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Public Sector Change: Understanding Vertical and Horizontal Integration

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Abstract:
A significant reason that public sector change management and business modernization efforts fail within public sector organizations is a lack of understanding and acceptance of vertical and horizontal change management concepts. The research points out that if project management teams were to receive extensive education and training on these concepts before project "kick-off", the chance of a successful implementation may be significantly increased.

Keywords: *change management, horizontal integration, vertical integration, ERP, intra-organizational process, inter-organizational process*

1. Introduction

Enterprises exist to provide goods and services to a customer base. Whether in the private or public sectors, enterprises are composed of management hierarchies, as well as processes and technologies that serve the common purpose of developing, sustaining, and adding value to a customer.

Within this context, enterprises must strive to develop efficiencies within their Intra- and Inter- organizational business activities [Sommer, 1998]:

- Intra-organizational business activities are primarily focused on business processes that effectively support the unfettered flow of goods and information across internal organizational silos (or stovepipes). Hence, there is a great deal of emphasis placed on optimizing locally controlled business processes.
- Inter-organizational business activities are more complex, since this model requires the enterprise to extend its internal processes beyond its traditional organizational boundaries to include other claimants. This model is often termed as an "Extended Enterprise" because it attempts to leverage integrated internal (Intra-organizational) efficiencies into a value chain that includes external suppliers and customers. This model would allow customer and suppliers to take advantage of the efficiencies created within the host organization to achieve an aggregate competitive advantage. The extended enterprise is a model that expands the basic enterprise to include customers, suppliers, partners, and other corporate claimants. By definition, it also extends the traditional enterprise model to include new business models such as e-Commerce, Supply Chain Integration and Management, and Customer Relationship Management [Gulledge and Sommer, 1998].

2. Research Methodology

The motivation for this research was to gauge the use of vertical and horizontal integration concepts in the successful implementation of public sector change management efforts. The information presented in this paper has been gathered through personal interviews with four senior public sector project managers, and three high-level change management implementation consultants who were all involved in one or more U.S. Department of Defense (DoD) change management projects.

As part of the protocol, the seven participants were initially asked to provide an overview of their projects, and then discuss and expound on the following question.

- "How important was the understanding of vertical and horizontal integration concepts in the successful management of large scale public sector change management initiatives?"

The resultant information was used to identify potential management barriers to successful project performance now that some years have passed since many of these initiatives were concluded.

3. Understanding Vertical and Horizontal Integration

Simply stated, the interviews conducted for this paper showed that the most significant problem that continually plagued public sector change management programs was a general lack of understanding with respect to *vertical* and *horizontal* business integration strategies. This fundamental flaw would manifest itself repeatedly in misunderstandings between contractor implementation teams, senior DoD project leadership, and third-party consultants[1]. Therefore, these two concepts merit an in-depth overview.

[1] GAO United States Government Accountability, (2005) 'DOD BUSINESS SYSTEMS MODERNIZATION - Navy ERP Adherence to Best Business Practices Critical to Avoid Past Failures' Office Report to Congressional Requesters, September 2005

3.1. Vertical Integration

The *Vertical Integration* concept addresses the alignment of traditional enterprise management activities. For clarity these activities have been organized around three traditional managerial roles which are defined as follows [Sommer, 2011]:

1. Strategic Planning: A high-level managerial view of organizational direction.
2. Business Process Alignment: How the organization performs its business functions.
3. Systems Deployment: The information technology infrastructure that is required to enable organizational business functions.

Truly innovative and competitive organizations have managed to vertically align these three business levels within an integrated organizational framework where managerial direction guides business processes and productivity (Figure 1). However, productivity can only be realized if the underlying information system infrastructure is closely aligned with business activities. This allows for productivity to be maintained and supported.

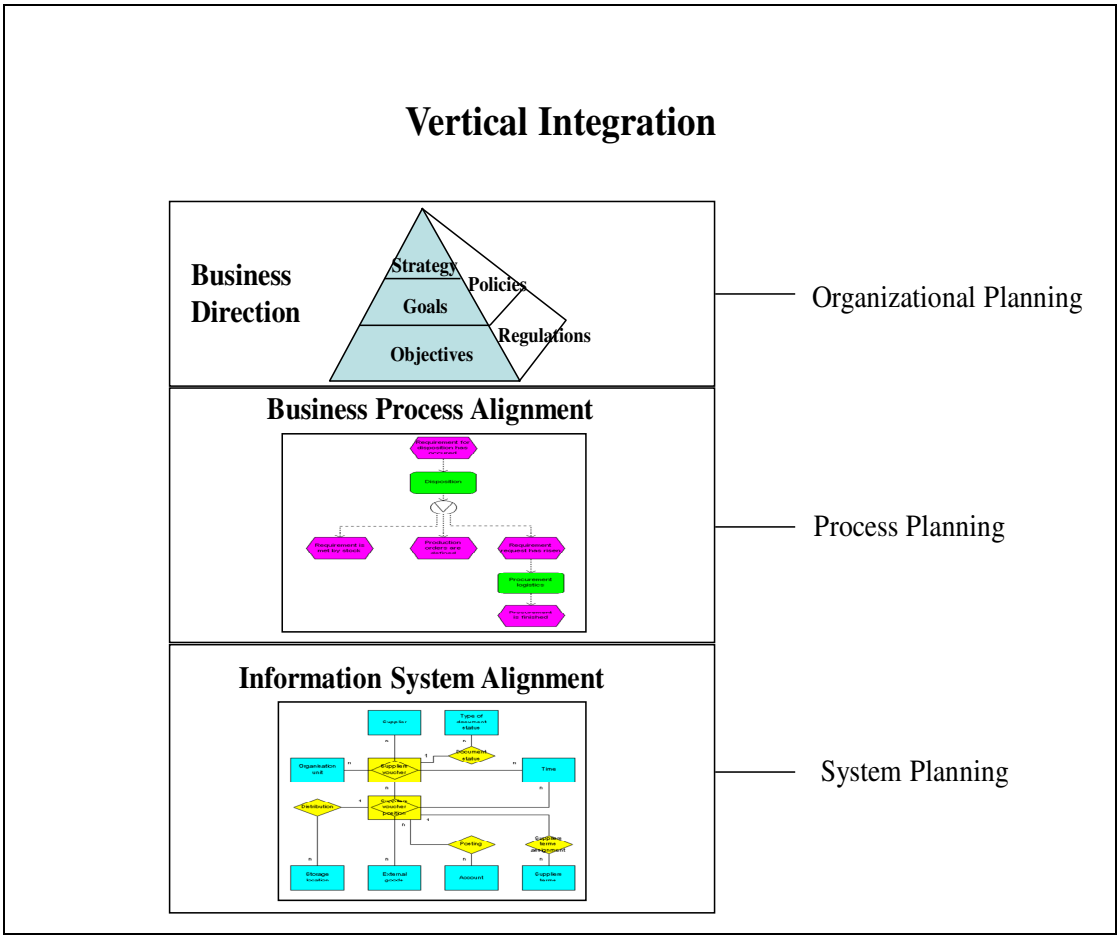

Figure 1: Vertical Integration

- Strategic Planning: Enterprises that are pursuing a change management initiative require that senior management activities be focused on intra-organizational business processes as opposed to stove-piped domains. Strategically, managers must manage by business process, and organizational information systems must be aligned with those business processes. Consequently, the primary function of senior management must be focused on current business activities and future courses of action. This planning responsibility occurs at the strategic layer. The structure of any effective management agreement varies a great deal among organizations, but in general, the agreement contains strategies, goals, specific objectives, and quantifiable performance measures.

If properly conceived, the strategic objectives will align with the organization's business processes; which are enabled by the technology. If this alignment does not occur, organizational processes will be executed, but they may not directly support the goals of the organization as a whole. Functions are embedded in cross-functional business processes, and the objectives in the strategic plan must be formally linked to functions. Experience has shown that most strategic plans wind up as "shelfware" (i.e., sitting on the bookshelf and unimplemented). When completed, they are rarely used to drive business process improvement, because operationalizing the plan is difficult, but absolutely necessary. Therefore, the proper alignment of strategic planning and business process execution cannot be separated from any change management effort.

In general, strategic planning is a management responsibility that is not supported by any change management methodology, but the two lower levels in figure 1 (business process and information system alignment) are rigorously supported in process and technology implementation solution methods.

- Business Process Alignment*:* Linking narrative strategic planning and policy elements to a formal process architecture is difficult. Hence, it is most often ignored. To achieve this linkage, elements of the plan must align with process functions. The direct linkage of objective measurements and policies to individual processes will help a great deal in focusing organizational resources and capabilities on developing and maintaining a competitive advantage.

The intent is quite simple. The alignment of planning narratives (as they exit within the written strategic plan) with executable process elements will provide the organization with the proper incentive to perform business operations in an orchestrated fashion to achieve its goals. In addition, the alignment of policies and regulations will ensure that the plans and processes are supported by an appropriate organizational governance structure (Figure 2).

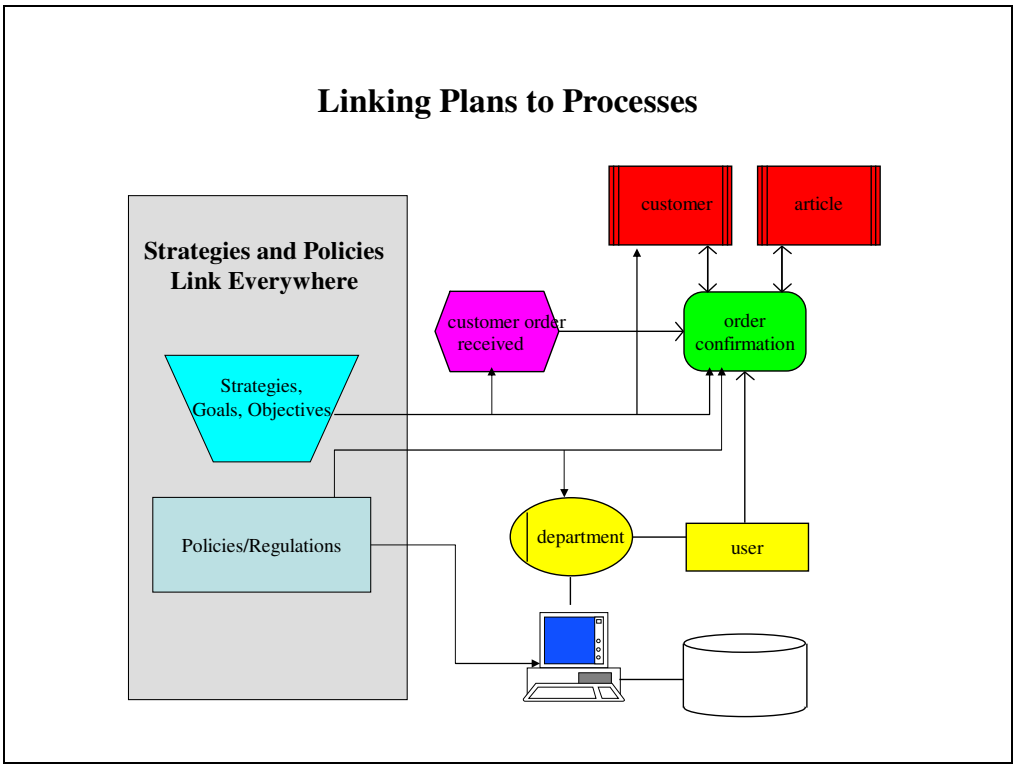

Figure 2: Linking Plans to Processes

The model in Figure 2 shows that processes are interconnected with strategic planning elements and policies at many levels. If there is significant misalignment within these elements, the business process may not meet expectations, and may in fact be counterproductive to organizational objectives and doctrine. This information is critical, because at this juncture, managers need to assess whether the organization needs to change policies, processes, and/or plans.

3.2. Horizontal Integration

Whereas vertical integration aligned planning activities with organizational processes and supporting information technologies; horizontal integration attempts to align business processes across organizational units. This alignment has significant implications for organizations with complex departmental structures. In short, horizontal integration enables cross-functional business process management practices that are necessary to mitigate the negative effects brought about by traditional "stove-piped[2]" organizations. However, cross-functional enterprise management is far more complex than just organizing activities around business processes.

The problem becomes apparent when looking at Figure 3. This example represents a common structure that exists in many organizations.

[2] Stove-pipes, or silos, represent highly departmental management structures that are extremely hierarchical in nature, and are characterized by overly introspective management priorities that are not conducive to the free flow of information across departments.

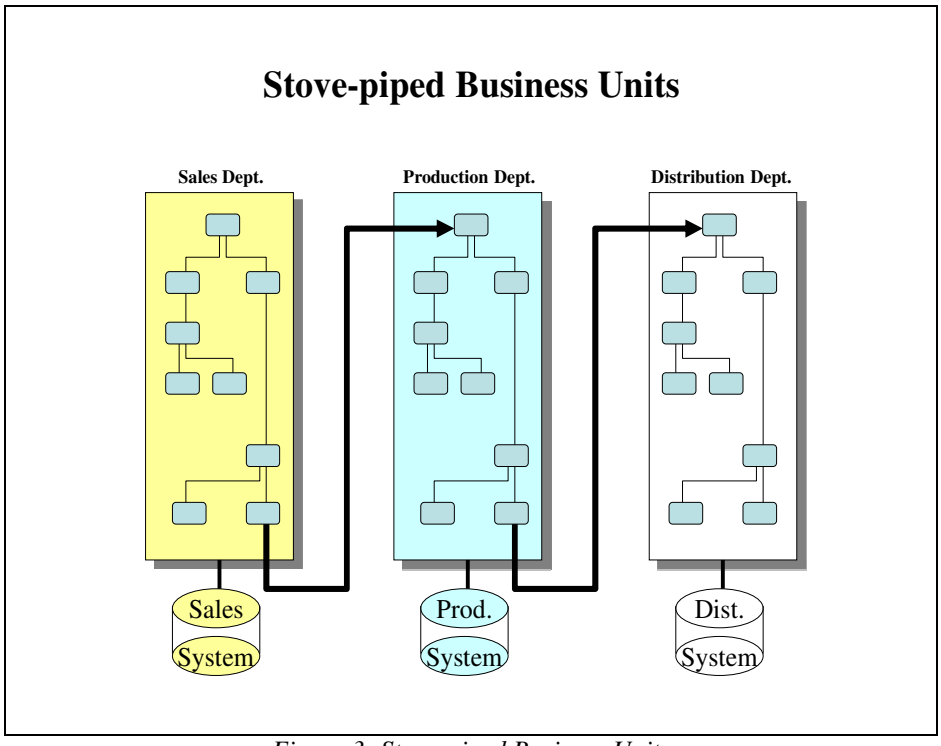

Figure 3: Stove-piped Business Units

The business activities depicted in the figure are quite often supported by stand-alone, non-integrated information systems. These information systems provide support to specific domains, such as "Sales", "Production" or "Distribution" management. The "Sales" system is neither integrated nor interoperable with the "Production" and "Distribution" systems. That is precisely the problem many consumers experience when they place an order with a retailer, only to find out after the financial transaction is complete that the "purchased" item is not in stock, or even still in production. Clearly in these situations the sales process is not integrated with the inventory process, and the supporting sales system is not capable of making a real-time stock check at the "point of sale". The efficient management of core processes requires that a single system support business processes that flow across the stovepipes. Otherwise business process management is impossible. Hence, a revision of the stove-piped business model is in order (Figure 4).

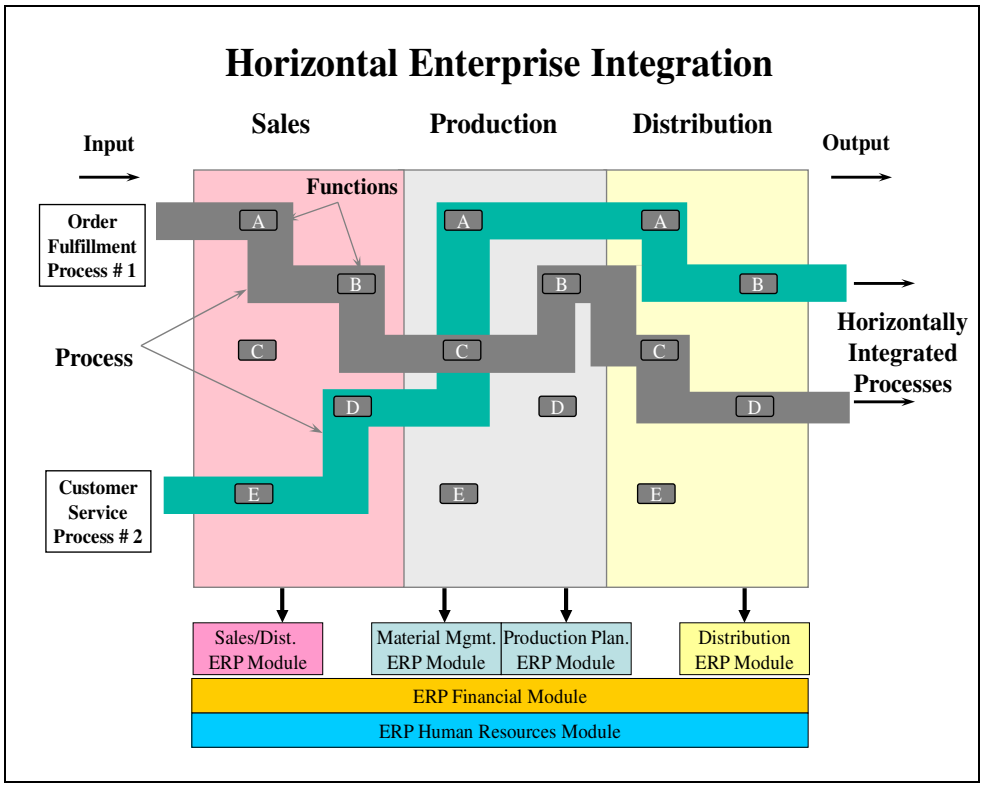

Figure 4: Horizontal Enterprise Integration

The figure depicts an organization where horizontal business processes flow across organizational boundaries. Modern Enterprise Resource Planning (ERP) solutions such as SAP, Peoplesoft, and Oracle Applications are designed to be implemented in such a horizontal fashion to provide a complete cross functional view to management. When seen from a customer oriented managerial perspective, ERP systems that support horizontal information flows are considered very effective, because they show great potential in providing complete visibility into all business functions that may have previously been isolated and managed in a stove-piped fashion [Kirchmer, 1999]. This concept presents a problem to traditional line managers. Since the new organization will be aligned cross-functionally in the ERP system, line authority will also often be transferred to a new process owner. This simple horizontal re-alignment has a profound impact on the functional authority within the "old" domains. Under this alignment, domain managers must now support the process owner. Hence their authority is moved from "line" status to "staff", and performance is measured on how well they support the process owner. This causes much conflict and uncertainty in traditional organizational hierarchies which have depended on autonomy and domain control to effectively compete with other domains.

Stove-piped units are the result of a competitive organizational culture. In the traditional business culture it is the individual business units that must compete for, and constantly justify the resources that they expend. To meet those demands, and in order to remain competitive against other units, functional managers will put in place many artificial barriers designed to limit interaction and information flow between the units. The barriers can take many forms, but in order to force compliance, they are mostly policy and regulatory in nature [Ryan, et-al, 2008]. ERP systems may be used to implement an organizational structure that breaks down these stovepipes.

4. Conclusion: The Challenge of Vertical and Horizontal Integration

Vertical and Horizontal integration concepts should be highlighted within a comprehensive and formal executive training program. In any case, the in-depth study of these issues should be required within the traditional education modules that are customary before the start of any change management project. Most all participants in this study agreed that during the initial planning phases of their projects, they and their subordinates did not completely understand the organizational, technical and cultural implications of effective change management. Nearly all projects that were researched for this paper never addressed vertical and horizontal integration concepts to any great extent. Therefore, project teams were at a severe disadvantage in their understanding of organizational change.

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