Interaction and Integration of Control Systems

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1. Characteristics of control systems

In different scientific papers, control systems tend to be studied through the budget control systems or through the responsibility of accountants and/or controllers. However, when control systems are viewed as a concept, they have a different aspect and this aspect is structured as a combination of the following elements: state apparatus; public relations; control environment; established models and methods of regulation, control and supervision; written and unwritten norms and the established impact system. These elements mutually complement their impact so that a synchronized and active system will be created aimed at protecting state sovereignty and national wealth. The elements can be accepted as variables which occur in the control cycle by performing the appropriate type of control process.

State apparatus – it should be considered a system of state authorities and institutions through which state power is exercised. Two basic methods are used to exercise state power: coercion and persuasion. Persuasion creates preconditions for effective government but it is not always enough to achieve certain goals. For this reason, state power often applies the methods of coercion. Therefore, in practice, both methods are applied in combination.

Public relations – they are the major component of control systems; they present the relationships, interactions and relations between people. Relations arise as a result of the interaction of at least two parties, two persons or organizations, i.e. relations between social objects. Consequently, public relations arise between two or more persons who have a certain social (public) status and perform a certain social (public) role. The control system content is determined by the direct connection and interaction between the subject and object of control, as well as by their manifestation in the various forms of government.

Control environment – the environment status and development determines the development of the control system and the development and change of the object and subject of control. It can be assumed that the relevant environment determines the mechanisms of impact, interaction and monitoring. A distinction needs to be drawn between the environment of a control system exercising state control and a control system which is an element of the financial management and control system (FMCS) to carry out an internal audit in an organization or an entity. The environment in which control systems of state control develop represents the political, social, cultural and economic situation within the relevant territorial unit. However, this is a very "simplified idea of the scope and structure of the environment in which the relevant control system develops since the relevant environment comprises problems such as distribution of responsibilities and division of powers, solving religious problems, determining the degree of government influence (state power influence, respectively) on people and the economy" (Yurniwati, 2015). In terms of internal audit, it is considered that the control environment which is an element of the Financial Management and Control System of a given organization according to the International Standards for the Professional Practice of Internal Auditing (Intermediate Pharmacy Practice Experience – IPPE) "provides the discipline and structure required for the achievement of the primary objectives of the internal control system. The control environment includes the following elements":

- integrity and ethical values;
- management's philosophy and operating style;
- organizational structure;
- assignment of authority and responsibility;
- human resource policies and practices;
- competence of personnel.

Established models and methods of regulation, control and supervision – Established

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models of regulation, control and supervision incorporate the methods of their implementation. The primary purpose of state control systems is to achieve the functions of regulation, control and supervision. The functions of regulation, control and supervision are carried out at certain stages of the state government process at which a certain state decision is formed, made or implemented. The regulatory function of the control system is seen in two aspects. One of them is maintenance of the control system within the defined parameters of state government decisions to achieve specific state aims and tasks. The second aspect is that through the regulatory function of the control system adjustments can be made to initially taken state decisions according to the changes in the environment. The regulatory function is achieved by various means and methods; it mostly depends on the regulation object and the place of the regulatory body in the state apparatus.

The methods and models of control are determined by the extent and direction of fulfilment of the control function. The control function of the control system provides the information feedback in the state government. The control function supports the process of comparison between the set goals and their actual achievement where the results of achievement are taken into consideration. The control function is performed through "various control methods – behavioral methods, specific methods, general methods and mathematical methods" (Anderson & Gordon 2017).

Written and unwritten norms – Norms are the next important element for the functioning of the control system. Norms and rules are inherent in a given system and the choice of whether to apply written or unwritten norms is determined by the relevant situation and object which feels the impact of the entire system apparatus. In control practice, written and unwritten norms are applied in the elements of the control system in combination, jointly and inseparably during the entire control cycle. According to some researchers, written and unwritten norms are considered an oxymoron (Jenkins, 2002) , as, for these researchers, unwritten norms are not applicable in control practice due to the fact that they lack a written and legal formulation provided for in the relevant regulation. We consider that unwritten norms are part of public relations and as such, they have contributed to the development of the control system because they represent the perceived social behavior and habits that are aimed at preserving the security and stability of the society and the state as a whole.

Established impact system – The last element, i.e. the impact system is defined based on the above major components of the control system. The impact system is aimed at removing deficiencies and violations, recovering the damage caused to the state property or the property owner, offering appropriate measures to eliminate the causes and factors which constitute a prerequisite for the occurrence of violations to influence the subjects who committed the violation. In different state control systems, different methods for seeking responsibility and imposing penalties on guilty persons are included in the scope of the defined measures to eliminate violations. In Bulgaria, for example, the measures to eliminate violations and to seeking responsibility include the liability to pay compensation, disciplinary liability, administrative-criminal liability and criminal liability (Hazenberg, 2015).

In Anglo-Saxon countries, apart from the above measures, corporate responsibility applies, or corporate social responsibility (CSR). (Corporate Social Responsibility (CSR)). In 2002, the Institute of Directors in the UK defines corporate social responsibility as a commitment of companies and other business organizations to go beyond their legal obligations in order to manage the impact of their activity on environment and society. The measures within the European control system are: environmental liability, i.e. it is "aimed at preventing and remedying environmental damage. The "polluter" bears environmental liability"; corporate social responsibility - the European Commission considers corporate social responsibility a concept whereby companies integrate social and environmental concerns into their business operations and into their interaction with their stakeholders on a voluntary basis" (Dineva, 2016); shared responsibility – it is a responsibility shared among the EU member states, the European Commission and the European Council. In the cases of multilevel governance, when the European Commission works together with governments, national administrations and

regional local authorities, there is also a shared responsibility; thus, effective multilevel governance is achieved despite the dynamic changes in the environment.

R. Anthony (Anthony, 1965) assumes that the key objectives of control systems are:

1. providing necessary, accurate and timely information;

2. helping make right control decisions;

3. helping achieve certain control goals by:

- identifying key variables to monitor control objects;

- developing plans to achieve the goals;

- defining the degree of achievement of predetermined goals.

The following main control systems are known in the control practice:

1. The Anglo-Saxon control system – control activity is based on the requirements of the common law. This control system applies in the USA, Australia, New Zealand and other countries most of which are former British colonies. Control actions, rules, principles and procedures are basically established and tested by different professional organizations and are presented in a specific framework, i.e. standards such as auditing standards, quality standards, monitoring standards, etc. This control system has changed its nature, type and purpose over the years. While Great Britain and the other countries were initially subject to local habits and customs, governance is increasingly switching from unwritten rules to established written laws. For example, during the reign of Henry II four different types of legal systems existed in England with the relevant number of jurisdictions (Wessex, Merasheen, Dane and the supreme jurisdiction of the Royal Court (Aula vel Curia Regis)) (Odgers, 1920) which is a precondition for exercising different types of enforcement and legal control. Reforms in Anglo-Saxon countries are introduced and evolve in different periods of time; nevertheless, their primary objective is to reach the established European requirements for an effective control system. Another typical thing of this control system is that internal control and auditing in organizations are applied in a dominant manner since a significant part of entities achieve additional profitability by participating in capital markets. Based on the problems that companies and society establish though capital markets, problems are resolved by amendments of legal regulations. For instance, the Sarbanes-Oxley Act was adopted in 2002 in response to the financial scandals of US companies Enron and WorldCom of 2001. Besides restructuring accounting rules, the Act laid down the requirements for carrying out internal audits in organizations whose shares were listed on stock markets. What the USA is seeking to pass as a leading economic power in this group of countries is the liberal and democratic nature of this control system. Despite the adoption of the Sarbanes-Oxley Act, the internal audit in the USA is not as intense as in the other states. Internal audit must be carried out only in companies whose shares are listed on stock exchanges, while the other business companies may conduct internal audit and they can, at the discretion of their managers, appoint independent external financial auditors to carry out a financial audit of the company. Very often, this control system has a significant impact on the change of the other control systems due to the globalization processes taking place worldwide and the inability to ignore specific impact events. The state governance and structure in these states also lumps them together as similar control systems.

2. The South American control system – This control system has its specifics due to the political and economic development of the countries belonging to it, in particular Brazil, Argentina, Peru, Colombia, Chile, Paraguay, Ecuador, Guyana, Uruguay, Suriname and French Guiana. Due to the political influence of the USA, it is not by chance that some researchers call these countries "America's Backyard". The high-level corruption in the budget sector of these countries is the main reason for the establishment of "autonomous audit agencies". Although the role of the agencies is recognized, their institutional efficiency continues improving. Governance and fight against corruption in the states belonging to the South American control system is accepted as a major state mission since it is aimed at improving the standard of living and the purchasing power of the population and reducing the level of poverty. Persistent corruption is a symptom of weakness in the powers of control institutions and malfunctioning of the public funds management

systems. In these states, strict orthodox policies were applied in the 1980s and 1990s to reduce the state power influence. The results that emerged as consequences of the adopted orthodox policy were the increase of poverty and social inequality among people and the national wealth was distributed as possession of certain elite families. Today, the state apparatus and the state control system aim to support society. The reforms which were introduced in this group of countries after the 1990s should "be considered separately although most of them have a similar influence on the development of control as a measure to reduce corruption and ensure efficiency of the state apparatus". So far, reforms have undergone three stages: 1. Reform of state institutions in their interaction with citizens and enterprises; 2. Internal reform of the state control system through the establishment of autonomous audit agencies; 3. Reforms aimed at strengthening control powers of the government through various operating units of the government.

3. The control system of the former socialist countries – states such as Bulgaria, Romania, Poland, Slovakia, the Czech Republic, Serbia, Lithuania, Belarus and others are part of this control system. What is typical of these countries is that the control norm was established and adopted under the influence of the socialist law with a centralized state power. Until the early 1990s, the control system represented the so called centralized control system model in which control powers for state governance were granted to a specific socio-political organization. In Bulgaria, this was the Fatherland Front which was under the leadership of the Bulgarian Communist Party (BCP) and under the leadership of the Bulgarian Agrarian National Union (BANU). The political and economic changes that took place after the 1990s determined by the establishment of the two forms of property, i.e. public and private, as well as the transition from a centrally planned economy to a market economy changed the control system of the former socialist countries. Gradually, through various legislative changes, their control system changed and the first steps which were taken were aimed at changing the established impact system, in particular, through changes in the measures to remedy violations. These changes were achieved by differentiating the control activity from the inspection activity and the separation of inspection from auditing and control from auditing.

4. The control system of the Islamic states – the member states of the Organization for Islamic Cooperation belong to this system (Azerbaijan, Algeria, Albania, Afghanistan, Guinea, Iraq, Iran, Yemen, Cameroon, Kazakhstan, Qatar, Sudan, etc.). The control system in this group of countries is based on the principles of Islam, i.e. achieving control efficiency, and "the organization of control activities and procedures are based on religious values in the Holy Quran" (Madya, 2012). The control system of the above Islamic states strictly protects property rights and the rights and obligations of people; it strives for the proper distribution of risks and transparency of contractual relations. Women are not allowed to work in control institutions. Over the years, the Islamic states have sought to move towards democratic governance and to apply the principles of democracy. After the 1990s, various legislative changes were introduced in these countries. Nevertheless, religious impact on them remains and there still exists the influence of the so called national traditions and habits. Some of these measures are aimed at protecting state property and sovereignty. Saudi Arabia is one of the countries which strengthened the role of internal control and the Anti-Money Laundering Act legally binds all companies to carry out internal control by establishing the respective internal policies and systems. Companies are obliged to keep records of the internal control for at least 10 years.

5. The control system of the countries with an established form of government – monarchy. The following modern monarchies belong to this control system:

* European states – Andorra, Belgium, Great Britain, Denmark, Spain, Liechtenstein, Luxembourg, Monaco, Norway, the Netherlands and Sweden;

* Asian states – Bahrain, Brunei, Jordan, Cambodia, Qatar, Malaysia, Oman, Saudi Arabia, Thailand, Japan and others.

* American states – Canada, Grenada, Belize, Jamaica, Barbados and others.

The control system of monarchies is different from the abovementioned systems. It is so structured and established as a framework that its scope covers the control over the monarch

himself/herself and the control over all other state elements, including the smallest one, i.e. the control over citizens and society. In the United Kingdom, for example, the National Audit Office controls lawful spending of public funds where the audit covers not only public funds but also spending of the funds (grant) provided by the Royal family.

Monarchy has always been costly state governance. Accordingly, this requires the introduction of a strict financial control on funds through which a monarchic government is maintained. Very good transparency in the management and control of these funds is observed in the UK as each year the Royal Household publishes a summary of Head of State expenditure, together with a full report on Royal public finances. On 1 April 2012, the arrangements for the funding of the Queen's Official Duties changed and the funding now represents a single grant and not three separate grants as in the past. The new system also provides for the Royal Household to be subject to the same audit scrutiny as the other budget organization structures where the control institutions which are responsible for such financial audit are the National Audit Office and the Public Accounts Committee at the Ministry of Finance (Treasury).

6. The control system of Southeast Asian countries – countries belonging to this control system are Indonesia, the Philippines, Singapore, Thailand, Brunei, Laos, Vietnam and others. What is common among said countries is that, in their financial system, cash payment is more preferable than non-cash payment methods. In addition, a typical thing about these states is that the control system of each state is based on the division of powers into a legislative, an executive and a judiciary power. The control system of these states is more aimed at the development of internal military security and control than the development of financial control. From the aforementioned states, the Philippines are the only state which has an established system to monitor budget implementation and control over spending of budget funds where such control system is similar to that of European countries and is implemented by the Department of Finance and the Commission on Audit of the Philippines.

7. The control system of East Asian countries – countries such as the People's Republic of China, North Korea and South Korea belong to this control system. The development of the control system of the above states is influenced by the political events and political situation created by the leading political parties. The control system of today's People's Republic of China, for example, is similar to the control system of the socialist countries. The government is under the influence of the Communist party of China and its leading role is established in the Constitution of the People's Republic of China. Similarly, North Korea has a one-party political regime imposed by the Worker's Party of Korea which is under the authoritarian rule of Kim Jong-un. It is not by chance that North Korea is said to remain one of the most repressive states in the world (Braykova, 2003). Officially, North Korea was established under the name of Democratic People's Republic of Korea in 1948; however, its governance is not founded on the democratic European law but on a one-party system of government where the power is vested in the Worker's Party of Korea and its leader Kim Jong-un. According to UN data, the one-party system of North Korea is a prerequisite for systematic violation of human rights which is a threat to world peace and security, especially when conducting nuclear weapon trainings and tests.

8. The control system of the European Union – The control system of the European Union covers both the EU organizations and the EU member states in which the EU law mainly applies. This control system has been built since the creation of the EU and the quest for improvement and stabilization has increasingly intensified in recent years. This control system is a predisposing factor for laying down special legal provisions regulating the control actions, scope and powers of control institutions within the European Union. The European control system is geared towards the cohesion of regional policies of individual countries and towards the control of funds allocated from the EU budget to help transform regional and national economies through investment in infrastructure, economic development, training, innovation and the environment. The European control system makes it possible that control can be exercised at different levels enabling established European programs to be managed both at local and regional level. This, in turn, generates a higher control risk because it

increases the number of control institutions involved. Apart from the European Commission, OLAF and the European Court of Auditors, the so called Managing and Certifying Control Authorities are also part of the control institutions of the European control system. Managing Authorities are assigned to carry out documentary checks. These checks aim to establish whether the relevant project or European program has actually delivered the investment and whether the relevant trainings or services have been performed for which the funds are allocated to the relevant program. Besides checking the lawful spending of funds, Managing Authorities also carry out the so called check on the appropriate spending of funds by means of factual control. Managing Authorities at a local and regional level in the state concerned may be part of the relevant ministry or department. In Bulgaria, for example, European Funds for Competitiveness General Directorate is established within the Ministry of Economy and it is Managing Authority of the Operational program "Development of the Competitiveness of the Bulgarian Economy" 2007-2013; it also carries out the functions of Managing Authority of the Operational program "Innovations and Competitiveness" 2014-2020 and is part of the specialized administration of the Ministry.

The countries that are part of the common European community and the European Union develop and modify their control systems according to the impact of the European control system. This is therefore a prerequisite for the harmonization and synchronization of the relevant regional main control systems with the European control system. The European control system is built on the principles of integrity, transparency, accountability, compliance, performance, assurance, honesty and professionalism. A distinctive feature of the EU control system in the management of funds is that the system is based on the concept of the COSO model, but the strong regulatory impact of the EU control institutions is also seen in this system which makes it look in a different way. The European Commission which is an executive body of the EU is aimed at implementing and managing EU policies and budget, but it is also an institution whose purpose and role is to shape and outline EU priorities and to prepare and propose bills to the European Parliament and the European Council. Upon a proposal by the European Commission, the concept of public internal financial control in the Community has been developed which aims to establish "an operational model and structure to help national governments to reshape their internal control environment and in particular to improve control systems in the public sector in the EU, in line with international standards of good practice (International Professional Practices Framework (IPPF)" (Gabriel, 2019).

Based on the above, it can be assumed and the following conclusions can be drawn:

1. Control systems are strongly dependent on the established form of government. The financial monitoring of the budget implementation and the control over the spending of budget funds in the control systems concerned are carried out by different control institutions.

2. Some government units belong to two different control systems. This is how the so called mixed control systems are formed; Saudi Arabia can be cited as an example. Two major systems influence control activity and control policy of Saudi Arabia – the control system with an established monarchical form of government and the Islamic control system. The two systems complement each other where the dominant one is the control system with an established monarchical form of government. This is the specific thing about the mixed impact of control systems: one of the systems is the leading one and the other system is subordinate to the main one.

3. The common thing among all of the above control systems is that they are aimed at the achievement of specific goals and tasks. Very often, these systems serve as a tool to achieve political goals and tasks, especially in the event of a one-party government.

4. Control systems until 1990s had well-established structures whose elements were determined by the influential factors at the time, so that these systems could reveal the specifics of the controlled object most accurately and comprehensively. In addition, these control systems had a strong social influence on society as a whole. Modern trends focus on globalization of control systems, i.e. on the creation of a unified control system which is expected to be founded on common rules and standards and to produce homogenous

results in similar control situations occurring in the individual states. This is a long and difficult process as adapting the entire COSO model to the globalization changes of the states concerned requires an appropriate cooperation from the relevant government organizational units which are familiar with the current control apparatus, as well as a proper adaptive influence on the part of the established EU institutions.

5. Nowadays, control systems of individual countries are mutually developing and jointly integrating into the changing phenomena, events, circumstances, environment and conditions so as to cover modern specifics and changes. Systems never remain constant; they adapt to changes. For some conservative systems, this adaptation requires more time and more resources and it is mainly determined by the presence of sufficient political will. In the case of a one-party system, integration and adaptation to changes is a difficult process. It is difficult to introduce and establish a multi-party system in which national wealth is distributed to more people and not concentrated and managed by a specific politician. The integration of control systems into the European control system requires internationalization of the overall political and economic status which should be focused on a coherent European development and mutually beneficial economic cooperation between individual states.

6. The establishment of a unified European control system requires not only integration of individual control systems into the European changes and common European requirements, but it also requires interaction between individual systems, including interaction with the European control system. The common coordination between currency, customs, tax, military and social policies of individual countries with the European policy is a prerequisite for the establishment of various economic-political and military unions such as the United Nations (UN), the North Atlantic Treaty Organization (NATO), the Organization of the Petroleum Exporting Countries (OPEC), the International Monetary Fund (IMF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), etc.

2. Characteristics of the types of financial and control subsystems

The above stated control systems can be studied and analyzed depending on the purpose and scope of control, according to the position in which control is performed, depending on the organization, the goals and functions of control bodies and according to the established basic approaches, principles and methods of regulation. By their nature, control systems are open and susceptible to change under the influence of various factors. In general, they build up the entire international control network which incorporates the individual subsystems. Consequently, in control theory and practice, control systems should be seen as main control systems and individual subsystems. The main objective of all subsystems is to ensure full, effective, efficient and comprehensive control on controlled objects, while the objective of the overall (main) control system is to understand the basic financial processes, to establish and apply strategic financial policies and objectives, to determine which processes constitute a prerequisite for the maintenance of the relevant risk level in the control environment, to offer good practices and continuously improve the philosophy of establishing and creating effective control actions. The following types of control subsystems are known in the control practice:

1. Tax insurance control system – The tax insurance control system is a specific type of system which is a set of control institutions, methods and procedures for establishing control over tax liabilities and insurance contributions of liable persons and the system also covers the procedures for securing and collecting public receivables. Other specialists think that the tax insurance control system is "a set of parts related to the common function of tax accumulation. The system covers a larger and a smaller number of applicable taxes; in terms of content and form, it is pluralistic rather than monistic and comprising one tax only" (Huang & Chang, 2016). The system is targeted at insured persons (by persons, we mean both legal entities and natural persons) and it helps tax insurance control institutions perform their control functions. Tax insurance control institutions in Bulgaria include: the National Revenue Agency (NRA), the National

Social Security Institute (NSSI) and the National Health Insurance Fund (NHIF) which is a control body exercising medical and financial control over the compulsory health insurance. This subsystem also includes control over local taxes and fees as defined under the Local Taxes and Fees Act and such control is exerted at the following levels: mayor, deputy mayors, chief secretary, managers of units such as heads of directorates, heads of departments and sectors and employees.

In the South African control system, tax insurance control subsystem has changed its scope of impact over the years. Initially, the tax insurance control system in these states was heavily influenced by the control practice in Spain and Portugal. This was especially the case in the colonial period between 1492 and 1898. The entire control system was aimed at earning tax revenues from the colonies in favor of the colonizers – the United Kingdom, Spain, etc. In the mid-1970s, the Washington Consensus between the U.S. Department of Treasury, the International Monetary Fund (IMF) and the World Bank imposed a policy of deregulation and privatization. This consensus first found expression in the Anglo-Saxon countries and the most tangible effect was the effect of "a progressive tax policy accompanied by a progressive tax insurance control. Personal and corporate tax rates were reduced for the purposes of trade liberalization" (Martorano, 2018). Gradually, governments of the states concerned adopted new types of taxes to compensate for their liberal policies, such as the value added tax (VAT).

2. Customs control system – The customs control system is one of the major and significant subsystems of any established main control system. The customs system consists of the following key elements: customs legislation with established customs tariffs and customs regimes, a system of early risk assessment in relation to the movement of goods, customs control and supervisory processes, a customs information system and an established impact system of the customs administration. The European Union was a prerequisite for the establishment of a unified customs union of the EU member states. The customs union helps customs authorities of all member states work together, as one. After the accession of Bulgaria to the EU, the customs control system "became one of the most dynamically developing systems in our country" (Antov, 2018). The customs control system is one of the systems that are most susceptible to change under the influence of different political and economic factors. According to M. Antov, "over the last years, a number of possibilities have been sought to simplify or reduce customs procedures, wherever it is possible and justified, of course, if the security of the marketing chain is ensured" (Antov, 2018).

3. Budget control (supervision) system – The budget control system is a control subsystem which is specific for every state. It is part of the general financial and control system and reveals the specifics of the different structural elements of the state budget and the budget of local authorities. The budget control system can be considered a set of methods for monitoring and control of budget revenue and expenditure to minimize budget expenditures and budget debts. The following sub-control systems are part of this control system: systems of departmental control, systems of out-of-department control and systems of inter-departmental control.

In terms of the EU control system, the budget control is performed in each EU institution and, separately, in the EU member states. Full checks are carried out by the European Court of Auditors, with the European Parliament having control powers as well. Every year, the European Parliament controls the budget implementation to discharge the European Commission and the other EU institutions and agencies of responsibility.

The budget control system of the Islamic states is substantially different in comparison to the other states. The differences are due to the implementation of the budget process and the budget approval, on the one hand, and to the strong religious influence on the government, on the other hand. In the United Arab Emirates, for example, a federal budget is approved and established which follows a three-year budget cycle. The budget cycle should be consistent with the strategic cycle of the federal government. The budget is drawn up for each year within the fiscal period before the start of the three-year period and is updated annually within the budget cycle. This principle ensures that the long-term government strategy will be achieved. The main differences between the three-year

budgeting process and the annual strategy planning and budget update process lie in their scope and timing. While the comprehensive budgeting is carried out for all activities over three years, the annual updating process focuses only on yearly changes to the three-year budget. The annual updating process facilitates those adjustments that were unforeseeable at the time of the initial budgeting process. The required timeframe for budget preparation is therefore much shorter. In these states, budget control is focused on the control over budget expenditure rather than on the implementation of the state budget. It is interesting to note here that "the budget control system is based on the status quo of the previous budget when making the new budget decisions" (Mansour, 2010).

4. Internal control system – it is considered a set of organizational structures, methods and procedures adopted by the management of the economic entity concerned and it is also a tool for organized and effective performance of economic activities, including supervision and verification, organized within the relevant economic entity according to its resources and capabilities (Турганова, 2015). G. Ivanov thinks that if we start from "the concept of consistency of control whereby control is seen as a process, we can say that internal controls are the basis of the so called feedback in management systems" (Ivanov, 2012). The internal control system is part of the general control system specific for the relevant group of states. Internal control systems should be aimed not only at confirming the reliability of the accounting or financial information, respectively, but also at increasing the efficiency of the overall economic activity of the entities concerned. Various external factors have a very strong influence on the development of internal control systems; these subsystems are highly dependent on the main control system established and any change in the nature of content of the main control system produces a very strong response and repercussions on the internal control system.

The main definition of internal control system is given in the International Standards on Auditing and it means the organization plan adopted by the management of an entity, as well as all methods and procedures, to assist in achieving management's objective of ensuring, as far as practicable, the orderly and efficient conduct of its business, including adherence to management policies, the safeguarding of assets, the prevention and detection of fraud and error, the accuracy and completeness of the accounting records, and the timely preparation of reliable financial information. Consequently, the internal control system comprises not only matters relating directly to the functions of the accounting system, but also much broader problems. In Bulgaria, the internal control system in the public sector was established by adopting the Public Internal Financial Control Act in 2002. The internal control system consists of the control environment and control procedures.

The International Standards on Auditing provide the following definitions of the concepts of control environment and control procedures:

The control environment means the internal conditions for carrying out the control as determined by the overall attitude, awareness and actions regarding the control and its importance in the entity, as well as those external conditions directly affecting the business process, and hence, the performance of internal control.

Control procedures means the operational policies of the entity, the responsibilities of the personnel and the actions introduced and performed in addition to the control environment which the management has established as operations related to a higher risk level. Specific procedures of the internal control system include:

-Coordinating;

- Checking the arithmetical accuracy of the records;

- Controlling applications and environment of computer information systems;

- Maintaining control accounts and trial balances;

- Approving and controlling of documents;

- Comparing internal data with external sources of information;

- Comparing the results of cash and inventory counts with accounting records;

- Limiting direct physical access to assets and records;

- Comparing the financial results with budgeted amounts, etc.

5. Financial Management and Control System (FMCS) – we can assume that FMCS is an updated version of control systems (Ivanov, 2009). Their implementation and establishment in Bulgaria first started in the public sector and then gradually progressed to the private sector. The financial management and control system was implemented with the adoption of the Financial Management and Control in the Public Sector Act (FMCPSA) (promulgated SG No. 21 of 10.03.2006) which was based on the basic concepts as adopted and validated in the COSO model. A majority of modern researchers in the field of financial control think that this is the key importance of the Act since it implemented the COSO model in all structural units of public sector organizations. On the basis of FMCPSA, a number of additional regulations, decrees and guidelines for internal control and internal audit in the public sector have been adopted. Pursuant to Art. 5 of FMCPSA, financial management and control shall be carried out through a set of policies and procedures established by the management of public sector organizations for the purposes of providing reasonable assurance that the goals of the organization will be achieved through:

1) compliance with legislation, internal acts and contracts;

2) reliability and comprehensiveness of financial and operating function;

3) economy, efficiency and effectiveness of activities; and

4) safeguarding of assets and information.

FMCS contains the following interrelated elements: control environment, risk assessment, control activities, information and communication, and monitoring. Financial management and control systems follow the principle of sound financial management, thus achieving economy, efficiency and effectiveness.

The financial management and control system has been established through the control system of the European Union. Thus the COSO model was also established; every modification of the model in recent years has been influenced by the impact of the European Commission and the European Parliament which have enough information available on the impact of the system in the individual EU member states. One of the main requirements of all candidate countries is to demonstrate and prove that their financial control systems comply with best international practice and standards. This requirement directs the states to adapt their financial management and control systems to the established EU framework.

In the non-public (private) sector enterprises, the necessity and significance of FMCS has been consolidated in recent years through a number of regulations. For example, investment companies and investment firms, by observing the Activity of Collective Investment Schemes and Other Undertakings for Collective Investment Act, Ordinance No. 38 on the Requirements to the Activities of Investment Intermediaries and the Markets in Financial Instruments Act, must carry out mandatory internal control with a view to the optimal and effective operation of enterprises in strict compliance with regulatory requirements.

6. Mechanized and automated control system (Sibirskaya, 2019) - the advance of technology and scientific progress are some of the main prerequisites for control systems to develop, improve and be adaptable to the changes occurring in their environment. In recent years, both integrated control systems (aimed at providing information at all levels and departments of an enterprise) and enterprise resource planning systems (ERP systems) have been implemented in various public sector enterprises and organizations and such systems interact with the other basic systems implemented in the enterprise. These systems gave another more modern understanding of the control function which is aimed not only at meeting the needs of the management of the enterprise, but also at providing timely and accurate information about other stakeholders.

3. Interaction and integration of control systems. Control system criteria.

Based on the above information, it can be assumed that each main control system comprises individual subsystems which operate according to the main control system and in line with the specifics of the established major components of the main control system. The process of globalization and the aspirations of a significant number of countries to become part of the European Union

have initiated the creation and consolidation of a unified control system which will eliminate the differences between individual control systems and will be a point of reference for all. This process of uniformity and synchronization will be long and difficult.

Control systems and their subsystems are not separate and isolated from each other. Their structural components have different properties through which individual systems interact, directly or indirectly, with other subsystems, as well as individual subsystems in a system interact, directly or indirectly, both with each other and with other individual subsystems of other main control systems. The interaction of control systems and subsystems is not chaotic and without rules; it is based on a number of written and unwritten procedures, rules and requirements. Table 1 presents the basic requirements and rules for interaction between individual subsystems in a given main system and the basic rules and requirements for the interaction of the individual subsystems with subsystems from other main control systems:

Table 1

The individual subsystems with subsystems from other main control systems

Requirements and characteristics	Interaction of subsystems within a given main control system	Interaction of subsystems between the individual main control systems
Characteristic	The interaction is presented as a common approach between the individual subsystems aimed at joint working actions in order for a common control process to be activated on specific control objects of a given control system.	The interaction is presented as a common approach between the individual subsystems of different main control systems aimed at joint working actions in order for a common control process to be activated on the control objects of different control systems.
Regulatory prerequisites for the presence of interaction	Cooperation agreements between the individual control institutions of a given subsystem. Cooperation agreements between the control institutions of different subsystems.	Cooperation arrangements and agreements between individual states. Cooperation agreements between the individual control institutions of a given subsystem with control institutions of a control subsystem belonging to another main control system.

Regulatory prerequisites for the presence of interaction	Cooperation agreements between the individual control institutions of a given subsystem. Cooperation agreements between the control institutions of different subsystems.	Cooperation arrangements and agreements between individual states. Cooperation agreements between the individual control institutions of a given subsystem with control institutions of a control subsystem belonging to another main control system.
Methodology of interaction	Establishment of a methodology and a technology of interaction between the institutions in individual control systems, identification of the responsible persons and interaction procedures. Determination of mechanisms for regular provision of information between the parties. Need for the establishment of a unified information system of the countries for the purposes of exchange of information, making additional inquiries and control relating to the operation of interaction between the individual countries. The interaction between the countries always takes place within the approved budget of the relevant institution or organization which subsequently influences the effectiveness of the mutual actions between control institutions. The performance of the proper coordination functions between institutions is also a prerequisite for the proper achievement of interaction between the countries. In this regard, there should be an enhanced consultative role between the countries, so that the coordination functions will be achieved. At the consultation meetings, the methods of data provision shall be established, as well as the criteria according to which information will be systemized, the inquiry forms and the joint instructions which should be established as rules between the countries. Confirmation of the scope of publicity of the information on the interaction between the control institutions of the control systems and subsystems concerned. The scope of methodology in the interaction of control institutions of the control systems concerned must include the establishment of independent monitoring committees or institutions which will engage experts or non-government organizations to observe the interaction process between the parties.	

Impact quality assessment	The impact quality assessment is a method which should be applied both by the interacting institutions themselves and by external persons and institutions. The methodology of impact quality assessment should be generally recognized and accepted; thus comparability of data and results will be achieved. The main problem in control practice and weakness of control systems is that only the activity of control institutions is assessed individually and separately for different results but not as a general concept for all control institutions building up a given control system. In addition, there is no established methodology of impact quality assessment of the interaction between control institutions. This issue has never been discussed and considered event at a European level. The impact quality assessment of the interaction between control institutions will help determine to what extent control systems interact.

The interaction and integration of control systems should be considered two different processes but they still go together. In order for control systems to interact, they must integrate into the relevant changes, so that the new control objects will also be included in the scope of the systems with the new conditions under which control objects are developed. Historical evidence suggests that integration processes date back to World War II, thus laying the foundations for the creation and establishment of joint ventures, a common European market, common industries, international economic groups, etc. In terms of control systems, integration is aimed at creating and establishing a unified common European control system. Table 2 presents the approaches to implement the interaction and integration of control systems, in particular:

Table 2

Interaction and integration approaches

Interaction	***Integration***
1. Provision of information. 2. Exchange of professionals and exchange of working experience. 3. Establishment of common work systems – information system, monitoring systems, security systems, etc. 4. Interaction with different external experts and non-government institutions. 5. Improvement of access to control institutions by allowing for filing reports and complaints with control institutions. 6. Performance of joint control activities to overcome the stereotypes of poor control practices and improper control activities.	1. Amendment to regulations (laws, decrees, ordinances, etc.) to integrate control systems into a unified European control system. 2. Establishment of new control institutions. 3. Adaptation of existing control institutions in a control system to the European control institutions. 4. Arrangements and/or agreements between the countries and between individual control institutions. 5. Participation in joint European projects and European programs to improve control activities. 6. Holding joint trainings between control institutions. 7. Coordination of control policies and coordination of control priorities.

So far, the EU control system has been established as a unified control reference point. This control model of control system is required on the basis of a number of restrictive measures and legal requirements both for the EU member states and the states that are willing to be part of this system. The European integration into a unified European control system has a strong influence on all countries through the enhanced role of a number of European control institutions such as international control institutions, e.g. OLAF (Office Européen de Lutte Anti-Fraude), the European External Action Service, the European Data Protection Supervisor, the European Court of Auditors, etc. According to the researchers A. Adibi and H. Habibi „one of the problems faced by the international community is to find abasis for regulating economic relations between the states. While the third world states still emphasize their economic sovereignty to encounter and maintain their positions against the North States, the analysis of the international legal realities shows that merely relying on the "economic independence" and "permanent sovereignty over natural resources" cannot be a practical way to achieve the ideals of states known as the "South.""" (Adibi & Habibi , 2017).

The international integration of control institutions in the public sector of Bulgaria started in the early 1990s and it is not by chance that this period was regarded as the so called transition period. Some political scientists assume that "this period ended in 2007 with the accession of Bulgaria to the European Union" (Mason, 2016). Others think that this international integration is not yet complete (Tomov, 2017). Looking back at history, perhaps this change should have started earlier and the preparatory stages of the European integration should have started much earlier in order for control institutions to have planning and adaptability.

The preparatory stages of the European integration in the budget sector were most tangible when a new Public Internal Control Act was adopted in 2000 which entered into force in 2001. What was new in this Act was the establishment and creation of the Public Internal Financial Control Agency which replaced the General Directorate of Public Financial Control at the Ministry of Finance. This Act was a consequence of the special Internal Financial Control Policy Paper in the Republic of Bulgaria developed and adopted by the Council of Ministers. Based on it, the Council of Ministers introduced a bill to the 38th National Assembly which was enacted. It provided for an entire reorganization and modernization of the public sector control. In 2003, the Rules for the Implementation of the Public Financial Control Act were adopted, which clarified the importance of the state financial control. Unfortunately, these changes failed to result in other significant changes, while the existing external mechanisms continued working and exercising external international influence on the change in the control exercised in Bulgaria. In this regard, three more acts were adopted, i.e. the Financial Management and Control in the Public Sector Act of 2006, the Public Sector Internal Audit Act of 2006 and the Public Financial Inspection Act of 2006. The Public Financial Inspection Act of 2006 was prepared and adopted on the basis of the "Commitments within the negation process under Chapter 28 "Financial Control" with the assistance of SIGMA experts". The changes that occurred in 2006 had another effect – the distinction of the inspection activity as a public sector control activity from the public sector audit. For this purpose, the National Audit Office of the Republic of Bulgaria was created in 2001 (established under the National Audit Office Act) and Bulgaria has been represented by its member in the European Court of Auditors (ECA) since 1 January 2017. The first Bulgarian member of ECA was Nadezhda Sandolova (2007-2012).

The processes of accession to the European Union have further increased the need to be familiar with the systems of state governance and control in the public sector. The integration of control institutions in accordance with the European requirements was achieved with the adoption and amendment of some regulations; in addition, a number of organizational reforms in the financial and control institutions in the public sector were adopted and implemented. Various control institutions of different types and purposes were established, such as the Public Procurement Agency, the Center for Prevention und Suppression of Corruption and Organized Crime (CPSCOC) at the Council of Ministers, the Commission for Protection of Competition (CPC), the Commission for Personal Data Protection (CPDP), the State

Energy and Water Regulatory Commission (SEWRC), the State Agency for National Security, the Registry Agency, the Employment Agency, the National Health Insurance Fund, etc.

So far in the study, we have presented the types of control systems and a small part of the problems of interaction and integration between them. Each control system has certain characteristics by which systems can be distinguished. All common characteristics of a system determine its quality. Therefore, if we examine the quality of a system, it will result in enriching its knowledge of the internal connections of the individual elements. According to M. Dinev, in order for a system to be defined as a control system, it should meet the following criteria (Dinev, 2015):

1. Reliability – the ability of a system to fulfil its objectives and tasks regardless of the set conditions and regardless of the impact of the factors and circumstances. The reliability of a system is determined by the "way in which its elements are distributed and connected" (Dinev, 2015).

2. Accuracy – this is a property of the system which represents its ability to fulfil its objectives and tasks within specified time limits, with a specified scope and within specified parameters.

3. Permeability – systems should allow the inclusion of other objects within their scope without changing the structure of the system.

4. Accumulation – this is the ability of systems to "accumulate resources, material and spiritual values" (Dinev, 2015). When operating, systems accumulate a large amount of information in each system element. This information is provided between the other elements of the system and processed information is provided to the other systems or subsystems.

5. Interactivity – this is a property that "characterizes the fastest possible, the most flexible and reasonable change in the behavior towards new environment conditions"(Dinev, 2015). Interactivity adapts the control system by adapting control objects to the relevant changes without any significant resistance of the object.

6. Perseverance – this property characterizes the consistent and sustainable achievement of the control system objectives through "research and impact on the environment" (Dinev, 2015).

The following properties may also refer to the above criteria:

1. Future viability – control systems are viable for the future in terms of their development. Their life cycle determines their promising nature in terms of consistent development and change. Control systems and subsystems undergo three main stages: creation, validation and development, and the final stage is their decline or death. Some subsystems or main systems may merge into or restructure in other systems and this process should not be considered detrimental or negative but should instead be accepted as a new direction in the development of control systems.

2. Precision – this property of the control system presents the precise, proper and consistent impact of each element of the control system on the controlled objects. Precision represents the accurate range of each element of the control system which follows the precise fulfilment of the set objectives and tasks.

3. Ensuring a quality control process – control systems ensure a quality control process flow by minimizing several external factors that have an overall impact on the established and existing control system.

4. Organization – the control system ensures organization in the entire control cycle flow. Organization affects each affected party and person that is engaged in the implementation of the control cycle. Organization supports the development of the control system through the identification of weaknesses and shortcomings of the scope of the system.

Based on all of the above, the following main conclusions may be drawn:

1. Control systems and their subsystems will always be part of public relations in which regulations, ethical norms and traditions are valid.

2. The main distinguishing characteristics of control systems are:

- Control systems are systems of elements which are targeted at society as a whole but they also influence and control the relevant control subsystems;
- Control systems aim to cover and control

objects which are different in type and nature, while control subsystems are aimed at specific objects;

• Control systems are regulated by numerous regulations, while subsystems are regulated by specific regulations.

3. Control systems cannot completely eliminate risks or completely eradicate bad approaches, traditions and practices regarding non-compliance with established policies, rules and procedures. These systems are more specifically aimed at ensuring the security, stability and organization of the relevant structures within control systems.

4. Control systems cannot completely eliminate the negative impact of factors such as corruption, abuse, fraud, violations, etc. Control systems may identify factors and influence directly on the relevant controlled object, or indirectly by influencing society as a whole.

5. Control systems operate in a complex way when it comes to protecting public wealth and public resources. Control system mechanisms are designed so that individual systems can interact and support their activity but are not in contradiction. This property distinguishes control systems from all other systems.

6. Interaction and integration between different control institutions may be subject to independent scientific research and the issue concerning impact quality assessment of the interaction between the individual control institutions belonging to individual control systems may be independently investigated.

7. The development of control systems influence the development of modern data processing systems (Ilieva 1997) and also influence the development of internal control for an enterprise with specific control objects, such as such control object being the internal control of production which is produced with specific inventories, namely nanotechnological inventories (Nedyalkova 2018).

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