

ИНОВАЦИИ В ПУБЛИЧНИЯ ФИНАНСОВ СЕКТОР – НЕОБХОДИМИ И ЗАДЪЛЖИТЕЛНИProfessor Borislav Borisov, Ph.D. "D. A. Tsenov" Academy of Economics, Svishtov, Bulgaria, borissov@uni-svishtov.bg

Abstract: *The innovations in the public sector follow those in the business sector. The reasons are at least two - the necessary conservatism of the sector and setting-out of the initiatives of the "top". However, the introduction of innovations in the public organizations is not only necessary, but also mandatory, as it is directly related to the administrative capacity to perform effectively and efficiently their inherent functions.*

The operations with the public finances has always been the focus of public attention, which is sensitive to the way of spending taxpayers' money. Therefore, innovation in this field should be directed towards greater transparency, control, efficiency and effectiveness. Opportunities for that exist in areas such as financial analysis, financial planning and forecasting, development of program budgets, and application of the financial management and control.

Innovative models of public finance management are presented in the paper, with emphasis on the use of cloud technologies for ex-ante control over the spending of budget funds. Such cloud structure was probated in some Bulgarian municipalities and its effectiveness and efficiency was proven in terms of facilitation the work of financial controllers, implementation of rapid control activities, generation of checkups and reports and upgrading the confidence in the operation of control systems.

Keywords: INNOVATIONS IN THE PUBLIC SECTOR, ARIS, BUSINESS PROCESS MANAGEMENT, FINANCIAL MANAGEMENT AND CONTROL SYSTEM (FMCS)

1. Introduction

The democratization of the public sector management is associated with adherence to principles and values such as transparency, stakeholder participation in the process of decision-making, awareness that public funds are spent in a lawful and appropriate manner and that goals are set effectively. Although democratic governance implies decentralization, if it is not supported with a sufficient administrative capacity for self-governance, it can impede rather than support the democratic process.

One of the most important aspects of the public sector organizations that had to be changed during the transition from authoritarian to democratic governance in our country was the management of public spending. It had to become not only more open, but also fairer and more efficient. This is why one of the conditions for Bulgaria's accession to the European Union was the implementation of efficient systems for financial management and control in public organizations. This requirement was stated in Negotiation Chapter 28 "Financial control" and was transposed to our national legislation. During the negotiations the overall system of organization and internal control was modified and the external audit standards were improved.

Today, more than fifteen years after the beginning of implementation of changes in the regulatory framework of financial control and financial management and control system (FMCS) in public sector organizations, the results are not exactly what we expected. Some organizations have implemented effective systems that are regularly updated and enhanced. Others did implement such systems only formally, either because they were not aware of their function or because they underestimated the need for such systems. Still others did not implement such systems at all. External audit bodies seem to have neglected their obligation to inspect these systems and impose administrative sanctions to those managers who do not comply with the regulatory requirements. Their annual reports on the status of the FMCSs submitted to the Ministry of Finance often do not correspond to the actual situation. Accordingly, the consolidated annual report on the internal control in the public sector in the Republic of Bulgaria published by the Ministry of Finance is an accurate summary of findings that are not quite accurate.

The above conclusion is based on the author's extensive experience in development and implementation of financial management and control systems in a number of organizations. More than half of the municipalities in the country as well as and some ministries and central authority bodies have implemented FMCSs developed by a team of specialists under his supervision. However, 15 years ago FMCSs were developed using certain methods and equipment while the advancements in the ICT today

provide new opportunities for their enhancement and improvement of their efficiency.

2. General characteristics of the control function and the COSO model

Control is one of the managerial functions. It is the last phase of the management process because it measures actual performance and sets corrective action, i.e. it checks current performance against pre-determined standards contained in the plans, with a view to ensure adequate progress and satisfactory performance. Management control supports the strategic decisions of the management.

Ever since people began to set goals, i.e. to plan (another management function), they have sought to ensure that the goals set will be achieved despite the impacts of external factors or the activities of other people. This is why they started monitoring the activities related to the achievement of these goals and thus established the first form of control - the **direct control (behaviour control)**. We have all seen movies about slaves working while whipped by their overseers who try to make them more productive. Such methods, though more refined, are still used in management practice today. Most often they may be observed in paramilitary structures, but also in some production units where workers are constantly watched by their foremen (in person or via CCTVs.).

The advantage of direct control is that by using it managers can be fully aware that activities are carried out according to the requirements and will achieve the set objectives. Its main disadvantage lies in the obvious fact that such control does not encourage the employees to commit themselves to the set goals and to strive for quality. They are forced to achieve a certain amount of output and are inclined to breach their obligations whenever they are not overseen. A typical example are the performance measurement systems based on set workloads within the implementation of plans in planned economies. Production units set lower objectives in order to outperform and receive bonuses at the end of the year although the excess quantities of output cannot be sold and will be kept in stock.

The disadvantages of direct control have led to the realization that production systems must be allowed to organize themselves and while managers monitor only the outcomes of their activities (performance). **Performance control**, also known as output control, is efficient because it provides the employees with the incentive to perform better. Its implementation resulted in the creation of the so-called "quality control officers" at the end of the process chain, who were responsible to inspect the quality of output. Thus they ensure that only quality products are supplied to the consumers since all substandard products are returned for re-processing or are discarded. However, the percentage of rejected

products directly affects the performance since it increases the marginal cost of production. It is even more unacceptable when it comes to provision of public services by budget organizations because such services cannot be re-processed or rejected.

This led to the implementation of **process control**. It is a component of the Business Process Management (BPM) - a managerial approach that was established after 2000 and did not become popular until 2003. It focuses on improving corporate performance by managing and optimising a company's business processes. For a long time the most common business management approach was the functional approach, i.e. control over separate business functions rather than the entire process. In such an organization the workflow processes (workflows) are not considered and the focus is put on the various functions and activities. Conversely, the process approach focuses on a series of interrelated and interdependent activities. Thus managers have to consider the entire process rather than separate fragments of it. Process management is included in varying degrees in all management concepts that have emerged over the last twenty years. It is based on business process modelling and standardization, performance monitoring and correction whenever any deviations are found. Compared with the post-factum performance control, the process control encompasses the whole process, be it production of goods, rendering of services or routine administrative activities known as general business processes. This means that it is **preventive** in nature and may be defined as a **preliminary control**.

The concept of preliminary control based on the process approach was proposed in 1985, when five organizations specialized in the field of finance established the Committee of Sponsoring Organisation of the Treadway Commission¹ headed by James Treadway. In 1987 the Commission published its first Report of the National Commission on Fraudulent Financial Reporting, which provided the managers of public companies with recommendations for improving the internal control in their organizations. This model became popular as the COSO model and introduced various terms and concepts adopted in our legislation, such as "tone", "integrated internal control framework", "rational awareness", etc. It also defined the five elements of internal control - control environment, risk management, control activities, information and communication, and monitoring. Special emphasis is put on managers' attitude to internal control (known as "tone"), the role of the ethical codes of conduct and their importance for establishing favourable control environment and the role of control in the public sector.

3. Characteristics of FMCS

Like any new concept, FMCS were initially interpreted unambiguously that led to the error of many heads of public organizations that they have systems in place without the case. In many organizations incorrectly under FMCS understood internal legislation, which regulates the responsibilities and obligations of employees related to financial management and control

FMCS are defined in Art. 1, Para. 8 of the Additional Provisions of the Public Internal Financial Control Act (PIFCA) as: "*all procedures and the overall internal organization of planning activity performance and execution of internal control, which contribute to achieving the auditee's goals*".² This definition has three main implications: first - that systems are **procedures**; second - that they apply to the **overall internal organization**; and third - that they contribute to achieving the auditee's **goals**.

The 2005 edition of the Economic Encyclopedia defines the term "procedure" as „*A permanent plan containing a series of related steps (measures) to be implemented under certain recurring circumstances. The well-established and formalized procedures are*

called "standard". They do not allow much flexibility and deviations. Breaches of the prescribed steps are known as non-compliance."³

Therefore an FMCS:

- is not an internal operational manual;
- is not a manual describing the responsibilities and obligations of units and individual employees;
- is not a description of processes with details of their integral parts and prescription of who, when and how should undertake a certain activity;
- does not provide for the control over the compliance with the established standard procedures.

Therefore, FMCS should not be limited to any internal rules, regulations, instructions and orders no matter how detailed they may be, as these documents do not describe procedures but regulate rights and obligations. We know that even if the employees who work in conditions of perfect legislation breach the performance of their duties on a daily basis by non-complying with the legal provisions due to various reasons such as insufficient information, different interpretation of individual texts, personal experience in implementation of activities, emotions, etc. Here comes the FMCS, which does not provide written rules, but written procedures that must be followed and can be accessed by the employee at any time.

The similarities between FMCS and the Total Quality Management Systems (TQMS) are obvious. The latter are also built on process logic, implementation of standard procedures (ISO), control of the compliance thereof and action in cases of non-compliance. However, there are certain differences between the FMCS and TQMS, the most notable of which are that TQM is customer-oriented while FMCS deals with the internal processes of an organization as well as that TQM controls quality-related processes while FMCS controls processes related to the achievement of organization's goals.

The FMCS and the TQMS should interact. The simultaneous implementation of the two systems has certain advantages such as synchronization of overlapping or interdependent processes of FMCS and TQM as well as the fact that the detailed procedures of the FMCS supports the ISO certification of the organization. Both systems should ensure transparency of processes, documenting of all actions, traceability of operations, rational allocation of responsibilities, control and possibilities for improvement.

The abbreviation FMCS implies that these systems deal mainly with the financial processes of an organization. Such a limited scope was provided for by the old PIFCA, which provided that "Public Internal Financial Control is the control over the financial activities of spenders of budget appropriations" (Art. 2) and that "Public Internal Financial Control shall include financial management and control systems, internal audit and preventive control" (Art. 18.) Its scope is much broader according to Art. 3 Para. 1 of the new Financial Management and Control in the Public Sector Act (FMCPA), which provides that "*the heads of the [public] organisations ... shall be responsible for the execution of financial management and control in all structures, programmes, activities and processes managed by them in compliance with the principles of legality, sound financial management and transparency.*"⁴ This definition shows the process nature of the control exercised through a FMCS. The word "process" has a Latin origin (*processus*) and means "a natural phenomenon marked by gradual changes that lead toward a particular result". This shows that the word "financial" in the FMCS abbreviation is not quite accurate and limits the scope of these systems. They are increasingly seen as Management and Control System (MCS) that go beyond the purely financial activities and include all management processes in an organization.

¹ For more details see Николов, Н. Моделът „COSO“: библията на вътрешния контрол. Сп. Вътрешен одитор, no.1, 2005, pp. 3-12.

² Ibid.

³ Икономическа енциклопедия, С., 2005., p. 661.

⁴ Financial Management and Control in the Public Sector Act. SG, no. 21, 2006.

4. Process modelling tools

Workflow processes can be described in several ways:

- verbally, in a table;
- graphically, as diagrams;
- both verbally and graphically.

The methods for creating diagrams are an important part of the approach for process description and analysis. The modelling method (aka "notation") is a specific language for describing the real world using a special syntax that contains graphic symbols, attributes and relationship links. The main notations to create detailed diagrams of business processes are:

- BPMN (Business Process Model and Notation);
- EPC (Event-driven Process Chain).

The BPMN (Business Process Model and Notation) provides a graphical notation for specifying business processes with different levels of detail.

The EPC (Event-driven process chain) notation provides a detailed modelling of business processes and can be used as an addition or as an alternative to BPMN. It represents a sequence of functions (activities) and events that create value for the organization. The EPC diagrams include several types of objects: events, functions (activities, tasks), logical operators, resources (organizational units and positions, applied systems, data and information.)

Business process modelling is an integrated approach to documentation, analysis and optimization of the organization that covers steps, stages, data, application systems, organizational structures. Such a model provides both the management and the employees with a comprehensive overview of the activities performed and the final result. A good process model can be accepted as a standard and thus facilitate the control over the compliance of the processes to the standard requirements. It should include control mechanisms in terms of control procedures implemented at certain stages of the workflow in order to ensure that standard quality requirements are met.

The workflow of the main business processes is represented in terms of main procedures that describe the main steps, the required information, the desired outcomes and the related documents. The main procedures also serve as a basis for allocation of rights and responsibilities among the employees responsible for the performance of the activities.

There are many technical means for graphical representation of processes. For example, the Microsoft Office package includes applications such as Word, Excel and Power Point, which have the "Flowchart" function that can be used for drawing process flowcharts. Different characters are used for representing the steps, the incoming and outgoing documents and information as well as the decision-making points. In addition to the Flowchart function to describe the business processes, we can use some more powerful tools for process modelling that will not only provides us with process visualization flowcharts, but will also include the connections between processes on different hierarchical levels and the organizational structure, have a payroll function, show where documents are generated and their flow, generate reports on deadlines, employee participation, etc. Such tools are the Casewise Corporate Modeler and the ARIS Business Architecture. They are innovative software solutions for description, analysis and optimization of business processes. These software products allow monitoring of main processes and sub-processes to the required degree of detail, provide details about each step of the process, visualize the documents that must be generated at a certain stage and their flow.

ARIS screens allow visualization of the interaction and relationships of the selected item (module, process, action, step, position, etc.) and other processes as well as its impact on other

elements and processes included in the model and the system as a whole.

Depending on the information that is required and the selected object, the application can provide reports, charts and graphs of the following relationships (also known as links):

- Process - process link. Shows the hierarchy and the relations between processes;
- Process - sub-process link. Shows the sequence of process execution;
- Process - information system link. Shows the database that supports the execution of the process;
- Process - organizational unit link. Shows which unit is responsible for the process.
- Specific action/step - organizational unit/employee link. Shows the rights, responsibilities and obligations of a specific unit or employee with regard to the specified action/step.

ARIS can be used to visualize the separate steps of the development and implementation of a FMCS in an organization and to specify:

- The required resources, input information, and data processing;
- The hierarchy and subordination relationships of those involved in the implementation of the steps as well as their affiliation to organizational units (directorates, departments, units) in the performance of individual actions;
- Critical performance factors, controls and preventive measures, corrective measures in cases of non-compliance.

The following pages describe several ARIS screens related to the processes of undertaking financial liabilities and execution of payments as integral parts of a FMCS.⁵ The navigation panel serves as a fast connection between the individual modules. It lists the names of the individual elements of the IFMCSs, the related standard documents, a legend of the used symbols, the organizational structure and other specific information for the particular module.

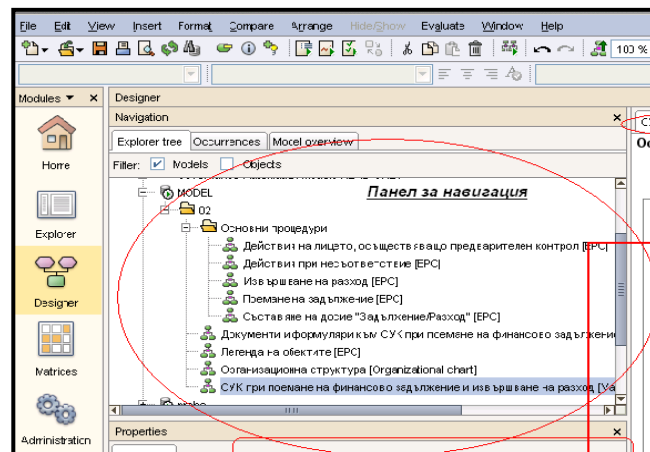


Figure 1. Navigation panel of FMCS

This particular screen shows not only the main procedures ("Liability Undertaking"; "Execution of Payment"; "Liability/Payment File Creation"; "Preliminary Control Action"; "Action in case of Non-compliance") but also the auxiliary modules, such as "FMCS Documents and Forms" (Liability Undertaking Requests, Payment Execution Request, Control Checklists, etc) and information regarding the organizational structure (the Organizational Chart module.)

⁵ The screens are in Bulgarian because this particular FMCS was developed for Bulgarian users.

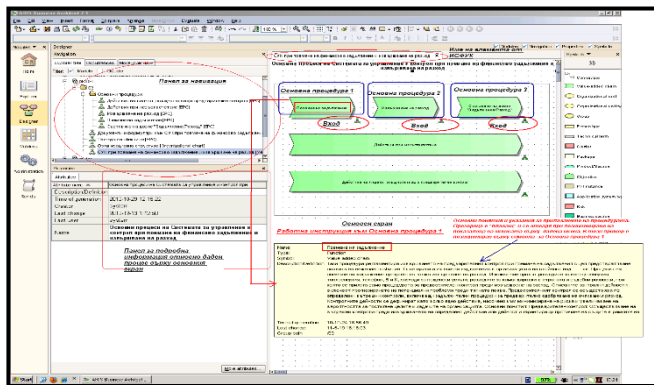


Figure 2. Visualization of the process panel of FMCS – general view

The "Organizational Chart" model is unique for each organization and provides details about the relations of:

- its administrative hierarchy, i.e. the relations between its structural units (directorates, departments, units, sections, etc.);
- its employees and their rights, responsibilities and obligations;
- the groups of employees with similar "roles" (the position - organizational unit link), including their names.

The information panel contains detailed information regarding a given main process, element or symbol. This information includes not only the name, creation date, last updated or edited and description data, but also the main functions/tasks of the process, its interaction and links with other processes, the impact it has on other elements and processes covered in the module and the system as whole.

Visualization of the interaction and the links of the selected element (module, process, action, step, position) with other processes, the impact it has on other elements and processes covered in the module and the system as whole.

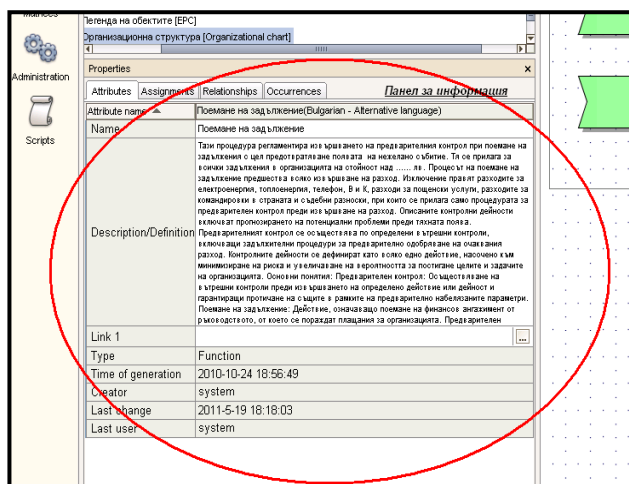


Figure 3. Information panel of a specific step from an FMCS process

5. Cloud-based FMCS

The implementation of FMCS is associated with some difficulties related to the large amounts of documents that are created and processed as well as the participation of different employees who may be located at geographically remote locations. The workflows are often described in bulky manuals that are difficult to navigate. Some of these problems may be resolved by using the innovative modelling tools described in the previous paragraph, but they in turn give rise to additional problems such as the need to purchase the required software and hardware and to employ specialists who can work with them. The modelling of business processes with Casewise or ARIS shall not solve the problem of the large amounts of documents unless appropriate specialized products for data exchange and referencing, document processing and transfer, etc are developed. Such possibilities are

provided by the cloud technologies, which can save a lot of money to an organization - the money it should otherwise spend on purchasing and maintaining appropriate infrastructures and software.

The budgets of public sector organizations are limited and the creation and maintenance of electronic documents using designated FMCS servers and platforms is expensive. By using a cloud infrastructure (cloud computing) these organizations can significantly reduce their costs. Cloud computing provides an ubiquitous and convenient network access to a set of identified computing resources configured by communication networks, servers, data storage devices, applications and services, jointly and separately, which can be used with minimal operating costs.

Cloud computing users can significantly reduce their infrastructure costs (in the short and medium run) and respond flexibly to changes in computer and network needs, thus benefiting from the computing elasticity function (elastic computing) of cloud services. According to some rough estimations, such costs can be reduced about 10 times.

Considering the above findings, a team of specialists headed by the author developed a WEB-based electronic FMCS models and a software application called CROSS Control. They provide:

- Complete control over the internal document flows;
- Inclusion of all level of the organizational structure, including remote units;
- Complete electronic archive, i.e. storage, retrieval and copying/scanning of documents, safekeeping of the original documents, exchange and processing of certified electronic copies;
- Easy access to databases;
- E-mail exchange of documents;
- Intuitive and simple interface with network and local scanning and printing devices;
- Fast retrieval and referencing of registered documents;
- Up-to-date information regarding the flow and stage of all documents at each stage of the process with levels of access authorization;
- Additional information in various formats, accessible at each stage of the process;
- Generation of various reports required from spenders of budget appropriations.

Conclusion

The challenges faced by public sector organizations are no different from those that are typical for the private sector enterprises. At the same time business enterprises are much more flexible and adapt more quickly to changes in the environment. The increased competition due to globalization and the dynamics of market relations makes them constantly look for new management approaches and methods, while the typical and somewhat justified conservatism of the public sector makes it more irresponsive to changes.

In today's dynamic and globalized world the importance of unconventional resources such as information, know-how, outsourcing, networking, etc. has increased tremendously. This applies not only to private enterprises but also to public organizations that are spenders of budget appropriations. This is why the latter should keep abreast with their private-sector counterparts in the field of modernization. This article proposes some possible innovations in the field of financial management and control of public organizations based on the use of advanced software for managing business processes and the use of cloud technologies. These innovations are fully compliant with the regulatory requirements and the public expectations for transparency, effectiveness and efficiency in the spending of public funds.