районам областей (Автономной Республики Крым);

- составление списков владельцев земли и землепользователей с определением площадей их земельных участков, которые будут использоваться на период строительства на условиях аренды;
- формирование списков юридических лиц, земельные участки которым предоставлены в постоянное пользование, и площадей, подлежащих изъятию земельных участков;
- составление списков владельцев земли и площадей их земельных участков, подлежащих выкупу;
- формирование списков арендаторов земельных участков государственной собственности и площадей участков, подлежащих изъятию;
- составление списков владельцев и пользователей земельных участков, в пределах которых предполагается установить земельные сервитуты;
- проведение и оформление расчетов ориентировочных сумм убытков, подлежащих возмещению собственникам земли и землепользователям;
- осуществление и оформление расчетов ориентировочных сумм потерь сельскохозяйственного и лесохозяйственного производства, связанных с изъятием (выкупом) земельных участков.

Соответствующие органы исполнительной власти принимают решение о согласовании местоположения объектов и предоставлении разрешения на разработку проекта отвода земельных участков.

Органы исполнительной власти, конечно, имеют полномочия принимать соответствующие решения, но не следует забывать и о населении, проживающем в населенных пунктах, особенно селах и поселках, на территориях которых должно проходить строительство новой или реконструкция автомобильной дороги. Жители объединенных территориальных общин (ОТГ) должны быть своевременно уведомлены о возможности такого строительства через местные средства массовой информации, собрании ОТГ и т.п., и иметь возможность высказать свои мнения или предложения по данному проекту еще на стадии планирования. Как известно, только население, проживающее в той местности, может указать лучшие варианты прохождения автомобильной дороги, а власти должны учитывать их пожелания.

Для примера можно привести село Ксаверовка Киевской области, которое разделено по трассе Киев-Одесса на две части. Во время реконструкции автомобильной дороги М-05 наземные зебры для семи пешеходных переходов снесли. Оставили только два перехода: в центре села подземный и на окраине – наземный, к которым людям необходимо пройти через все село, поэтому они ежедневно нарушают правила дорожного движения, перелезая через отбойники, чтобы преодолевать четыре полосы проезда. Как результат, в последнее время на этой дороге погибли около 40 человек.

Поэтому целесообразно на стадии согласования и принятия решения о расположении объектов законодательно утвердить проведение общественных слушаний, а предоставление решения о согласовании утвердить подписями местных представителей власти (главы ОТГ, инженера-землеустроителя, активистов и других) по урегулированию подобных ситуаций на стадии планирования.

Сложность данного этапа проведения землеустроительных работ состоит в изъятии земельных участков или их частях для строительства автомобильной дороги. Службе автомобильных дорог необходимо их выкупить у граждан, а большинству из них нужно сначала оформить право собственности на земельные участки и получить соответствующие документы, которые уже являются проблемой и затягивают или исключают начало строительства [7].

Во всех службах автомобильных дорог областей право постоянного пользования на землю под автомобильными дорогами государственного значения оформлено только на 74,53% (61 169 га из 83 410 га общей площади), а под дорогами местного значения – на 52% (143 118 га из 275) 198 гектаров общей площади). Усредненный показатель при этом составляет 57,25% [4].

Решение и предотвращение проблемы возникновения накладок границ возможно путем проведения полной инвентаризации земельных участков дорожного хозяйства в соответствии с Порядком проведения инвентаризации земель, утвержденным постановлением Кабинета Министров Украины № 476 от 05.06.2019 г. [9], их государственной регистрации в государственном земельном кадастре номеров.

На втором этапе Государственное агентство автомобильных дорог Украины или его территориальные подразделения заказывают землеустроительной организации разрабатывать проект землеустройства по отводу земельных участков для строительства объекта автодорожного хозяйства в пределах каждой области согласно статье 50 Закона Украины «О землеустройстве» [11].

Согласование проекта землеустройства осуществляется согласно статье 1861 Земельного кодекса Украины [6].

Соответствующий орган исполнительной власти или местного самоуправления в двухнедельный срок со дня получения проекта землеустройства по отводу земельных участков, а в случае необходимости осуществления обязательной государственной экспертизы землеустроительной документации по закону после получения положительного заключения такой экспертизы принимает решение о предоставлении земельных участков в пользование. Процесс разработки проекта землеустройства достаточно длительный из-за отсутствия сотрудничества между органами государственной власти и территориальными органами власти на местах.

Решением о предоставлении земельных участков в пользование по проекту землеустройства по их отводу осуществляется:

а) утверждение проекта землеустройства по отводу земельных участков;

б) изъятие земельных участков у землепользователей с утверждением условий их изъятия (при необходимости);

в) предоставление земельных участков юридическому лицу в пользование с определением условий его использования и утверждением условий предоставления, в том числе (при необходимости) требований по возмещению потерь сельскохозяйственного и лесохозяйственного производства.

Как свидетельствует мировая практика, большинство государств не придают достаточного значения интеграции равномерного контроля между правительством, местными общинами и частным сектором в этой области при разработке проекта землеустройства для строительства автомобильных дорог, особенно развивающихся стран. Разрозненная деятельность органов государственной власти и территориальных органов приводит к возникновению препятствий, которых можно было бы избежать, основными из которых являются: отсутствие так называемой целостной власти в государственных учреждениях и органах местного самоуправления; необходимость сотрудничества между дорожными властями и органами местного самоуправления; отсутствие механизмов координации между государственными учреждениями и органами местного самоуправления [11].

Решение обозначенных проблем позволит улучшить интеграцию между правительством, местными общинами и частным сектором в этой области, ускорить планирование и реализацию городских и региональных инфраструктурных проектов, расширить спектр финансирования проектов во всех регионах с целью достижения практических результатов за сравнительно короткое время.

Третьим этапом является процедура утверждения проекта землеустройства по отводу земельных участков в постоянное использование для строительства объекта автодорожного хозяйства. Согласно постановлению «Об утверждении Порядка ведения Государственного земельного кадастра» № 1051 от 17 октября 2012 г. [8] документация по землеустройству является основанием для внесения сведений (изменений к ним) в Государственный земельный кадастр, представляется Государственному кадастровому регистратору, осуществляющему внесение таких сведений в бумажной или электронной форме согласно требованиям Закона Украины "О землеустройстве" [8] и в форме электронного документа в контексте требований Закона Украины "О Государственном земельном кадастре" [9].

Для представления об описанной процедуре разработаны этапы проведения землеустроительных работ, связанных с предоставлением земель для нужд автомобильного транспорта и дорожного хозяйства (рис.3).

Для ускорения процедуры утверждения проекта землеустройства по отводу земельных участков в постоянное пользование для строительства объекта автодорожного хозяйства, по нашему мнению, заслуживают внимания предложения по сотрудничеству персонала соответствующих органов государственной власти с органами местного самоуправления от стадии составления до этапа внедрения проекта для обеспечения соответствующие меры по использованию земель автомобильного транспорта и дорожного хозяйства; создание консультативных комитетов по планированию, проектированию, согласованию проектов строительства или реконструкции автодорог с участием местных сообществ [8].

Приводим механизм согласования проекта землеустройства по отводу земельных участков для размещения, строительства и эксплуатации объектов автодорожного хозяйства (рис. 4)

Рис. 4. Механизм согласования проекта землеустройства

Практическое применение земельного законодательства организациями Государственного агентства автомобильных дорог Украины при оформлении права постоянного пользования земельными участками выявило множество проблем и недостатков, а также необходимость усовершенствования отдельных положений Земельного кодекса и других законов.

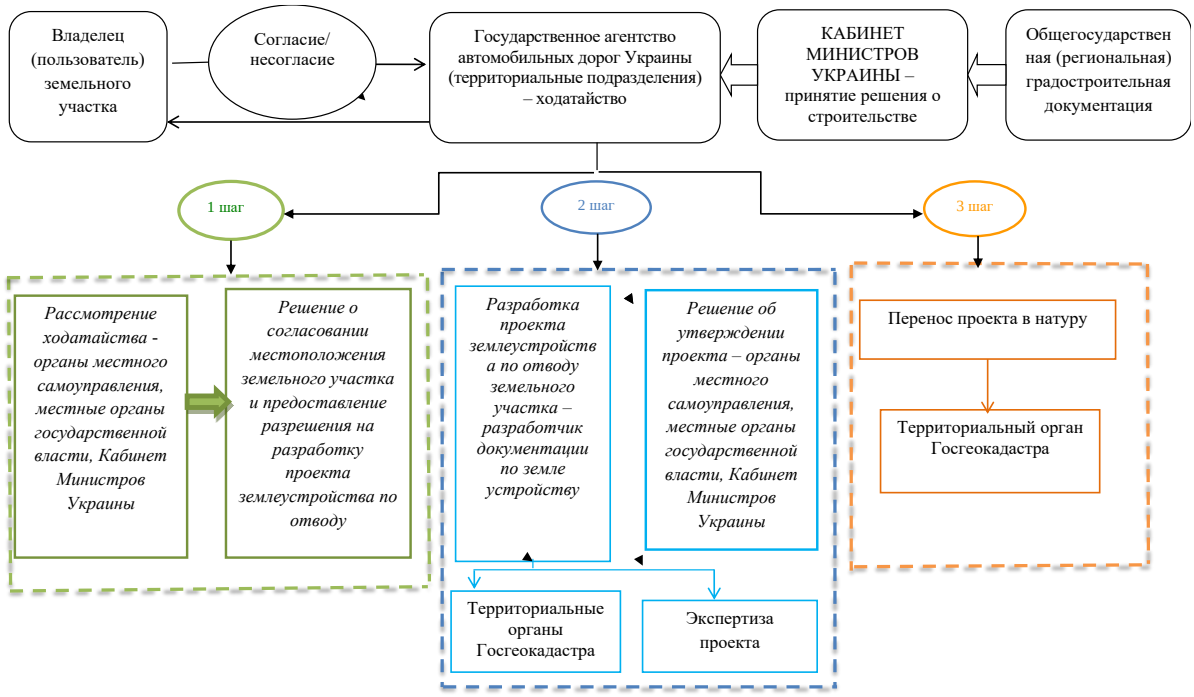

Рис. 5. Схема оформления права на земельные участки

Следует отметить, что влияние автомобильного транспорта на экологическую ситуацию сегодня влечет за собой много проблем как в крупных городах, так и в пригороде, решение которых невозможно без постоянного внимания и контроля органов местного самоуправления и государства в целом.

В 2021 году органы государственной власти возлагают значительные надежды на экологические реформы. Речь идет о необходимости уменьшения выбросов парниковых газов, реформе экологических финансов и целевого использования экологических налогов, совершенствовании законодательства об оценке воздействия на окружающую среду, а также о реформировании государственного экологического контроля и контроля промышленного загрязнения, государственной поддержке проектов по экомодернизации промышленности, использованию альтернативных видов топлива. в том числе на биомассе и т.д. [5]

В урегулировании экологической ситуации Украины важен Закон Украины от 30.11.2021 г. № 1914-IX «О внесении изменений в Налоговый кодекс Украины и другие законодательные акты Украины по обеспечению сбалансированности бюджетных поступлений» внесены изменения, в частности, в ст. ст. 243, 245-248 НКУ, согласно которым с 01.01.2022 увеличены ставки экологического налога, повышающего отдельные экологические налоги. Так, уже с 1 января 2022 г. ставки эконалога за сбросы загрязнения в воду увеличиваются на 30% и постепенно повышаются в восемь раз к 2025 году, на 5% возрастут ставки на выбросы в воздух, а за размещение отходов – на 10%.

Основным новшеством является рост ставки на выбросы CO_2 на 200% с 0,37 у.е./т до 1,12 у.е./т. Здесь следует отметить, что последний раз налог на углерод поднимали в 2019 году сразу на 2340% - с 0,015 у. е до 0,37 у.е. за 1 тонну, однако, особого результата это не дало – по итогам того же года выбросы парниковых газов сократились на 2%.

Проблема же состоит в том, что средства от уплаты налога на выбросы CO_2 в Украине поступают в общий фонд госбюджета и не имеют целевого назначения. Хотя в 2020 году Украина получила от налога на углерод около 940 млн. гривен, но эти деньги пошли преимущественно на борьбу с коронавирусом и на строительство дорог [5].

Выводы. Законодательная база упорядочения земель автомобильного транспорта и дорожное хозяйство должно направляться на применение точной той актуальной информации

по протяженности автомобильного дорога, ей бесперебойное функционирование и контроль соответствующих служб инфраструктуры, постоянное уточнение состояния дорожного полотна для правильной планировки той организации ремонтных работ, проектирования строительства новых дорог.

Внесение указанных предложений в земельное законодательство будет способствовать отводу и оформлению права пользования земельными участками для размещения, строительства и эксплуатации объектов автодорожного хозяйства.

Урегулирование экологической ситуации Украины в контексте транспортной отрасли необходимо направлять на применение информационных систем и систем регулирования движения, что позволит регистрировать все транспортные потоки, обрабатывать информацию и управлять движением транспорта, выбирая оптимальные, наименее загруженные на момент движения маршруты. Для реализации этих направлений, по нашему мнению, необходимо разместить навигационных систем непосредственно в транспортных средствах и создать системы управления транспортными потоками с помощью электронных указателей на дорогах, что позволит проводить мониторинг количества вредных выбросов на окружающую среду.

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THE ESSENCE OF CRITICAL INFRASTRUCTURE IN THE EUROPEAN UNION, NATO AND G7 COUNTRIES

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ABSTRACT

Critical infrastructures (include the body of systems, networks, and assets that are so essential that their continued operation is required to ensure the security of a given nation, its economy, and the public's health and/or safety) are significant for the growth and development of our society, drastically affecting most of the everyday activities as the components of the critical infrastructures are increasingly vulnerable to a dangerous mix of traditional and nontraditional types of threats. Taking into account a significant role of Critical Infrastructure in national and international security maintenance, the article analyses and interprets the policy pillars of Critical Infrastructure concepts in the European Union, NATO as well as in G7 Countries. Particular attention is paid to determining the functional purpose, approaches to the classification of the main components of critical infrastructure (structural content) and characteristics of them. At the end of this article there is suggested a generalized view regarding to the essence of Critical Infrastructure, as well as attention is drawn to the fact that the adopted approaches generally take into account that Critical Infrastructure now rarely exist or function in isolation, rather, they are becoming more tightly coupled, interconnected and interacted that creates a complex multisystem - a system-of-systems.

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1. Introduction. In the past three decades the developing and modeling of Critical Infrastructure has become a growing research area as Critical Infrastructures are essential assets for the maintenance of vital societal functions and safety of which is significant because its improper functioning may result in considerable loss.

Critical Infrastructure and their effectiveness are of great importance for the quality of life, economy and functioning of other sectors as they are closely related to energy security, telecommunications, energy systems, gas and oil pipelines, transportation, water supply and etc. As a consequence of their ubiquity, disruption of normal operation of Critical Infrastructures can have severe primary (loss of life, property damage, and economic losses and etc.) as well as secondary (mass displacement of residents, widespread health consequences, and decreased quality of life) effects.

Due to threats from state- and non-state actors, as well as the increased severity and frequency of severe weather events, developing Critical Infrastructure resilience is an issue of utmost importance for ensuring security and the common good. Critical infrastructures have become a significant sector for every country - it is crucial to know which are the threats and vulnerabilities in such systems and possible attacks in order to find a way to prevent and confront them.

However, there are still ongoing debates regarding Critical Infrastructure concept and its protection, especially, how to effectively protect them given their vital positions in social and economic developments) as the concept of Critical Infrastructure has been changing over time according to the disaster situations and rapidly changeable security environment.

Necessity of strengthening and further development of Critical Infrastructure concept still is one of the main concerns. These concerns have been highlighted with the increased emphasis on improved efficiency, performance and productivity.

In such a consideration, the article reviews the existing approaches to critical infrastructure dimensions in the European Union, NATO and G7 Countries (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States of America), that will facilitate further studies of Critical Infrastructure Protection Policies and their implementation strategies in above mentioned countries and international organisations.

2. The European Union.

Critical infrastructure protection in the European Union is a complex and dynamic process that takes place on a daily basis at a multitude of different levels and perspectives. The Union has worked as strong as the Member States have required and have looked for new and better solutions. Without wanting to be critical, a lot has been done, there are missed opportunities, but this is a dynamic and extremely interactive area that will get more and more space and time in all spheres of political, social and security activity, because every day countries depend more and more on the effective functioning of critical infrastructures.

Despite of what has already done at the EU level, "the European Union is still seeking its place and role in this area. From the European Union institutions, the European Commission is most active and seeks to promote the importance of this topic, to ensure cooperation between Member States, to accelerate the exchange of knowledge and experience and to guide the Member States in their efforts to develop the area of strengthening resilience and critical infrastructure protection.

An indicative list of Critical Infrastructure sectors and services identified by the EU Member States are presented as follows:

(i) Energy: 1. Oil and gas production, refining, treatment and storage, including pipeline; 2. Electricity generation; 3. Transmission of electricity, gas and oil; 4. Distribution of electricity, gas and oil;

(ii) Information, Communication Technologies, ICT: 5. Information system and network protection; 6. Instrumentation automation and control systems (SCADA etc.); 7. Internet; 8. Provision of fixed telecommunications; 9. Provision of mobile telecommunications; 10. Radio communication and navigation; 11. Satellite communication; 12. Broadcasting;

(iii) Water: 13. Provision of drinking water; 14. Control of water quality; 15. Stemming and control of water quantity;

(iv) Food: 16. Provision of food and safeguarding food safety and security;

(v) Health: 17. Medical and hospital care; 18. Medicines, serums, vaccines and pharmaceuticals; 19. Bio-laboratories and bio-agents;

(vi) Financial: 20. Payment services/payment structures (private); 21. Government financial assignment;

(vii) Public and Legal Order and Safety: 22. Maintaining public and legal order, safety and security; 23. Administration of justice and detention VIII Civil administration; 24. Government functions; 25. Armed forces; 26. Civil administration services; 27. Emergency services; 28. Postal and courier services;

(viii) Transport: 29. Road transport; 30. Rail transport; 31. Air traffic; 32. Inland waterways transport; 33. Ocean and short-sea shipping;

(ix) Chemical and nuclear industry: 34. Production and storage/processing of chemical and nuclear substances; 35. Pipelines of dangerous goods (chemical substances);

(x) Space and Research: 36. Space; 37 Research.

Challenges at the European Union level are multidimensional and under time pressure, because, as Haemmerli and Renda (2010) remarkably noticed, it is necessary to harmonize Europe at "several tracks", to coordinate various policies and, in all of that, to find and create own identity in this area. Therefore, the Union is trying at an accelerated pace to develop its own recognisability and set standards to be followed by all Member Nations (Mitrevska, Mileski, Mikac, 2019) framework for its protection.

Based on the aforementioned requirement, in October 2004, the European Commission adopted first document in this area entitled Communication on Critical Infrastructure Protection, which presented the proposals what Europe should do to prevent terrorist attacks on critical infrastructures, to enhance the level of preparedness for emergency situations, to raise their resilience and to develop the ability to respond to attacks (European Commission, 2004).

In December 2004, the Council endorsed the intention of the Commission to propose a European Programme for Critical Infrastructure Protection (European Commission, 2004).

One year later, the Commission created a Green Paper on a European Programme for Critical Infrastructure Protection, which provided policy options on how the Commission could establish a Critical Infrastructure Protection Programme (EPCIP) and a Critical Infrastructure Warning Information Network (European Commission, 2005).

The main objective of the green paper is to receive feedback concerning possible the EPCIP policy options by involving a broad number of stakeholders. The effective protection of critical infrastructure requires communication, coordination, and cooperation nationally and at EU level among all interested parties - the owners and operators of infrastructure, regulators, professional bodies and industry associations in cooperation with all levels of government, and the public (European Commission, 2005).

The following key principles are suggested to form the basis of European Programme for Critical Infrastructure Protection (EPCIP): subsidiarity, complementarity, confidentiality, stakeholder cooperation and Proportionality (European Commission, 2005).

The next input came from the Justice and Home Affairs Council, which in December 2005 called upon the Commission to make a proposal for a European Programme for Critical Infrastructure Protection (EPCIP). The drafting guidelines emphasize that the Programme should take into account all dangers, where priority should be given to countering terrorist threats. Such approach in process of critical infrastructure protection takes into account the technological threats caused by human activity and natural disasters, but priority should be given to the threats from terrorism (European Commission, 2005).

As a result, in December 2006, the Commission issued a Communication on a European Programme for Critical Infrastructure Protection (EPCIP). This set out an overall policy approach and framework for Critical Infrastructure Protection activities in the EU. The Programme's four main pillars would be: (i) A procedure for the identification and designation of European critical infrastructure (ECI) and for the assessment of the need to improve their protection (provided for in the ECI Directive adopted in 2008); (ii) Measures designed to facilitate the implementation of the Programme, including an Action Plan, the Critical Infrastructure Warning Information Network (CIWIN), the use of a Critical Infrastructure Protection expert group at EU level, a Critical Infrastructure Protection information-sharing process, and the identification and analysis of interdependencies; (iii) Funding for Critical Infrastructure Protection related measures and projects focusing on 'Prevention, Preparedness and Consequence Management of Terrorism and other Security-Related Risks' for the period 2007-2013; and (iv) The development of an external dimension in recognition of the interconnected and interdependent nature of societies both within and beyond the EU. The external dimension would entail cooperation with third countries outside the EU through measures such as sector-specific memoranda of understanding and encouraging the raising of Critical Infrastructure Protection standards outside of the EU (European Commission, 2006).

Following the creation of the Programme in 2006, Critical Infrastructure Warning Information Network (CIWIN) and the Critical Infrastructure Protection expert group were established. At the same time, the Commission was developing the proposal for a mechanism that would provide a procedure for European critical infrastructure (ECI) identification and designation. In December 2006, the Commission published a Proposal for a Directive of the Council on the identification and designation of European Critical Infrastructure and the assessment of the need to improve their protection (European Commission, 2006).

In April 2007, the Council of the European Union considered the European Programme for Critical Infrastructure and issued conclusions stating that the ultimate responsibility for managing critical infrastructure protection solutions lies on Member States, within their national borders. In addition to this, it is directed to the Commission to develop a European procedure for identification and designation of European critical infrastructures and the assessment of the need to improve their protection. Mentioned is an important determinant of the development of this area, as it is recognized that there are a number of critical infrastructures in the Union which disruption of work or destruction could have significant cross border effects. Work disruptions may include cross-border cross-sectorial effects resulting from the interdependence of mutually connected infrastructures (European Commission, 2007).

In parallel with the work of the Commission, the Council of the European Union adopted in 2007 a special program the Prevention, Preparedness and Consequence Management of Terrorism and other

Security-related Risks. This program identifies a number of security-related risks, with the focus on supporting Member States' efforts to prevent terrorist attacks and to carry out preparations for the protection of people and critical infrastructure from risks related to terrorist attacks (European Commission, 2007).

Directive 2008/114/EC should be observed in the scope and time when it was adopted. Certainly it was a huge step forward, but clearly, it could not respond to all requirements of complete regulation of the area for identification, designation, and protection of European critical infrastructures. At the same time, it had to partially level the already developed national policies of individual Union's Member States with those who did not pay enough attention to this area or started just now, under its impact, to regulate this area. Directive 2008/114/EC was originally used to guide Member States in their mutual cooperation and as an example of how they can directly establish and organize the national framework for identification and designation of critical infrastructures and indirectly for their protection. It was further on Member States to develop this area with the help of the Commission and not for it to have a main role (European Commission, 2008).

The Council of the European Union, taking into account the proposal of the Commission, has brought immediately a key document for the area of critical infrastructures in the European Union, Council Directive 2008/114/EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection (further Directive 2008/114/ EC), which is no longer primarily focused on the threat of terrorism, but seeks to establish a comprehensive process of critical infrastructure protection both at the level of the Member States and the Union as a whole (European Commission, 2008).

The mentioned directive suggests two significant definitions: (i) Critical infrastructure - "an asset, system or part thereof located in Member States which is essential for the maintenance of vital societal functions, health, safety, security, economic or social well-being of people, and the disruption or destruction of which would have a significant impact in a Member State as a result of the failure to maintain those functions"; (ii) European critical infrastructure (ECI) - "critical infrastructure located in Member States the disruption or destruction of which would have a significant impact on at least two Member States. The significance of the impact shall be assessed in terms of crosscutting criteria. This includes effects resulting from cross-sector dependencies on other types of infrastructure".

In the introductory provisions of Directive 2008/114/EC, the Council of the European Union has taken steps to highlight the essential guidelines for all those concerned. It was emphasized that the first step in the multiphase approach is aimed at identification and designation of European critical infrastructures and the assessment of the need to improve their protection. Then, that focus is primarily on the energy and transport sectors, but other significant sectors such as information and communication technology sectors need to be considered. As well, and what is especially important, that the Member States and the owners or operators of the above mentioned have the primary and ultimate responsibility for the critical infrastructure protection in Europe. The next important aspect of Directive 2008/114/EC is that it has become a common platform for the cooperation of all relevant stakeholders of the critical infrastructure protection system at Union level. Prior to its adoption, the obligation of official cooperation among various stakeholders, as well as the forum for achieving this cooperation, did not exist. Its strength is in mandatory application, and each Member State chooses the way how it will be transposed into national legislation (Mitrevska, Mileski, Mikac, 2019).

The central part of Directive 2008/114/EC is the procedure for identification and designation of European critical infrastructures. The identification procedure was adopted in Article 3 and the accompanying attachment. It consists of several steps involving the terminology equivalence of the observed infrastructure according to the set definition and the fulfilment of the cross-cutting and sectorial criteria.

The first step is that each Member State applies sectorial criteria to make the primary identification of critical infrastructure within the sector on the national territory. Sectorial criteria are the first selection of potential critical infrastructures.

The second step is to apply definitions to the considered infrastructure in order to see if it meets the "critical infrastructure" requirements/conditions as well as "European critical infrastructure".

The third step is to look at the cross-border impact of the definition of "European critical infrastructure" and to determine whether a certain infrastructure is mutually significant for two Member States, whether the both determined it as a significant or that one of the member finds that there is infrastructure on the territory of the other Member State that is significant to her alone.

The fourth step is the application of cross-cutting criteria that include the observation of three criteria: (i) Casualties criterion (assessed in terms of the potential number of fatalities or injuries);

(ii) Economic effects criterion (assessed in terms of the significance of economic loss and/or degradation of products or services; including potential environmental effects); (iii) Public effects criterion (assessed in terms of the impact on public confidence, physical suffering and disruption of daily life; including the loss of essential services) (Mitrevska, Mileski, Mikac, 2019).

The European critical infrastructure (ECI) process, as specified in the Directive, can be divided broadly into three distinct phases: (i) Identification of potential European critical infrastructure (ECI); (ii) Designation of European critical infrastructure (ECI); (iii) Protection of European critical infrastructure (ECI). Annex III of the Directive specifies the steps within each of these phases.

The suggestion that members of the European Union, following the adoption of Directive 2008/114/EC, are obliged to incorporate its provisions into national legislation has become a multiple challenge because the "older" EU Member States have begun the process of critical infrastructure protection prior to the adoption of Directive 2008/114/EC so this is potentially an obstacle in the implementation of their own policies, but they are required to harmonize national policy with the Union's policy in this area. The new Member States found themselves in the need for quick adaptation or opening up the process for the first time although some of them were not yet fully organizationally ready for that purpose. But Directive 2008/114/EC left no room for them to be postponed and did accelerate their adjustment (Mitrevska, Mileski, Mikac,2019).

Based on EC 2008/114 of the European Council as a European critical infrastructure (ECI), we can define critical infrastructure located in Member States that the disruption or destruction of which would have a significant impact on in 2013, the European Commission, together with the High Representative of the European

Union for Foreign Affairs and Security Policy, put forward a Cybersecurity Strategy of the European Union that articulates the EU's vision of cyber security through five priorities: 1. Achieving Cyberat least two Member States. Resilience; 2. Drastically reducing cybercrime; 3. Developing cyber-defence policy and capabilities related to the Common Security and Defence Policy (CSDP); 4. Developing the industrial and technological resources for cyber security; and 5. Establishing a coherent international cyberspace policy for the European Union and promote core EU values (Mitrevska, Mileski, Mikac, 2019).

Based on a Cybersecurity Strategy of the European Union, the Directive 2016/1148 of the European Parliament and of the Council concerning measures for a high common level of security of network and information systems across the Union was adopted on 6 July 2016 with the obligation to be implemented into national legislation of all Member States until 9 May 2018.

The Directive 2016/1148 covers two groups of actors: Operators of Essential Services (The criteria for the identification of the operators of essential services are defined as follows: (a) an entity provides a service which is essential for the maintenance of critical societal and/or economic activities; (b) the provision of that service depends on network and information systems; and (c) an incident would have significant disruptive effects on the provision of that service) and Digital Service Providers. The main objective of the Directive 2016/1148 is to provide a common level of security of network and information systems in all Member States, whose malfunctions due to security incidents may have strong consequences on society or the national economy. In doing so, the Directive 2016/1148 introduces regulatory elements that enable permanent monitoring of the condition of automation and digitization of the designated sectors.

Albeit the Commission has embraced various arrangement drives around here, various extraordinary issues remains. "First, Member States are at varying degrees of maturity with respect to the development of a comprehensive and effective Critical Infrastructure Protection (CIP) policy. Second, there are islands of cooperation across the EU Member States but no overall concept of operations at the EU level. Third, partnerships and relationships are scattered across countries (each individual country has and will maintain unique relationships with private sector owner operators and global companies that enable them). Fourth, critical EU infrastructure is also scattered across many different countries", (Mitrevska, Mileski, Mikac, 2019), (Haemmerli and Renda, 2010).

To help Member States, the Commission has also engaged its own Joint Research Centre, which in 2008 produced a document entitled Non-Binding Guidelines for application of the Council Directive on the identification and designation of European Critical Infrastructures and the assessment of the need to improve their protection. The document aims to assist Member States in the proper application of technical provisions for the determination of European critical infrastructures (Lazari, 2014).

It is proposed to use following criteria or conditions for cumulative observation of the sectorial criteria: (i) Prescribe specific properties (according to its necessity for the functioning of the entire system, sector and/or organization); (ii) Identify networks of which the 'key elements' must be determined (according to the potential negative effects that may occur in the Member States); (iii) Name a specific infrastructure asset directly; (iv) Allow Member States to identify an asset directly (in the cases where no sectorial criteria exist) (The Joint Research Centre, 2008), (Mitrevska, Mileski, Mikac, 2019).

The significant opportunity, that the European Commission provides to all interested actors in the area of critical infrastructure protection are projects. Through the program the Prevention, Preparedness and Consequence Management of Terrorism and other Security-related Risks, during the period 2007-2012, 111 projects were co-financed (70 – directly related to critical infrastructure protection, 32 – related to crisis management, 9 – mixed) with a total of 45 million Euros allocated. The Commission continued to invest in projects that enable to all interested co-financing the projects costs to the greatest extent and most importantly the transfer of the required knowledge and technology (Mitrevska, Mileski, Mikac, 2019), (Engdahl, 2016).

The next important step in establishing cooperation and exchange of knowledge and experience at the European level was designing and launching of Critical Infrastructure Warning Information Network (CIWIN). This was already announced in the Green Paper on a European Programme for Critical Infrastructure Protection in 2005, and has been gradually created by a modular approach and has become operational in January 2013. The purpose of the network is to exchange information on strategies and measures to reduce risk in critical infrastructure protection (Mitrevska, Mileski, Mikac, 2019).

Also, the Commission has recognized the standstill in the normative area of the developing process of the area for identification and designation of European critical infrastructures as well as in cooperation between Member States, and in 2012 it has started to carry out a revision of the previous activities and the development of a working document dedicated to a new approach in critical infrastructure protection. In mid-2013, it presented the Commission Staff Working Document on a new approach to the European Programme for Critical Infrastructure Protection: Making European Critical Infrastructures more secure. The above is an updated version of the European Programme, originally adopted in 2006. The solutions proposed so far have been reviewed, a new look at ways and models on how to continue to develop this area is presented, including some data such as: how less than 20 European critical infrastructures are designated, and among them aren't for example the main energy distribution network (European Commission, 2013). By 2016, in total 89 European critical infrastructures (Engdahl, 2016) were designated (Mitrevska, Mileski, Mikac, 2019).

The Working Document presents a new look at the more practical implementation of the European Programme for Critical Infrastructure Protection, provides an analysis of the elements of the current program and proposes a transformation of the approach of European critical infrastructure protection, based on the practical implementation of activities within the area of prevention, readiness and response. Part of the new approach is to look at the interdependence between critical infrastructure, industry and state entities, as it has been noted that the interdependence so far has not been sufficiently perceived. As many of the critical infrastructures are in private ownership, it confirmed the view that better cooperation with the private sector and the development of publicprivate structured dialogue are needed.

Four priority areas of the European critical infrastructure protection model are additionally highlighted, which need to be further elaborated: (i) Procedures for identification and designation of European critical infrastructures and the assessment of the need to improve their protection; (ii) Measures designed to assist the implementation of the European Programme for Critical Infrastructure Protection, including the Action Plan, the establishment of a Critical Infrastructure Warning Information Network (CIWIN), the use of expert groups for critical infrastructure protection at Union level, exchange of information, identification and interdependency analysis; (iii) Financing of measures related to the critical infrastructure protection and projects associated with a special program Prevention Preparedness and Consequence Management of Terrorism and other Security-related Risks; (iv) The development of the external dimension of the European Programme for Critical Infrastructure Protection (Mitrevska, Mileski, Mikac, 2019).

The key activity carried out over the last few years, at the Commission's initiative, is the revision of Directive 2008/114/EC. So far, its evaluation has been carried out by the Commission. As a final

product, the evaluation has brought identified challenges in implementation, the best practices of individual Member States, conclusions and recommendations what is presented in the final, very comprehensive document. Based on this evaluation it will be determined in the next step what will happen with Directive 2008/114/EC. Will it change or create a whole new document (about which format will be afterwards decided) that will completely replace it (Mitrevska, Mileski, Mikac, 2019), (Cesarec, 2019).

3. NATO.

The approach and contribution of NATO in critical infrastructure protection is still a topic of scientific analyses and political debates. Despite this ongoing discussions, critical infrastructure protection has been gradually taking an active part in NATO strategies.

After the September 11, 2001 attacks, the NATO Summit in Prague initiated the "Civil Emergency Planning Action Plan" that states: "…we are committed, in cooperation with our partners, to fully implement the Civil Emergency Planning Action Plan for the improvement of civil preparedness against possible attacks against the civilian population with chemical, biological or radiological agents. We will enhance our ability to provide support, when requested, to help national authorities to deal with the consequences of terrorist attacks, including attacks with chemical, biological, radiological and nuclear weapons against critical infrastructure, as foreseen in the Civil Emergency Planning Action Plan". (Prague Summit Declaration, 2002).

In 2005, the Action Plan focused on critical infrastructure protection and victims support (in order to cover efforts during and after terrorist attacks with chemical, biological, radiological and nuclear weapons) was adopted and adjusted by the Senior Civil Emergency Planning Committee.

In NATO's Strategic Concept (adopted at the Lisbon Summit in 2010), critical infrastructure is the first and foremost clearly and unambiguously mentioned in the section on "cyber" attacks. The Concept emphasizes the commitment to develop the capacity to contribute to energy security among Allies on the basis of strategic assessments and contingency planning (Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization, 2010).

In connection with the NATO critical infrastructure approach, it to be considered the definition of "Critical Infrastructure" used by Allied Command Operations (ACO) - critical Infrastructure is a general term describing a nation's infrastructure assets, facilities, systems, networks, and processes that support the military, economic, political and/or social life on which a nation and/or NATO depends. From an ACO perspective, Critical infrastructure is categorized into three different sub-categories: (i) Critical National Infrastructure; (ii) Mission-Vital Infrastructure; (iii) Key Infrastructure (Bearse, 2021).

4. G7 Counties.

In a modern variable security environment, there are growing concerns and debates regarding Critical Infrastructure concept and protection of infrastructures, especially, how to effectively protect them given their vital positions in social and economic developments. These concerns have been highlighted with the increased emphasis on improved efficiency, performance and productivity, and this implies that Critical Infrastructures now rarely exist or function in isolation. Rather, they are becoming more tightly coupled into a system of (inter)dependent infrastructures. In this case, G7 Countries is no exception regardless of their economic or military or other strength.

4.1. Canada.

The National Strategy, for Critical Infrastructure sets the direction for enhancing the resilience of Canada's critical infrastructure against current and emerging hazards, defines critical infrastructure as the processes, systems, facilities, technologies, networks, assets, and services essential to the health, safety, security or economic well-being of Canadians and the effective functioning of government (Minister of Public Safety and Emergency, 2021).

The fundamental concepts and principles outlined in this National Strategy flow from the Emergency Management Framework for Canada, which sets out a collaborative approach for federal, provincial and territorial emergency management initiatives. Therefore, the National Strategy presents a collaborative approach to strengthening the resilience of critical infrastructure, by ensuring that federal, provincial and territorial critical infrastructure activities are complementary and respect the laws of each jurisdiction, outlines mechanisms for enhanced information sharing and information protection, and identifies the importance of a risk management approach to strengthen the resilience of critical infrastructure in Canada and identifies three main objectives to strengthen critical infrastructure resilience: building partnerships, sharing and protecting information, and practicing an all-hazards risk approach (Government of Canada, 2021).

The National Strategy is based on the recognition that enhancing the resiliency of critical infrastructure can be achieved through the appropriate combination of security measures to address intentional and accidental incidents, business continuity practices to deal with disruptions and ensure the continuation of essential services, and emergency management planning to ensure adequate response procedures are in place to deal with unforeseen disruptions and natural disasters. Following this pillar, the goal of the National Strategy for Critical Infrastructure is to build a safer, more secure and more resilient Canada. To this end, the National Strategy advances more coherent and complementary actions among federal, provincial and territorial initiatives and among the ten critical infrastructure sectors listed below: (i) Energy and utilities; (ii) Finance; (iii) Food; (iv) Transportation; (v) Government; (vi) Information and communication technology; (vii) Health; (viii) Water; (ix) Safety; (x) Manufacturing (Government of Canada, 2021).

4.2. France.

Critical infrastructure protection policy, established by the 2013 White Paper on Defence and National Security, provides a framework in which public or private critical operators can assist in implementing the national security strategy in terms of protection against malicious acts and natural, technological and health risks (The French White Paper on Defence and National Security (2013).

Critical infrastructures are institutions, structures or facilities that provide the essential goods and services forming the backbone of French society and its way of life. Based on that approach, there are separated twelve sectors of critical importance across four key areas of responsibility: (i) Basic human need: Food Water management Health; (ii) Sovereign: Civilian activities Legal activities Military activities; (iii) Economic: Energy Finance Transport; (iv) Technological: Communication, technologies and broadcasting Industry Space and research (SGDCN, 2017).

4.3. Germany.

The German National Strategy for Critical Infrastructure Protection summarizes the Federal Administration's aims and objectives and its political-strategic approach to actively address matters of critical infrastructure protection. The strategy is guided by the principle of joint action by the state, society, and business and industry. The state co-operates with other public and private actors in developing analyses and protection concepts.

The Strategy first defines critical infrastructure, as organizational and physical structures and facilities of such vital importance to a nation's society and economy that their failure or degradation would result in sustained supply shortages, significant disruption of public safety and security, or other dramatic consequences. This strategy, with reference to their technical, structural and functional specifics, classifies critical infrastructures as vital (absolutely essential) technical basic infrastructure, on the one hand, and vital (absolutely essential) socio-economic services infrastructure, on the other hand. In Germany, these include: (i) Technical basic infrastructure: Power supply; Information and communications technology; Transport(ation); (Drinking-) water supply and sewage disposal; (ii) Socio-economic services infrastructure: Public health; food; Emergency and rescue services; disaster control and management; Parliament; government; public administration; law enforcement agencies; Finance; insurance business; Media; and cultural objects (cultural heritage items). It seems significant interdependencies exist between these two infrastructure sectors since nearly all of the socio-economic services infrastructures largely rely on the unrestricted availability of the technical basic infrastructure. However, technical basic infrastructures, in their turn, depend on socio-economic services infrastructure, such as a stable legal service or functioning first response, emergency medical and rescue services in the event of a crisis (Federal Ministry of the Interior,2009).

This approach shoes that the main focus is clearly on the disruption of supplies and services. Infrastructures, in which dangerous substances are handled such as chemical industry factories or nuclear waste sites, are, for example, not addressed in the definition. The infrastructures under consideration are those, whose failure can lead to an effect on the population or on other infrastructures (EISMANN, 2009).

According to Critical Infrastructure Regulation"/BSI-KritisV critical infrastructures are organizations or facilities of major importance to the state community, the failure or impairment of which would result in lasting supply bottlenecks, significant disruptions to public safety or other dramatic consequences (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe, 2021).

On 1 January 2022, the second amendment to the German Regulation for Critical Infrastructure ("Critical Infrastructure Regulation"/BSI-KritisV) entered into force. It broads the definition of Critical

Infrastructures, particularly in the IT services and energy sectors. The definition of Critical Infrastructure in the pertinent German legislation has two limbs:

(i) The infrastructure in question must fall within certain categories of the energy, water, food, IT and telecommunication, health, finance and insurance, or transportation and traffic sectors;

(ii) The infrastructure in question must reach certain thresholds as to the size and importance of the respective infrastructure. The most relevant changes to the Critical Infrastructure Regulation include: Software and IT services; Energy sector; IT and telecommunication sector; Health sector; Finance and insurance sector; Transportation and traffic sector; Joint infrastructure (Petersen and etc., 2002).

4.4. Italy.

The DPCM Asset of National Interest identifies the "assets of National interests" within the sectors indicated in the European Regulation no. 452/2019 (*i.e.*, financial, credit and insurance sectors, critical infrastructures and technologies including energy, transport, water and healthcare, food safety, access to sensitive information, including personal data, artificial intelligence, robotics, semiconductors, cybersecurity, as well as nanotechnology and biotechnology, media freedom and pluralism"):

(i) "Critical infrastructure" means the critical infrastructure for maintaining the vital functions of society, health, safety and the economic and social well-being of the Italian population;

(ii) "Critical technology" means the critical technologies for maintaining the vital functions of society, health, safety, economic and social well-being of the Italian population, as well as for technological progress;

(iii) "Critical production factors" means the assets and interests critical for maintaining the vital functions of society, health, safety and the economic and social well-being of the Italian population;

(iv) "Critical information" means the information critical for maintaining the vital functions of society, health, safety and the economic and social well-being of the Italian population; (v) "Strategic economic activities" means the economic activities critical for maintaining the vital functions of society, health, safety, economic and social well-being of the Italian population, as well as technological progress (Decrees, 2020).

4.5. Japan.

In the "Action Plan on Information Security Measures for Critical Infrastructure" promulgated by the Information Security Policy Council (ISPC) in 2005, critical infrastructure is defined as: Critical infrastructure which offers the highly irreplaceable service in a commercial way is necessary for people's normal lives and economic activities, and if the service is discontinued or the supply is deficient or not available, it will seriously influence people's lives and economic activities. Based on the definition of the action plan, the critical infrastructure contains: (i) Telecommunication systems; (ii) Administration services of the government; (iii) Finance; (iv) Civil aviation; (v) Railway; (vi) Logistics; (vii) Power, gas, water; (viii) Medical services (Information Security Policy Council, 2009).

Since 2005, the "Cybersecurity Policy for Critical Infrastructure Protection" (the 4th edition was published in 2017) has been set as a common action plan shared by the government (which bears a responsibility for protection of critical infrastructure) and by critical infrastructure operators (which independently carry out relevant protective measures), identifies the critical infrastructure sectors and expects stakeholders to undertake the five measures as below: development and penetration of safety principles; enhancement of information sharing system; reinforcement of incident response capacity; risk management and preparation of incident readiness; building up of basis of critical infrastructure protection (NISC,2021).

4.6. The United Kingdom.

The UK's Critical National Infrastructure is increasingly interconnected and interdependent. It includes both public (The Defence, Emergency Services, Government and Health sectors are predominantly considered as public sector (CPNI, 2021) sector and private (Much of the UK's CNI is owned by the private sector, rather than the UK government. The NCSC has a team dedicated to supporting cyber security within each CNI sector in order to help protect their essential services (CPNI, 2021) sector organisations.

The UK's Critical Infrastructure is defined by the UK government as Those critical elements of infrastructure (namely assets, facilities, systems, networks or processes and the essential workers

that operate and facilitate them), the loss or compromise of which could result in: (a) Major detrimental impact on the availability, integrity or delivery of essential services – including those services whose integrity, if compromised, could result in significant loss of life or casualties – taking into account significant economic or social impacts; and/or (b) Significant impact on national security, national defence, or the functioning of the state (NCSC, 2021).

Based on these pillars, UK Critical National Infrastructure incorporates 13 sectors: (i) Chemicals; (ii) Civil Nuclear; (iii) Communications; (iv) Defence; (v) Emergency Services; (vi) Energy; (vii) Finance; (viii) Food; (ix) Government; (x) Health; (xi) Space; (xii) Transport; (xiii) Water. (UK Parliament, 2021)

Several sectors have defined 'sub-sectors'; Emergency Services for example can be split into Police, Ambulance, Fire Services and Coast Guard. However, not everything within a national infrastructure sector is judged to be critical (CPNI, 2021).

4.7. The United States of America.

Since mid-1990s, by issuing the Executive Order (EO) 13010 Critical Infrastructure Protection, the US government has begun to formalise efforts to develop a comprehensive national policy for Critical Infrastructure. Mentioned order stated that "certain national infrastructures so vital that their incapacity or destruction would have a debilitating impact on the defense or economic security of the United States (EO 13010).

Through 2007 the focus was on the identification and cataloging of the nation's Critical Infrastructure assets. From 2007 to 2013 the focus turned to the identification and prioritisation of lifeline sectors and the overall interdependency of the critical infrastructure system as a whole.

Today Presidential Policy Directive 21 (PPD-21), which supersedes Homeland Security Presidential Directive 7, establishes national policy on Critical Infrastructure security and resilience. The directive declares that: a) "The Nation's Critical Infrastructure is diverse and complex. It includes distributed networks, varied organisational structures and operating models (including multinational ownership), interdependent functions and systems in both the physical space and cyberspace, and governance constructs that involve multi-level authorities, responsibilities, and regulations. Critical Infrastructure owners and operators are uniquely positioned to manage risks to their individual operations and assets, and to determine effective strategies to make them more secure and resilient"; b) Critical Infrastructure must be secure and able to withstand and rapidly recover from all hazards. Achieving this will require integration with the national preparedness system across prevention, protection, mitigation, response, and recovery" Presidential Policy Directive (2013).

The term "critical infrastructure" has the definition given to that term in section 1016(e) of the USA PATRIOT Act of 2001 (42 U.S.C. 5195c (e)) - the term ''critical infrastructure'' means systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters".

The National Infrastructure Protection Plan (NIPP) provides the coordinated approach that is used to establish national priorities, goals, and requirements for protecting and ensuring the continuity of Critical Infrastructure and key resources (CIKR) protection so that federal resources are applied in the most effective and efficient manner to reduce vulnerability, deter threats, and minimize the consequences of attacks and other incidents. It establishes the overarching concepts relevant to all CIKR sectors identified under the authority of Homeland Security Presidential Directive 7, and addresses the physical, cyber, and human considerations required for effective implementation of protective programs and resiliency strategies.

The National Infrastructure Protection Plan (NIPP) specifies the key initiatives, milestones, and metrics required to achieve the Nation's Critical Infrastructure and Key Resources (CIKR) protection mission. It sets forth a comprehensive risk management framework and clearly defined roles and responsibilities for the Department of Homeland Security, Federal Sector-Specific Agencies (SSAs), and other Federal, State, local, tribal, territorial, and private sector partners. The cornerstone of the National Infrastructure Protection Plan (NIPP) is its risk management framework establishing the processes for combining consequence, vulnerability, and threat information to produce a comprehensive, systematic, and rational assessment of national or sector risk.

There are 16 critical infrastructure sectors (Cybersecurity and Infrastructure Security Agency. (2022) whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States:

(i) Chemical Sector. This sector is an integral component of the U.S. economy that manufactures, stores, uses, and transports potentially dangerous chemicals upon which a wide range of other critical infrastructure sectors rely. Securing these chemicals against growing and evolving threats requires vigilance from both the private and public sector;

(ii) Commercial Facilities Sector. This sector includes a diverse range of sites that draw large crowds of people for shopping, business, entertainment, or lodging. Facilities within the sector operate on the principle of open public access, meaning that the general public can move freely without the deterrent of highly visible security barriers. The majority of these facilities are privately owned and operated, with minimal interaction with the federal government and other regulatory entities;

(iii) Communications Sector. This sector is an integral component of the U.S. economy, underlying the operations of all businesses, public safety organizations, and government. Presidential Policy Directive 21 identifies the Communications Sector as critical because it provides an "enabling function" across all critical infrastructure sectors;

(iv) Critical Manufacturing Sector. This sector is crucial to the economic prosperity and continuity of the United States. A direct attack on or disruption of certain elements of the manufacturing industry could disrupt essential functions at the national level and across multiple critical infrastructure sectors;

(v) Dams Sector. This sector delivers critical water retention and control services in the United States, including hydroelectric power generation, municipal and industrial water supplies, agricultural irrigation, sediment and flood control, river navigation for inland bulk shipping, industrial waste management, and recreation. Its key services support multiple critical infrastructure sectors and industries. Dams Sector assets irrigate at least 10 percent of U.S. cropland, help protect more than 43 percent of the U.S. population from flooding, and generate about 60 percent of electricity in the Pacific Northwest.

(vi) Defense Industrial Base Sector. This sector is the worldwide industrial complex that enables research and development, as well as design, production, delivery, and maintenance of military weapons systems, subsystems, and components or parts, to meet U.S. military requirements. The Defense Industrial Base partnership consists of Department of Defense components, more than 100,000 Defense Industrial Base companies and their subcontractors who perform under contract to the Department of Defense, companies providing incidental materials and services to the Department of Defense, and government-owned/contractor-operated and government-owned/government-operated facilities. Defense Industrial Base companies include domestic and foreign entities, with production assets located in many countries. The sector provides products and services that are essential to mobilize, deploy, and sustain military operations. The Defense Industrial Base Sector does not include the commercial infrastructure of providers of services such as power, communications, transportation, or utilities that the Department of Defense uses to meet military operational requirements. These commercial infrastructure assets are addressed by other Sector Risk Management Agencies;

(vii) Emergency Services Sector (ESS). This sector is a community of millions of highly-skilled, trained personnel, along with the physical and cyber resources, that provide a wide range of prevention, preparedness, response, and recovery services during both day-to-day operations and incident response. The ESS includes geographically distributed facilities and equipment in both paid and volunteer capacities organized primarily at the federal, state, local, tribal, and territorial levels of government, such as city police departments and fire stations, county sheriff's offices, Department of Defense police and fire departments, and town public works departments. The ESS also includes private sector resources, such as industrial fire departments, private security organizations, and private emergency medical services providers;

(viii) Energy Sector. This sector as uniquely critical because it provides an "enabling function" across all critical infrastructure sectors. The energy infrastructure is divided into three interrelated segments: electricity, oil, and natural gas;

(ix) Financial Services Sector. This sector includes thousands of depository institutions, providers of investment products, insurance companies, other credit and financing organizations, and the providers of the critical financial utilities and services that support these functions;

(x) The Food and Agriculture Sector. This sector is almost entirely under private ownership and is composed of an estimated 2.1 million farms, 935,000 restaurants, and more than 200,000 registered food manufacturing, processing, and storage facilities. This sector accounts for roughly one-fifth of the nation's economic activity;

(xi) The Government Facilities Sector. This sector includes a wide variety of buildings, located in the United States and overseas, that are owned or leased by federal, state, local, and tribal governments;

(xii) The Healthcare and Public Health Sector. This sector protects all sectors of the economy from hazards such as terrorism, infectious disease outbreaks, and natural disasters;

(xiii) The Information Technology Sector. This sector is central to the nation's security, economy, and public health and safety as businesses, governments, academia, and private citizens are increasingly dependent upon Information Technology Sector functions;

(xiv) The Nuclear Reactors, Materials, and Waste Sector. This sector includes: 99 Active and 18 Decommissioning Power Reactors in 30 states that generate nearly 20 percent of the nation's electricity;

(xv) The Transportation Systems Sector. This sector consists of seven key subsectors, or modes: Aviation; Highway and Motor Carrier; Maritime Transportation System; Mass Transit and Passenger Rail; Pipeline Systems; Freight Rail; Postal and Shipping;

(xvi) The Water and Wastewater Systems Sector.

5. Conclusions.

Although the term "Critical Infrastructure" is relatively new, in today's turbulent security environment and dynamic development of technologies and artificial intelligence, as well as in existing hybrid threats nature, understanding of Critical Infrastructure concept moves within the framework, according to which Critical Infrastructure might be considered as a set of all objects, systems, networks and functions (whether physical or virtual, private or public) effectiveness of which is of great importance for maintaining the development of every society and the general functioning of the state.

Critical Infrastructure now rarely exist or function in isolation, rather, they are becoming more tightly coupled, interconnected and interacted that creates a complex multisystem - a system-of-systems which generally includes sectors related to chemicals, communications, defence, emergency services, energy, finance, food and water, government, health, space, transport and any other sectors that might be vital for state security.

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BEHAVIORAL CHARACTERISTICS OF CONSUMERS OF TOURISM PRODUCTS

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ABSTRACT

The main purpose of the study. In the context of the development of tourism enterprises in Azerbaijan, it is necessary to identify rational directions for the use of marketing opportunities both at the company and state levels. To achieve this goal, the following tasks have been set: •Assess the role of marketing in marketing an innovative product; •Determining the behavioral characteristics of consumers of tourism products; •Study of experience in the application of marketing technologies in the tourism industry.
Research methodology. Organizes research on the competitiveness of national tourism enterprises in domestic and international markets and generalizations from world experience in this field. Importance of research application. Adoption of the concept on development of national cluster of state tourism marketing policy, creation of normative-legal base in accordance with the concept of tourism development in each field included in tourism cluster on the basis of world experience and international tourism standards, development and adoption of "Tourism development in Azerbaijan" program, makes it necessary to carry out activities such as the regulation of tourism activities. The results of the study. The state's tourism policy must be developed and implemented in terms of time and space. In terms of time, we mean short-term and long-term tourism policies. As a result, the state's tourism policy serves to increase the efficiency of the national tourism cluster and increase the competitiveness of this sector of the national economy. Originality and scientific novelty of the research. In order to develop the national tourism cluster in Azerbaijan, a set of practical measures for tourism marketing activities for local tourism companies and the Government of Azerbaijan is being developed.

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Introduction. Before researching marketing activities in the tourism business, it is necessary to study the important features of this business. The marketer should try to understand the technology of selection of tourism services by potential buyers, their reaction to marketing incentives. This allows the company's proposals to adapt more effectively to market expectations. Experts have developed a consumer attraction matrix (Foote-Cone-Belding Planning Matrix - FCB matrix). The results of the analysis of the attraction matrix were examined and concluded to be useful for purposes such as structuring behavioral information when purchasing a product, identifying the position of a company or brand in the minds of a group of consumers, and choosing a company's business strategy. The article also reflects the criteria for segmentation of buyers, such as the technology of selection of tourism services.

The company that serves the tourist should try not to allow the consumer to regret the cognitive dissonance, ie the product. Experience shows that cognitive dissonance is widespread, and if the buyer wants to return the product, he must fulfill this wish, otherwise the loss will be greater. As a result, the buyer will no longer use the services of this company, he will even negatively characterize the company to his acquaintances and can create a negative image of the company on the website. With this in mind, the seller of goods and services should make every effort to ensure that the consumer is satisfied with the company.

Proper understanding of customer needs is the key to successful marketing. To do this, you need to get information about the product from different buyers, analyze the proposed alternatives, make a purchase decision, as well as try to understand how to go through the post-purchase stage. As a result, the company can choose a more effective marketing strategy and best meet the needs of customers.

In order to clearly understand the consumer's behavior, it is necessary to study his attitude to the new product. A new product is a product, service or idea that is perceived by the buyer as new [2]. By product perception, we mean the process by which a consumer hears about a product for the first time, learns enough about it, and decides to buy it on a regular basis. In the process of mastering a new product, the consumer goes through 5 stages.

1. The stage of being informed. At this stage, the consumer has some information about the product, but this information is not enough to make a rational and adequate decision.

2. Interest stage. The consumer collects additional information about the new product and uses various sources for this purpose.

3. Evaluation phase. The consumer is thinking about whether to test this product.

4. Test phase. If a consumer decides to inspect a product, he buys a small amount of the product to make sure that it is worthwhile.

5. Assimilation stage. The consumer decides to become a regular consumer of the new product.

A marketer involved in marketing a new product should help the buyer go through these stages. For example, when a hotel is built, the company usually hires a sales manager a year before the hotel opens. At this stage, the task of the sales manager is to inform the public about the construction of a new hotel. To promote interest in the hotel, it can broadcast relevant information through various channels, and arrange excursions for representatives of intermediary companies. Thus, it should create a positive opinion about the new project among the public and the target segment. After the opening of the hotel, it can create opportunities for key consumers and their agents to stay here for a while and try out the benefits of the hotel. Low prices may be offered to first-time visitors to reduce risk during the trial period. During this period, the hotel management must work at full capacity to ensure that potential customers are satisfied with the acquisition phase. Experience shows that in many cases, a newly commissioned hotel loses potential customers due to the inability to fully recruit staff or attract professionals.

The marketer should try to understand the technology of selection of tourism services by potential buyers, their reaction to marketing incentives. This allows the company's proposals to adapt more effectively to market expectations [3].

Different levels of buyer reaction are divided into 3 groups [1]:

• Cognitive reaction - linking the acquired information with the knowledge of the recipient.

• Emotional (affective) reaction - related to the buyer's attitude and evaluation system.

• Behavioral reaction - describes not only the act of purchase, but also the behavior after the purchase.

These three levels form a three-stage chain - perception (learn), emotional (feel - feel), behavior (do - do).

Experts have developed a consumer attraction matrix (Foote-Cone-Belding Planning Matrix - FCBmatrix) [4].

The FCB matrix takes into account both the degree of involvement and the method of perceiving reality:

• comprehension is based on reason, logic, reasoning, factual information;

• Emotionality is non-verbal and is based on emotions, intuition, feelings and excitement.

These two approaches complement each other, but one of them dominates for a certain type of goods and services. Simultaneous consideration of the degree of involvement and the method of perception creates a matrix that identifies 4 different successive stages of the reaction (Table 1).

Table 1. FCB matrix

	Intellectual approach	**Emotional approach**
High attraction	1. Learning (knowing-feeling-doing) - Insurance policy - Car insurance - Washing machine - Tour purchase	2.Emotionality (feeling- knowing-doing) - Expensive watch - Wallpapers - Perfume - Toothpaste
Weak attraction	1. Rutina (do-know-feel) - Shampoo - Shaving razor - Paper towels	1. Hedonism (to do-feel-to know) - Cheap watch - Pizza - Diet drinks

The results of the analysis of the attraction matrix are useful for the following purposes:

• structuring information about behavior when purchasing a product;

• identification of the position of the company or brand in the minds of consumers;

• To choose the company's business strategy.

As a result, the following has been identified.

1. Studying the behavior of buyers in the market of tourism services - although a complex process, it allows managers of tourism businesses to collect and analyze the information necessary for management decisions. The tourism services market is widely variable and requires high-risk management decisions, depending on a number of factors. This, in turn, requires companies to be agile and have the ability to obtain the necessary professional information in a timely manner. In order to obtain such information, it is necessary to conduct regular monitoring of consumer behavior in the tourism industry market.

2. A very important stage is the customer's post-purchase behavior. When buying a tourism product, he considers the price as an important part of the quality of service.

3. The use of tourism services depends on income.

4. As a rule, preference is given to summer and winter.

5. Promotions and discounts play an important role in the purchase of tourism products.

6. Customers prefer to describe the place of rest on Internet resources as a source of accurate information about the resorts.

7. Fun and active recreation are important in product selection.

8. Travelers appreciate the exotic.

9. The advice of a friend and personal experience play a decisive role in choosing a travel agency.

10. Advertising has almost no effect on consumers.

11. People are becoming more and more experienced in choosing and focusing primarily on the quality and content of the service [6].

12. Intense competition in the tourism business creates the need to monitor the behavior of consumers through marketing, to provide feedback to tourists, to identify changes in their needs.

13. To be successful in the tourism services market, a company must find a way to attract a potential customer.

Since face-to-face marketing is ultimately aimed at the end consumer, it is necessary to take into account, first of all, the determinants of the demand for tourism services.

1. Age structure of the population. For example, due to the aging population of Europe and high pensions, European tourism companies consider the elderly as a special category. In countries such as Azerbaijan, where the population is growing dynamically and pensions are very low, young people come to the fore as potential customers.

2. Age factor. This is a very important factor. Each age group has its own travel requirements and motivations. In addition, this factor has a strong impact on people's mobility and tendency to spend money.

Being the most numerous category, young people should be studied as a special segment in tourism marketing. At the same time, taking into account the special impact of children on tourism demand, it is necessary to distinguish between married and childless young families in this category.

In countries with high birth rates, children have a conflicting impact on student tourism services. As can be seen from Table 2, if the tendency to tourism is moderate in childless families, this desire is very weak in families with small children. There are many reasons for this:

- the complexity of traveling with the baby on public transport;

- Sensitivity of infants to climate change - the possibility of disease;

- the need for entertainment for children of this age in recreation areas and its impact on prices;

- Anxiety that children can cause to others.

In other words, traveling with young children can be more stressful for parents than leisure. On the other hand, wealthy families are willing to incur high costs for the sake of children, which is good for tourism companies.

Table 2. The impact of life cycle on tourism consumption

Family life cycle phase	**Coming**	**Propensity to tourism**
1. Single	Enough	Strong
2. Family without children	Growing	Medium
3. Families with children under 6 years old	Decreasing	Very weak
4. Families with school-age children	Growing	Weak
5. A family with children in need of support	Stable	Medium
6. A family with children who do not need support	Maximum	Very strong
7. Working old family	Stable	Strong
8. Retired elderly family	Enough	Very strong
9. Retired widow	Enough	Weak

Even though traveling with school-age children is relatively less stressful, families are more likely to travel. However, it should be borne in mind that such families can travel only during school holidays.

In addition, families with children should be segmented in terms of whether the child needs support (for example, children with disabilities). If the child in the family needs support, the desire to give joy to such children, even if it reduces the tendency to travel, directs the opposite motivation.

The vehicles that young people prefer to travel are planes and cars. One of the interesting facts is that the motivation of a single retiree is weak, while the young single has a strong propensity to tourism, while in a retired couple it is very strong. Apparently, this fact can be explained by the fact that an elderly couple is able to care for each other, and vice versa, the journey of a single adult is risky in terms of both health and other factors.

The lifestyle of the population aged 35-44 affects the lifestyle of the whole country. As you can see below, this category spends a lot of money on travel. Most of this age group is experienced, and their main travel goals are to relax, broaden their horizons, and shop around a bit. Meeting the needs of this category is an important condition for the future development of the tourism company. This age group prefers to travel by plane.

The number of tourists aged 45-54 is also increasing. They also like to relax in resorts away from home and travel by plane.

Usually, tourism marketers also segment the elderly population. People aged 55-65 have a better financial situation than the elderly. Therefore, this group also has a growing trend, and it is necessary for marketing professionals to keep this category in the spotlight.

In many countries (for example, Japan, Spain, Germany) the population aged 65-74 is also an active tourist. In addition, tourism statistics show an increase in travel in this segment. This is explained by many factors:

- lack of family care;
- high level of health and therefore life expectancy in those countries;
- these people are of retirement age, therefore have the opportunity to travel in any season of the year;
- strong discounts on transport, hotels and resorts during off-peak periods;
- In some countries, these people have high pensions or other sources of income.
- in some cases, financial support from young relatives or the state.

In the population over the age of 74, the propensity to travel decreases with age, and this category is not considered promising. At the same time, it should be noted that this segment prefers short distances, comfortable transport and cheap tours. Therefore, it is expedient to offer special marketing programs and discounted tours to this group. For this purpose, special offers can be made for this category during non-peak periods. It should also be noted that older people do not like the memory of old age. Therefore, you need to be more careful in advertising appeals.

As can be seen from the table, single people can be separated as a special category. They are divided into three groups: never married, divorced, widows. They have developed a sense of individuality. They want comfort and enjoy life. Young singles travel more than their peers and prefer airplanes. There are tourism companies that specialize only in this segment. An example of this is Single Travel, a successful company in Germany.

3. Income level. This directly affects purchasing power. High-income citizens spend a lot of money on tourism and prefer to travel by plane to save time, as they are mostly busy people. The main difference between low-income travelers is that while low-income travelers make up the bulk of their

travel expenses, affluent tourists make up a small portion of their total expenses, and they spend more on leisure activities and shopping. Therefore, cheaper directions and programs should be offered to low-income potential customers [8].

The tourism company must constantly focus on the economic situation in the country and, in the event of deteriorating economic indicators, change the market position and reconsider its policy.

The best examples of this are the recent devaluations in Azerbaijan. After these events, domestic tourism opportunities in our country have increased significantly, and companies that take into account this shift in priorities have become more successful, while companies that insist on expensive routes have closed. In addition, many Azerbaijani tourism companies, which also use the strong devaluation of the national currency in Turkey, offer their customers cheap and interesting tours (Baku-Batumi-Trabzon, Baku-Batumi (overnight stay) - Trabzon-Cappadocia, etc.). Incorporating shopping into these programs also makes travel more attractive.

4. Level of education. International experience shows that people with higher education are more inclined to travel, spend more money for these purposes, and more active leisure and cognitive tourism, low-educated people prefer recreational tourism. The former travel mainly by air, while the latter sometimes use private or public transport [9]. In many cases, education itself is the goal of tourism.

5. Sexual affiliation. It is very important for marketing whether a man or a woman plays a leading role in making a family travel decision. Of course, the national mentality of the country's population plays an important role in this issue. The role of the above level of education should also be noted. In countries where women's literacy is low, of course, women's views cannot be decisive in international tourism. But a number of factors have a significant impact on women in this regard:

• First of all, it should be noted that the vast majority of countries are secular in nature, and in such countries, neither of these two factors plays a leading role.

• Even in countries where sexual discrimination is high (for example, governed by Sharia law), women are less mobile, and in a normal family, the head of the family will certainly take his or her wife's opinion into account, or at least try to persuade her.

• A woman has the opportunity to influence her husband's decision through her children, even if she does not take his wife's opinion into account.

Note that other studies also emphasize the influence of women on travel decisions [10, 11].

In countries with a large number of women, they have a greater role in their travel decisions and travel alone or with their children. For example, in Russia, the average life expectancy of women is higher than that of men, which increases their share in the demographic structure. On the other hand, the growing role of women in the social, political and economic life of this country, their participation in the labor market along with men, and finally, for some reason, they prefer to live without a spouse (note that this is the case in all western countries with high female emancipation). increased their role in the decision, on the other hand, intensified their travels alone or with their children [11, 12].

Studies show that the number of housewives in such countries is very small and their incomes are quite high. That is why tourism companies study career women as a special perspective segment

Thus, the increasing role of women in public life also affects their consumer behavior. The fact that these processes take place in Azerbaijan should be in the minds of tourism marketers.

6. Leisure time. No high income and the desire to travel does not allow you to make this trip without leisure time. In other words, leisure time as income is a necessary condition for the formation of demand for tourism services. Although it is a leisure time, its limitations affect both the choice of transport and the nature of leisure - it is not uncommon for people to travel to work for recreation, but certain professionals organize trips for family members, and they do not rest in the full sense of the word. Lack of time can also affect the choice of travel company. That's why experienced companies try to take advantage of weekends, holidays, school holidays and focus their marketing research in this direction. In recent years, the reduction of the working week and working hours also increases these incentives. It is true that in some countries raising the retirement age, on the contrary, is a negative trend.

7. Profession. Studies show that white collars travel more than blue collars. However, the most frequent travelers during the year are managers and administrative staff. This can be explained by the fact that most of the travels of these professionals are work-related. Their earnings also allow them to travel on vacation. Therefore, tourism companies pay special attention to this category, and some work mainly with such customers. One of the reasons for this is that these professionals have a more stable ability to pay than economic shocks due to high earnings. It is necessary to pay attention to another aspect of this issue. The blue-collar worker's income may be more than any manager's income, but he

should not spend it on travel due to consumer habits. Tourism marketers should also consider this category as a potential customer [11-14].

8. Religious affiliation and belief. This factor is poorly covered in the scientific literature. However, this factor is especially important for those who follow the requirements of a religion with many prohibitions. This is even more evident in the example of the Muslim population. It is a well-known fact that people who follow Islamic rules feel more comfortable in Islamic countries. On the contrary, especially in countries that do not take this category into account, they suffer from poor nutrition, worship, and personal hygiene.

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SELECTION OF INDICATORS OF QUALITY MANAGEMENT SYSTEM AND MARKETING ANALYSIS OF MANAGEMENT OF NON-MANUFACTURING ENTERPRISES

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ABSTRACT

In contrast to the study of marketing management in manufacturing enterprises, great attention is paid to the quality management system in non-manufacturing enterprises (trade and paid services, tourism and catering, transport and construction), taking into account the marketing approach. As an integral part of the management system of the enterprise, its system of marketing activities, from the point of view of quality management, requires the same approaches to the organization of the process as the system itself. Because if the same requirements are not applied to the quality management in each element of the system, it is difficult to organize a completely quality management process. Therefore, when analyzing marketing activities from the point of view of the quality of management, it is necessary to study the second approach. The first approach involves studying the marketing process as an integral part of enterprise quality management. The second approach envisages the study of the quality of the management of the marketing process itself, guided by the principles, methods, functions and approaches to the quality management of the enterprise as a whole. By studying quality management in the context of marketing activities, it can be defined as a system of methods, tools and types of activities aimed at meeting the quality requirements and expectations of the process itself and its products. For this reason, it is possible to note the quality management of the process itself and the quality management of the product of the process.

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Introduction. A quality management system for the marketing process is needed to ensure that the implementation of each sub-process within the process is guaranteed to meet the needs of all stakeholders.

The following main processes of quality assurance of the management system (including the marketing management system) in non-manufacturing enterprises can be noted.

1. Process quality forecasting - identification of the specific composition of quality standards that must be observed during the implementation of the process and the methods necessary to meet the requirements of these standards.

2. Quality implementation of the planned measures.

3. Fulfillment of commitments made to ensure the quality of the process in the course of activities.

4. Accurate record of the quality of the implementation of the process - a planned and systematic control over the re-enactment of the process and the implementation of commitments to ensure quality.

In addition, quality planning is a key and integrated process that guides all activities. It envisages a concrete study of the measures and work required to ensure the quality of the process

based on the selection of concepts, standards and norms (it is expedient and possible to use them for a particular process).

Practice shows that the quality management system is based on two approaches, a process and a systematic approach.

A. Systematic approach.

• The study of this type of management within the enterprise, as a relatively specialized unit-system with specific characteristics. The system consists of elements and subsystems that interact and interact with each other.

• Objectives of the internal and external environment and each subsystem, sub-goals, strategies to achieve goals, etc. research of the quality management system as an open multi-purpose system with certain boundaries of interconnected subsystems of management. In this case, a change in one of the elements of any subsystem causes changes in other elements and subsystems.

• In-depth study of not only the interacting and interacting elements of the system, its internal and external environment, but also new synergistic features with new qualities.

• Aggregate study of the parameters and indicators of the system's performance in the development. This requires the study of internal coordination, self-regulation, self-organization, forecasting and planning, coordination, decision-making and other processes.

B. Process approach.

• Management activities include a set of interrelated activities and the overall performance of general management functions (see Figure 1).

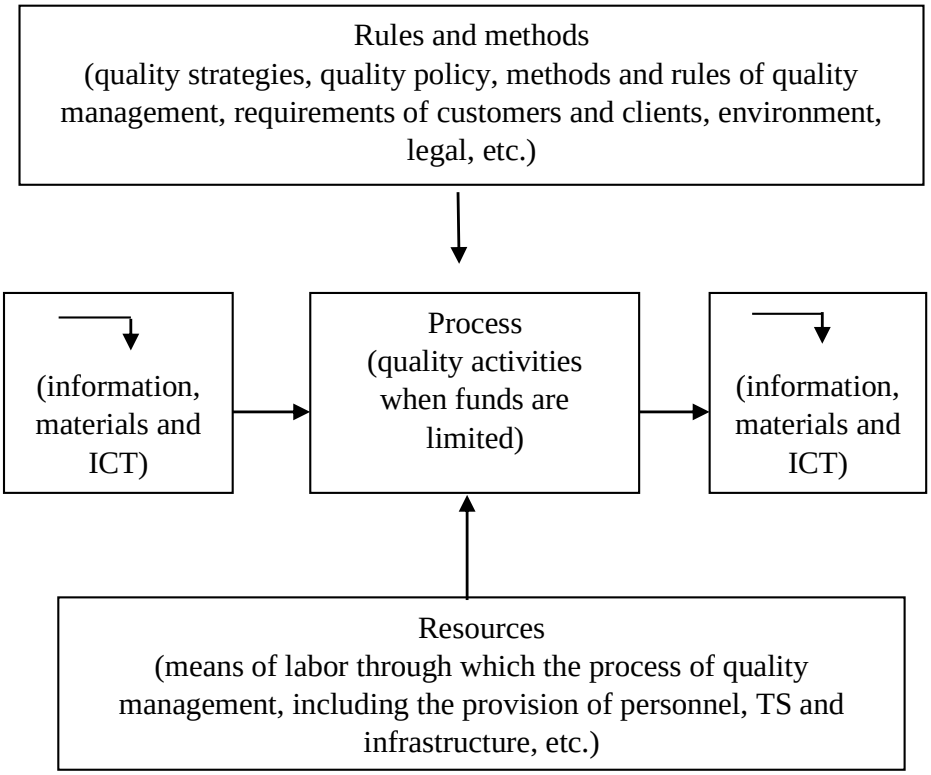
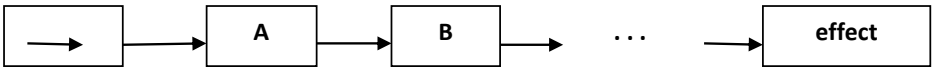


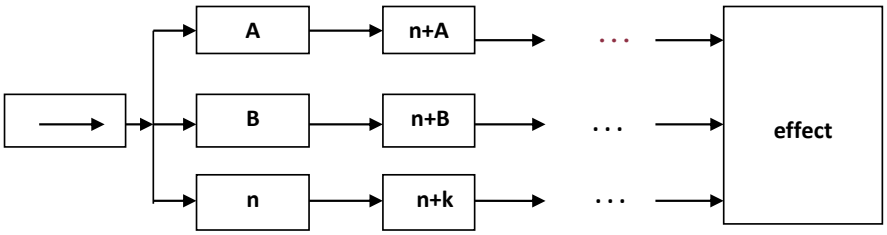
Fig. 1. Components of the quality management process

The process approach to the quality management system takes place in a sequential, parallel and sequential manner (see Figure 2).

Sequential process scheme of quality management



Parallel process scheme of quality management



Sequential-parallel process scheme of quality management

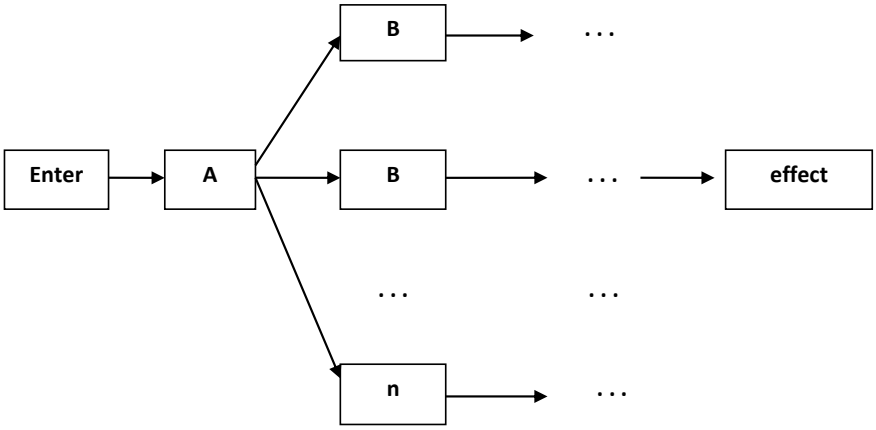


Fig. 2. Step-by-step process diagram of quality management

It should be noted that the positive side of the process approach is the continuity of interconnected management. Here:

- achieving a synergistic effect of the result in the field of quality;
- more complete fulfillment of quality requirements;
- Improving quality management processes.

At the same time, it is necessary to note the following problematic issues that arise during the application of the process approach in non-manufacturing enterprises.

• What can be considered as a methodological basis when applying the process approach?
• How can you identify which processes need to be identified and documented?
• How can processes be described and their interrelationships identified?
• How to evaluate the efficiency of processes, etc.

The number of processes required for research depends on the type and type of activity of the enterprise, but in general it includes the following.

• Identify the processes necessary for the implementation of the management system and their application within the enterprise.
• Identify the sequence and interrelationships of these processes.
• Identify the criteria and methods necessary to ensure efficient operation and management of these processes.
• Ensuring the availability of resources and information for operational protection and process monitoring.
• Monitor, measure and analyze these processes.
• Briefly describe measures to achieve effective results and continuously improve these processes.

Quality system in the field of marketing:

- providing the marketing function with all necessary resources and necessary conditions;
- development of measures to prevent threats in marketing;

- management of all conditions and factors in marketing;
- Improving marketing.

The main requirements for quality management marketing include:

1. Determine the demand for the service.
2. Accurately determine market demand and sales area.
3. Accurately identify consumer requirements based on regular diagnostics of commercial contracts, agreements or market needs.
4. Constantly provide information on all customer requirements within the enterprise.
5. The marketing function should provide the enterprise with a detailed official report or guidance on the requirements for services.
6. The marketing function should apply a feedback system and control over the information obtained on a regular basis.

Process quality management requires a systematic approach. In modern practice, the implementation of this approach is carried out in the form of the creation of standardized systems of quality management.

The main component of the quality management system is the standard of the enterprise for the organization and implementation of marketing activities. It is based on the regulations on marketing services, job descriptions and technological instructions of specialists involved in the marketing process, etc. is being developed.

A standard is a normative document adopted by an authoritative body, based on an agreement, characterized by the absence of objections from the majority of stakeholders on important issues of standardization.

The establishment of a standard for any enterprise is based on two principles (specialization and detail).

Specialization means the inclusion in the standard of the enterprise only of the provisions related to the activities of the process in this enterprise and related to the realities of this enterprise. An enterprise standard must include a description and classification of the processes in the enterprise.

Organizational structures and staff of the process are also subject to specialization. The enterprise standard may specify standard project roles, but also define the structure and principles of process governing bodies.

Detailing is the degree of detail of explanations or instructions that indicate how, in what sequence, in what timeframe, and using what templates it is possible to perform certain actions in the management process.

In order to study the quality of management, it is necessary to determine the indicators of marketing analysis in non-manufacturing enterprises. Let's start with commercial enterprises and enterprises providing paid services. But before selecting their indicators, let's note what the management of the trade organization means.

The management of a modern trading organization represents a complex mechanism, the implementation of which requires in-depth knowledge and practical experience. It is a field of professional activity that combines and coordinates the various aspects of the work of the members of the organization in order to achieve sustainable competitive advantages and high efficiency. The management of a commercial enterprise has characteristics conditioned by the role of the industry in the system of socio-economic relations and the specifics of trade and technological processes.

The nature of trade management is related to its ability to ensure the supply of goods in the right place and at the right time. Commercial activity always requires direct contact with buyers. Working with people limits the possibilities of mechanization and automation of labor, requires creative approach. Its effectiveness is determined in many ways by the personal qualities of the trading staff, their special knowledge. This knowledge is the knowledge of the behavioral characteristics of the individual, the field of understanding and shaping the attitude of customers to the goods offered, the forms and methods of its acquisition. The sum of these blocks determines the loyalty of the production market to business.

The business has more information about what the consumer prefers. This requires the introduction of new forms of organization, control and coordination of work by trade organizations of all links in the chain of goods. Such an approach allows the creation of a supply of goods that is attractive to the buyer.

In addition to information on the demand for individual goods, this field also contains information on the individual consumption characteristics of the supply of goods required by the market. The specific direction of trade management is to work with commodity producers to create new goods in order to better meet the needs of target markets. The source of the competitive advantage of a trading business is its ability to provide ease of shopping. Leading companies in the field are devoting a lot of resources to solve this problem. The specific task of service management is to create a sustainable competitive advantage in this area.

Table 1 shows the main indicators of trade enterprises of the republic.

As can be seen, the main indicators of trade enterprises are growing dynamically in the period covering 2017-2021. In particular, the number of these enterprises ranged from 23,240 to 31,129; number of stores - from 60114 to 66155; retail trade turnover - 19.6 billion 35.3 billion manat increased to AZN.

Table 1. About commercial enterprises

	2017	**2018**	**2019**	**2020**	**2021**
Number of enterprises	23240	24890	25937	27873	31124
Number of markets and fairs for goods and food	126	124	123	122	129
Number of stalls in markets and fairs	37661	36887	36375	36096	38098
Number of individual entrepreneurs	176327	191610	201151	199255	201121
Number of stores	60114	61772	61015	61102	66155
Commercial area, thousand m2	3207,0	3365,0	3299,2	3385,4	3927,5
Number of kiosks	5847	5898	4145	3940	4028
Retail trade turnover, bln. man.	19,6	22,0	25,7	30,2	35,3
Index	109,9	110,0	110,9	101,5	102,5

As for the main indicators of paid services provided to the population, we can note that they are given in detail in Table № 2.20. Their analysis for 2015-2020 has shown significant progress in this area. Thus, the turnover of paid services provided to the population in the period under review amounted to 5.3 billion. 7.8 billion manat manat. In particular, respectively:

- for legal entities - 4.0 billion. 5.7 billion manat up to manat;
- services per person - from 589.0 to 810.3 manat;
- Turnover of household services - 662.0 mln. manat 896.5 mln. up to manat;
- including legal entities - 88.0 mln. manat to 127.4 mln. up to manat;
- services per capita - increased from 73.1 manat to 93.0 manat.

Table 2. Key indicators of paid services provided to the population

	2015	**2016**	**2017**	**2018**	**2019**	**2020**
Cost of paid services provided to the population, thousand manats	5 332 371,2	5 828 068,4	6 527 282,2	7 016 435,7	7 462 765,2	7 809 755,9
from him:						
on legal entities	4 096 066,2	4 407 965.0	4 879 757.7	5 172 420,9	5 440 609.7	5 677 375,6
Physical volume indices for paid services, as a percentage of the previous year	107,8	108,0	108,2	107,2	105,1	98,9
from him:						
on legal entities	106.3	106.3	107.0	105.7	103.9	98,6
Cost of paid services per capita, man.	589,0	635,2	702.1	745,2	783,1	810.3
Domestic services in the total cost of paid services provided to the population, thousand manats	662 015,8	705 375,2	763 164,5	809 696,7	863 114,6	896 486,8
from him:						
on legal entities	88 016.0	97 025,3	108 257,4	116 535,1	126 567,0	127 421,0
Physical volume indices for household services, compared to the previous year,	106.7	104.9	107.0	104.1	106.5	99,8
in percent						
from him:	112.7	108,5	110.4	105.6	108,5	96,6
on legal entities	73,1	76,9	82,1	86.0	90,6	93,0

As for the enterprises of tourism and public catering, we can note that during the period under study, they also underwent positive changes. In particular, the number of travel agencies and tour operators increased from 141 to 272 in 2015-2019, and the number of employees increased from 1541 to 1838.

Thus, the selection of indicators for research and marketing analysis of the quality system of management of non-manufacturing enterprises showed the following key points.

• The need to identify key components of the quality management process.

• Compilation of a step-by-step sequence of the process block diagram of quality management.

• Improving the quality of management indicators of all enterprises in the non-manufacturing sector (trade, paid services, catering, tourism, transport and construction) (which allows for better marketing analysis of enterprises in the above areas).

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CONSUMPTION, SAVINGS AND INVESTMENT IN THE LIGHT OF THE COVID-19 PANDEMIC

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ABSTRACT

The paper considers the issues of post-crisis economic recovery and the impact of the Covid-19 pandemic on consumption, savings and investments. The indicators of consumption, savings and investment are studied on the example of three groups of countries. In particular, the G 7 countries, the group of countries from G 20 and the three countries of the South Caucasus. A certain synchronicity has been established between the upheavals of the early 20th and 21st centuries, which is 11 years. It is concluded that for further sustainable economic development and rapid economic recovery, it is necessary to focus on new growth drivers.

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Introduction. The COVID-19 pandemic has had a negative impact on the global economy. UN Secretary-General António Guterres compared her to the "fifth horseman of the apocalypse". “The pandemic is a crisis unlike any we have ever seen. But it is also the kind of crisis that we will see in different forms again and again. COVID-19 is not only a wake-up call, it is a dress rehearsal for the world of challenges to come” he said, speaking at the 75th session of the UN General Assembly on September 22, 2020 [5].

We are at a turning point in human history. It has many interesting versions. The COVID-19 pandemic has had a huge impact on the economies of many countries around the world. This will continue over and over. The scale of this impact will depend on the possibility of its real assessment. It is necessary to clarify the behavior of such important indicators as consumption, savings and investment.

The purpose of this paper is to help decision makers avoided the negative case scenario developing economic in post-pandemic period.

Before developing and proposing new models of economic growth, it is necessary to analyze the role of consumption, savings and investment in growth models. The task of that paper is to present scientific point of view on the post-pandemic period in the light of consumption, savings and investment.

In this article analyzes the dynamics of the three most important indicators of economic development (savings, consumption and investment) during the pandemic and makes a some forecast for the post-pandemic period using the example of the G7 countries *(USA, Japan, Germany, Great Britain, France, Canada, Italy),* groups of countries from the G20 *(The Group of Twenty, major advanced and emerging economies - China, India, Russia, Turkey)* and three countries from the South Caucasus *(Georgia, Armenia, Azerbaijan).*

The global economic recovery is proceeding at different paces. There are many problems on that way. It can be assumed that the global economic downturn was not only due to the pandemic or the peculiarities of the economic cycle. In our opinion, the slowdown in investment activity in the leading economies of the world and the absence of significant drivers of economic growth also played a significant role.

The global economy is gradually recovering from the recession. The COVID-19 pandemic has had a negative impact on global trade and on the global supply chain of goods and services, as well as

on the economy as a whole. In this situation, many countries have involved unprecedented measures to support the population and businesses. Thus, the US Congress approved a massive $1.9 trillion coronavirus relief package [12.] and in the countries of the euro area it reached a total of 2.018 trillion euros [13.]. Thus, it was supposed not only to stimulate consumer demand, but also to maintain an acceptable level of savings, which ultimately should have revived production. However, the expected and quick result did not happen. In particular:

Research results.

Saving. Before and after the COVID-19 pandemic, the share of household savings in relatively to Gross Domestic Product (GDP) remained practically at the same level, but declined in absolute terms, especially in developed economies. See Table 1.

Table 1. Gross savings 2018-2020 (current US $)

№	COUNTRY	2018		2019		2020	
		GDP, %	**Billion in US $**	*GDP, %*	**Billion in US $**	*GDP, %*	**Billion in US $**
1	USA	*19.6*	**4,047.4**	*19.5*	**4,178.3**	*19.3*	**4,033.2**
2	UK	*14.1*	**409.6**	*15.2*	**437.4**	*14.0*	**387.5**
3	France	*23.1*	**646.0**	*23.6*	**645.6**	*21.5*	**564.8**
4	Germany	*29.8*	**1,186.4**	*29.6*	**1,152.4**	*28.1*	**1,081.6**
5	Italy	*21.0*	**440.2**	*21.4*	**429.7**	*21.3*	**403.0**
6	Euro area	*25.3*	**-**	*25.5*	**-**	*24.3*	**-**
7	Japan	*27.2*	**1,368.6**	*27.5*	**1,415.4**	*26.8*	**1,355.2**
8	Canada	*19.5*	**335.8**	*20.0*	**348.5**	*18.7*	**307.5**
9	China	*44.5*	**6,181.2**	*43.8*	**6,250.8**	*44.5*	**6,556.5**
10	India	*31.3*	**845.9**	*29.9*	**857.8**	*30.8*	**817.6**
11	Russia	*28.9*	**479.8**	*26.7*	**450.4**	*27.1*	**402.0**
12	Turkey	*27.7*	**215.6**	*26.0*	**198.3**	*26.9*	**193.4**
13	Azerbaijan	*32.1*	**15.1**	*28.6*	**13.8**	*24.2*	**10.3**
14	Armenia	*15.3*	**1.91**	*9.8*	**1.34**	*14.7*	**1.86**
15	Georgia	*21.3*	**3.76**	*19.7*	**3.45**	*11.3*	**1.79**

The table was compiled by the author based on the materials of the World Bank and The Global Economy.com

Thus, in the United States, the volume of gross savings in 2020 compared to 2018 decreased by $14.2 billion (0.3%), in Japan by $13.4 billion (0.2%), in Germany by $104.8 billion (9.7%), in France by 81.2 billion dollars (14.4%), in the UK by 22.1 billion dollars (5.7%). The reduction is observed in India, Russia and Turkey, as well as in the countries of the South Caucasus. At the same time, China's gross savings over the same period increased by $375.3 billion (5.7%) to $6.6 trillion.

The situation is going to be interesting in 2021. Thus, the international rating agency Moody's notes in April 2021 that consumers around the world have accumulated additional savings in the amount of $5.4 trillion since the start of the COVID-19 pandemic, which is equivalent to 6% of global GDP. Thus, we must declared the growth of savings.

Several factors contributed to this phenomenon. In particular, the increased caution of the population during the pandemic, the fear of infection, due to which households could not use certain services, the reduction in consumption opportunities caused by government restrictions, etc.

In our opinion, the additional savings of the population accumulated during the pandemic, will not be able to become a source of funds for a sharp increase in consumption and, consequently, economic growth. Due to the fact that people had to reduce consumption during the pandemic, many have developed so-called "excess savings" that would not have existed if pre-coronavirus trends had continued. It can be assumed that as soon as all restrictions related to the pandemic are canceled, these funds will be immediately spent, and the explosive growth in demand could become a destabilizing factor for the economy. But if it does, we believe it could be just another push for a quick economic recovery (but not growth), especially in countries with pent-up demand.

But these fears are not entirely justified. It can be say that additional savings of the population is an "additional" public debt of the same population. Public debt is, in a sense, money that the population has borrowed from itself. The authorities of developed countries has had sent trillions of dollars to fight the pandemic and support the population. And as a result, the volume of global debt to December 2021 reached a $226 trillion US dollars [14.]. Most of these amounts were attracted through borrowings from the population. Therefore, it can be argued that the population voluntarily limited consumption. In theory,

government spending that is financed by such kind of debt can't affect consumption. Households, in this case, prefer to save, as they may later need additional money to pay taxes and other urgent spending. Based on the practice of previous crises, when governments helped the population with direct payments, these funds are likely to be distributed in three areas - consumption, savings and debt service itself.

It should be noted that an important factor is that savings were made by households who were disposed to this. They understood the dire economic consequences of the pandemic. In our opinion, these people will not quickly spend their savings. For this reason, in developed countries, there were few households that would be face difficulties in the event of a crisis. Finally, these additional trillions of dollars can't be considered a significant amount compared with the trillions of total savings of the population of developed countries (for example, in the United States their value exceeds $100 trillion) that were collected before the pandemic. Based on the above mentioned it is possible to make some forecast - additional savings will not be able to become the main driver of rapid economic growth.

Analyzing the structure of savings, it should be noted that the so-called precautionary savings are growing. This is due to a higher risk regarding employment and fears of a continuation of the pandemic. In addition, it is assumed that precautionary savings can slow down the spending of savings when the pandemic completely dies down.

Thanks to vaccination and government measures, the economies of many countries are reviving and moving towards a normal state. But the pandemic provoked an unusual economic crisis. If we look at the history of previous crises, we will see that in the post-crisis period, economic activity declined significantly, unemployment remained high, interest rates were suppressed, etc.

But the COVID-19 pandemic is unique in that sense. Previous pandemics, say "Spanish flu" or Great Influenza epidemic (beginning in 1918, affected about 30% of the world's population), ended in high mortality and thus created a shortage of labor. To this we can add the factors of the economic crisis (for example, the beginning of the Great Depression in 1929), which were characterized by lower interest rates, higher wages, reduced investment, destruction of manufacturing base etc. All this slowed down economic growth. The peculiarity of everything is that an economic crisis was superimposed on a pandemic with an 11-year interval. The Great Depression of 1929, 11 years apart, was preceded by the Spanish flu pandemic.

The COVID-19 pandemic is a different kind of crisis and a different pandemic. The high level of medicine and social protection measures kept the low mortality and the responsible economic policies of many countries saved world trade and protected the manufacturing base of the economy. Interesting expectations are being formed regarding the investment activity. For example, in the United States, the PMI (Business Activity Index), compiled on the basis of surveys of purchasing managers, amounted to approximately 57 points at the end of 2021 (see Chart № 1).

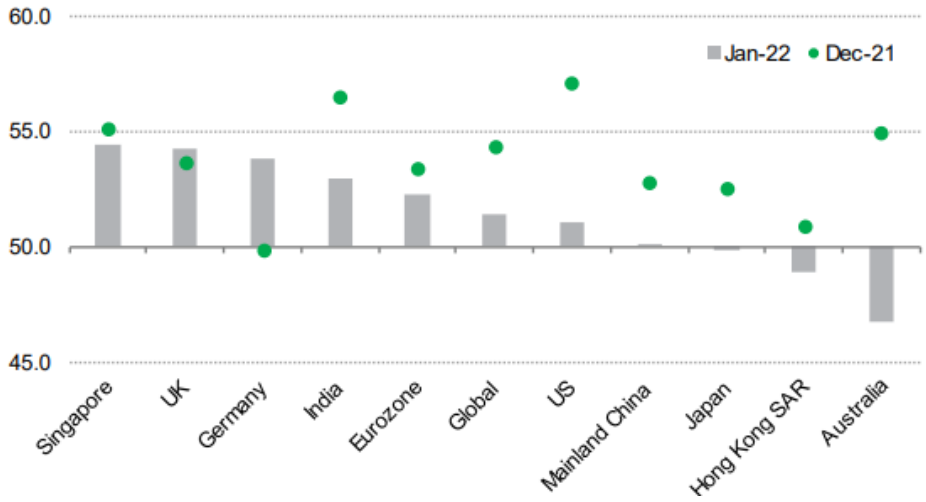

Chart 1. Purchasing Managers Index

Chart compiled by the author based on Monthly PMI bulletin: February 2022 - https://ihsmarkit.com/research-analysis/monthly-pmi-bulletin-february-2022.html

Good performance is also available in other leading economies of the world. In our opinion, the restoration of economics should be based on large-scale monetary and fiscal incentives from the Government. These measures should be combined with targeted anti-crisis measures and the growth of household savings.

How long this growth can continue depends on many factors. For example, arise some questions - How will the savings be spent? How long will governments can support the population and economic activity going? How will the financial markets behave? The answers to these challenges are important because it is difficult to take into account large structural factors in the short term. These include the situation in the most financial markets, climate change, the state of public finances, relationship between the US and China, between the US and Russia, or the problem of inequality, etc.

A separate question is whether the current growth will be beneficial for most people? What benefits do they receive and how, etc.

In this context, it is very important to maintain an acceptable level of inflation, because if it accelerates, a quick economic recovery will become impossible.

Another way to analyze the events of the COVID-19 pandemic is to look at it from a personal point of view. Over the past 10-12 years (2008-2009 and 2019-2021), we have experienced two atypical and huge events: a big global financial crisis and a pandemic. Perhaps, these are not random coincidences, if we recall the cyclical nature of the reproduction process (Kondratiev waves, Nikolai Kondratiev's theory of cycles). However, the materialization of some events that were previously considered impossible prompts us to work out some actions. This is necessary in order to affect the prospects for economic recovery and the improvement of our lives. The peculiarity lies in the fact that the COVID-19 Pandemic is superimposed on the economic crisis with an 11-year interval. This means that the 2008 financial crisis was preceded by the COVID-19 Pandemic, an 11-year interval.

Possible and not coincidental coincidences between the upheavals of the early 20th and 21st centuries can take place. This is of particular interest and may be the subject of our further research. In our opinion, the cyclical upheavals of the early 20th and 21st centuries are obvious. This is of some interest, if only to avoid the development of events that followed the Great Depression, which was negative for the whole world.

Consumption. In our point of view, the COVID-19 pandemic has important consequence. For example, household savings were not affected and consumption declined in many developed countries. In particular, households reduced their consumption in both relative (*as a percentage of gross domestic product*) and absolute (*in current international dollars*) terms in all the world's leading economies except China and the United States. For example, in the United States it increased from $13.9 billion in 2018 to $14.0 billion in 2020. In China, over the same period, consumption increased from $5.3 billion to $5.6 billion. See Table 2.

Table 2. Households and NPISHs Final consumption expenditure, (current international $)

№	COUNTRY	2018		2019		2020	
		GDP, %	**$ billion**	*GDP, %*	**$ billion**	*GDP, %*	**$ billion**
1	USA	*67.5*	**13,914.0**	*67.3*	**14,429.0**	*67.2*	**14,048.0**
2	UK	*64.9*	**1,884.0**	*64.2*	**1,850.0**	*60.9*	**1,684.0**
3	France	*53.9*	**1,503.0**	*53.6*	**1,463.0**	*53.1*	**1,398.0**
4	Germany	*52.0*	**2,068.0**	*51.9*	**2,018.0**	*50.7*	**1,951.0**
5	Italy	*60.2*	**1,258.0**	*59.9*	**1,203.0**	*57.8*	**1,092.0**
6	Euro area	*53.9*	**7,345.0**	*53.6*	**7,140.0**	*52.4*	**6,741.0**
7	Japan	*54.8*	**2,762.0**	*54.4*	**2,804.0**	*53.4*	**2,701.0**
8	Canada	*57.9*	**997.7**	*57.8*	**1,006.0**	*57.4*	**943.6**
9	China	*38.5*	**5,353.0**	*39.2*	**5,605.0**	*38.1*	**5,611.0**
10	India	*59.4*	**1,605**	*60.5*	**1,736.0**	*58.6*	**1,559.0**
11	Russia	*50.4*	**834.7**	*51.2*	**863.4**	*49.5*	**733.8**
12	Turkey	*56.2*	**437.4**	*56.9*	**432.9**	*56.7*	**408.5**
13	Azerbaijan	*54.1*	**25.5**	*57.5*	**27.7**	*60.6*	**25.8**
14	Armenia	*79.8*	**9.9**	*83.4*	**11.4**	*75.4*	**9.5**
15	Georgia	*69.3*	**12.2**	*70.5*	**12.3**	*80.7*	**12.8**
16.	World	*56.5*	**48,472.0**	*56.6*	**49,315.0**	*55.9*	**46,886.0**

Compiled by the author based on materials. *https://data.worldbank.org/indicator/NE.CON.PRVT.CD, https://data.worldbank.org/indicator/NE.CON.PRVT.ZS?locations=TR*

Thus, we can see that in 2020 compared to 2018, the final consumption of households and non-profit organizations decreased by $61.0 billion (1.4%) in Japan, by $117.0 billion (1.3%) in Germany, by $105.0 billion (0.8%) in France, by $200.0 billion (4.0%) in the UK, by $604.0 billion (1.5%) in the Eurozone, and globally the decline reached $1.5860 billion (0.6%). At the same time, it should be

especially noted China and the United States, where this indicator increased by 258.0 and 134.0 billion US dollars. Consumption has also declined in some G20 countries (it is India and Russia). In this issue, some diversity is observed in the countries of the South Caucasus. For example, in Georgia, consumption in 2020 compared to 2018 increased by $0.6 billion and reached $12.8 billion dollars, while in Azerbaijan it increased by $0.3 billion and reached $25.8 billion dollars. In Armenia, a different picture is emerging, consumption over the same period has decreased from $9.9 billion to $9.5 billion dollars.

Thus, Real personal consumption spending was $13.307 billion in the United States before the pandemic (January 2020), fell to $10.910 billion in April, but exceeded the pre-pandemic level in December 2021 and reached $13.737 billion [15]. At the same time, the personal savings rate was moving in the opposite direction. So, it was 7.8% in January 2020, increased to 33.8% in April, and almost returned to its previous place of 7.9% in December last year [16]. It is noteworthy that the income of the US population did not decrease during the pandemic, due to the large amount of government support. Thus, monthly personal income was equal to $18.873 billion dollars at the beginning of 2020, then grew to 20.971 billion dollars in April and amounted to $20.987 billion dollars in December 2021. Here, it should be noted that it reached the maximum figure of 24.142 billion dollars in March 2021 [17]. Chart № 2 shows the movement of these indicators.

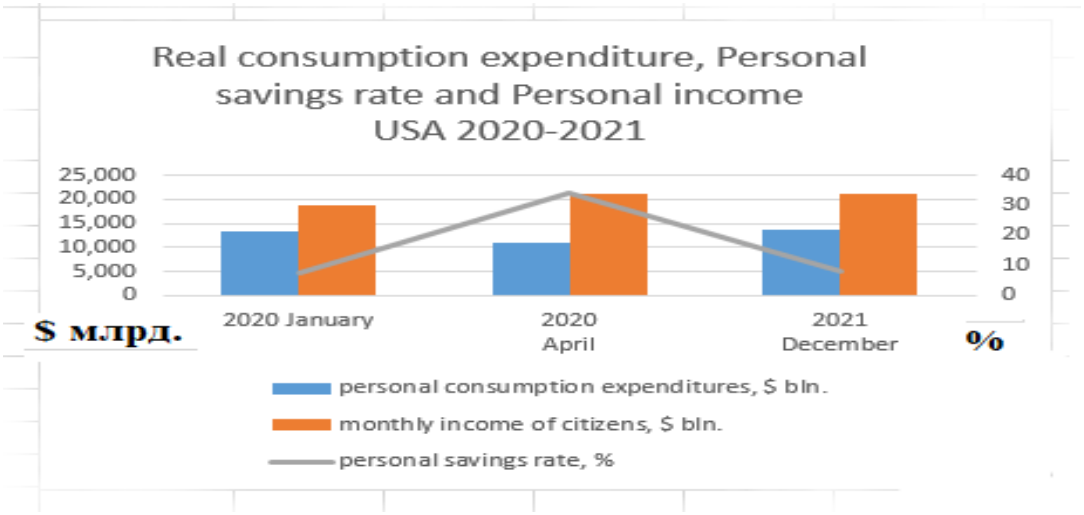

Chart 2. The chart was compiled by the author based on the materials https://fred.stlouisfed.org

Based on the above, we can say that during the pandemic there was the largest positive spread between income and expenses of the US population. So, it was $5.6 trillion dollars before the pandemic (January 2020), then it increased to $10.0 trillion dollars during the pandemic (April 2020) and amounted to $6.3 trillion dollars in December 2021. The peculiarity is that the maximum value of the spread (the difference between income and expenses) corresponds to the maximum value of the personal savings rate (33.8%). We can say that the growth of net income does not lead to an increase in consumption, but it leads to an increase in savings. There is a certain synchronicity.

The Covid-19 pandemic is an unusual crisis, and its effects may keep household consumption out of normal activity. This will have an impact on the economy. It has gone through a deep shock and some financial markets are not seeing a quick recovery.

Unlike other crises, the current behavior of the population and households is associated with both precautionary measures and the impossibility of consumption itself due to government restrictions. In the future, people may want to spend more time with their families. Therefore, the shortage of workers in some companies may reflect this trend. This means that household preferences are changing. It will have important implications for consumption in the future. As the statistics show (Table 1, Chart 2, etc.), the increase in savings was relatively long-term, and the accumulated volumes are significant. Perhaps we are waiting for consumption for the sake of consumption. Although, in our opinion, it would be reasonable to consume for production, for a quick economic recovery and sustainable economic growth.

In addition to the above-mentioned factors, individual circumstances is also influenced on the consumption. It could be such factors as the deterioration of the financial situation of individual households, the uncertain situation with employment, difficulties in making periodic financial payments, etc.

The unusual nature of the crisis also manifests itself in the evolution of three different types of consumption. These are consumption of durable goods, consumption of non-durable goods and consumption in the service sector. Let's analyze these data on the example of the US economy. See Table 3.

Table 3. The structure of the monthly expenses of US citizens on goods and services

Years	**2020 January**	**2020 April**	**2021 December**	**Change in %** (*January 2020 to January 2021)*
Durable goods, billion in US $	1,550.8	1,195.4	1,988.2	***28.2***
Non-Durable goods, billion in US $	3,014.6	2,691.9	3,559.5	***18.1***
Service sector, billion in US $	13,307.3	10,910.6	13,737.5	***3.2***

The table was compiled by the author based on the materials of the US Federal Reserve System. https://fred.stlouisfed.org/series/PCEC96, https://fred.stlouisfed.org/series/PCEDG, https://fred.stlouisfed.org/series/PCEND

From the above-mentioned table, we can see that all types of consumption are growing. But they grow differently and that is the peculiarity of this situation. Thus, the consumption of durable goods increased by 28.2% (January 2020 compared to December 2021), the consumption of non-durable goods grew up by 18.1%, and the consumption of services by only 3.2%. The covid-19 pandemic has put pressure on the service industry. It suffered more than others. However, consumption of both durable and non-durable goods has increased significantly. Now it exceeds the pre-crisis level. These spheres are not affected by uncertainty. This, in our view, is another indication of the unique economic nature of the COVID-19 pandemic.

Investments. It seems very interesting to extrapolate the experience of past economic crises on now day realities. But the unusual nature of the COVID-19 pandemic raises many questions, including the validity of past experience. Some judgments about the consequences of the current economic crisis are unavoidable. At the same time, it is necessary to have some idea not only about the reactions of consumers and savers, but also about the plans of investors.

In this regard, the dynamics of foreign direct investment (FDI) is very interesting. And so, foreign direct investment in 2020 compared to 2018 decreased in most of the world's leading economies. See Table 4. At first glance, in the big seven (G7) countries is observed significant growth. So, if in 2018 the total amount of foreign direct investment in the G7 countries had a negative value (-102.6 billion US dollars), then by 2020 it reached a positive value and amounted to 190.5 billion US dollars.

Table 4. Foreign direct investment, net (BOP, current US $)

№	**COUNTRY**	**2018**		**2019**		**2020**	
		GDP, %	**$ billion**	*GDP, %*	**$ billion**	*GDP, %*	**$ billion**
1	USA	*1.0*	**- 344.3**	*1.4*	**- 180.0**	*1.0*	**100.4**
2	UK	*- 0.9*	**- 3.6**	*0.1*	**- 50.5**	*1.1*	**- 84.3**
3	France	*2.8*	**67.7**	*2.1*	**5.5**	*0.5*	**40.3**
4	Germany	*4.0*	**28.1**	*1.7*	**85.5**	*2.9*	**- 1.1**
5	Italy	*2.1*	**- 5. 6**	*1.5*	**1.7**	*- 1.2*	**22.0**
6	Euro area	*- 0.1*	**150.3**	*0.2*	**102.2**	*0.5*	**- 199.4**
7	Japan	*0.5*	**134. 9**	*0.8*	**217.9**	*1.2*	**89.6**
8	Canada	*2.5*	**20.2**	*2.8*	**29.3**	*1.6*	**23.6**
9	China	*1.7*	**- 92.3**	*1.3*	**- 50.3**	*1.4*	**- 102.5**
10	India	*1.6*	**- 30.7**	*1.8*	**- 37.5**	*2.4*	**- 53.2**
11	Russia	*0.5*	**22.6**	*1.9*	**- 10.0**	*0.6*	**- 3.6**
12	Turkey	*1.6*	**- 9.2**	*1.2*	**- 6.3**	*1.1*	**- 4.7**
13	Azerbaijan	*3.0*	**0.357**	*3.1*	**0.927**	*1.2*	**0.318**
14	Armenia	*2.1*	**- 0.259**	*0.7*	**- 0.233**	*0.4*	**- 0.074**
15	Georgia	*7.2*	**- 0.976**	*7.8*	**- 1.054**	*3.4*	**- 0.549**

Compiled by the author based on materials. https://data.worldbank.org/indicator/BN.KLT.DINV.CD, https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS accessed 02.17.2022

This effect was due to jump growth in the US (from - $344.3 to + $100.4 billion) and more modest growth in Canada (from $20.2 to $23.6 billion) and Italy (from - $5.6 to $22.0 billion). But in most countries, FDI has declined, including in G20 countries. So, in China by $10.2 billion dollars and in India by $15.7 billion dollars. Negative trends are also observed in the countries of the South Caucasus.

If we assume that foreign direct investment is one of the drivers of economic growth, then we can assume that the recovery of the world economy is being delayed. Therefore, in further studies, it seems

possible to consider the investment process as part of the cyclical process of reproduction (development) of the economy. To clarify the place and nature of investments, it is important to determine the stage of the economic cycle. This requires a special analysis, which will probably be the subject of future studies.

The slowdown in the growth of foreign direct investment, in our opinion, is associated not only with a slowdown in the growth of savings, but also with the unwillingness or impossibility of their rapid transformation into investment instruments. It is known that it is national savings that are the main source not only for foreign investment, but also for domestic investment in the country. Consequently, decline of the savings rate into of the national income or other restrictions (impossibility of rapid transformation) discourage both domestic and foreign investment. This delays the economic recovery and prolongs the depression.

It should be noted that, despite the low growth rates of investment in the global, the leading economy of the world shows good growth. It should be a good signal for the global economy. The global economy is coming out of recession. Therefore, significant investments are required. These resources can be accumulated through additional distribution of securities (shares, bonds of state and private organizations, other financial market instruments). However, the uncontrolled issue of financial instruments can be dangerous. It must correspond to the possibilities of demand.

The flow of funds to financial markets depends on economic cycles. It reaches a maximum at the peak of economic recovery and declines to a minimum during a crisis. However, as we can see, the amount of savings allocated for investment is not large.

Conclusions. Our analysis shows that the volume and size of such indicators as investment, savings and consumption depend not only on economic, but also on other factors outside the economic cycle. The COVID-19 pandemic has increased global development imbalances. The effects of the pandemic are slowing down the global economic recovery.

In our opinion, it is possible that recent events will change, our view of development is greater than the financial crises of recent years. In particular, we may become more sensitive to risk, and perhaps to risk aversion in general. This is likely to lead to more savings, lower demand, lower interest rates and ultimately slower economic growth. History shows that economic crises have long-term consequences as a countries and as a consumers.

In order to achieve long-term economic growth, it is not enough to focus only on investment. New growth points are needed. This is true both for a single country and for the global economy as a whole. In the US, the EU and some other countries, technologies are being developed that could become new drivers of growth. Therefore, it is also important for economic science to develop and propose new models of economic growth, which may be based on new theoretical postulates.

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CURRENT STATE AND DIRECTIONS OF DEVELOPMENT OF BANK LENDING TO SMALL AND MEDIUM BUSINESS IN UKRAINE

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ABSTRACT

The article analyzes the current trends in bank lending to small and medium-sized businesses in Ukraine and banking products and programs to help small and medium-sized businesses provided by individual state-owned banks. Conclusions on the current situation are substantiated and the directions of development of bank lending to small and medium business are determined.

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Problem statement. At the present stage, taking into account market relations and technology development, the full implementation of innovative and social functions of enterprises is the basis for Ukraine's economy to emerge from the crisis, thus determining the importance of state support. Considering the constraints on the development of small and medium-sized businesses, it should be noted the main problem is the lack of financial assets, which creates the need to find and attract new resources. The most popular source is bank lending. Nowadays, analyzing various forms of borrowed capital, lending has become necessary to ensure the proper functioning of enterprises.

In a market economy, the importance of lending is most reflected in the optimization of the proportions of social reproduction. It belongs to the traditional operations carried out by the bank. We can assume that loans issued by banks play the largest role in the development of the country's economy, in addition, the level of the country's economy has a significant impact on lending. Considering the lending process in market conditions, it should be noted that yes, the importance and content is reflected in full.

Today, one of the biggest problems of small and medium-sized businesses in Ukraine can be called a significant limitation of financial and material resources, to solve this problem, businesses are looking for new approaches, schemes and mechanisms for financial support of their projects. Thanks to them, given the significant lack of public funds aimed at developing the real sector of the economy and the impossibility of active external borrowing due to limited resources in external financial markets in the financial and economic crisis, bank lending mechanisms of this type form the basis for

small resources and medium enterprises. It can be assumed that a bank loan opens new opportunities for entrepreneurs to implement projects and succeed in business.

Analysis of recent research and publications. The study of lending processes in the modern scientific literature is devoted to the work of many domestic and foreign experts, in particular, this issue was studied by: I.I. Volos [1], N.I. Versailles [2], O.A. Sich [1], V.V. Turchak [3], O.M. Yunko [7] and others.

The purpose is to analyze the current state of bank lending to small and medium enterprises (SMEs) in Ukraine.

Presenting main material. Lending and credit relations are an integral part of the banking system of Ukraine. The lending industry is directly related to the general requirements of the domestic production process. Being in the middle of the current monetary and financial economy, using the interest of economic entities, credit expresses the relationship between the state, the bank, economic entities and the population. At present, the loan mediates all production processes and serves to enable the use of limited resources and increase the profitability of production. It should be noted that bank lending is considered in a voluminous and concise sense. In a broad sense, bank lending is characterized as a form of loan capital movement in which a commercial bank acts as an intermediary. This interpretation comes down to the fact that the bank is considered both as a lender and as a borrower [4, p. 298]. From a theoretical point of view, this is true, but from a practical point of view, such a comprehensive interpretation of bank lending complicates the object of study, because active and passive operations of banks have not only different positions but also different mechanisms of development and management. In a nutshell, bank lending is just a form of loan capital movement between a bank as a lender and various economic entities such as borrowers.

Throughout the developed world, small and medium-sized businesses are the driving force of the economy and the backbone of the middle class. The activities of small and medium enterprises provide employment, as well as the receipt of tax and other payments to the budget. It is a powerful factor in the development of scientific and technological progress and forms a healthy competitive environment in the economy [1, p. 421]. The economies of developed countries are based on small and medium-sized businesses. Thus, in 2017, the share of the number of people employed in SMEs exceeded 50% (Poland - 67.6%, Germany - 63.2%, Great Britain - 53.5%, France - 53.4%). The share of their number exceeded 99% of the total number of enterprises (Poland, France - 99.8%, Great Britain - 99.7%, Germany - 99.6%). The share of SMEs in the GDP of many European countries exceeds 50% (Poland - 50.2%, Germany - 54.6%), in the UK - 49.4% [3, p. 39; 6].

If we consider the problems of the domestic economy, one of the most important and relevant is the lack of positive dynamics in changing the level of competitiveness of small and medium enterprises and the slow development of the economy as a whole. There are several approaches to improving these trends. One of them is the development of small and medium-sized businesses, as well as startups and business ideas that are flexible and can implement innovative products, new production technologies. Another fact in favor of the development of small businesses is that their development does not require a large amount of start-up investment. No less important is the fact that they are able to respond faster and more efficiently than representatives of big business to changes in the economy and deal with the problems of the crisis economy of our country.

According to the State Statistics Service of Ukraine, in the structure of domestic entrepreneurship by the size of enterprises as of the beginning of 2021, the number of small enterprises was 357,500 units, i.e. 95.2% of the total. The share of medium and large enterprises is 4.7% (17,604 units) and 0.1% (512 units), respectively [5]. According to the Ministry of Economy of Ukraine, large and medium-sized enterprises in Ukraine generate 73% of GDP; SMEs in Ukraine bring 55% of GDP to the country's economy, i.e. micro and small enterprises in Ukraine are only 16% of GDP [8]. One of the main sources of financial resources for enterprises, including medium and small enterprises, is capital investment [1, p. 421; 9; 10].

Examining the pace of bank lending in 2021, large and small businesses amounted to UAH 497 billion. The reasons for the decline in bank lending to businesses of different sizes are: declining demand for credit resources from SMEs, including competitive pressure from other financial institutions; high level of interest rates on loans; moderate increase in credit risk; insecurity of creditors' rights; complicating banks' access to Western capital markets due to the coronavirus pandemic; lack of liquid collateral for SMEs and non-transparent conduct of business in Ukraine in general, in particular the lack of financial reporting for SMEs. SMEs' access to credit is difficult, and it is virtually closed to a number of companies. There is an increase in the requirements of banking institutions to borrowers, which include: 1) the availability of liquid assets for collateral; 2) quite a

long time of existence of the firm; 3) the profitability of the company; 4) justification for spending funds; 5) transparency of reporting; 6) positive credit history, good reputation of the company.

There are programs that allow banks to make loans cheaper. These are programs of financial institutions in the framework of cooperation with various foreign funds and structures (German-Ukrainian Fund, Western NIS Fund, European Investment Fund, etc.). They allow the gradual introduction of new types of financial support in Ukraine, namely - partial compensation of interest rates on loans provided for business projects, compensation for lease payments. It is envisaged to expand the microcredit program, as well as to develop appropriate infrastructure support [7, p. 193].

It should be noted that the factor contributing to the active development and growth of loans to SMEs is the implementation of the State Program "Affordable Loans 5-7-9%", which was introduced in February 2020. This program aims to support investment projects of small and micro enterprises, which should have a positive impact on the number of new jobs, legalization and expansion of small businesses, and the global goal is import substitution and return of migrant workers. The Fund for Entrepreneurship Development and partner banks, which use lending technologies for small and micro enterprises, are responsible for its implementation.

As a result of the program, the state has the opportunity to reimburse rates to the level of:

• 3% on refinancing loans of previously received loans;

• 3% on anti-crisis loans, which were implemented in order to overcome the negative consequences of the introduction of quarantine measures to prevent the spread of acute respiratory disease COVID-19;

• 5-7-9% (depending on income and job creation) for investment projects.

According to the Ministry of Finance of Ukraine, to date, agreements have been concluded between the Fund for Entrepreneurship Development and 29 banks on cooperation, among the banks there are 4 state and several with foreign banking groups (Credit Agricole Bank, OTP-Bank, Raiffeisen Bank Aval, ProCredit Bank, Alfa-Bank, Kredobank and others), as well as a number of banking institutions with private capital: FUIB, Lviv Bank, Globus Bank, MTB BANK, TASCOMBANK, Megabank, etc.

Under the State Program, the largest share of loans received by enterprises was used to refinance previously received loans - 44%, anti-crisis loans - 42%, for investment purposes - 14%. loans from the total amount, the most active creditors were three state banks - "PrivatBank", "Ukrgasbank" and "Oschadbank". Banks that have become the most active lenders are reflected.

According to the Fund for Entrepreneurship Development [3], researching each of the regions, according to the loan portfolio at the end of 2021 under the program "5-7-9" the leaders are several regions, whose loan portfolio is 40%, including: Kharkiv, Lviv, Kyiv, Dnipropetrovsk and Vinnytsia regions, as well as the city of Kyiv. The least developed lending is observed in Chernivtsi, Zakarpattia, Donetsk regions, Luhansk.

Today, state banking institutions of Ukraine provide a number of financial and consulting products for SMEs. Thus, Oschadbank JSC introduced the following financial products: promotional lending for agro-industrial complex; program of partial compensation of the cost of agricultural machinery and equipment of domestic production; social investment program in conjunction with WNISEF; SME support programs from local governments; bank guarantee; blank (without collateral) overdrafts of SMEs; lending to condominiums / housing and communal services; avalization of bills; acquisition of new and used vehicles, agricultural machinery and equipment [8]. There is also a program to support entrepreneurship "Build your own", the main purpose of which is to provide small and medium enterprises with the following opportunities: training and consulting for entrepreneurs and startups; fast account opening, instant card and convenient internet banking; tools for doing business from program partners on attractive terms; receiving financial support [11].

JSC "Ukreximbank" introduced a number of financial products for small and medium enterprises, including: loans to SMEs in the agricultural sector, namely loans for the purchase of: fuel, fertilizers, feed, equipment repair, agricultural machinery and equipment, animals, perennials, elevators, farm buildings and service buildings; lending under the program "Belarusian imports": the purchase of agricultural machinery, equipment, machinery, vehicles and other financial products [11].

JSC "Ukrgasbank", as a socially-oriented bank, pays special attention to SMEs whose activities are related to the implementation of environmental and energy efficient projects, "green technologies", projects using secondary raw materials, alternative energy sources, environmental protection, etc. [8].

Table 1. Banks that have issued the most loans under State program

Name of the bank	The purpose of the loan	Percentage of all loans
JSC Oschadbank	Refunding	24%
JSC Ukreximbank	Refunding	14,6%
JSC Ukrgasbank	Refunding	14,4%
JSC Oschadbank	Anti-crisis lending	20%
JSC Ukreximbank	Anti-crisis lending	12%
JSC Ukrgasbank	Anti-crisis lending	11,6%

A source: Developed by the author according to [9]

If we study the sphere of economic activity (Fig. 1), for which loans were allocated, the following structure is observed: for agricultural purposes - 51% of the loan portfolio, trade - 22%, industrial development - 16%, sales goals in the service sector - 7%, in the construction sector - 2% and in other activities - 2%.

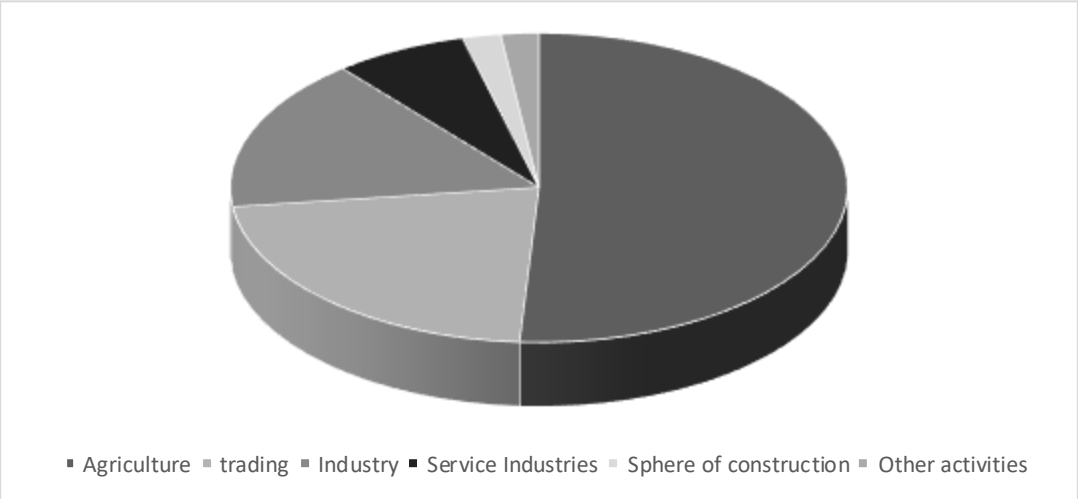

Fig.1. Structure of spheres of economic activity
A source: Developed by the author according to [9]

Data from the Entrepreneurship Development Fund, as of the end of 2021, show that the leaders in the size of SME guaranteed loan portfolios are Oschapbank - UAH 445.7 million, Ukreximbank - UAH 124.3 million, Ukrgasbank - UAH -112.6 million. UAH, UAH 4.4 million to PrivatBank.

From the above data it can be concluded that the highest result of financial activity has Oschadbank, then with a big difference - Privatbank, which is on a par with other banks in Ukraine. To improve bank lending, we consider it necessary to offer banks to apply a scoring model to minimize risks in lending to businesses, which is to create appropriate conditions and technologies by which, based on the credit history of "past" customers, the bank tries to determine how likely that an individual potential borrower will repay the loan within the stipulated period. Scoring systems, in our opinion, are a very convenient tool for assessing creditworthiness. Banks also need to create competitive and attractive business proposals that take into account the specifics of bank lending to domestic enterprises to reduce the bank's lending risks, work hard on bad debts, including their sale and restructuring, and consider banks' opportunities to increase long-term lending. to assess indicators of creditworthiness of borrowers. Banks should encourage companies to turn to them through more attractive offers than competitors, as well as through lower interest rates.

Conclusions. Today, loans for SME development are a promising segment for the development of banks. The basis for the development of this area is the need for small and medium-sized enterprises to attract additional funds, one of the areas of activity of banks, which is actively developing is the implementation of highly specialized partner lending programs. To ensure significant potential for the development of such programs requires state interest in business development and the implementation of government programs aimed at reducing the cost of credit. In this situation, it would be logical to gradually increase the size of the SME portfolio. And the incentive that will work in addition may be to increase the transparency of doing business.

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RESULTS OF THE AGRICULTURAL STATE ASSISTANCE PROGRAMS IN THE REPUBLIC OF ARMENIA IMPLEMENTED IN 2021

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ABSTRACT

Agriculture is the most important branch of the country's economy, the main purpose of which is to ensure food self-sufficiency. In this respect, it is considered sponsored in almost all countries of the world; governments promote the development of agriculture with various state support tools. More than a dozen programs aimed at the development of the agricultural sector are implemented in Armenia. The article has studied in detail the programs implemented in the field of agriculture in the last 3 years, and further program proposals for the development of agriculture are presented.

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Agriculture is one of the key sectors of Armenia's economy which according to 2021 data provides about 14-9% of GDP. 97% of the gross agricultural output is provided by about 317 thousand farms, each of which has about 1.48 ha of land. 21.8% of those employed in Armenia are involved in agriculture. It is significant not only as an area from which a certain added value is obtained, but first and foremost, its quality and development level influences on food security of the population, the living standards and development opportunities of rural areas, human health and safety, place of residence and conditions, as well as life expectancy and quality of the population.

Agriculture Strategy is aimed at inclusive growth, gender equality, institutional stability in Armenia, as it is based on the following principles: aggregation, commercialization, quality orientation, youth involvement, diversification, risk management, adaptation to climate change, resilience, resilience, environment modernization of technologies.

Taking into account the above-mentioned, the efforts of the Government of the Republic of Armenia are aimed at eliminating the obstacles to the policy implemented in that sphere, developing state support mechanisms and mitigating the emerging crisis risks.

Currently, more than a dozen state support programs are implemented in the field of agriculture, the main goal of which is to increase the volume of capital investments in agriculture, to expand production capacity, to introduce modern technologies and to stabilize the incomes of farmers. It should be noted that in 2018-2021 new programs launched, at the same time many amendments were made in the existing programs, most of which were intended by farmers in new economic situations to respond to changing demand, to meet external challenges, to continue or reorganize activities accordingly, to adapt to the economic situation and to take actions to refine development strategies.

In 2021 the volume of investments in the economy within the framework of state support programs in the agricultural sector amounted to 155 bln Armenian drams, of which only the volume of capital investments is about 105 bln Armenian drams.

See below analysis and results of each Program.

1. Program on subsidizing interest rates of loans provided to agricultural sector.

The main objective of the Program is to improve access to financial resources, capacity building, introduction of modern technologies and increase of agricultural efficiency through improving loan conditions and partially subsidizing interest rates of loans to physical and legal entities engaged in the agri-food sector of the Republic. Within the framework of program the actual interest rate on loans or leasing provided in AMD by financial institutions should not exceed 14% and the subsidy will be implemented in such a way that loans or leasing are available to beneficiaries at 0% interest rate 3-15 mln Armenian drams, for the development of sheep breeding, goat breeding and establishment of a traditional garden - 3-30 mln Armenian drams, for the development of cattle breeding, dairy buffalo - within the amount of 3-50 mln Armenian drams, loan repayment up to 5 years, for the establishment of a traditional garden up to 7 years, up to 3 years in case of loans for pig and poultry development, grace period up to 12 months in principal and in case of loans provided for the establishment of a traditional orchards with a maximum grace period of 4 years. The process of providing loans up to 1 mln Armenian drams to individuals at 0% interest rate continued until 1 October, 2021 within the framework of 2nd Measure to address economic impact of COVID-19.

Studies show that in 2021, 29.487 units of loan in the amount of about 73 bln Armenian drams were provided, and the amount of subsidy was about 9.7 bln Armenian drams. Compared to the previous year, the amount of loans provided increased by 9.5 bln Armenian drams.

The volume, quantity and distribution of loans provided in 2018-2021 within the framework of the Program by Marzes is presented in the Charts 1, 2 and 3.

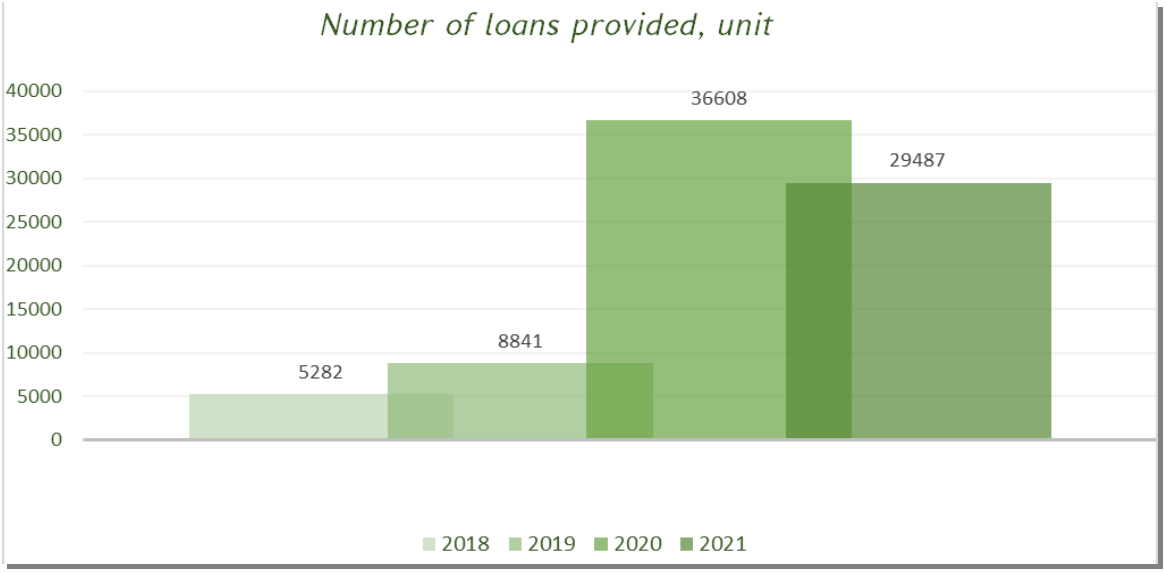


Chart 1. Number of loans provided, unit

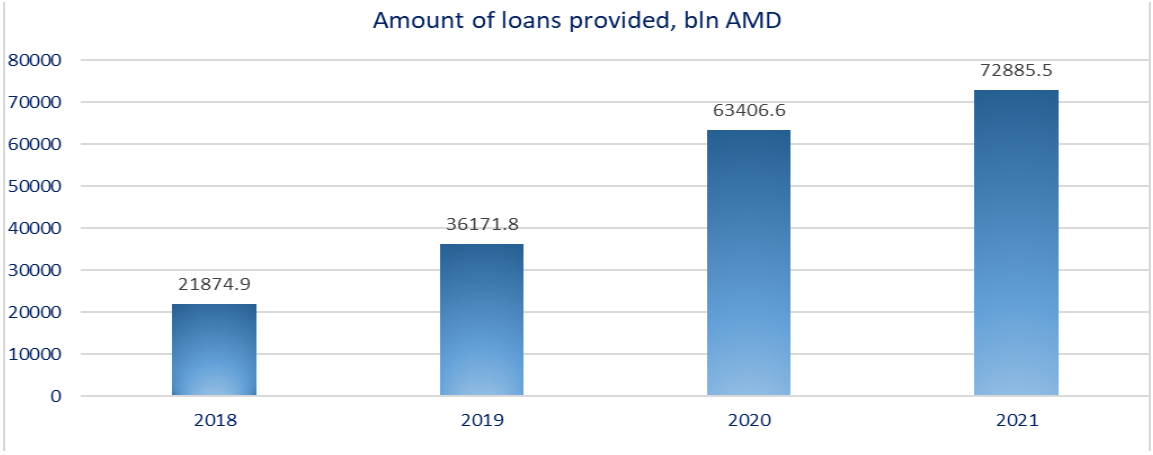


Chart 2. Amount of loans provided, bln AMD

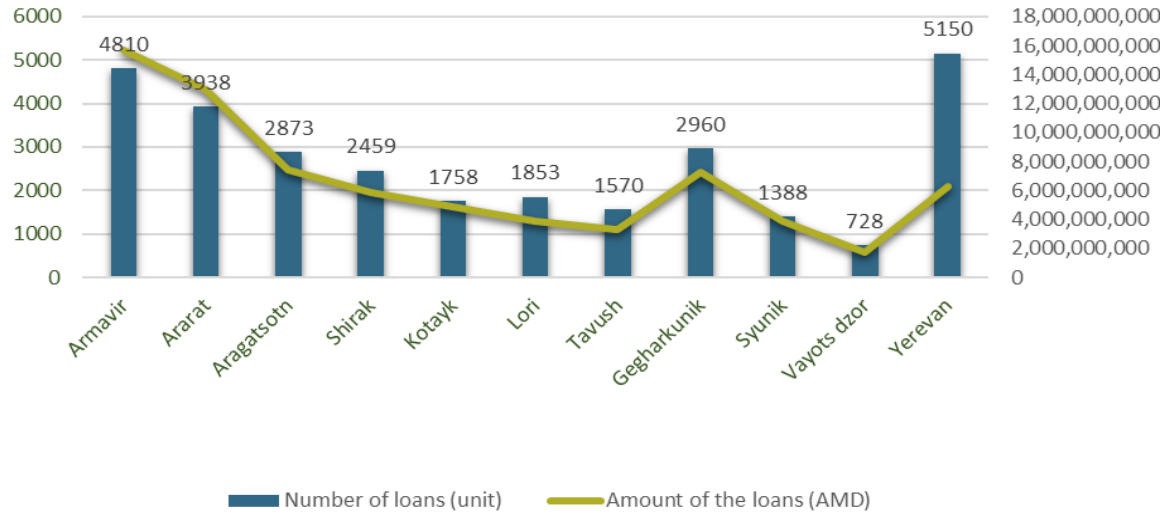


Chart 3. Number and amount of loans in 2021 by Marzes

The results of the analysis of the indicators show that the beneficiaries of the Program were mostly from Armavir, Ararat, Shirak, Gegharkunik and Aragatsotn Marzes and also from Yerevan. Main directions of investments are presented in Chart 4.

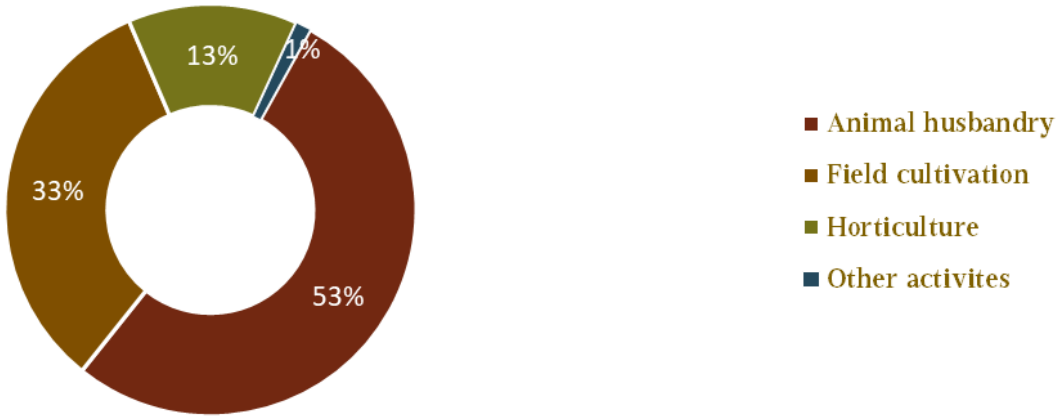


Chart 4. Loans distribution by directions

2. State support program on agricultural machinery financial leasing in the republic of Armenia.

The main objective of the Program is to provide farmers with agricultural machinery on affordable terms, in particular by financial leasing, thus creating favorable conditions for the efficient use of agricultural lands and establishment of goods production.

In the framework of the Program the actual interest rate on loans or leasing provided in AMD by financial institutions should not exceed 14% and the subsidy will be implemented in such a way that loans or leasing are available to beneficiaries at 0% interest rate. In 2021 under the Program, 538 units of agricultural machinery were provided to 378 beneficiaries, including 199 units of tractors, 4 units of combine harvesters, the amount of leasing was about 3.2 bln Armenian drams, and the amount of the subsidy is about 498 mln Armenian drams. The number of lessees within the framework of the Program, the number of agricultural machinery and the distribution by Marzes is presented in the Charts 5, 6 and 7.

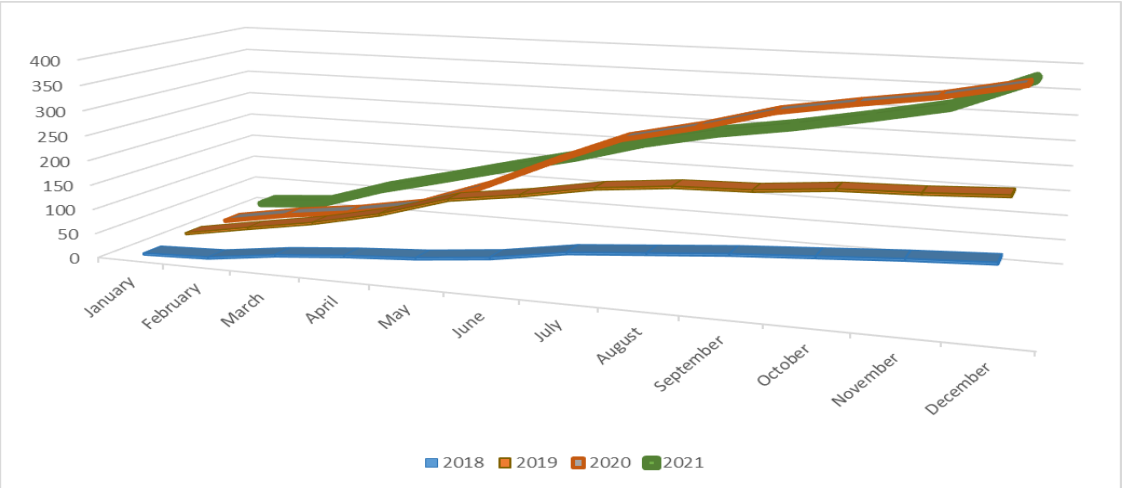


Chart 5. Number of lessees in 2018-2021 by months and distribution

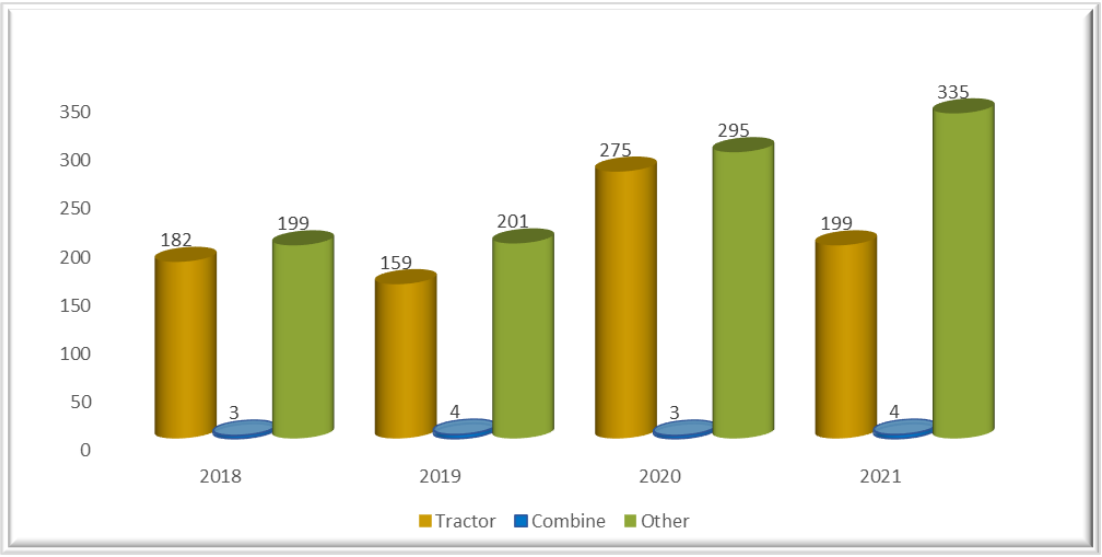


Chart 6. Number of agricultural machinery purchased in 2018-2021, unit

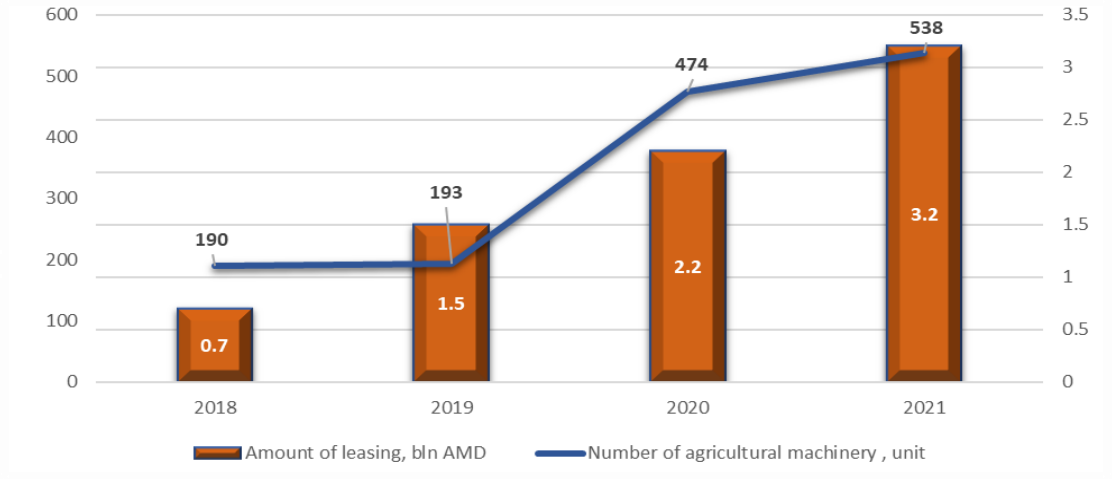


Chart 7. Number of agricultural machinery purchased in 2018-2021 by Marzes, unit and amount of leasing (bln AMD)

Studies show that the number of agricultural machinery purchased under the Program is increasing year by year, which contributes to the renewal of the existing set of agricultural machinery in the country, the reduction of costs and losses, and the increase of productivity.

3. State support program on financial leasing of the equipment used in agri-food sector in the republic of Armenia.

The main objective of the Program is to provide entities in agri-food sector with equipment on affordable terms, in particular by financial leasing, which will create prerequisites for increasing production volumes of agricultural and processed products, for ensuring quality and safety requirements in line with international standards, for increasing competitiveness and export volumes, and for replacing imported products with local production.

Under the Program in 2021, 342 applications were approved in the amount of about 10.6 bln Armenian drams, and the amount of subsidy was about 985 mln Armenian drams. 776 units of equipment have been purchased within the framework of the Program this year. Compared to the previous year, the number of lessees has increased 1.8 times, the amount of leasing - 1.7 times, the amount of subsidies – 4.5 times. The distribution of the amount and number of leasing by Marzes is presented in the Charts 8 and 9.

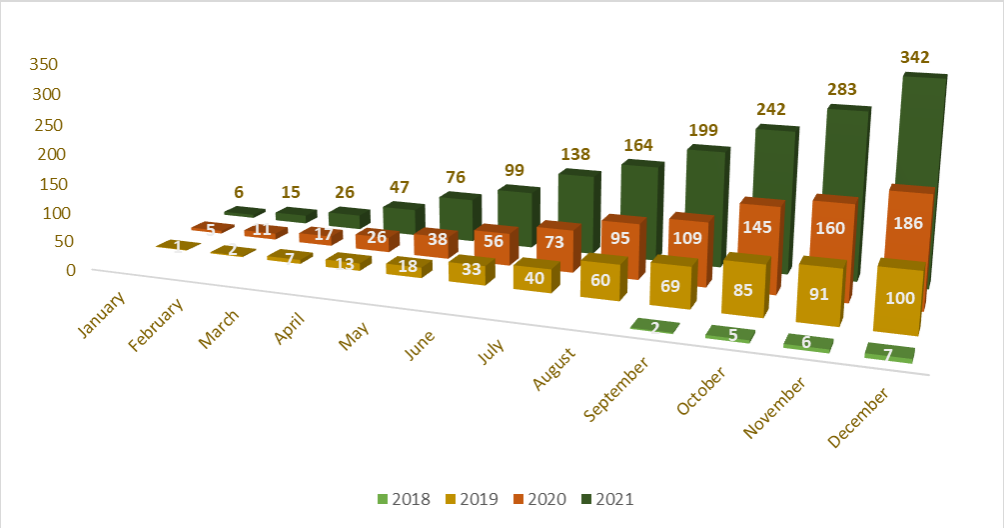


Chart 8. Number of lessees by months in 2018-2021

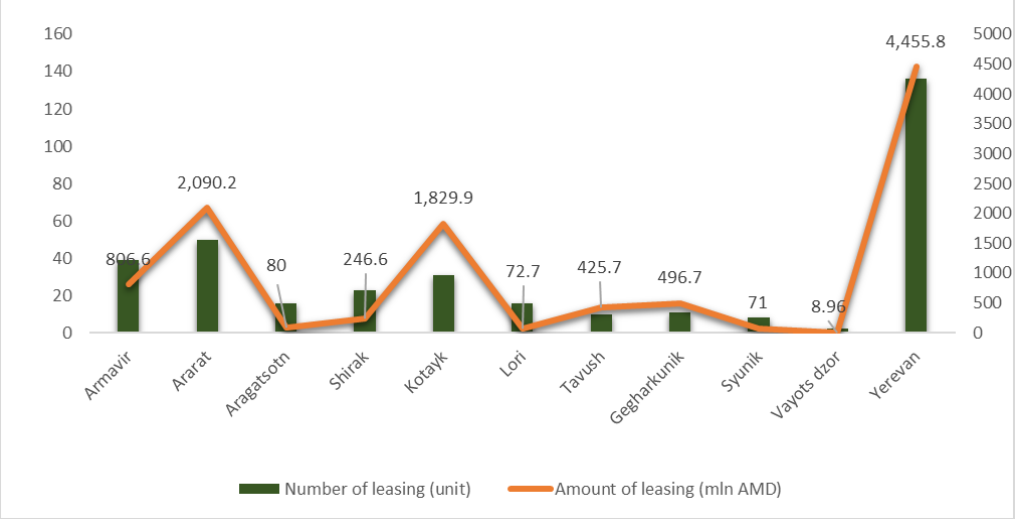


Chart 9. Number and amount of leasing in 2021 by Marzes

4. Program on subsidizing interest rates of loans provided to agri-processing sector for procurement (purchase) of agricultural raw materials.

The main objective of the Program is to increase the level of access to loans subsidizing interest rates for the legal entities and individual entrepreneurs engaged in agri-processing industry.

According to the Government Decree N 175-L dated on 11 February, 2021 the targeted loans provided at an annual interest rate of 0% were available to businesses as a result of state subsidies until 31 December, 2021. In case of insufficient level of collateral for loans provided to farmers for the

purchase (purchase) of agricultural raw materials, the Government of the Republic of Armenia has provided a budget guarantee of up to 50% until December 31, 2021, but not more than the value of exported products in 2020. Within the framework of the Program, 274 applications were approved in 2021 in the amount of about 27.3 bln Armenian drams, the amount of subsidy was about 2.7 bln Armenian drams. 13607 contracts were signed with farms within the framework of approved applications. Compared to the previous year, the number of beneficiaries of the Program has increased 1.5 times, and the amount of loans provided - 1.2 times.

The distribution of the number and amount of loans provided by Marzes is presented in the Charts 10 and 11.

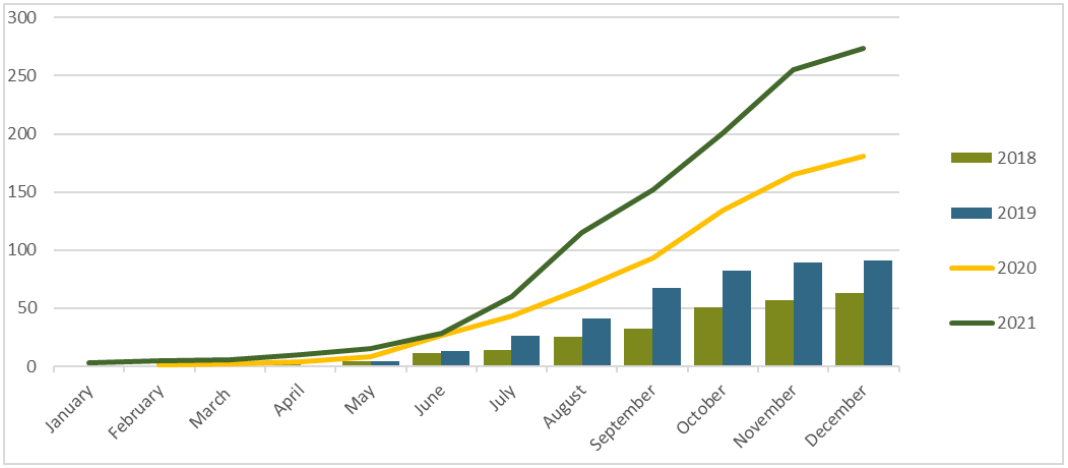


Chart 10. Number of beneficiaries within program in 2018-2021 by months

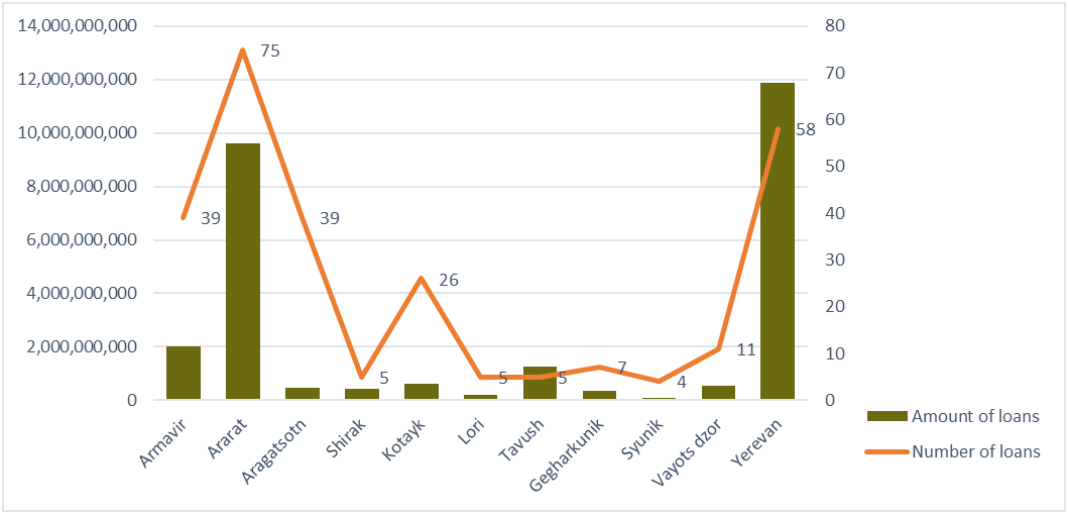


Chart 11. Number and amount of loans in 2021 by Marzes

5. Program on cattle breeding development in the republic of Armenia for 2019-2024.

The objective of the Program is to provide cattle breeders with pedigree cattle in affordable conditions, in particular through partial subsidy on loans' interest rate. This will give possibility to supplement the herds with pedigree cattle with valuable production and economic features instead of low-producing animals of unknown origin, unfit for reproduction, as well as to develop pedigree business, to improve the productivity of local animals through inter-ethnic crossbreeding, to increase milk-meat production volumes, to reduce production costs for meat and milk making them more competitive with similar imported products.

The loan interest rates were subsidized at such a rate that the loans were provided at a 2% interest rate, and at a 0% interest rate to the beneficiaries. Within the framework of the Program, 750 heads of cattle were purchased in 2021 at a cost of 565.0 mln Armenian drams, the amount of subsidy was about 114 mln Armenian drams. The number of heads acquired by years and by regions is presented in the Charts 12 and 13.

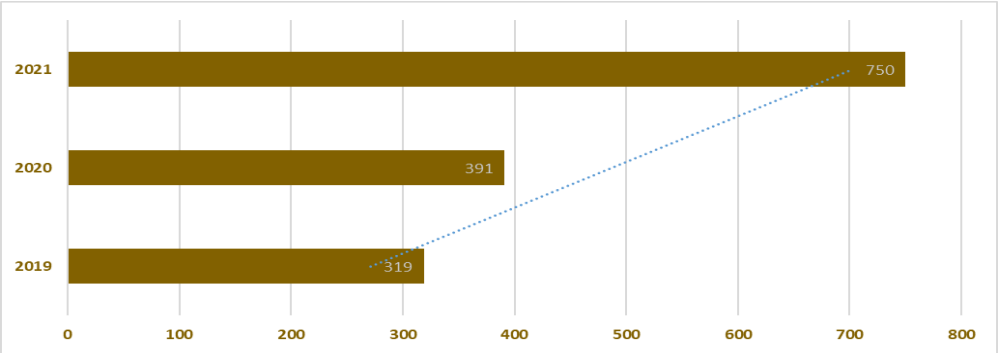


Chart 12. Heads of animals acquired in 2019-2021

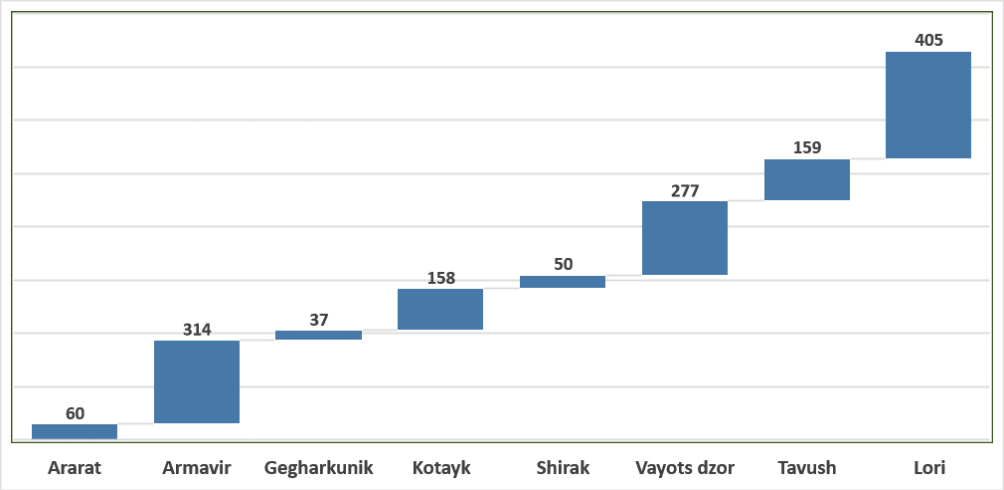


Chart 13. Heads of pedigree animals acquired in 2019-2021, by Marzes

6. State support program on sheep-breeding and goat-breeding development in the republic of Armenia for 2019-2023.

The main objectives of the Program are to create favorable conditions for the development of sheep and goat breeding sectors through subsidizing interest rates and partially compensating expenses, to promote purchase of high-value pedigree sheep and goats and formation of highly productive livestock, as well as to increase of production and export volumes of products of animal origin (sheep and goat breeding).

Within the framework of the Program, it is envisaged to provide state support in 2 ways to ensure access to the acquisition of pedigree small cattle.

Loan Component.

The loans are provided with preferential terms of up to 4 years, up to 1 year grace period for the principal amount, and by the RA Government Decree N 175-L dated on 11 February, 2021 the loans were available at 0% interest rate until 31 December, 2021.

Compensation component.

23% of the amount actually paid (excluding transportation costs) for the pedigree animals purchased by the beneficiary up to 450 thousand Armenian drams per head was reimbursed, and 27% for pedigree small cattle acquired by the beneficiaries of the border communities included in the list approved by the RA Government Decree N 1444-N dated on 18 December, 2014 or by the agricultural cooperatives.

Within the framework of the Program, 125 heads of animals were acquired in 2021, the amount of compensation was 37.7 mln Armenian drams. The number of animals acquired within the framework of the Program by years and by Marzes is presented in the Charts 14 and 15.

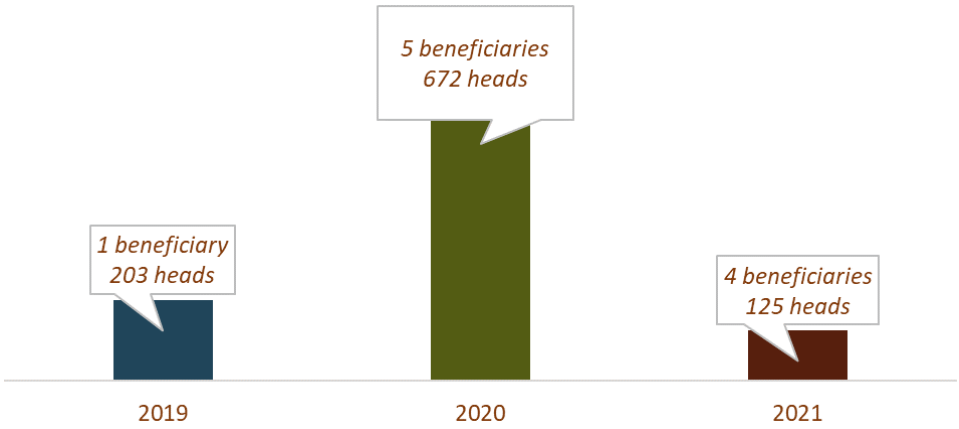


Chart 14. Number of beneficiaries and heads of acquired animals in 2019-2021

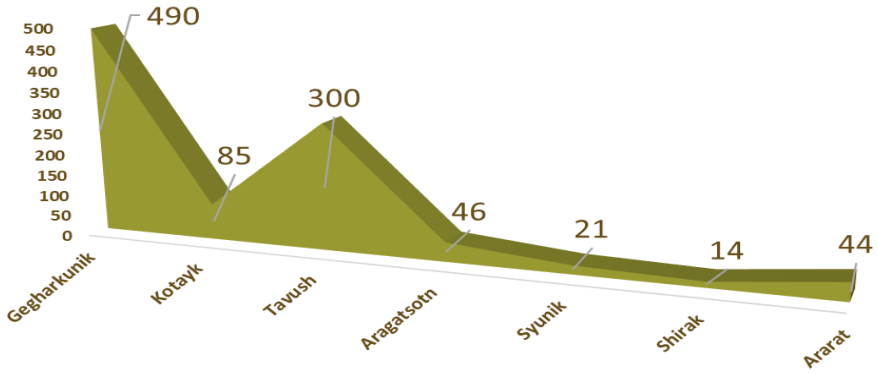


Chart 15. Number of acquired pedigree animals in 2019-2021, by Marzes, head

7. State support program on small and medium smart cattle barns construction or reconstruction and their technological support

The main goal of the Program is to improve the conditions of animal husbandry, as a result of which to increase the indices of animal production, within the framework of which the state reimburses the costs of the beneficiaries who built or reconstruct "smart" barns. Within the framework of the Program three models were offered: 130-280 sq.m., 281-450 sq.m., 451 sq.m. and with more production area.

Within the framework of the program, in 2021, 125 on-site inspections were carried out, 31 citizens were provided with certificates, 27 contracts in the amount of 361.2 mln Armenian drams were signed, 23 cattle barns were put into operation, 44 compensations were provided in the amount of 347.8 mln Armenian drams.

The number, amount, distribution of compensations provided within the framework of the Program by models and Marzes is presented in the Charts 16, 17 and 18.

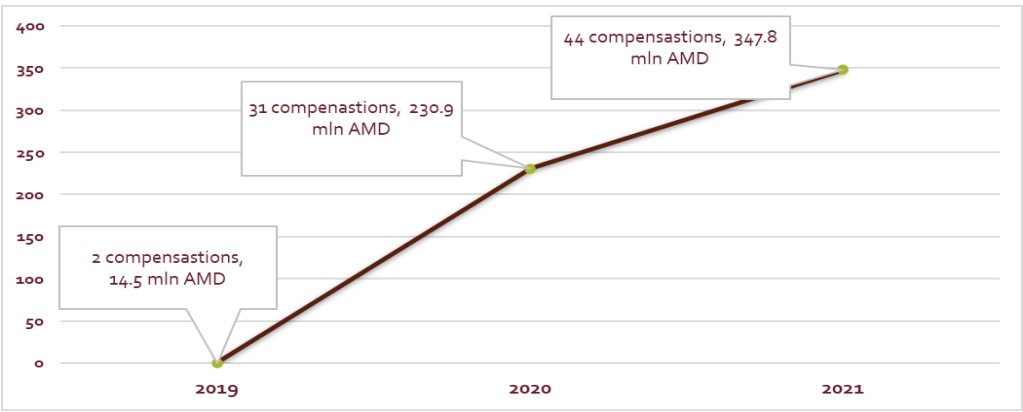


Chart 16. Number and amount of compensations in 2019-2021

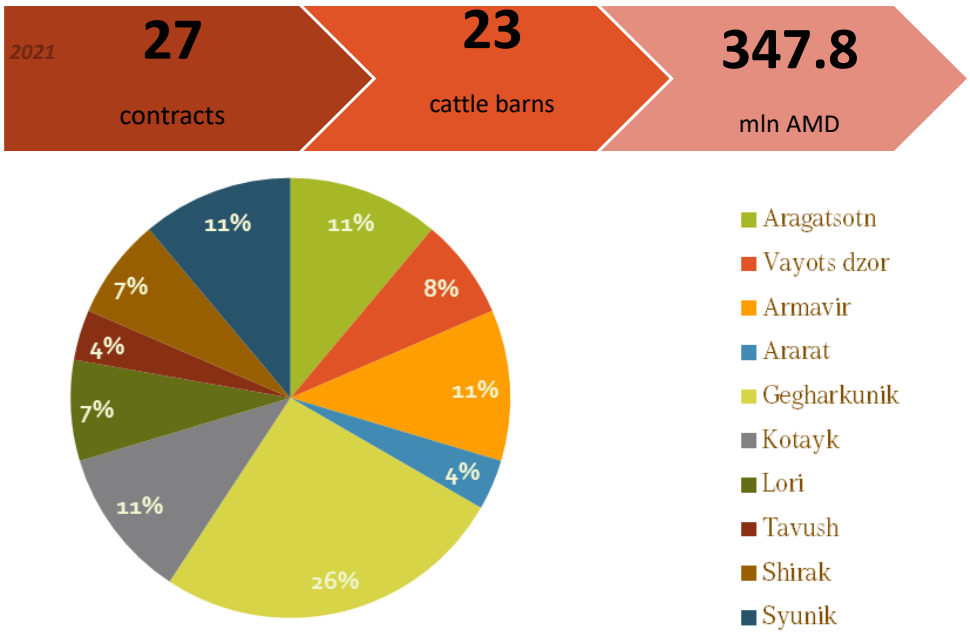


Chart 17. Distribution of signed contracts by Marzes in 2021

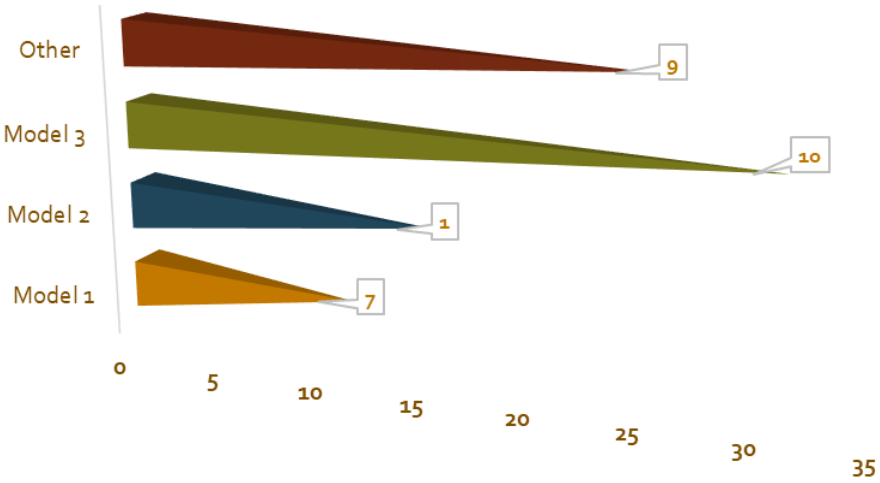


Chart 18. Distribution of signed contracts by models in 2021

8. State support program for promotion of intensive gardening, introduction of modern technologies and non-traditional high value crops production in the republic of Armenia for 2021-2023

The aim of the Program is to promote the establishment of modern high-yield orchards through state support for the establishment of modern vineyards, intensive orchards, berry orchards, cultivation of non-traditional high-value crops, as well as modern irrigation systems and hail protection nets. It is also aimed at increase of production and export volumes of competitive grape, fruit and berry, promotion of non-traditional high value crops production, reduction of hail and other climatic risks, promotion of efficient use of water resources, mitigation of the impact of climate change, increase of adaptation level, as well as increase of farmers' incomes.

The Program includes also the components of the following 3 programs implemented on 31 December, 2021: State support program on establishing vineyards, intensive and berries orchards cultivated with modern technologies in the Republic of Armenia; Interest rate subsidy program for hail protection nets in the agricultural sector; Co-financing program for the implementation of modern irrigation systems.

The Program was implemented in the whole territory of the Republic of Armenia with two components, through partial subsidization of loan interest rates and partial compensation of expenses.

Loan Component.

Within the framework of this Program and the State support program for the establishment of vineyards, intensive orchards cultivated with modern technologies in Armenia, 65 credits in the amount of about 32.2 bln Armenian drams were provided, for the establishment of 1322.3 hectares of orchards, the amount of subsidy was 1.07 bln Armenian drams. Compared to the previous year, the number of beneficiaries has increased almost 1.2 times.

Compensation Component.

Within the framework of the program, the compensation was provided for 0.5 to 10 hectares of grapes, intensive orchards and berries, and the expenses were reimbursed for all the beneficiaries, with 50% of the establishment costs (excluding the costs of the first year of care).

In 2021, 52 compensations in the amount of 899.8 mln Armenian drams were provided for planting a garden on 134.52 ha. Compared to the previous year, the number of beneficiaries has increased about 7.4 times, and the area of intensive gardens - 13.5 times.

Within the framework of the programs, the number of beneficiaries and the areas of the established garden by years, the area of the invested gardens by regions and crops are presented in Charts 19, 20, 21.

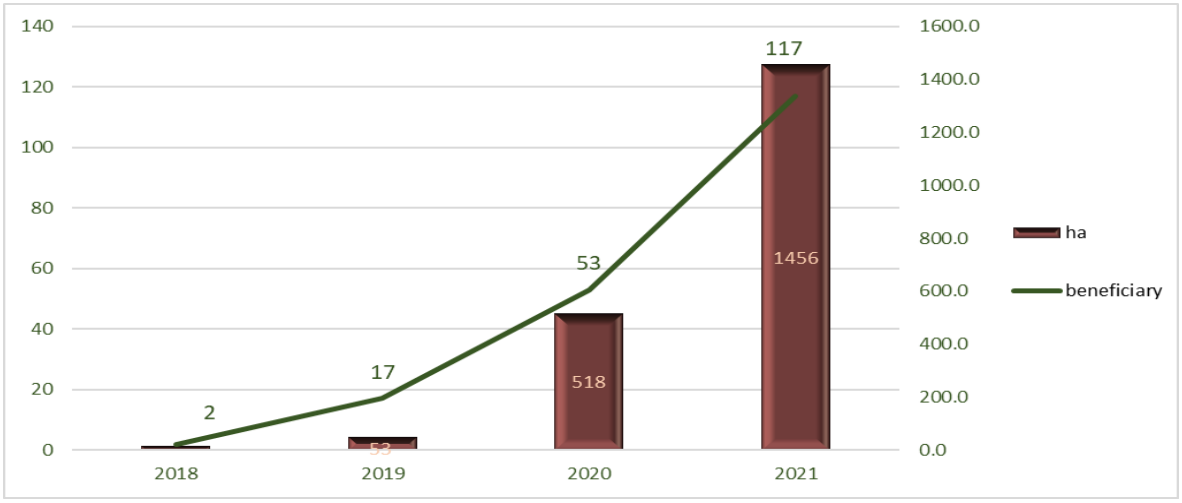


Chart 19. Number of beneficiaries and area of established orchards in 2018-2021

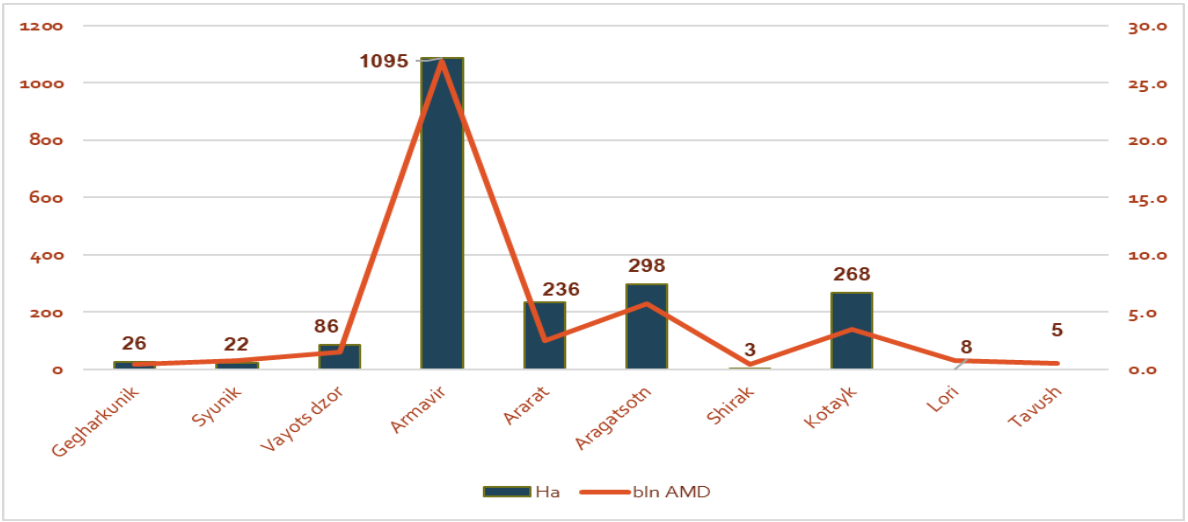


Chart 20. Areas of intensive orchards (ha) and the amount (bln AMD) by Marzes in 2018-2021

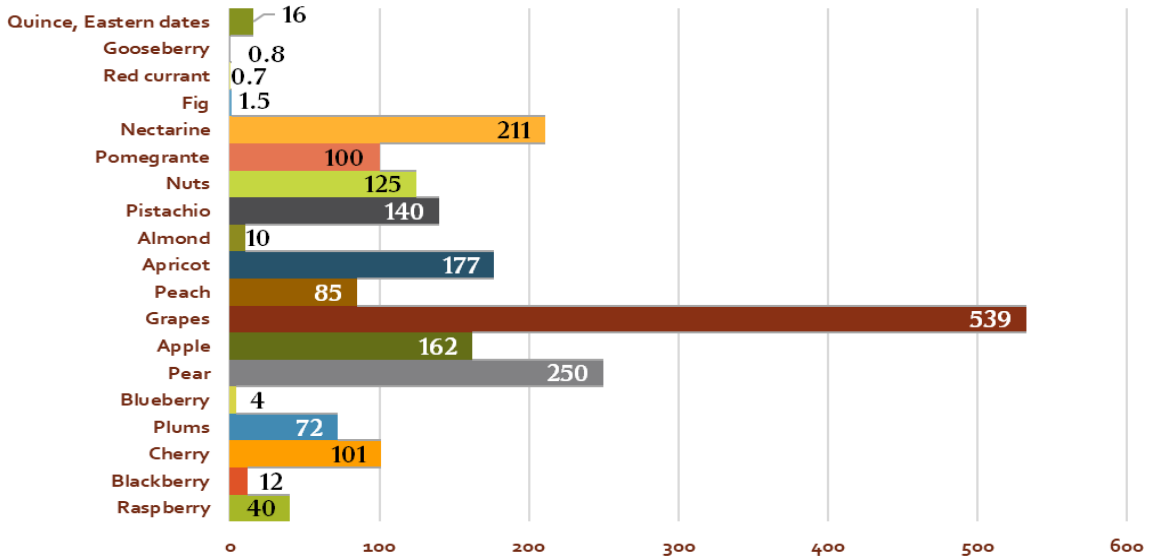


Chart 21. Area of established intensive orchards in 2018-2021 by crops, ha

The results of the study show that in 2021, compared to 2018, the number of approved garden applications has increased 72 times. The development of intensive horticulture will significantly contribute to the increase of export volumes and the increase of the incomes of the villagers.

9. Program on co-financing of introduction of modern irrigation systems.

The main objective of the Program is promote introduction of effective irrigation systems in agricultural lands. In the framework of the Program the state assistance is provided to physical and legal entities engaged in cultivation of agricultural crops. Assistance is provided through partially subsidizing of loans or partially compensating of expenses at beneficiary's discretion.

Subsidized loans were provided for up to 3 years, with an annual grace period of up to 6 months, the maximum loan amount was set at 150 mln Armenian drams.

Loan Component.

Within the framework of the program, 14 units of loans in the amount of about 340.5 mln Armenian drams were provided in 2021, for the introduction of modern irrigation systems on 374.6 hectares of land, the amount of subsidies was about 74.8 mln Armenian drams. Compared to the previous year, the area of the areas equipped with modern irrigation systems has increased about 1.6 times.

Compensation component.

Within the framework of the program, in 2021, 2 compensations in the amount of 0.3 mln Armenian drams were provided for the introduction of modern irrigation systems on 2.48 ha land.

The results of the Program are presented in the Charts 22 and 23.

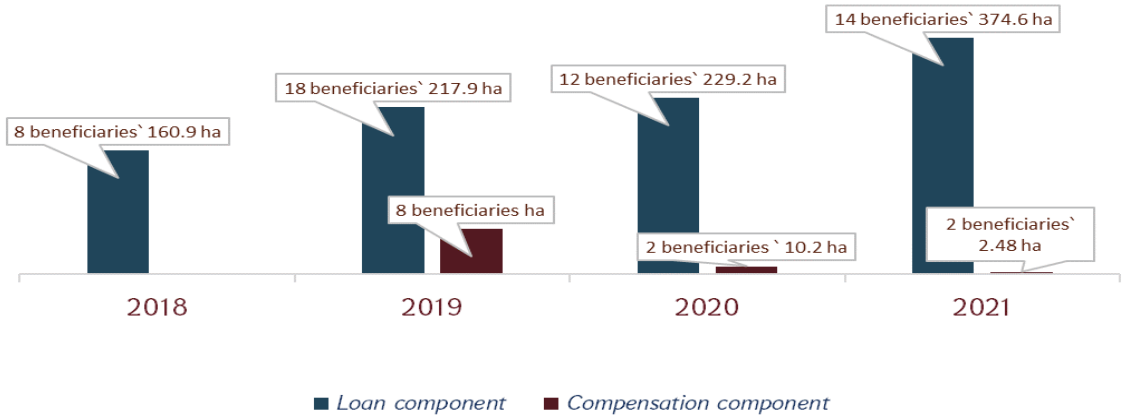


Chart 22. Number of beneficiaries of the Program and area of lands with installed modern irrigation systems in 2018-2021

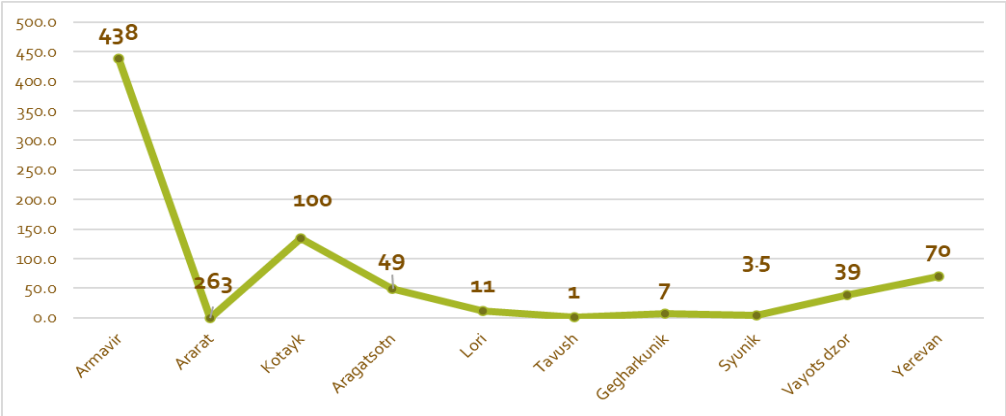


Chart 23. Area of lands with installed modern irrigation systems by Marzes, ha

10. State support program for the implementation of pilot project for introduction of agricultural insurance system.

The main objective of the Program is the clarification of agricultural insurance mechanisms and implementation of risk management policy in agriculture as a result of a comprehensive system introduction.

The list of crops to be insured for the 2021 agricultural year and the scope of the Marzes covered by the Program has been expanded to include potatoes, plums, watermelon/melon crops.

4279 insurance contracts were sold by insurance companies. The gross insurance premium amounted to about 474.6 mln Armenian drams, and the subsidized amount was 275.9 mln Armenian drams, and as a result of the concluded contracts, the area of orchards insured was 5832 ha. As of 1 December, 2021, the number of insurance compensations was 1517, and the amount of insurance compensation was 319.1 mln Armenian drams.

The number of insurance contracts by risk and crop, distribution by crop and by Marzes is presented in the Charts 24, 25 and 26.

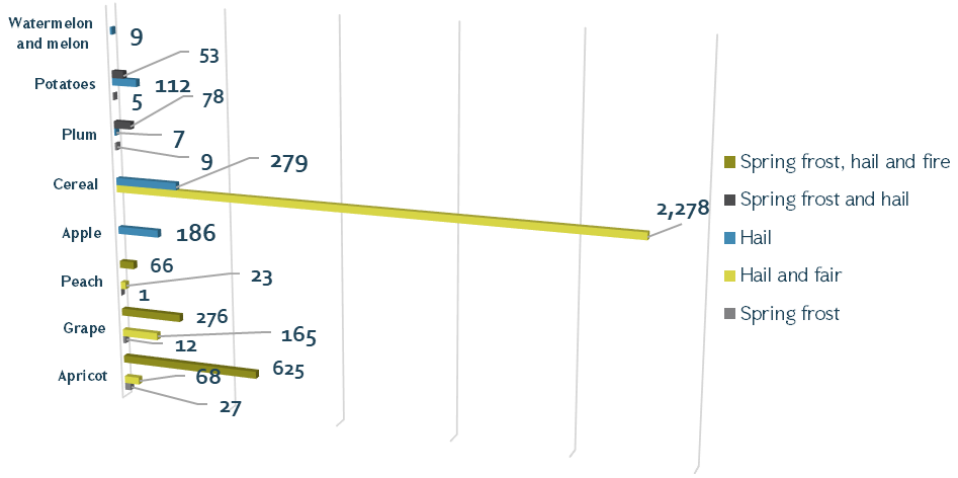


Chart 24. Number of insurance contracts by crop and risk, item

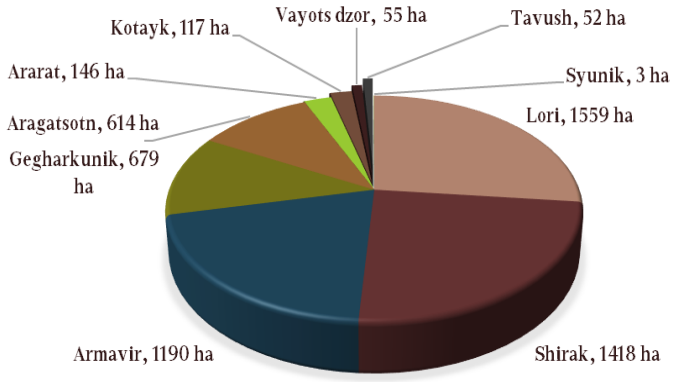


Chart 25. Area of insured orchards and sown area, by Marzes, ha

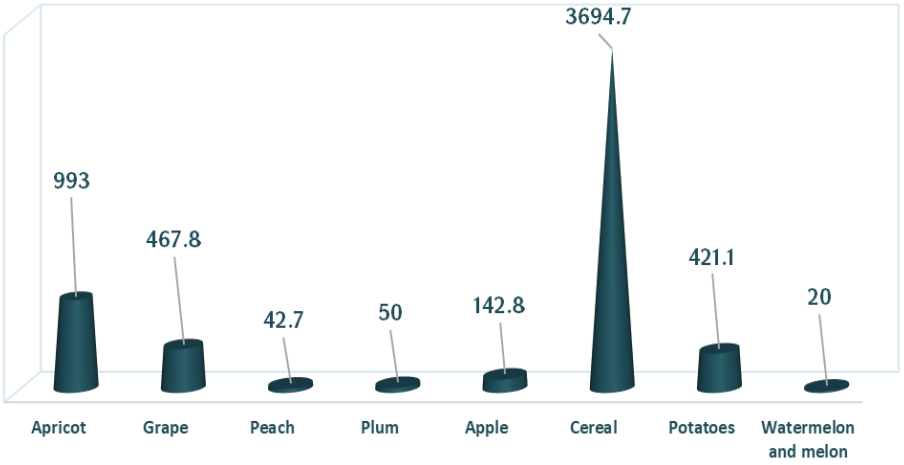


Chart 26. Area of insured orchards and sown area, according to the insured crops, ha

11. State support program for establishment of small and medium greenhouses.

The main objective of the Program is to increase the surface of greenhouses and their production volumes, as well as competitiveness of products, to promote increase of incomes of entities involved in agriculture through establishment of small and medium size greenhouses and their technological support. 3 models of greenhouses construction and their technological support are offered by the Program with corresponding compensation limits.

In 2021, a contract was signed with 24 beneficiaries in the amount of 554.4 mln. Armenian drams, compensation in the amount of 227.3 mln. Armenian drams was provided, as a result of which 8 greenhouses were built. The distribution of contracts concluded under the Program by models is presented in the Chart 27.

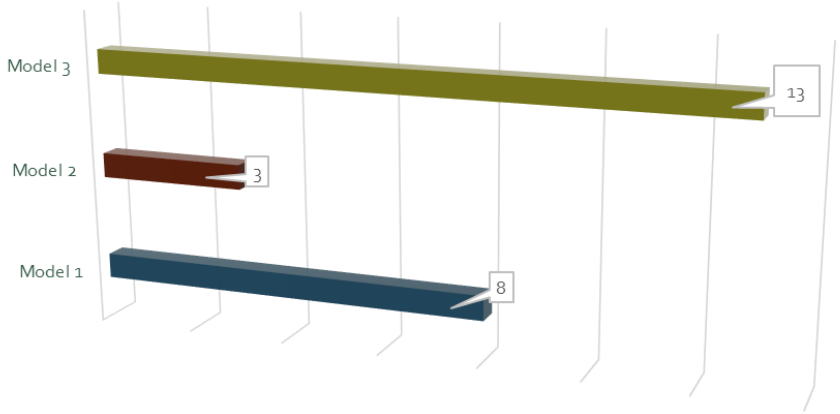
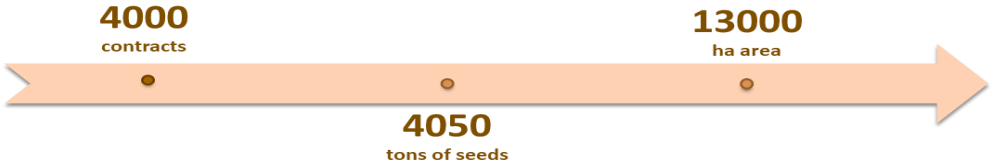


Chart 27. Distribution of contracts by greenhouse models

12. State support program to promote autumn wheat production in the republic of Armenia.

By partially subsidizing or compensating the price of autumn wheat seeds, it is envisaged to promote the availability of seeds with high agro-economic indicators, to increase the yield, and as a result to increase the volumes of local autumn wheat and incomes of entities.

The Program was implemented in the whole territory of the Republic of Armenia in 2021.

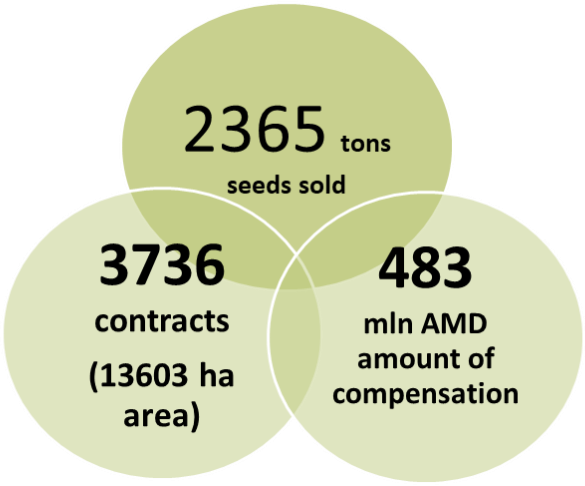


13. State support program to promote spring, grain and food crops production in the republic of Armenia.

The aim of the Program is to mitigate consequences of military conflict or states of emergency, especially the problems of fodder provision as a result of used pastures' reduction and increasing the level of food self-sufficiency by partially subsidizing or compensating the price of seeds of spring cereals, legumes and fodder crops.

The Program was implemented in all Marzes of the Republic of Armenia in 2021, within the framework of which the beneficiaries were offered certified seeds of spring wheat, spring barley, oats, beech, beans, lentils, peas, peas, alfalfa and carnation elite and/or seeds of 1st reproduction, as a result of which the seeds were purchased at about 50-70% lower prices than in the market.

All the the farmers cultivating 1-20 ha of grain and fodder crops, as well as 0.5-20 ha of legumes in all Marzes of Armenia.



Based on the research results, we can say that in the last 3 years a number of state support programs have been implemented in the field of agriculture, which contribute to increasing the level of agricultural intensification, raising the level of food self-sufficiency, forming and establishing a culture of smart agriculture. However, it is necessary to apply mechanisms in the forthcoming state assistance programs that will promote land consolidation, as one of the main keystones of our agricultural development is land consolidation.

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KNOWLEDGE MANAGEMENT STRATEGIES AND EMERGING TECHNOLOGIES - AN OVERVIEW OF THE UNDERPINNING CONCEPTS

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ABSTRACT

Among the essential elements of knowledge management is the use of information and data, as well as the knowledge, skills, and abilities inherent within communities, as well as their ideas, commitments, and motivations for making good decisions as emerging technologies become more prevalent. Numerous leading social scientists in this field have asserted that organizational knowledge should be regarded as a strategic asset. There is a growing awareness of the importance of gathering, locating, capturing, and sharing collective knowledge and expertise of societies, and societies are urged to develop effective and efficient methods of gathering, locating, capturing, and sharing that knowledge in order to deal with problems and to benefit from opportunities. People living in many countries and regions are interested in implementing knowledge management processes and technologies, and many of them have included knowledge management as an integral part of their overall development strategies. The management of knowledge plays an increasingly important role in global economic development (Bell, 1973, 1978). In order to remain relevant in the modern world, organizations should not ignore knowledge management and emerging technologies.

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Introduction. Traditionally, knowledge is believed to be distinct from data and information. As technology advances, new possibilities are becoming available. The integration and sharing of highly distributed information is a prerequisite for achieving effective performance and growth in knowledge-intensive societies. Over the past few decades, as the society has grown and evolved in sync with evolving technology, knowledge management has become one of the most important aspects enabling the productivity and competitiveness of society and organizations to increase to the same level regardless of market conditions. According to McKern (1996), powerful forces lead to powerful outcomes which are shaping the economic and business climate in the world and many people are calling for a fundamental change in the way we think and act about the way we run our organizations. Taking into account the benefits of emerging technologies such as the creation of reusable services that allow organizations to consume these services on their own, knowledge management is also considered to be a significant element.

Knowledge Management and Emerging Technologies. Throughout an organization there is a collection of knowledge, which is created and maintained by the members, and with the emergence of new technologies, a greater amount of knowledge is being produced. When a knowledge management strategy is implemented throughout the organization, in addition to improving service levels, it will also increase customer satisfaction and efficiency. To fully comprehend emerging technologies, we must first determine what they are, what they do, and what they mean for the organization. The term emerging technology refers to technologies which, in terms of their development, practical application, or both, have not yet reached their full potential, as such they are

emerging figuratively into prominence from obscurity or nonexistence, for example artificial intelligence. Emerging technology can refer to new technical developments or to the continuous improvement of an existing technology. The future of artificial intelligence (AI) and knowledge management has been discussed at length, as well as the relation between the two (Liebowitz, 2001). Knowledge Management in a variety of situations, knowledge management is the fastest and easiest way for an organization to add value.

Knowledge management is also becoming increasingly important due to the rapid changes of needs, processes, and the process of bringing management systems into dialogue when the proposed strategy is aligned with the emerging technologies employed by the organization. Having innovative capabilities arising from emerging technologies, which are meeting the needs and expectations of society, allows organizations to remain competitive, consistent in meeting expectations and needs, and differentiate systems based on conceptualized knowledge. The organization can use this knowledge to more effectively communicate with its partners and customers, which in turn allows them to make better decisions in response to an issue when addressing it. Emerging technologies have made it possible for partners to access the information gathered from various sources, which is helpful for the decision-making process.

Emerging Technologies Underpinning Knowledge Management. Since the 1990s, technology has played a major role in transforming almost everything about organizations' day-to-day operations. Increasingly, organizations are introducing knowledge management initiatives in order to spread their programs. Davenport (1998) states that knowledge is framed experiences, values, and context as expert insights that provide a framework for evaluating & incorporating new information. In order for the organizations to adopt a knowledge management approach in line with the emerging technologies, the first fundamental aspect is an increased level of responsiveness to the organization's customers and partners. In terms of the development and expansion of a business, the knowledge that is gathered about the people within the organization is valuable for the organization. Obtaining this knowledge may be difficult in some instances, unless emerging technologies make it more straightforward to collect and assemble this information from a variety of sources. It is possible, for instance, to collect different applications and data structures and assemble conclusive demands, and then develop definitive requests based on those demands.

Challenges Associated with Knowledge Management and Emerging Technologies. There are a number of dynamic challenges that have emerged from the emergence of new technologies that need to be addressed if knowledge management processes are to become more effective for organizations. It is crucial that knowledge management strategists within organizations consider these challenges and develop strategies that ensure that the recommendations they make in the area of knowledge management help them to meet their obligations towards consumers and other stakeholders. It is important to note here that there is an issue that needs to be addressed. Furthermore, it is also important to keep in mind that one of the challenges we are likely to face when we implement knowledge management concerning emerging technologies and connected systems has to do with the fact that we are dealing with relatively new systems. In addition to those reasons, it is also recommended that we keep in mind that even though there are standards governing how these systems should be implemented, they are still a bit underdeveloped. There is a possibility that in the future, an organization's knowledge strategy may be faced with ethical dilemmas arising from the use of new technologies associated with its knowledge strategy. In summary, knowledge management is evolving from a tool for process improvements and marginal efficiency to a key element of innovation that will underpin the future of organizations worldwide.

Solution. Whenever it comes to knowledge management, emerging technologies should suggest options to users, rather than forcing them on them. Knowledge management systems should not be controlled by technology, neither should technology produce direct effects, nor should technology dictate how knowledge management systems should be managed. There is no question that at the end of the day, it is ultimately up to society to determine what they want to do with emerging technologies that impact knowledge management. What knowledge management technology should be able to do is simply shed a light on the numerous possibilities that are available to them regarding knowledge creation, knowledge exchange, and knowledge management. It is ultimately the decision of intelligent individuals handling these complex systems that will ultimately determine the outcome. It is no secret that emerging technologies are a necessary part of creating a knowledge strategy for organizations, as is the use of knowledge systems. Nonetheless, the purpose of the knowledge management systems and tools is ultimately to assist the organization in achieving a competitive

advantage and shouldn't be used to control or dictate the knowledge management pipeline. There are many technical aspects to the new technology that are causing it to be highly fragmented, with a range of uses in various parts of society. Consequently, there is no one solution that will fit all organizations utilizing new technologies for knowledge management and we need to look at each case on its own merit, which may serve as the basis of future research for the societies.

Conclusions. In the context of emerging technologies, the function of knowledge management is to improve responsiveness to partners and customers, increase the ability to solve problems, and develop individual competencies. Knowledge management is one of the greatest assets of the organization; it is able to make well-informed decisions and to retain the knowledge in the organization for future use if needed. Incorporating a knowledge management system and emerging technologies within an organization gives insight into the opportunities that may arise, which prompts responses to selected issues and services.

Increasing the accuracy of decision-making through the use of knowledge management and emerging technologies is crucial for an organization's success. To succeed in this process, data must be collected, the first step in the process. Having collected and organized the data, and having organized the results in an appropriate manner, it is important to draw conclusions about the implications of the collected data. Within a few years, the majority of knowledge will likely come from new technologies and computerized systems, enabling organizations to make more informed decisions and to manage information more efficiently and effectively.

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IN PURSUIT OF SUSTAINABILITY: TOWARDS SUSTAINABLE FUTURE THROUGH EDUCATION

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ABSTRACT

Higher Education Institutions increasingly include sustainable development concepts in their programs to teach their students about sustainability. This tendency is encouraged by the Sustainable Development Goals. Today's technological age implies concerns about sustainability including ethical decision-making and responsible behavior of organizations and leaders. Moreover, the Covid-19 pandemic impacted sustainable development and highlighted the need for a more sustainable future. Sustainability can positively change value culture, the environment, and improve the quality of life. Although incorporating sustainability into the curriculum creates challenges for universities, it can also offer opportunities for educational institutions. Universities have an important role to play in the transition towards sustainability. They must not only incorporate the concept into research and teaching but also implement it on campus. This review article provides a brief overview of sustainable development in higher education institutions and discusses how universities adopt and apply sustainability principles. It also explores how sustainability can be integrated into various disciplines and sheds light on students' and academics' attitudes toward Education for Sustainability.

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Introduction. Higher Education Institutions (HEIs) increasingly include sustainable development concepts in their programs to teach their students about sustainability. This tendency is encouraged by the United Nation's Sustainable Development Goals. Within the framework of the Decade of Education for Sustainable Development (2005-2014), The UN suggested that HEIs incorporate sustainability into teaching and research courses (Wals, 2014). Universities' attention has been directed to taking a leading role in the transformation towards sustainability, which encompasses not only teaching about the concept but also to participating in the policymaking and its accomplishment (Kohl et al. 2022). As a result, universities have been engaged in sustainable development actions (Kohl et al. 2022; Gigauri et al., 2021). However, the full potential of HEIs is yet to be achieved in this regard.

Evidently, sustainability can positively change value culture, the environment, and eradicate poverty (Farsari, 2021). Especially, this technological age, with robotics, machine thinking, and artificial intelligence, creates more ethical and moral concerns on how businesses ought to make responsible decisions, and hence, requires teaching responsibility and ethics (Gigauri, 2021; Ahmad, 2020; Burton et al., 2017; Burton et al., 2018).

Furthermore, the Covid-19 has impacted sustainable development and highlighted once again the need for more attention to the concept. The pandemic is viewed as a transformative point for businesses to

reevaluate values and for education systems to challenge both curricula and institutional strategies to become more focused on values (Farsari, 2021; Icheva & Vasilev, 2021; Ioannides & Gyimóthy, 2020; Gretzel et al., 2020; Higgins-Desbiolles et al., 2019). Many countries and companies announced zero carbon by 2050. The tendency toward green transition is growing. Green commitments are managed by sustainability managers through sustainability projects. Consequently, universities need to go hand in hand with this trend by offering study programs and courses in sustainability to prepare future leaders.

Although sustainability courses must include all three pillars - economic, social, and ecological, students mostly view sustainability concepts in terms of ecological issues. Thus, HEIs tend to integrate sustainability into a wide range of courses and disciplines. Obstacles to teaching sustainability-related subjects can include insufficient knowledge of sustainable development, lack of educational tools and strategies for teaching or for integrating the concept into course programs, and insufficient understanding of how to make sustainability concepts more comprehensible and practical.

In essence, since universities have an important role to play in the transition towards sustainability, they must not only incorporate the concept into research and teaching but also implement it on campus. Therefore, this article intends to briefly review sustainable development in higher education institutions and discuss how universities adopt and apply sustainability principles. It also explores how sustainability can be integrated into various disciplines and sheds light on students' and academics' attitudes toward Education for Sustainability. Finally, the paper concludes with some considerations.

1. Sustainable Development in Higher Education Institutions.

A bibliometric analysis of 1700 papers about sustainability in a university context published in 1987-2019 revealed the growing interest in the concept (Leal Filho et al., 2021a). In fact, universities represent a key driver for innovation and sustainable economic development (Vac & Fitiu, 2017). Sustainable development focuses on minimizing of negative effects on the economy, society, and environment derived from human activities (Batista, & de Francisco, 2018; Lozano, 2008; Hjorth, & Bagheri, 2006; Lozano, 2011).

Current economic systems do not prevent natural resources from depletion and do not stimulate economic development at the same time. Sustainability considers achieving economic, social, and ecological goals simultaneously. Sustainable Development as an important concept of the modern world is focusing on protecting natural resources and wildlife while improving the well-being of society (Sady et al., 2019). As a result, future generations will be able to satisfy their own needs. The World Commission on Environment and Development (WCED) of the United Nations i.e. Brundtland Commission's (1987) defined sustainable development as striving to meet the needs of the present generation without compromising the future generations to meet their own needs, and hence, to protect the environment (WCED, 1987). For this reason, the Triple Bottom Line approach should be adopted to integrate environmental, economic, and social domains (Elkington, 2004). Since every organization, including higher education institutions, is a part of societies as well as environmental systems (Pfeffer, 2017), they need to take into account the different requirements of stakeholders (Lozano, 2018; Ahmad, 2020). Education is a main resource for achieving equitable and fair society and protecting the environment (Schumacher, 1973).

Moreover, Agenda 21 (UNCED, 1992) offered strategies to move towards sustainability through education, awareness, and knowledge of all sectors of society Olaskoaga-Larrauri et al., 2021; Dyment et al., 2015). Since then the concept of Education for Sustainable Development (EDS) has become a significant part of universities. Although there are no strict guidelines for sustainable development for educational institutions, the transformation towards EDS is obviously more than merely integrating the concept into teaching or research (Olaskoaga-Larrauri et al., 2021; Sady et al., 2019).

The 2030 Agenda of the United Nations for Sustainable Development aims at realizing Sustainable Development Goals (UN, 2015) including ending poverty and inequality, as well as dealing with climate change. All 17 SDGs outline the role of education in a better future, on the one hand, and on the other hand, they can be achieved through quality education. SDG 4 is focused especially on education. The sustainable development goals have been implemented by governments, civil and business sectors, which created a demand for professionals trained in sustainability (Sánchez-Carracedo et al., 2021). Integrating SDGs into the curriculum can accelerate advancement in their achievement by developing relevant competencies and promoting social and economic transition (Sady et al., 2019; Tunji-Olayeni et al., 2020; Kohl et al., 2022).

Furthermore, the United Nations Decade of Education for Sustainable Development supported the development of educational programs focusing on sustainability. Based on the UN's Decade (2005–2014),

several countries such as the UK, Australia, Sweden, and New Zealand, elaborated national strategies focusing on Education for Sustainable Development (ESD), which has been portrayed in the curriculum and changed the landscape of higher education institutions (Dyment et al., 2015; Winter & Cotton, 2012).

In addition, Principles for Responsible Management Education (PRME) facilitates embedding of ethics, responsibility, and sustainability into higher education institutions (Stough et al., 2021; Figueiro & Raufflet, 2015). PRME member universities develop competencies in six areas (PRME, n.d.): (1) Social skills, (2) Personal skills (3) intercultural skills, (4) Business responsibility such as stakeholder management, sustainability, entrepreneurship, (5) Academic research, (6) Service, empathy, volunteering, ethics. Thus, this framework implies that education in sustainable development not only teaches about related theories but it is a holistic approach that takes into account the whole system (Sady et al., 2019; Edwards et al., 2020).

Accreditation agencies can also play a pivotal role in promoting sustainability in HEIs (Tunji-Olayeni et al., 2020; Cooper et al., 2014; Barth, 2013).

Recently, Times Higher Education presents world university rankings to assess university performance against the UN's SDGs (THE, 2022). Universities from the United Kingdom, Australia, Canada, Denmark, Ireland, New Zeeland, and the United States are among the top universities in 2021 contributing to the SDGs (Figure 1). All universities are striving to contribute to the achievement of Sustainable Goal 17.

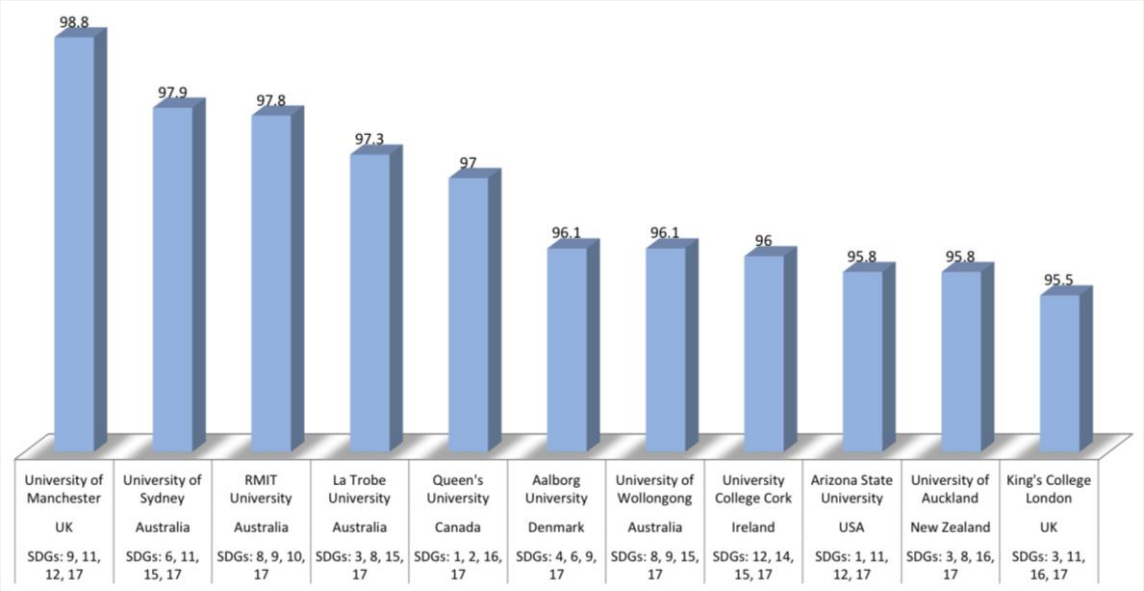

Fig. 1. University Impact Ranking, 2021. Source: Own elaboration from THE, 2022, https://www.timeshighereducation.com/rankings/impact/2021/overall#!/page/0/length/25/sort_by/scores_overall/sort_order/asc/cols/undefined

Sustainable Goal 1 focuses on poverty elimination and Goal 2 aims at ending hunger. Sustainable Goal 3 promotes well-being and good health for all, while Goal 4 ensures quality and inclusive education. Goal 6 encompasses sustainable management of water and sanitation, and Goal 8 centers on decent work and sustainable economic growth. Goal 9 includes sustainable infrastructure and innovation to promote inclusive and sustainable industrialization, while Goal 10 aims at reducing income inequalities. The purpose of Goal 11 is Sustainable cities and communities, and Goal 12 considers responsible consumption. Goal 14 aims at sustainable use of oceans and life below water, while Goal 15 addresses ecosystem protection and biodiversity. Goal 16 promotes peace, justice and inclusive societies for sustainable development, and 17 means partnerships for sustainable development (THE, 2022; United Nations, n.d.).

Since HIEs are supposed to contribute to building a sustainable future, they, therefore, should adopt and implement SDGs in both academic areas and throughout the institutional strategy.

2. HEIs Moving Towards Sustainability.

HEIs are expected to integrate sustainability-related dimensions into education and research, as well as campus operations and community engagement (Ceulemans, et al., 2015). They have been

called for going beyond teaching about sustainability by carrying out research projects aimed at informing policymakers (ULSF, 1990), modeling sustainable approaches (Galang, 2010), and by influencing decision-makers (Kohl et al. 2022). Consequently, Higher Education networks were established and many regional and global declarations were signed, which defined the role of HEIs in facilitating sustainable development (Kohl et al. 2022).

Currently, HEIs mainly provide training about sustainable development or conduct studies to present scientific evidence (Kohl et al. 2022) regarding sustainable development issues. Universities develop present and future leaders who can support society's sustainable transformation (Mulder, 2010) but they also have an opportunity to transform their organizations by embracing a "whole-institution approach" (Rieckmann, 2018).

Universities have the ability to increase the awareness, skills, knowledge, responsibility, and values of graduates (Cortese, 2003), who will make decisions and become leaders in the dynamic and challenging world, and this is possible through education and research (Lozano, 2018).

Since sustainability is not considered as a core business of HEIs, many universities consider it challenging to integrate it into curriculum while taking into account students' professional perspectives (Ramakrishna, 2021). Furthermore, students may have concerns that there are not many employment opportunities for them (Ramakrishna, 2021). Yet sustainability challenges require trained graduates and educated human capital, which creates a demand for sustainability literacy (Ramakrishna, 2021; Vasilev, 2021). Prior literature shows that contribution to sustainable development in organizations encourages responsible leadership, enhances employee well-being, and increases job satisfaction (Gigauri & Mushkudiani, 2021; Sady et al., 2019; Kudłak & Low, 2015). Sustainability-focused curriculum can enable the shift towards healthier society, economy, and ecology. It is noteworthy that there are vague data about the demand of business companies for value-oriented or sustainability-focused graduates (Olaskoaga-Larrauri et al., 2021).

Recent studies stressed geographical differences regarding the involvement of HEIs in sustainable development. For example, evidence from the United States and European countries is depicted in the international literature, while there are few studies on sustainability in universities from other regions such as Asia or Africa (Leal Filho et al., 2021a). Universities are diverse in terms of resources and geographical locations preventing them for fully incorporating SDGs into their educational programs and strategic approaches. Current studies found that citizens' awareness of sustainability influences the engagement of universities in sustainability practices (Leal Filho et al., 2021b). Under such circumstances, the implementation of Education for Sustainable Development (EDS) varies from country to country and the models that universities may use in this regard must be adjusted to educational systems considering funding structures for higher education (Leal Filho et al., 2021b).

In this context, instructors may inefficiently encourage sustainability at universities or do not include values in teaching (Olaskoaga-Larrauri et al., 2021). Professional development of instructors, curriculum enhancement, and practical activities require financial resources to teach sustainability (Michel, 2020a).

Not only public but private universities are also engaged in sustainability practices, though their dependence on students' payment makes them sensitive to changes in markets (Leal Filho et al., 2021b). Therefore, they try to respond to up-to-date economic and social demands. According to the research, private universities address environmental issues by improving energy efficiency, promoting sustainable water usage and green purchasing, reducing emissions and consumption (Leal Filho et al., 2021b).

Thus, universities tend to move towards sustainability practices as well as embedding SDGs into curricula.

3. Sustainability Integrated in a Wide Range of Disciplines.

Research findings elucidate the importance of HEIs to offer sustainability sources "in a wide range of disciplines and departments" (Coleman, & Gould, 2019). Sustainability as a broad idea covers various disciplines and requires expertise in interdisciplinary fields (Ramakrishna, 2021). Therefore, incorporating sustainability into HEIs curriculum and university system requires a strategic approach. Prior studies indicated that HEIs include sustainability concepts in various courses, whereas more courses are offered by natural and physical science departments, followed by social sciences, humanities, health sciences, business, engineering, and teacher education (McIntosh et al., 2008). However, professors of engineering and mathematics incorporate sustainability in their curricula more often (Olaskoaga-Larrauri et al., 2021). These findings resonate with previous studies that most sustainability

courses include social, ecological, and economic pillars integrated across disciplines (Coleman, & Gould, 2019). In addition, researchers emphasize the need for including sustainability in tourism education (Seraphin et al., 2021; Dredge et al., 2012) as well as in construction programs teach students how to deal with social, economic, and ecological problems (Tunji-Olayeni et al., 2020).

Coleman and Gould (2019) found eight options for how the sustainability concept is presented in course proposals (Figure 2). The courses can be focused on Ecological Sustainability, Economic Sustainability, Social Sustainability, Ecological and Economic Sustainability, Ecological and Social Sustainability, Economic and Social Sustainability, Ecological, Economic, and Social Sustainability, or without a clear focus (Coleman & Gould, 2019).

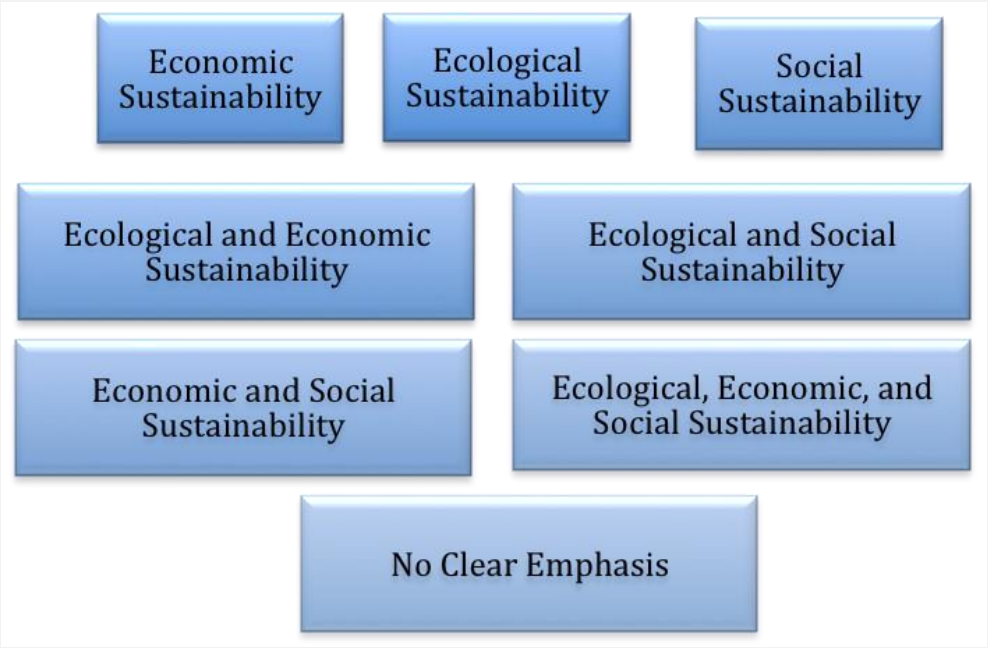

Fig. 2. Sustainability integrated into educational programs
Source: Own elaboration based on Coleman and Gould, 2019.

Thus, emphasis can be placed on either one or two pillars of sustainability or all three dimensions. It is also possible to deliver a sustainability course without a clear emphasis.

The literature maintains that economic sustainability is portrayed in the different courses such as international trade, finances, production and the content explained social and ecological sustainability (Coleman & Gould, 2019). The study of the Education Degree programs in Spanish universities indicated that sustainability is included in teacher's education, which confirms the significance of sustainable development and the culture of sustainability in universities (Sánchez-Carracedo et al., 2021). However, sustainability is not fully integrated into degree programs but is rather superficial, and hence, it requires more commitment from universities to concentrate on solving social and environmental problems, which can improve the quality of life and well-being of society (Sánchez-Carracedo et al., 2021; Tunji-Olayeni et al., 2020).

Given the complexity of the subject, sustainability education must apply an integrative approach encompassing various disciplines such as social, economic, and natural sciences (Dieleman & Huisingh, 2006). Sustainability learning and teaching can encourage interdisciplinary and cross-curricular initiatives in social, economic, cultural, or political dimensions (Dyment et al., 2015).

Not only study programs but extracurricular activities also train graduates in responsible behavior. The study of Polish universities outlined the importance of non-formal curricular activities for focusing attention on sustainable development and sustainability competencies of students (Sady et al., 2019). Polish universities are engaged in corporate social responsibility (CSR) activities beyond offering study programs in CSR and sustainable development, and thereby, students have the opportunity to engage in extracurricular activities related to CSR such as donations, charity, environmental and social issues, health and safety concerns (Sady et al., 2019). Consequently, non-formal education can shape the sustainability competencies of graduates and educate socially responsible citizens with the awareness of sustainable development (Sady et al., 2019).

Ethics and CSR are noticeably essential for business education to prepare future ethical decision-makers (Ahmad, 2020; Mushkudiani et al., 2020). Businesses need to take into account ethical, moral, and legal concerns (Burton et al., 2017; Burton et al., 2018; Duarte, 2008) in their operations and production process. Society expects responsible behavior of private companies (Larran et al., 2018) to respect environmental and sustainable aspects. In this respect, scholars suggest to including practice in teaching such as group tasks and internships (Hanson & Moore, 2013). Instructors need to choose an appropriate teaching method for their students ranging from case studies to ethical dilemmas or scenarios (Jonson et al., 2015).

Business education tries to integrate ethics, responsibility, and sustainability (ERS) into the curriculum partly due to the increasing pressure for accreditations, rankings, and as the impact assessment criteria (Stough et al., 2021). Therefore, business schools strive to embed sustainability in educational programs to provide conditions for learning about urgent issues the world is facing and train graduates' capabilities to solve the social, ecological, and economic problems (Edwards et al., 2020). Moreover, business schools can enable academics to prioritize sustainability including social and ecological issues in research and curriculum development (Ralph & Stubbs, 2014).

Academic entrepreneurship including establishing companies on the basis of academic research (Qian et al., 2018; Philpott et al., 2011; Perkmann & Walsh, 2007) is another way for students to practice sustainability in business activities. Universities can contribute to society through entrepreneurial activities (Pavlin et al., 2016) in which sustainability is incorporated. In this regard, formal and informal networking helps use opportunities and tackle challenges with available resources (Padilla-Meléndez et al., 2020).

Thus, the sustainability curriculum could be developed through multidisciplinary, interdisciplinary, or transdisciplinary approaches (Edwards et al., 2020).

4. Students' and Professors' Attitude towards Education for Sustainability.

The research focusing on studying the opinions of academics about the sustainable practice at public and private universities demonstrated the difficulty of incorporating sustainability into all classes, especially, while there already are plenty of subjects in curriculum (Palomo-Lovinski et al., 2019). In addition, there is a need to develop a conceptual approach for pedagogy for sustainability, as it is a complex subject due to its interdependence of ecological, economic, and socio-cultural aspects in the current dynamic world (Farsari, 2021; Shonia et al., 2022).

The study results of academic staff at Spanish public and private universities revealed that professors' attitudes toward sustainability support the concept to be integrated into the university's curriculum (Olaskoaga-Larrauri et al., 2021). The surveyed academics have knowledge about sustainable development and express their willingness to communicate those values to students (Olaskoaga-Larrauri et al., 2021). These findings rejected the opinion that lecturers are not willing to introduce values in university programs (Christie et al., 2015) because such changes require more work and academics are already overburdened with their teaching, researching, and administrative duties (Ramakrishna, 2021).

Learning about sustainability is insufficient and hence, sustainability literacy must take into consideration students' attitudes and dispositions (Winter & Cotton, 2012). Scholars accentuate the need to involve all students in sustainability courses in order to raise awareness among student groups despite their background and to avoid the associative coupling of sustainability only with ecological concepts (Coleman & Gould, 2019). The previous research confirmed that students worried about environmental and social problems (Ahmad, 2020). This finding echoes with survey results of construction students in a Nigerian university that although they are less informed about the concept of sustainability, they still are interested in it and consider sustainable construction along with renewable energy sources and waste reduction as significant (Tunji-Olayeni et al., 2020).

Education also enables personality development of students through additional activities related to sustainable development, including flexibility, openness, problem-solving, communication, and teamwork skills (Sady et al., 2019). The "hidden campus curriculum" meaning the implicit signals of universities about sustainability values can impact students' sustainable learning and behavior (Winter & Cotton, 2012). The hidden curriculum can develop students' awareness of sustainability, their understanding of challenges and opportunities in this regard, and can change their unsustainable behavior (Winter & Cotton, 2012). Thus, informal learning, extra-curricular activities, and the hidden curriculum of the campus environment are significant drivers of students' perception of sustainability, which enhances structured educational programs and improves students' engagement in sustainability activities in conjunction with formal education for sustainable development (Winter & Cotton, 2012).

The survey shows that every second student in Polish universities is involved in sustainability activities as a part of non-formal education (Sady et al., 2019).

Instructors' attitudes towards sustainability influence students' understanding of the concept as well as of the world to be open to alternative viewpoints. Academics at universities guide students in mastering a subject matter and new concepts (Neumann, 2014) and motivate their creativity. Universities, while applying various tools and methods, empower students to connect their ideas and knowledge with sustainable development challenges (Sady et al., 2019). The knowledge and beliefs of students influence the absorption of information provided in the classrooms as sustainability is politicized and requires "changing views" (Michel, 2020a; Winter & Cotton, 2012). Accordingly, acquired knowledge can lead to sustainable behavior.

Furthermore, it is challenging to teach sustainability to students with success due to the complexity of the subject matter and due to its interdisciplinary characteristic (Michel, 2020a; Michel, 2020b; Buckley & Michel, 2020; Sherman & Burns, 2015). Students need to learn how to deal with sustainability-related problems in the future such as climate crisis, ecological degradation, resource depletion, income inequality, social, and economic problems (Sterling, 2013). Students need to combine knowledge and deal with complex issues under the conditions of limited information, to adapt to uncertainties and solve future problems (Farsari, 2021). Sustainable education involves teaching students how they can interact with the social and ecological systems (Hansmann, 2010). They should be able to take responsibility and consider social and ethical issues (Farsari, 2021).

In a nutshell, students' perspectives, as well as instructors' attitudes, are important in teaching and learning sustainability. Moreover, universities can serve as role models for society in the transition towards sustainable development. The organizational behavior of HEIs is a crucial factor for students' experience as they can learn sustainability-related issues through the campus as well.

Conclusions. This paper outlined the tendency of sustainable development in higher education institutions and explored the implementation of sustainability principles by universities. This review article looked into the directions of integrating sustainability into a wide range of disciplines and discussed world university rankings and assessments in terms of achieved sustainability results by HEIs. Impact rankings facilitate encouraging universities to engage in Sustainable Development Goals and promote sustainability in HEIs.

Adequate resources, programs, and infrastructure are needed to implement SDGs at the HEIs. Likewise, interdisciplinary and transdisciplinary programs in the sustainability domain should be elaborated. In addition, sustainability must be introduced into academic and organizational culture.

Universities have the ability to transform education towards sustainable development through innovative teaching and educational methods. Professional development in the teaching tools will provide academics with the necessary guidelines to teach sustainability subjects effectively. Students can become change agents and contribute to sustainable development. Consequently, they need to be informed about the relationship between economic and environmental goals. Therefore, education for sustainability enables universities to educate citizens aware of current challenges the world is facing and be knowledgeable about needed solutions. Future leaders need to see a whole picture of the world, and hence, university programs must train them in a holistic view. A whole-institutional strategic approach should be adopted to raise awareness among university leadership and various stakeholders for a better realization of sustainable goals.

Formal and non-formal education enables students to develop sustainability competencies. Therefore, universities, besides the formal study programs, need to engage themselves in sustainable development activities, arrange workshops and practical projects in cooperation with private, public, and civil sectors, in order to offer students an experience in solving real-life problems.

The sustainability concept can address almost all concerns of society, and hence it is interdisciplinary and must not be seen only from an environmental point of view. Rather we should adopt and communicate it with a broader framework.

Scholars suggest future studies to be conducted on the development of competencies of HEIs in order to address sustainability successfully (Leal Filho et al., 2021a). In addition, prospective research will explore sustainability in HEIs from the perspective of organizational culture and institutional theory.

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