

The Role of Management Accounting in Improving Management Control System in Public Sector

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Abstract

The management control system provides valuable information on the managers' needs at different levels of the organization. Today, with changes in the political, social and economic dimensions, the management control system in the public sector also needs to be changed and adapted to new conditions and use new tools to meet stakeholders' needs. The purpose of this study is to provide a model to investigate the role of the management control system and increase accountability in the public sector administrations and companies. In this regard, the present study explores the role of functions of management accounting in improving the management control system in the public sector. For this purpose, data were collected through interviewing 13 experts in the field of the management control system and functions of management accounting and reviewing related texts, articles and books in this field, and their content was analyzed through grounded theory and content analysis method and MAXQDA 2021 software was used for data analysis in 1399. The findings of this study showed that a management control system, if it has the necessary tools, can play a key role in preventing corruption, increasing

transparency and accountability, performance-based budgeting, and performance-based auditing. The existence of a management control system is necessary for any organization; such a system will help identify resource flow, help management in decision making, motivate employees, make decisions related to outsourcing and contracting, reduce service delivery time, and many other issues in organizations, and it will ultimately lead to optimally allocate resources, prevent corruption, and increase legitimacy, transparency and accountability. Therefore, the optimal use of management accounting in the management control system, improves the achievement of organizational goals and the effectiveness of programs.

Keywords: Management control system in public sector, Management accounting, Management accounting Functions.

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Introduction

Advances in financial planning and accounting in the public sector have created a new task that can be best described as “public sector controlling”. With the increasing development of the public sector (from mere policymakers to large service providers), long-term financial plans and shorter-term budgets are no longer sufficient alone to control the organization. In finance and performance management, there is a need to set goals at lower levels, even though there is no performance-oriented budget. Performance needs are required to be addressed at lower levels. It is quite clear that demarcation between two more traditional tasks of financial planning and public sector accounting and the newer task titles as “public sector control” is not very precise. These three areas need to work closely together. With the advent of public sector control, financial planning can be more focused on the political level and the control can be assigned to management; accounting also has the role of producer and provider of information for both financial planning and control tasks (Bergman, 2009, 20-21.)

Management is defined as the knowledge of effective and efficient use of resources to achieve the organizational goals and these resources include financial resources, human resources and other resources available to the organization (Rezaian, 1399, 2). The manager needs to plan, organize, and

control the organization's operations to achieve maximum profits (Smith, 1972). The need for a system that provides a variety of financial and non-financial information to users, especially to the managers of each organization, as well as the ever-growing need for accurate and timely information to be used in the decision-making process of managers has become an inevitable issue. Management accounting system as the most important subset of management information system is considered as the main source of information.

Management accounting serves the internal purposes of organizations and for-profit units, and unlike financial accounting, which is constrained by specific and predetermined principles and criteria, it is not composed of a set of fixed and unchangeable rules. Management accounting methods and principles are developed and adopted to help the organization achieve the desired goals through making optimal decisions. For this reason, management accounting methods should be designed and applied to each organization proportionate to their circumstances. Indeed, management accounting needs to be adapted to the characteristics and needs of the relevant organization .

For example, the literature showed that some researchers determined the contingency relationships between organizational variables and the effectiveness of the management control system in Libya. Meanwhile, he has explicitly focused on the mediating role of management accounting information in the management control system. He found that centralization, formalization, environmental uncertainty, and competitive strategy significantly affect the effectiveness of the management control system (Hader, 2017). there is a gap between the importance and availability of management accounting information. Management accounting information also plays a mediating role in the relationship between competition strategy, production complexity and environmental uncertainty with the effectiveness of the management control system (Tajvidi and Mohammadi, 2016). Also, other researchers examined the use of management accounting in public sector units and tried to examine three goals of management accounting for value, including economics, effectiveness, and productivity (Kordestani and Azarkamand, 2015). The success of companies and organizations depends on the management control system and management accounting play an important role in a management control system, Therefore, the goal of this research is to explain the role of management accounting in the improvement of a management control system in the public sector and the main question of this research is “what is the role of management accounting in improving management control system in the public sector”?

To answer the research question, the necessary data was collected and reviewed through interviewing with experts in the field of management accounting and management control systems, who were purposefully selected, as well as reviewing relevant internal and external texts and articles in this field, and content analysis method was used to examine the data. The contribution of this study to the literature is as follows:

First, literature development; second, understanding the functions of management accounting; third, reasons for the lack of improvement in the management control system in the public sector; and fourth, the role of management accounting in improving the management control system in the public sector.

In the following, section two deals with the theoretical foundations of the management control system and management accounting in the public sector, and provides an overview of the background of the research; and section three describes the methodology, including the method data collection and analysis method. Section four reports on the research findings and section five concluded the study.

Literature Review

1. Management Control System

Management control is a system. A system can be described as a series of steps including input, processing and output steps. The control system adds measuring, analyzing and reporting steps to the system. The control is considered as a tool, system, or activity which makes it possible to affect a target or object, and the controlled target or object does the desired task. To control a target or object, the following are required:

A detector or sensor is a device that measures what has happened, while an assessor is a device that can identify differences between a planned or expected situation and the real situation. On the other hand, the effector is a device that affects the process if the evaluator considered it necessary; and a communication network is a device that transmits information between three elements.

Figure (1) shows the interaction of four control elements. Anthony and Gavin Darajan (2007) believed that this interaction is shown by the following figure in which the dotted lines show the information flow between four elements that is done by the communication network of this flow (Charizard and Tashner, 2017, p. 4).

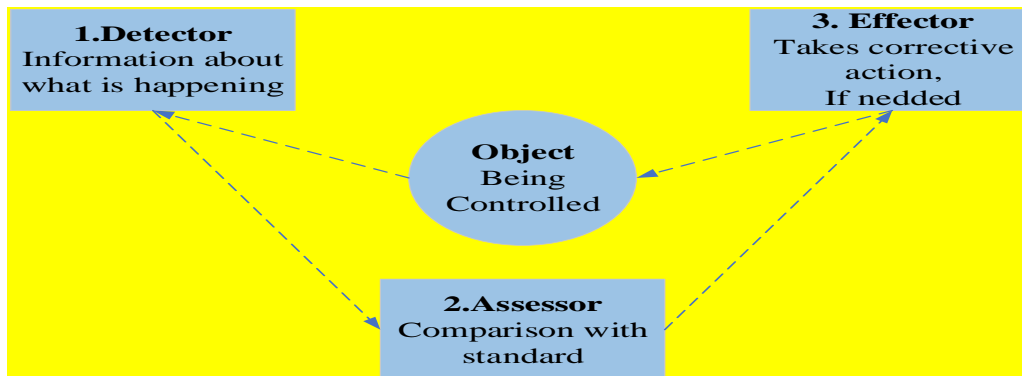


Figure 1. Management control system (Charifzadeh and Tashner, 2017, 4)

Managers always try to establish the best internal controls in their organization because they know that in the lack of an effective internal control system, it will be very difficult to achieve the main mission of the organization and minimize unexpected events. On the other hand, the existence of these internal controls will increase efficiency, reduce the risk of assets losses, achieve reasonable assurance of the reliability of financial statements, and comply with rules and regulations (Abbaszadeh et al., 2011, 1).

Management control systems include terms such as management accounting, management accounting system, organizational controls, etc. Accounting methods are often implemented and assessed as a part of a management control system. Chenhall (2003) stated that the definition of management control systems has expanded over time and these definitions are influenced by assumptions such as ontology and epistemology of the research. For example, researchers who advocate a functionalist or positivist paradigm emphasize the rational decision-making role of management control systems; while non-positivism activities such as interpretive perspective emphasize the political and social role (LadislavSiska, 2015, 2). The management control system involves all the management tools and systems used to ensure that the behavior and decisions of employees are in line with the goals and strategies of the organization (Cook; 2014, 19). According to Horngren (2005), a management control system is introduced as an integrated technique for collecting and using the information to motivate employees' behavior and evaluate performance. As Horngren (2005) states, the control system uses many techniques such as activity-based pricing, balanced scorecard system, benchmarking & bench trending, budgeting, capital budgeting, timely manufacturing system, continuous improvement, program management

techniques, target costing, comprehensive quality management, etc. (Horngren, 2005, 50).

As mentioned, management control systems include the above-mentioned techniques. Although these methods are likely to be used more in the private sector in practice, as shown in the figure above, management control systems are closely related to management accounting techniques. According to Norazlinallias et al. (2016), the management control system provides valuable information related to managers needs at different levels of the organization. The results of their study showed that organizations with a stronger management control system provide higher-quality services compared to organizations with a poor management control system.

Macintosh and Quattrone (2010) defined a management control system as a wide range of control mechanisms used to motivate, monitor, assess, and approve managers and employees’ actions in the organization and coordinate them with other elements of the organization that they create; these elements include mechanisms, information and communication technology, etc.

Hadiz Ali Al-Zaid (2010) in his study stated that one element of new public management is changing in management control systems. He argues that improving the management control system will lead to better transparency and accountability.

Management controls include all the devices and systems managers use to ensure that the behaviors and decisions of their employees are consistent with the organization's objectives and strategies, but exclude pure decision-support systems. Any system, such as budgeting or a strategy scorecard can be categorized as an MCS. Table (1) provides a conceptual typology of an MCS package (Malmi & Brown, 2008).

Table 1. Description of MCS package (Source: Malmi & Brown, 2008)

Elements	Description	Components
Planning	Ex-ante form of control (Flamholtz et al., 1985); first it sets out the goals of the functional areas of the organization thereby directing effort and behavior; second, it provides the standards to be achieved in relation to the goal, making clear the level of effort and behavior expected; third, it enables congruence by aligning goals across the functional areas of an organization, thereby controlling the	Action planning—goals and actions for the immediate future, usually a 12-month period, are established; has a tactical focus. Long-range planning—the goals and actions for the medium and long run are established; has a more strategic focus

	activities of groups and individuals.	
Cybernetic	There are five characteristics of cybernetic control (Green and Welsh, 1988). First, there are measures that enable quantification of an underlying phenomenon, activity or system. Second, there are standards of performance or targets to be met. Third, there is a feedback process that enables the comparison of the outcome of the activities with the standard. This variance analysis arising from the feedback is the fourth aspect of cybernetic control systems. Fifth is the ability to modify the system's behavior or underlying activities.	Budgets (Bunce et al., 1995; Hansen et al., 2003), Financial measures (Ittner and Larcker, 1998), Non-financial measures (Ittner and Larcker, 1998), Hybrids that contain both financial and non-financial measures such as the Balanced Scorecard (BSC) (Greenwood, 1981; Kondrasuk, 1981; Ittner and Larcker, 1998; Kaplan and Norton, 1992, 1996a,b, 2001a,b; Malina and Selto, 2001)
Reward/compensation	Motivating and increasing the performance of individuals and groups through attaching rewards to control effort direction, effort duration, and effort intensity.	Attaching rewards and or compensation to the achievement of goals (Flamholtz et al., 1985; Bonner and Sprinkle, 2002)
Administrative	Administrative control systems are those that direct employee behavior through the organizing of individuals (organization design and structure), the monitoring of behavior and whom employees are made accountable to for their behavior (governance); and through the process of specifying how tasks or behaviors are to be performed or not performed (policies and procedures), (Simons, 1987).	Organizational design and structure (Otley and Berry, 1980; Emmanuel et al., 1990; Abernethy and Chua, 1996; Alvesson and Karreman, 2004), Governance structures within the firm (Abernethy and Chua, 1996), Procedures and policies (Macintosh and Daft, 1987; Simons, 1987)
Culture	influence employee's behavior. (Birnberg and Snodgrass, 1988; Dent, 1991; Pratt and Beaulieu, 1992).	Value-based controls (Simons, 1995), Clan controls (Ouchi, 1979), Symbols (Schein, 1997)

2. Management Accounting and Improvement of Management Control System

The mission of management accountants is to perform a series of activities to ensure the financial security of the organization or company, address all necessary financial issues including cooperation in management decision making, planning, a management performance system, and provide solutions in

the field of reporting and financial controlling in order to help organization management in formulating and implementing of the organization strategy. Management accountants, regardless of whether an organization is private or public, work closely with other parts of the organization in areas such as planning, supporting, controlling, guiding, communicating, and coordinating (Long and Hashem, 2017).

Considering the functions of the management process, management accounting has an important role in helping managers to lead the organization efficiently and taking each of these functions into account. Table (2) shows the role of management accounting and the assistance that management accounting can provide in assisting management functions.

As the table above shows, management accounting plays an influential role in each of the management functions such as planning, controlling, organizing, communicating and motivating (Diana, 2008).

The effect of management accounting techniques on the central government has dramatically increased over the past ten years. Since the presence of such techniques in the activities of the administrative department, these techniques play a key role in management development. There is no doubt that such initiatives have required management accounting so that sometimes it can be implicitly or explicitly realized that key management reforms would not have been possible without management accounting (Disanyaka, 2017). For example, applications of cost accounting in the public sector for the management's basic functions and the areas of business activities will be as follows:

(1) total quality management, (2) continuous improvement, (3) just in time, (4) target costing, (5) program management systems, (6) budgeting, (7) controlling and reducing costs, (8) determining rates and prices, (9) measuring performance, (10) balanced secured card, (11) evaluating programs, and (12) making various economic decisions (ibid, p. 7).

In New Zealand, for example, financial conditions led to the acceptance of full accrual accounting as the basis for the financial management of the public sector, and it also became a reason to develop cost accounting as a management tool. These improvements include adopting cost recovery or return policies when goods or services are provided to customers; and its final result was the determination of the cost of all goods produced and services provided by the government to facilitate the government's controlling and accountability task (ibid., P. 10).

Table 2. Role of management accounting in management control process (adopted from Diana, 2008).

Management functions	Description	Managerial accounting
Planning	The planning process will be done neither in long term nor in short term. Long-term planning centralizes the future management expectation, for a period of three or five years, or even longer. Then, long-term plans are converted into immediate needs and detailed plans in the annual budget.	<ul style="list-style-type: none"> - helps establish plans, provide accounting information used in the decision-making process about which products should be sold, on which markets and at what price, and evaluate proposals for capital spending. - plays a very important role in the short-term planning process. - provides data on past performance which could be particularly useful as a model for future performance. - establishes budget (planning) procedures, prepares schedules and coordinates short-term plans on all business sections, and ensures that the plans harmonize with each other. - centralizes different plans of an organization into a general plan (the master budget)
Controlling	- a comparison is made between the predicted and actual performance and deviations from the plan are identified and removed.	<ul style="list-style-type: none"> is useful for the control process because it draws up performance reports that compare the actual to budgeted revenue for each responsibility center. - managers are warned about those specific activities that are not according to the plan - assist the control function by providing immediate action measures and identifying problems.
Organizing	establishes an internal framework in which the required activities that should be performed and the persons who will perform those activities are identified, and a clear definition of managerial responsibilities and authority hierarchy is provided.	<ul style="list-style-type: none"> - identifying the essential and relevant elements of an organizational structure for proper operation of a management accounting system allows the preparation of an internal reporting system for this structure and proposes a more appropriate organizational structure. - whereas the organizational structure is dealing with authority, responsibility and expertise to ensure actual performance, managerial accounting is designing and implementing accounting systems to better define and strengthen these connections.
Communicating	involves the decentralization of units in a hierarchy of formal communication structure (vertical) and a staff relationship (horizontal).	<ul style="list-style-type: none"> - establishing and maintaining an efficient communication and reporting system. - reports related to the performance that are prepared by accountants to a manager show him how well he performs his activities and highlight cases that require a close look based on the management activities based on exceptions

Motivating	<p>influences staffs' behavior so that they can identify their roles related to the goals of the organization and make their decisions in line with the goals of the organization.</p> <p>- a good manager is able to motivate his subordinates to achieve objectives set by the top management.</p>	<ul style="list-style-type: none"> - the (planned) budget and performance reports prepared by accountants have a great impact on the motivation of the employees of the organization. - the budgets are targets intended to motivate managers to achieve organizational objectives. - performance reports plan to motivate individual performance by providing related to performance. - Accountants participates in staff motivation by providing valuable assistance in identifying the area with potential management problems and highlighting those issues for a detailed investigation.
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According to Macintosh and Quatron (2010), to fully understand the performance of management accounting systems, it is necessary to monitor the performance of the management accounting system in relation to the whole set of control mechanisms used in organizations.

The results of a study by Monica Mello and Ribeiro (2008) showed that budgeting process, planning system, information structure, culture and organizational structure are elements of the management control system that emphasize the need for a balanced secured card; therefore, implementation of a balanced secured card will make fundamental changes in areas such as budgeting, planning, processes and reporting systems.

The results of another study by Nazaripour and Ravand (1398) show that according to the research findings, interactive and diagnostic use of management control systems has a significant and positive effect on the acceptance and success of current management accounting procedures. The results indicated that 53% and 33% of the changes in the use of contemporary management accounting methods can be explained by interactive and diagnostic approaches, respectively. It can be also concluded that among the current management accounting methods, the key indicators of performance, value chain analysis and strategic cost management are the most effective, respectively. The results of their research also showed that the current management accounting practices are not only useful for public sector organizations but also strengthen them. Emphasizing the role of management accounting, Tarverdi et al. (2017) in a study entitled "The effectiveness of management controls and strategy", showed that two mechanisms of diagnostic

accounting and objective rules-based motivational factors have a complementary relationship in a defensive context and their simultaneous use creates synergy. Moreover, a similar relationship was observed between organic structure and interactive accounting in an aggressive context and mechanical structure and diagnostic accounting in a defensive context.

In a study by Dianti Deilami et al. (2016), the effect of environmental uncertainty on the effectiveness of management accounting tools was investigated. The results of their study showed that environmental uncertainty had a positive effect on the usefulness of management accounting tools. Their results also indicate the positive effect of the usefulness of management accounting tools on the companies' performance. Additionally, environmental uncertainty has a positive effect on the companies' performance due to the usefulness of management accounting tools.

In a study Labrador and Olmo (2019) entitled Management accounting innovations for rationalizing the cost of services: The reassessment of cash and accrual accounting showed that Management accounting can be a useful tool in austerity government because it produces information about the costs of public services and can be used for informed decision making.

In a study, Danilo and Agliata (2018) entitled The ABC as Tool for Decision Making in Public

Administrations stated that The ABC has the function to support the decision-making process and to inform the management about the resources acquisition and the level of resources utilization. In fact, a cost accounting system aims to provide an organization with relevant cost information, related to products and services, to support the decision-making process. Traditionally, the cost accounting system of an organization was designed to support the needs of financial (external) reporting and to help the determination of a satisfactory price for goods and services sold. When traditional methodology has been developed, direct labor and materials were the most significant product or service costs, with overhead costs engraved only with

A small percentage of total costs. In the recent context of the public administration corporatization and the outsourcing processes for the public services delivery, the awareness that the resources are becoming increasingly scarce and, therefore, that it is necessary to use them in a cost-efficient way, to

achieve high standards, plays a pivotal role. Therefore, with reference to the public service sector, the ABC verifies, for each service, the acquired financial resources, the costs of each productive factor, the obtained qualitative and quantitative results, and the revenues.

Considering that the management control system needs to use management accounting techniques and functions to be improved and strengthened, the present study is of special importance due to the examination of all accounting functions and their roles in improving management control systems, especially in the public sector, and it is different from previous research.

Research Methodology

This study is qualitative research and the necessary data was collected through interviews with experts in the field of management accounting and management control systems in the public sector. A purposeful or judgmental sampling method was used to select the study sample. Grounded theory was used as the analysis method, and a data-based method was used in terms of method of analysis. Content analysis is a kind of reviewing the method of documents that might have been collected by the researcher or others. However, it is analyzed by the researcher, so that the words, phrases, names, paragraphs, images, subjects or any special effect intended by the researcher are recorded on a sheet. Despite the variety of documents, a scientific method is used to analyze them. The Grounded theory provides a very effective theoretical framework for analyzing the content of qualitative data collected from lectures, debates, roundtables, articles, and especially interviews with humanities researchers. In this approach, the interview was used as the most common data collection method and its results are analyzed to extract codes, concepts, and classifications (Bamdad Sufi et al., 2009, 55, 56). In this study, interviewees will be asked questions about the role of management accounting in improving the management control system, and then the data collected will be analyzed and conclusions will be drawn using maxqda software version 2020. In this study, the public sector consists of public administrations and public companies. According to Arditi and Gunaydin (1999), del Caño and de la Cruz (2002), de la Cruz et al. (2006), Gunhan and Arditi (2005), Hyun et al.

(2008), in the Delphi research method, the panellist consists of 7 to 20 members. (Hallowell & Gambatese, 2010). The conceptual model of the research is as figure (2):

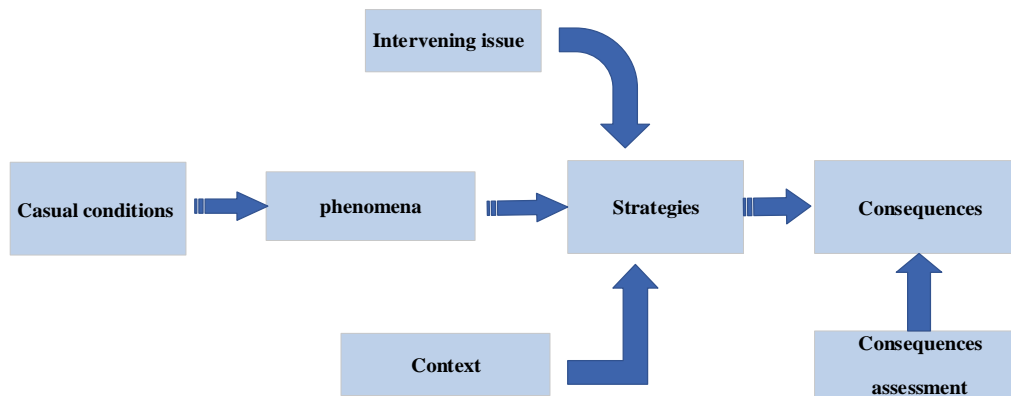


Figure 2. Conceptual Model

Research Findings

Given that the method used to collect the data necessary for conducting the study was the interview method and using related texts and articles, the demographic characteristics of interviewees will be first mentioned in the data analysis and descriptive statistics section. Table (3) shows the demographic characteristics of interviewees.

In the following and after conducting interviews and analyzing the data by open, axial and selective coding methods, seven categories were identified from the research findings, which are as follows:

Table 3. Demographic characteristics of interviewees

Row	Scientific rank	Degree of education	Job position	Workplace	Interview duration
1	professor	Ph. D	Faculty member	Allameh Tabatabaei University	40 min
2	Professor	Ph. D	Faculty member	Retired	25 min
3	Assistant professor	Ph. D	Faculty member	Qazvin Azad University	25 min
4	Assistant professor	Ph. D	Faculty member	Tabriz Azad University	30 min
5	Certified	Ph. D	Faculty member and	Audit	25 min

	accountant		certified accountant	organization	
6	Associate professor	Ph. D	Faculty member	Tehran University	30 min
7	Associate professor	Ph. D	Faculty member	Mazandaran University	35 min
8	Associate professor	Ph. D	Faculty member	Tehran University	30 min
9	Associate professor	Ph. D	Faculty member	Shahid Beheshti University	20 min
10	Associate professor	Ph. D	Faculty member	Qazvin Azad University	25 min
11	Associate professor	Ph. D	Faculty member	Tabriz Azad University	23 min
12	Associate professor	Ph. D	Faculty member	Imam Khomeini International University	40 min
13	Ph. D	Ph. D	General manager of country treasury	Ministry of Economy	28 in

(1) causal conditions, (2) phenomena, (3) context (specific requirements related to organizations), (4) intervening conditions, (5) strategies, (6) consequences, (7) evaluation of consequences; and finally, in section 8, the proposed research model is presented in the form of a figure (4) in subsection 4-8. Based on the analysis of data obtained from interviews with experts, the causal conditions for improving the management control system in the public sector are presented in Table (4).

1. Causal conditions

After conducting interviews and analyzing data, casual conditions related to the management control system in the public sector are shown in table (4).

Table 4. Casual conditions related to the management control system in the public sector

Guidance to the organization's operation	<ul style="list-style-type: none"> ✓ Guides control, behavior, and action towards organizational goals. ✓ Increases the absence of proper controls of violations and errors that prevent the organization from achieving its goals. ✓ Like a beacon, it is a guidance control for an organization and keeps it on track to move toward the goals and make clear reformations. ✓ Measures the gradual progress of the organization. ✓ Identifying deviations and taking corrective action requires a strong control system. This encourages managers to make clearer decisions about the organization's goals.
Policy approval	The management control system enables managers to verify the quality of various designs. This might indicate that programs need to be redesigned or goals need to be modified. Changes in the environment might make main

	<p>programs inoperable or inefficient. Management control system helps to review and update programs. Without having good monitoring and proper feedback from an efficient control system, even the best programs might not work as well as expected. Management control system not only shows the need for corrective actions, but it also provides information based on which managers can determine whether determined goals are still appropriate in the face of changing circumstances or not.</p>
Accountability	<p>As in Conceptual Statement No. 1 (GASB), accountability is the cornerstone of governmental financial reporting and it is considered an integral part of all governmental accounting and financial reporting objectives, governmental accounting and financial reporting are related to accountability and it is considered as one of the main tools to fulfill this responsibility. Accountability requires the provision of financial and non-financial information that citizens use this information to hold the government accountable for its actions and activities. Therefore, the main goal of governmental financial reporting, on one hand, is to provide useful financial information to fulfill the government accountability and evaluate this responsibility and social, political and economic decisions by citizens, on the other hand (Babajani, 2003, 40-39). When a manager determines certain activities and delegates authority to his subordinates, he is still responsible for the final performance. Therefore, a manager should monitor the performance of subordinates to ensure that they use their delegated authority properly. The management control system enables managers to fulfill their responsibilities properly in line with delegating authority to their subordinates.</p>
Motivating employees	<p>Management control system creates an atmosphere of discipline in an organization. Lack of controls will reduce employees' motivation because they cannot predict job security and other issues. They become victims of the oppression and prejudice of their superiors. Having a strong control system motivates employees to work harder and perform better. When they know that their performance is judged and evaluated and their rewards are related to such an evaluation, they will try to show their best performance.</p>
Efficiency and effectiveness	<p>The management control system contributes to the efficiency of the operation by focusing on achieving the goals. Without a management control system, managers will not be able to track their subordinates' progress toward goals and take corrective actions after deviations occur. A strong management control system enables managers to identify and correct mistakes and deviations before they become serious and minimize the possibility of losses. The control system ensures efficiency by monitoring the allocation and use of resources. This focuses attention on the main factor of success and effectiveness of the organization.</p>
Coordination in action	<p>The management control system will create a balance between tools for achieving the goal and the goal itself. Control helps you ensure that actions are going well according to plan, the right direction is taken, and different factors are maintained in their proper relations, thereby sufficient attention is obtained. Control will lead to collective unity. In this situation, managers will be able to manage and command the organization instead of sacrificing it.</p>

2. Phenomena

After conducting interviews and analyzing data, the most important and pivotal issue regarding the management control systems in the public sector was the improvement of the management control system in the public sector. To improve the management control system, it is necessary to strengthen its elements, including strategic planning, program management and monitoring actual operations, comparing actual results with standards and budgets, preparing appropriate reports, analyzing deviations and corrective actions, evaluating performance, and providing rewards. When information systems provide information to managers of organizations, managers will be able to compare results with performance, identify deviations, and take corrective actions in this way. As previously stated, a management control system provides valuable information which is relevant to managers’ needs at different levels of the organization; as a result, organizations with a stronger management control system provide high-quality services compared to organizations with the poor management control system, and the higher the quality of service is and the better information is available to stakeholders in the form of annual reports, the more stakeholder satisfaction there will be and the more legitimate the public sector will be and the more access will be available to the public.

3. Context

Based on the studies and analyses conducted, some factors are required to be formed as requirements in the context of public sector organizations and institutions in order to achieve a strong and reliable management control system. Table (5) shows the underlying conditions related to the management control system in the public sector.

Table 5. contextual conditions related to the management control system in the public sector

<p>Developments at the technology level</p>	<p>Considering the ever-growing change and evolution in operation technology in the hardware sector, whereby machines and equipment are evolved and led to the increased efficiency and economic efficiency of products, and like the private sector which increasingly uses more up-to-date systems with the advancement of technology, new technologies should be also used in the public sector to meet the needs of stakeholders and recipients of services and goods.</p>
<p>Functions of management accounting in public sector</p>	<p>One of the main components of the management control system is the existence of performance-based auditing. However, to implement performance-based accounting, it is necessary to modify the budgeting system and use a performance-based budgeting system. Performance-based budgeting requires the use of cost accounting and performance assessment</p>

	<p>indicators. Cost accounting is one of the functions of management accounting. However, to have a strong and stable management control system, it is necessary to use all the capacities of management accounting and its functions according to the needs of different parts of the organization. Figure (2) shows the functions of management accounting that can be used to improve the management control system in both private and public sectors.</p>
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4. Intervening Conditions

Based on the analysis of the data obtained from the interview and review of the texts and articles, there are factors that cause the management control system in the public sector not to be improved and developed, which are presented in table (6).

Table 6. Intervening conditions related to the management control system in the public sector

<p>Disconnection between budget execution processes</p>	<p>Of the causes of disconnection between budget execution processes are difficulty in defining activities of each program, the complexity of identifying the cost of activities in which management accounting techniques should be used, the problem of budget justification in the annual performance plan, creating resistance by program managers, which should be addressed through culture building, the various components of the budget, including planning, implementation and monitoring, are not considered in a coordinated manner. On the other hand, the lack of formation of the government's financial-budgetary information management system is another reason that caused a disconnection between budget execution processes. Another problem is the incompatibility of the budget document with the state of the country's economy, which should be compatible with the economic status of the country so that the budget can play its stabilizing role. On the other hand, in the budget preparation and approval process, the budget document should cover all governmental financial operations, which is not the case at present, and a large part of government commitments are made extra-budgetary due to the lack of integration between government's financial information.</p>
<p>Environmental changes and rules uncoordinated with the needs of the day</p>	<p>Nowadays, the priorities and value systems of the environment are also changing, and organizations inevitably need to be adapted to the changing environment. Two main forces influencing today's organizations are technological change and global competition. Organizations that cannot adapt themselves to these two forces will not be able to survive in long run. The legislator can repeal or assign all the previous laws through enacting the Civil Service Management Law as a general law on administrative and employment issues; while referring to other employment laws, we find that many related rules, including some articles of the 1345 National Employment Law remain in force. However, this action, in addition to the confusion of law enforcers and the client, leads to several problems in the</p>

	field of action.
Lack of sufficient transparency and proper reporting system	<p>The accounting system of the country is at the beginning of the way of transformation from the adjusted cash base to the full accrual accounting base and measuring the flow of economic resources. However, given that no success has been yet achieved in this way, the implementation of a cost accounting system is also faced with problems. Some critics of the management control system in Iran believe that one of the factors causing management control system in the public sector to not develop and improve is the lack of an owner and defender who can defend its rights and interests; another reason is also the lack of transparency and accountability of managers and officials, which has led to poor use of financial and managerial information. On the other hand, some believe that the establishment of a control system requires some activities and measures to be taken; For example, an operational budgeting system that effectively combines budget and performance information requires time and effective leadership; therefore, we face challenges in establishing a control system. To remove these challenges, basic steps must be taken. For example, performance-based budgeting is the most important challenge that we face in Iran.</p>
Lack of complete establishment of treasury unit account	<p>The way to record financial activities should be such that it becomes possible to classify income and expense information under different standards. Specifically, economic classification of the budget, classification based on executive apparatus, classification based on the functions of government expenditures, and geographical classification are the least desired standards-based of which the budget should be prepared and approved as a criterion for subsequent controls. Regarding financial-budgetary information systems, it is necessary to connect budget implementation processes and controls intended for it with the budgeting processes, and controlling the government's expenditures is of great importance, especially in the budget implementation process. Transaction of an agreement is a time-consuming process and should normally be a basis for the financial operations of the majority of organizations, and now it has become a nominal operation.</p>
Lack of experts	<p>Many people who hold important positions and play a role in decision-making on organizational issues do not have sufficient knowledge and information in new areas and technologies, and therefore, they resist change. Among the reasons for the weakness of the management control systems in the public sector is the lack of use of specialized individuals and incorrect employment procedures, as well as specialization in sensitive jobs such as finance and accounting. For example, one of the factors mentioned in the research related to the factors affecting public sector accounting in Iran and consequently management control system is the lack of experts in the financial sector and accounting (Rezaei, 2019).</p>

5. Strategies

According to the findings of this study and interviews with professors and experts, strategies of public sector organizations in achieving a strong and sustainable management control system are as follows:

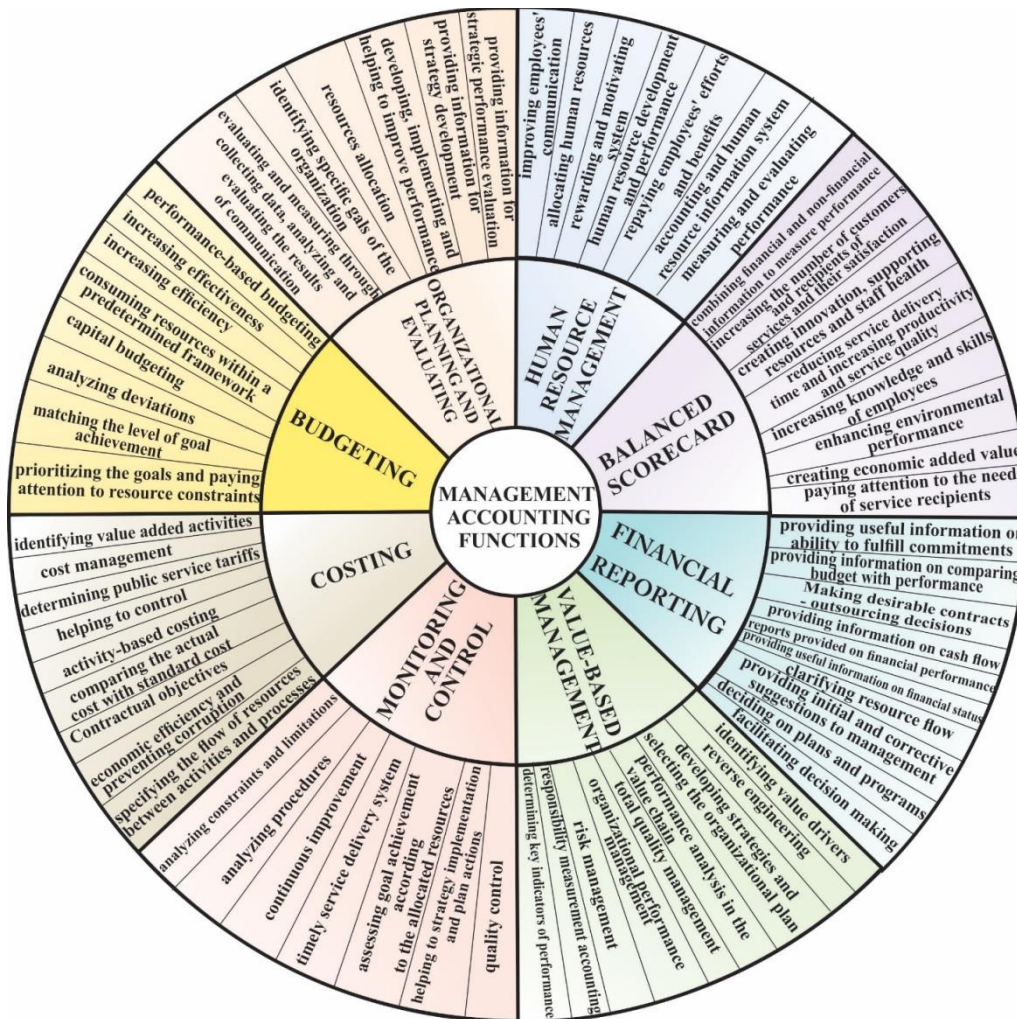


Figure 3: Functions of management accounting in the public sector

Table 7. Strategic conditions related to the management control system in the public sector

Strategic planning	Strategic planning is a regular and organized effort to make fundamental decisions and it shapes the organization’s future and long-term activities. The stages of this type of planning are 1- determining the mission and long-term goals and organization’s mission 2- separating and analyzing long-term goals in the form of short-term quantitative and qualitative goals (targeting) 3- formulating and setting a policy and adopting general policies 4- planning and setting operational or tactical plans.
Executing programs and monitoring actual operations	At this stage, projects are divided into small parts. Different activities predicted and planned for different periods are collected and recorded. Activities related to the current period are begun and performed under the supervision of managers and supervisors (Ashok et al., 2011, 12).
Comparing actual results with standards and budgets	At this stage, the results of the performed operations are compared with the predetermined goals and standards.
Providing reports on performance	At this stage, reports on actual performance are provided. Reports must be timely and meaningful in order to meet the clients’ needs
Analyzing deviations and taking corrective actions	At this stage, deviations are identified and their causes should be investigated. It is also more important to pay attention to major deviations and strategies, and it is at this stage that necessary measures are taken to remove deviations.
Evaluating and rewarding	Proper and effective performance of employees is one of the keys to the success of organizations. Good performance means productivity, quality, profitability and customer orientation. That is why successful organizations in the world try hard to identify and manage factors that affect employees’ performance and behavior and achieve success so that they increase their employees’ performance by providing these factors (both in terms of amount and quality). Obviously, with such an attitude, performance management becomes very important as a tool to improve employees’ performance and behavior in the management process of organizations. Performance management can have a significant impact on employees’ performance through evaluating behaviors and practices, rewarding desirable performances and necessary training (Ghorbanzadeh, 2014, 39-40).
Future planning	The last stage of the control cycle leads to the absorption of information about future planning; It is also referred to as the components of the effector phase.

6. Consequences

According to the findings of this study, the results of interviews with experts and review related texts and articles, the consequences of the existence of a management control system in the public sector will be the items shown in Table (8).

Table 8. Consequences related to the establishment of the management control system in the public sector.

Creating value for money	In the performance-based budget, outputs are goods or, in most cases, services provided; but the results are the achievements that are expected from the public offering of these goods and services. For example, the output of a school is the training of a number of students in a course, but the results include enabling them to read and write and solve math problems. It can even go beyond this and consider the effect of education on finding a job and helping society as a result of education. Linking expenditures to the financial resources used to produce and deliver them (i.e. inputs) leads to an important ratio called efficiency. Evaluating achievements related to the outcome and effect-oriented goals introduces another relationship which is called the effectiveness. Economic efficiency is a result of comparing revenue and cost (for example, amount of funds recovered from the cost received by customers) or comparing two costs (for example, ratio of cost over two years or two units). All three factors (efficiency, effectiveness, and cost-effectiveness) add significant information to the budget process, which is the main advantage of performance-based budgeting compared to more traditional forms of budgeting (Bergman 2009, Zarei, pp. 97- 98).
Providing annual reports to the whole community	Research findings show that reviewing annual reports in the public sector is different from reviewing those in the private sector. In the private sector, annual reports are reviewed at the Annual General Meeting of Shareholders; but in the public sector, all stakeholders have the same rights to review annual reports. Therefore, the report of all the government's activities should be made public. This is one of the options for evaluating market-based management control systems that are done in the private sector and will create a new culture in organizations. This method is also a formal accountability system used by organizations to report the performance of the managers of a public organization in implementing public sector policies. This system also helps implement good governance (Chadouri and Chandrashill, 2016, p. 108).

<p>Evaluating performance</p>	<p>Findings from this study show that in order to achieve progress during operations and strategy, organizations should use financial and non-financial metrics to measure performance. Financial performance appraisal and reporting have long been used to help evaluate an organization's success in business and quasi-commercial activities. Hood (1995), Olson et al. (1998), and Goodari et al. (1999) suggested that new public financial management integrates management, reporting, and budgeting systems and uses audited financial statements to determine the cost and value of public services and evaluate public sector performance (Newberry, 2002). The management control system provides rules and standards for evaluating and managing actual performance. The principle of control is to follow planning. The control system provides feedback from information to take corrective actions. Through the control system, they guide managers of the organization in the right direction and ensure that organization will achieve its goals.</p>
<p>Increasing the level of accountability of authorities and managers</p>	<p>Theoretical foundations of governmental accounting and financial reporting in developed countries have evolved considerably in the last two decades of the twentieth century. Such countries began the 21st century with new accounting and reporting systems designed and implemented in accordance with the characteristics of this century. The new theoretical foundations of governmental accounting, which are the result of studies and unremitting scientific efforts of the last twenty years in developed countries, have held accountability as an integral part of the government financial accounting and reporting system and have paid more attention to it. For this reason, the objectives of governmental financial reporting have been formulated based on accountability considering characteristics of the environment of government and business activities and users' needs (Babajani, 2003, 36).</p>
<p>Establishing standards in line with stakeholder expectations</p>	<p>Standards related to providing services to the service recipients in the public sector are different from similar standards in the private sector. These standards focus on customer needs and are related to organizational improvement mechanisms in service delivery areas. These standards are also used to control the actions and behavior of employees. In the public sector, since they communicate with the general public, adhering to these standards has its own difficulties compared to the private sector. These standards guide employees in dealing with grumpy customers. The existence of such standards is essential for managing an organization and its various departments (Gidden, 1984). In addition, organizations in the public sector should have methods for checking complaints about failure to comply with these standards. This section of the organization provides resources to handle complaints and provides necessary and adequate training in handling such cases. These departments also monitor the satisfaction of the recipients of goods and services; thereby increasing their satisfaction (Chandarshill and Chadori, 2016, 112).</p>
<p>Disclosure of public interest</p>	<p>The new public management approach forces organizations to express the values and preferences of people and society (Burgon, 2008). The term "public interest" is so ingrained in policy development that most accounting reforms support the notion that such developments increase</p>

	<p>public welfare. This is while the public interest is fully understood at the political level. However, at the operational level, it is ambiguous and has several interpretations (Delaportas and Downport, 2008, 1). Disclosure of public interest is an innovation in an organization's accountability system in the public sector that is used in the public interest. Disclosure of public interest ensures that all things related to the public interest are thoroughly investigated. Disclosure of public interests provides a new structure of legitimacy and a new approach to the organizations' daily operations. In this system, people receive complaints about the actions of the organization, employees and other people employed by the organization. Handling these complaints is called public interest disclosure, and public interest disclosure is directly involved in achieving the goals and objectives of the organization. Through developing values, plans and strategic contexts, the organization is accountable to stakeholders and recipients of services and provides opportunities for providing regular feedback on various aspects of services received for customers. In this sense, the disclosure of the public interest, at least apparently, shows the level of accountability of the organization.</p>
Freedom of access to information	<p>Existence of transparency in various dimensions, especially transparency in government operations, simplification of rules and clarification of procedures, rules should be formulated in such a way as to prevent any kind of secrecy and provide a ground for activities in the form of transparency; Freedom in informing in which citizens become aware of various procedures related to government services; strengthening social monitoring and free media, as well as increasing the accountability of government agencies are considered as important factors in preventing an fighting with corruption; Informing people about their mutual rights and duties with the government, disseminating responsibility and accountability of government agencies, developing and implementing public education programs in schools and universities, guaranteeing freedom in receiving and disseminating information related to corruption; promoting public participation in the decision-making process, ensuring effective public access to information and raising public awareness about dangers and consequences of corruption, facilitating activities of non-public organizations by the government, transparency of financial performance through reporting by government agencies, expanding of e-government, clarifying duties, authorities and the manner of conducting the affairs of units and executive bodies. Transparency exists when accurate, timely and useful information is available (Lotfi, 2020, 1).</p>
Strengthening communication	<p>Studies have shown that management control system is strong in them. They have created an organizational culture that has influenced the level of employees' participation and consultation in decision making. Moving organizations towards using network platforms, information and communication technology and information systems causes a change in the attitude of organizational behavior and other organizational dimensions, including structure, processes and operations, management and leadership style, organizational culture and human relations such as individual, group and organizational, and it has been increasingly effective on the level of</p>

	<p>expectations and demands of stakeholders and customers. In such a system, for example, each individual is allowed to participate in the planning process. This helps to improve communication through the mutual exchange of ideas and experiences. Findings show that general management and the new form of human resource management help people participate in the decision-making process. This helps to improve communication through the exchange of ideas and experiences. Strengthening communication justifies employees about changes that have taken place and reduces their resilience to change, thereby creating their participation in the decision-making process. Findings also show that the communication and counseling system is involved in the relationship between dominance and power, and since power is the ability to do things, the organization's management uses its cultural control systems to provide facilities in the form of communication and counseling.</p>
<p>Observing the rules and regulations</p>	<p>Due to the fact that the consumption of public resources in the public sector has a high volume and the government will be accountable for the use and protection of these resources, so the proper design and implementation of internal controls in the public sector are extremely important. The expansion of the activities of the executive organs and generalization of the activities of the business units and the organizational complexity have caused managers of the executive organs to rely on internal controls according to their responsibilities, and prevent fraud and collusion and waste of organizational resources to achieve the goals of the organization and ensure the optimal allocation of resources (Bakloo and Mahmoudi, 2016, 144).</p>
<p>Balancing the employees' work life</p>	<p>Work-life balance activities and programs refer to the voluntary actions that organizations provide to employees to facilitate reconciliation and integration between private life and work life. Some of these organizational measures and supports include staff counseling services, staff assistance programs, time management training, stress management training and childcare facilities for employees both inside and outside the organization (Asadi et al., 2015, 2). Among the factors affecting the balance of work-life and private life of employees are organizational flexibility, workload, organizational support, and supervisor support. The management control system should balance employees' work life and private life through using its available tools.</p>
<p>Employee assistance programs</p>	<p>In this case, an advisory structure is created in the organization. The main factor in this structure is the emphasis on work stress in the workplace. Based on this and in line with new public management, organizations implement employee assistance plans. New public management introduces a new form of human resource management with the help of management accounting techniques, which is a new assistance program in the workplace and provides confidential, professional and independent counseling. These programs have been designed to show and improve employees' performance in their personal lives and job performance that are affected by personal and work concerns and problems. Moreover, in this structure, in addition to reducing the workload of employees, a management tool is created to increase environmental performance and productivity and prevent critical accidents.</p>

7. Evaluating the Consequences

Management is defined as the joint actions of individuals with each other to achieve the desired goals and ideals. Accounting is a system that is responsible for recording, analyzing and reporting financial events of companies and organizations. Control is a system or activity which can be used to affect an object to perform its function in a desirable way (Charafzadeh and Tashner, 2017, p. 5).

All managerial tasks, from planning to organizing, leading and directing, coordinating and monitoring, require information to perform those tasks effectively. In this regard, the main source of information is management accounting. The question now is “how does management accounting support management by providing information?” The results of this study showed that management, for example, prepares a plan for the next period which is called the budget. Therefore, the budget can relate employees to the desired goals and determine the direction of management and employees at all levels.

In assisting management control system in the airport sector, for example, management accounting system provides management with information on ticket sales and aircraft flight capacity; or in the housing and urban planning sector, the re-engineering techniques, costing, etc. help to control the quality of construction and also determine the flow of resources through providing information for management, and in this way, it prevents corruption and mismanagement; or in the education sector, the management control system is informed about the effectiveness of training and its quality through receiving information on the implementation of educational projects and receiving feedback, to take corrective action, if necessary.

8. Conceptual model of the role of management accounting in improving management control system

According to research findings, the conceptual model of the research in the form of Strauss and Corbin’s (1998) paradigm model was extracted from the grounded theory as follows, as shown in Figure (3).

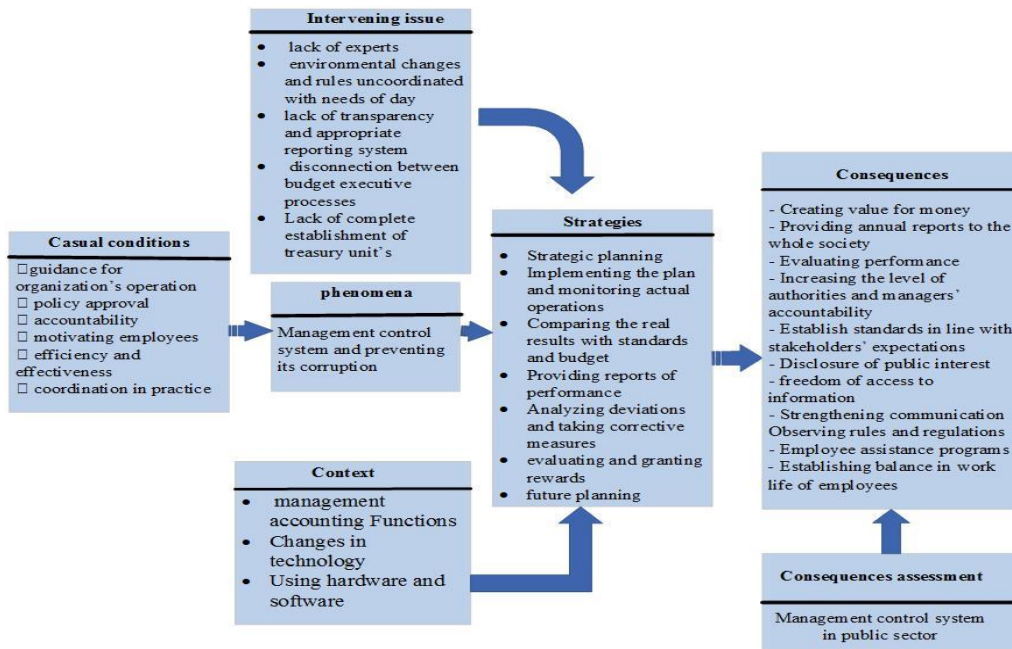


Figure (3) Model of the management control system in the public sector

Conclusion

The achievement of the present study is to provide a strong management control system in the public sector. As previously stated, the management control system can exist in processes such as planning, formulating strategies, implementing, comparing actual operations with standards and budgets, evaluating performance, and monitoring the proper implementation of each step. At the national level and in the public sector, if a management control system is effective and efficient, it can help control the flow of resources, uses all resources obtained and natural and mineral resources as capital costs instead of spending all of them; and in this way, it is even possible to observe interim rights. On the other hand, determining the flow of resources between activities and processes and evaluating outputs and results according to the resources used will lead to the use of the allocated resources at their own place for the purposes for which these resources are available to the project's implementers, and costs will not exceed their approved credits. Or, for example, in holding tenders and signing contracts, the final costs of projects are calculated, and thus the contract value will be fair, on the other hand, the proper implementation of projects is monitored through quality control. Even in the case of outsourcing the public projects to the private sector or foreign contractors, valuable

decisions can be made through evaluating the final cost of projects on outsourcing or implementing projects within the country and by the public or private sector. The management control system will help create value for money through creating economic efficiency and effectiveness. Moreover, a management control system, if it is properly designed and implemented, increases the level of accountability and thus legitimacy in society.

Declaration of Conflicting Interests

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