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Exploring Integrated Management Systems – Challenges and Potentials in Relation to IT Governance

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Abstract: The purpose of this paper is to explore the notion of an integrated management system (IMS) supported by IT and the relation between IMS and IT governance (ITG). This paper presents the initial results from a case study of an IMS at a large government agency in Sweden. It serves as an initial exploration of the first case in my PhD thesis on ITG intended to explore the integration of ITG in to other management systems. The initial results indicate three main perspectives that are important in the design of a performing IMS; [1] Setting the scope of the IMS in regards to detail level, range and origin of information, [2] having coherent control mechanisms in play that align with the integration strategy and the overall business objectives, and [3] making use of the potential IT has to offer in regards to sorting and presenting information.

Keywords: Integrated management system, IT governance, Management control systems

1 Introduction

To ensure that specific business objectives are met many organizations apply standardized frameworks for management or governance operations in areas such as Quality management, Environmental management, Occupational Safety & Health management, Information Security management, or IT governance (ITG). These are often referred to as Management systems (MS) (1).

The International Organization for Standardization (ISO) defines a management system as the systematic description of the *"set of procedures an organization needs to follow in order to meet its objectives"* (1). As is evident by the widespread topics of the standards mentioned above and the definition, management systems can be identified on several levels in the organization, relating to various functions such as finance, HR, IT etc. The collected documentation of operations inside an organization could be described as several connected management systems or an integrated management system (IMS) (2,3). Simon, Karapetrovic and Casadesus show that the majority of organizations who are using more than one MS seek to integrate them into a single system (4).

Management system frameworks focus on principles that are to provide guidance on how an organization could perform that specific operation effectively in order to achieve its business objectives. The frameworks often provide descriptions of

processes or structures with a high level of abstraction in order to be applicable to any and all organizations. In order to gain the desired effects organizations seeking to implement frameworks such as these, need to adapt them to the local setting. Research show many positive effects of implementing MS such as improved profitability, customer satisfaction and product quality etc. (5,6).

Yet, empirical evidence suggest that effect of implementing such frameworks do not always correspond to the intention when implementing them (7) and that the effects are difficult to measure (8). Why does this happen? Abernethy and Brownell conclude that organizations rely on combinations of control mechanisms, but that there is little knowledge on how they rely on or affect one another (9). Drawing on this conclusion Malmi and Brown call for research that connects the dots within the area of management control systems (MCS) by researching a variety of control mechanisms as a whole (8) stating: *"the challenge is to understand how all the systems in an MCS package operate as an inter-related whole"*(p.288).

Building on this argument about management control systems I ague that from an IS research point of view it is important to develop more knowledge on MS in general in order to understand and explore models and approaches for IT governance – the structures, processes and relational mechanisms that ensure that the IT investments in an organization ensure business value (10). IT is often used as a carrier to make MSs available and accessible within organizations, but IT can also be seen as one of the phenomenon's that should be governed by an IMS. As such, an ITG model can be viewed as a part of an IMS in an organization.

This paper presents the initial results from an exploratory case study regarding IMS at a large Swedish government agency seeking to deepen their understanding of a MS that supports their dynamic and diverse organization. Government agencies – as public organizations – have a multi-faceted governance model including policies from government and a heterogeneous set of citizens with needs and demands (11). As a government agency they present an interesting case to examine from a general governance system point of view. This case will represent one part of my PhD thesis on IT governance and as such it strives to provide insight into considerations for design of MS in general and the relationship between ITG and an IMS.

The main objective of this paper is *to empirically identify challenges in designing a performing IMS[1] supported by IT in a large public organization*. As a broader sub-objective the paper also strives *to conceptually widen the view of ITG by exploring the relation between an IMS and the ITG of the organization*.

The paper is structured as follows. First, the paper provides a brief theoretical framing of the research followed by a description of the research approach. Further, it presents the initial results from a case study of the MS at a large Swedish governmental agency. This is followed by a discussion of the findings and concluding remarks.

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[1] A performing IMS refers to an IMS that is used actively in the operations of the organizations.

2   Theoretical Background

This section of the paper introduces the concepts of management systems (MS), Management Control Systems (MCS) and IT governance (ITG) and concludes by covering theories on the integration of different management systems.

2.1 Management systems and Management control systems

As stated in the introduction of this paper a MS can be defined as a *"set of procedures an organization needs to follow in order to meet its objectives"* (1). In an elaboration of this perspective a system can be referred to as a collection of processes that share the same resources and are directed to reach a set of objectives (12). Depending on the size and type of organization this may or may not be described in detail or may exist partially or fully in the heads of the employees and managers of that organization. In larger organizations this tends to be more formalized (1).

Malmi and Brown (8) define a management control system as an intentional collection of *"devices and systems that managers use to ensure that the behaviours and decisions of their employees are consistent with the organisation's objectives and strategies"* (p.291). According to this definition most organizations have multiple management control systems (8).

To elaborate on the definition Malmi and Brown (8) created a typology for management control systems from a systematic literature review. They categorize MCS into five main typologies; [1] Cultural controls which consist of the social controls and norms that influence employee behavior. [2] Administrative control systems that direct employees through accountability, policies and procedures. [3] Planning controls that influence behavior by setting objectives for different functional areas and aligning them. [4] Rewards and compensation consisting of rewards to control direction of behavior and intensity of the effort. [5] Cybernetic controls that quantify and measure performance and provide a feedback loop to employees (p.292).

2.2 IT Governance

ITG, sometimes referred to as enterprise governance of IT is defined by De Haes and Van Grembergen (10) as *"processes, structures and relational mechanisms that enable both business and IT people to execute their responsibilities in support of business/IT alignment and the creation of business value from IT enabled business investments."* (p.14). This definition is widely adopted in the field, building on the work of Weill and Ross (13). It elaborates on some of the earlier definitions treating ITG as accountability frameworks that determine who is accountable or responsible for what IT decision (14).

Processes could for example refer to the process for deciding on IT investments or changes in the IT environment, it also involves monitoring procedures such as IT balances scorecards. Structures are generally decision making structures designed to connect business and IT for IT related decision-making such as involving the IT manager in a strategic steering committee. Relational mechanisms are intended to

further the active cooperation between business and IT in decision-making. This could for example entail cross functional training for managers (15). The organizations of ITG structure evolves dependent on a variety of complex factors (14).

2.4 Integration of Management systems

Literature on the integration of management systems usually center around the integration of specific formalized MS standards such as Quality management (ISO 9001) and Environmental management (ISO 14001) (3,5).

Integration is motivated by the idea of a more simple management structure, a tight connection between different management operations and continual improvement of the organization as a whole (5,16). According to Bernardo et al. (5) there are four main aspects to consider when integrating MS; The [1] strategy for integration including deciding on what systems to integrate and in what order. The [2] Methodology for integration – models and tools to facilitate integration. Deciding on the [3] Level of detail with which to integrate different components. Finally the organization needs to consider how to integrate the [4] audit systems for each MS (p.262).

There are several approaches to the integration of MS (3,17). Two major ones are simply aligning the documentation of the different systems parallel to each other or integrating them in detail using a process of continuous adjustment and improvement so as to gain scale benefits.

Wilkinson and Dale (17) suggest that the scope and incompatibility of different MS could pose a challenge by resulting in a very large MS and confusion in the integration of terms and language between different standards. They also suggest that *"differences in the scope of the standards are likely to give rise to different sub-cultures which will hinder integration."* (p.284).

According to Gianni and Gotzamani (16) there are many other factors that could cause an IMS to fail either in its development stage or after implementation. Among others, top management commitment, integrated audits, human resources and training of staff are notable.

2.4 A need to integrate perspectives

The brief literature review on IMS, MCS and ITG show a lot of similarities even though they emphasize different perspectives. While MS emphasize normative description of standardized procedures, MSC focuses on controlling employee behavior through different mechanisms. The classical view on governance lean toward accountability, but modern frameworks of ITG seem to work more like a combination of MS and MCS with the focus on structures processes and relational mechanisms to align business and IT objectives.

These similarities indicate that an organization cannot simply focus on management systems standards or an ITG system as separate entities; they need to be

focused as a whole in order to provide the desired results without counteracting each other.

3   Method

This study was initiated in a dialogue with the organization where they feel that the effects of the current MS are nominal. They seek to develop a foundation for a future integrated management system that clearly has an effect on the performance of the organization.

To enable research that is focused on developing an understanding for the phenomenon in its context by combining practical and theoretical relevance an interpretative case study method has been used. The study has been approached in an iterative manner in regards to the data generation and data analysis. The data has been collected in three stages using sources typical to qualitative case studies; documents, interviews and a workshop (18). Initially we were provided access to *documentation* concerning the management of the organization and the MS in question.

Twelve *semi-structured interviews* (19) were conducted with representatives at the central level of the organization. The participants were selected together with the organization on the criteria that they are in some way affected by the IMS or involved in the development of the IMS. In this process we strived to get representatives from a variety of business areas. The interviews where all tape recorded and transcribed.

To validate the data collected in the early stages and deepen our understanding of different views on the IMS we arranged an *on-site workshop* with seven representatives from a variety of business areas. These were not the same representatives as the ones who participated in the interviews. An overview of the data collection is presented in table 1 below.

The theoretical foundation has been developed using a hermeneutic literature review process (20). Throughout this process of empirical data collection, literature has been consulted as a part of an iterative process of data collection and analysis where the researchers understanding of the research area is in focus (21). In this process different methods have been used to find relevant literature; database searches on key terms such as *integrated management systems, IT governance and Management control system,* consulting colleagues and snowballing.

The initial analysis of the data has been done using a thematic approach – categorizing views on the MS in question based on empirical findings. The analysis started as soon as the first data was gathered and different themes and ways of structuring the data have been emerging as new data has been added. This could be described as iterative analysis process where the themes have been developed as new interpretations of the MS where accessed. The themes used in this article represent the *as-is* state of the analysis after the workshop was conducted.

Table 1. Overview of empirical data collection

Activity	Participants	Date
Interview[2]	Manager Finance and Control	2015-01-23
Interview[2]	Manager Finance and Control	2015-01-30
Interview[3]	Manager Safety Management	2015-02-09
Interview[3]	Manager Performance Management	2015-02-09
Interview[3]	Manager Performance Management	2015-02-10
Interview[3]	Business Developer	2015-02-10
Interview[3]	Manager Controlling	2015-02-10
Interview[3]	Manager Information Management	2015-02-10
Interview[2]	Manager Communications	2015-02-16
Interview[2]	Manager Operations	2015-02-17
Interview[2]	External Consultant IT	2015-02-17
Interview[2]	Manager Communications	2015-02-17
Workshop[3]	Seven representatives from a variety of business areas; Communication (Two), Finance and Control (Four) Project management (One)	2015-03-31

4 Results

This section first provides a brief description of the organization in question and the MS. It then proceeds to describe the result of the initial analysis of the MS by the use of different dimensions and challenges identified in the empirical data.

The case organization has over 5000 employees and a yearly budget over 5.5 Billion EUR (2014) spread out over several operational areas and key functions. Management is spread out over one head office and several regional offices. At the top of the organization there is a board and a Director General supported by an internal auditing function.

Four major business areas (Planning, Operations, Investments and Projects) are overlooked by seven central functions; Finance and Control, Procurement, Strategic Development, Legal, HR, IT, and Communication. A fifth business area consists of several separate organizations that are run separately.

The organization is process oriented, where processes run across several major and minor business areas. The responsibility for describing and developing processes and minor business areas is ascribed to functional managers located in different organizational areas. The functional manager is ultimately responsible for the deliveries, internal and external, made inside/from a process. A manager within the organization can hold multiple functional responsibilities.

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[2] Phone interview
[3] Conducted face-to-face, on site at the organization

As noted in the introduction of this paper the organization is a public agency existing to create value for citizens and society at large which makes for a breadth of different stakeholders. To a large degree the organization is governed by political policy and a large governmental auditing organization.

4.2 Development of the management system

The current MS was agreed upon when the organization was formed as a result of the restructuring of several other government agencies.

The organizations that were combined abided by different rules and regulations and had their separate MS. This meant that the new MS needed to conform to a complex set of regulations. Both systems were document centered and as such that is a main part of the current system. A manager estimated that there are approximately 4000 established governing documents describing policy; processes, guidelines, instructions etc. that span all business areas. The documents are stored with meta-data on an IT platform accessible through the organizations internal web where users are able to move between documents by searching or navigating the menus by business area.

The manager for the central function Finance and control also has the functional responsibility for the core process for Management and control which contains the delivery of the MS to the entire organization. This mainly involves creating the structure of the MS. Other functional managers are then tasked with developing information for the processes under their authority and making this available to employees through the internal web using internal websites and documents. The participants at the workshop noted that the current user interface and notation for describing the organizational processes in the MS is not uniform.

The MS specifies control mechanisms that should be used throughout the agency where the primary focus should be on management by objectives and results. Secondary focus should be financial control and control by values. According to managers in the organization the reality is that finance and regulations are the primary controllers and that the objectives, results and values are left in the background.

Since the creation of the agency the main structure of the MS has stayed mostly the same. However, in recent years the several portals has emerged as separate IT systems used as MS for specific business areas. For example a portal for management of investments and one for projects. When this was brought up for discussion in the interviews and at the workshop it was attributed to the fact that these areas felt that the central function responsible for the MS could not live up to their demands. This dissatisfaction led them to order the system they needed from the central IT unit.

The vision for the MS is that one IMS should exist to encompass all of the organization. However there is disagreement on what integration means and what the system should contain in detail. During the interviews several opinions were voiced:

4.3 Views on the Management system(s)

On the organizations internal web under the topic *"About the management system including the integrated management control system"* one is presented with the official description stating that the MS consists of the approaches chosen by the management to reach the organizational objectives, *"including everything from vision, values, responsibilities and attitudes"*.

According to the interview data, where we asked respondents the question; *what is a management system and what is its purpose?* the dominant view is that a MS should support employees at all levels of the organization and help them in their daily tasks. Because of government regulation parts of the MS also needs to encompass the work performed by external entrepreneurs.

The organization does not conform to ISO standards for certification. The general opinion is that this is a wise decision in order to save resources. Instead the focus is to abide by the regulation set by the governmental auditing organization.

When presented with the task of describing the ideal MS a manager stated: *"Something that is there to guide me when I need or whish, and in that instance only presents me with the information that I need at that particular moment"*. Other notions raised on the same topic show that there is a general disbelief in achieving the ideal MS.

Table 2 (below) describes dimensions of the MS where the data suggests that there is some form of consensus or conforming views.

Table 2 Conforming views on the management system

Dimension	View
Purpose	Support employees in day to day activities
	Enable control and audit
	Continuity in case of staff rotation
	Security for employees
	Abide to regulations
	Communicate vision and objectives
	Describe the organization as a whole
	Uniform work practices
	Enable leadership and management
	Keep employees up to date on important events
Content	Organizational objectives
	Organizational structure
	Processes
	Detailed descriptions of methods used within all business areas and processes
	Clear descriptions of all internal and external deliveries
	News and updates on organizational performance
Stakeholders	Management
	Employees
	Communication

	HR
Carriers	IT
	Top management
	Managers
	Employees

The purpose regards why the MS exists in the organization. Content of the system should center on the description of the organization, its objectives and the methods for how to achieve them. Another view is that the content of the MS should inform staff on the status of the organization and the world around it. Stakeholders are described as virtually everyone in the organization, but with specific focus on managerial functions, communication and HR. In regards to the carriers of the information system the general picture describes IT as the main carrier, but stresses the importance of support from top management.

Though there are a lot of conforming thoughts regarding the MS there are still certain dimensions where multiple views exist. These are introduced in table 3 below.

Table 3 Dividing views on the management system

Dimension	View 1	View 2
Focus	Describing parts	Describing a whole
Integration	None	Full
Detail	Detailed	Abstract
Origin	Centralized	Decentralized
Authority	Recommended	Forced

The focus of the MS seems to be in question when it comes to deciding what to focus on in the content. Should the content be focused on describing the whole, the different smaller parts or both? This relates to the dimension of integration. There is still discussion on what integration really means. It is not clear what should be integrated or if one should focus on managing the parts of the organization separately when it comes to describing the detailed work methodology. Relating to this is the question of the level of detail in the system where some managers argue that the organization strive to incorporate too much detailed information in the MS and that it should focus on the shared management processes instead of detailed description of work methods for employees. Where the system should be created and filled with information is also a question on the agenda. Is it the *"responsibility of central management"* or should managers and employees to fill the system with information *"at the point of delivery"*? There is also debate on whether all the content of the MS should be forcing or recommending.

Worth noting is that these dimensions are sometimes describes as dichotomies where there are actually more detailed scales where one can exist somewhere in between with an emphasis on either side.

4.3 Challenges related to the integrated management system in the organization

Some of the main challenges found in the case relate to the dividing views described above and reaching a consensus in the process of integrating MS.

Another challenge mentioned is how to ensure that the procedures described in the system are being followed. At the moment there are no clear incentives to abide by the MS. This relies upon the good will of employees and managers in their *"will to do a good job"*. There are some difficulties in determining if the policies are actually followed or not. One of the interview subjects was critical to the function of the MS, stating that there is too much focus on describing all routines in detail when *"documented routines are different from the way we actually do things"*. It is also mentioned that conflicts exist between what is stated in the MS and what is communicated by the top management. An example of this is the control system that should focus on objectives but in reality puts an emphasis on financial control.

Communicating the content of the MS internally and externally is also a big challenge. Because of the shear amount of information currently in the system, employees and management find it difficult sorting the information and finding the correct documents. The current system is described as a document centered approach with a lack of options for customization according to roles and tasks.

Another challenge mentioned previously is getting a uniform way of describing content in the MS. At the moment it is up to each of the functionally responsible managers to create content.

5   Discussion and Conclusion

Comparing the body of literature addressed in this paper with the empirically gathered data the initial analysis show that the conception of an MS as described in the organization is wider than the theoretical definitions. The empirical definition seeks to encompass all internal and some external operations in the organization. Both on a level of normative descriptions of tasks and on the control level, more like the scope of an MCS but with adjustments to fit the domain – a custom IMS. This could partially be an effect of the move away from standard certification and the creation of their own domains adjusted to fit the organization. Removing an externally defined boundary opens up for a broader interpretation and more space to act. The organizations history also seems to play an important role in the formation of the management system where the scope of the IMS has been affected by the diverse nature of operations.

Even though we have moved beyond the boundaries of ISO-standards as MS there are still several similarities in regards to the main objective of this paper - *To empirically identify challenges in designing a performing IMS supported by IT in a large public organization*. When analyzing the challenges described in the empirical data we can conclude that some of them are echoed in the literature on MS, MCS, and IMS. First, there exists a challenge in defining the boundaries of the MS as mentioned as a key aspect by Bernardo et al. (5). Second, because of this wide scope, there is a challenge in articulating what information should be formalized? Who should

formalize it? And in what manner should it be presented to the organization. Third there have been indications that top management are in disagreement concerning the way to control the organization. Fourth, control mechanisms in play in the organization is dominated by financial appropriations where the resources needed to centrally develop a management system that is good enough for the entire organizations are not to be found at the central level. Excess finances in different business areas had enabled the creation of separate portals with structures to support the IMS.

Challenges specifically related to IT seem to focus a lot on the user interaction and the functionality for acquiring the correct data in the time of need. The current system is document based, almost all the data is stored in word documents downloaded through the document platform accessed through the internal web. The amount of information in the IMS is not easy to survey in the current format.

As for the second objective of the paper – *to widen the view of ITG by exploring the relation between an IMS and the ITG of the organization.* The findings indicate that since IT is an integral part of the service delivery in several key functions of the business the status of the ITG has an effect on business performance. As indicated in the case the lack of alignment between the objectives in the IT organization and the objectives set for the integrated management system created a situation where the management system evolved in unintended ways. To conclude, the shortcomings in ITG could transfer or create issues in the IMS as a whole.

These initial results indicate three main perspectives that are important in the design of an performing IMS; [1] Setting the scope of the IMS in regards to detail level, range and origin of information, [2] having coherent control mechanisms in play that align with the integration strategy and the overall business objectives, and [3] making use of the potential IT has to offer in regards to sorting and presenting information.

The results of this study should be considered in the light of its limitations. The analysis of the material in not complete and conclusions are tentative. Despite of these limitations the results could be interesting to managers seeking to implement customized IMS in their organization. The case so far has also provided a concrete example of ITG maturity or business IT alignment and its effect on management operations worth exploring further, in more detail. One should also take into account that this is a single case which might not reflect general practice.

Based on the results of this case study I feel that theory on institutional carriers (22) and structuration theory (23) could provide valuable assets in analyzing the data further. To deepen the understanding of this case in particular and conditions that affects the actual *performance* of management and governance systems in general the study of this phenomenon from other perspectives than management would be particularly useful.

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