

Exploring Enterprise Architecture for Change Management

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Abstract

Managing change successfully is crucial for the sustainability of organizations especially in the present continuously evolving ebusiness environment. With ebusiness, it is implied that information and communications technologies is considered to be the primary strategic driver for organizational change today. Considering the fast rate at which innovation in business information technologies occur, and considering that these innovations impact strategic advantages to organizations, it is therefore expected that change is a state by which it is a continuous and integral part of the organizations' evolution. Consequently, this evolution requires the tending to the strategy, enterprise architecture, and business process impact chain management. The goal is the continuous transformation of the organization and its successful adaptability to the ever changing environment, driven today by information and communications technologies. In this article we explore, identify and propose the elements of an organizational change management model driven by enterprise architectural planning and management.

Keywords: Enterprise; Architecture; Business Process; Change Management

Introduction

The primary goal of any strategic planning is the transformation of an organization from its current state to a better one (see Figure 1). It is accepted that strategic planning in general, within any organizations is complex. Today the introduction of information technologies into the organization is a driver to business strategy within any strategic planning framework and makes the organization the more challenging to manage its transformation. It is with that in mind that we view the transformation of an organization from two inter-related perspectives: (a) the enterprise architecture, and (2) change management. Strategic planning is therefore a continuing process that is evolutionary and dependent on the organization's cultural ecosystem.

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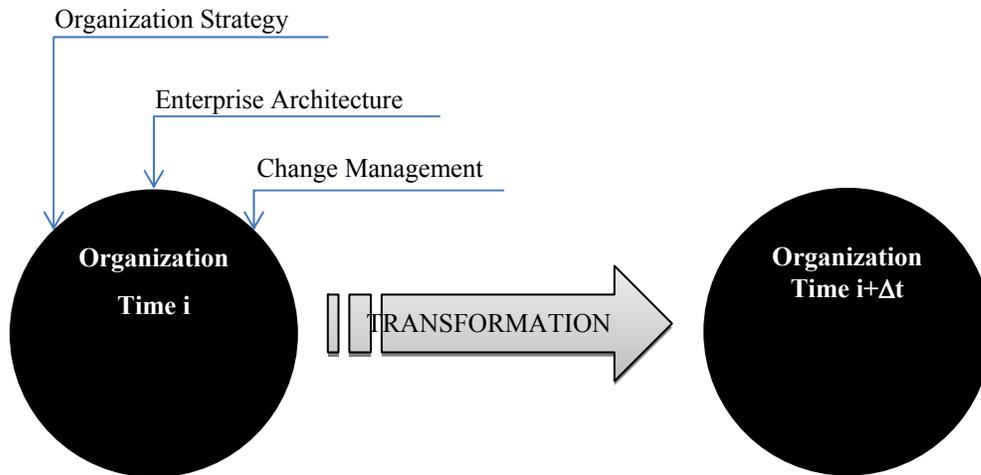


Figure 1. Organizational transformation.

IT Enterprise Strategy

Modern organizations find themselves confronted with ever changing economic, regulatory, and technical environments that they are forced to continuously adapt to (Ross et al., 2006). These environments can be internal or external, and occur simultaneously. Transforming the organization to continue its exploitation of opportunities is a complex task, aggravated by the intricate and highly accultured architecture of the overall organization (Buckl et al., 2010). The attempt to implement a new business process or an information system such as an enterprise resource planning system, in most cases most probably have unforeseen consequences and potentially detrimental impacts on the existing state of operations. The implementation and institutionalization of such business artifacts leading to the transformation of the organization can be differentiated into fundamental or incremental (Kurpjuet et al., 2009). Fundamental being the change of an organization from one state into another while incremental implies the optimization of the operations.

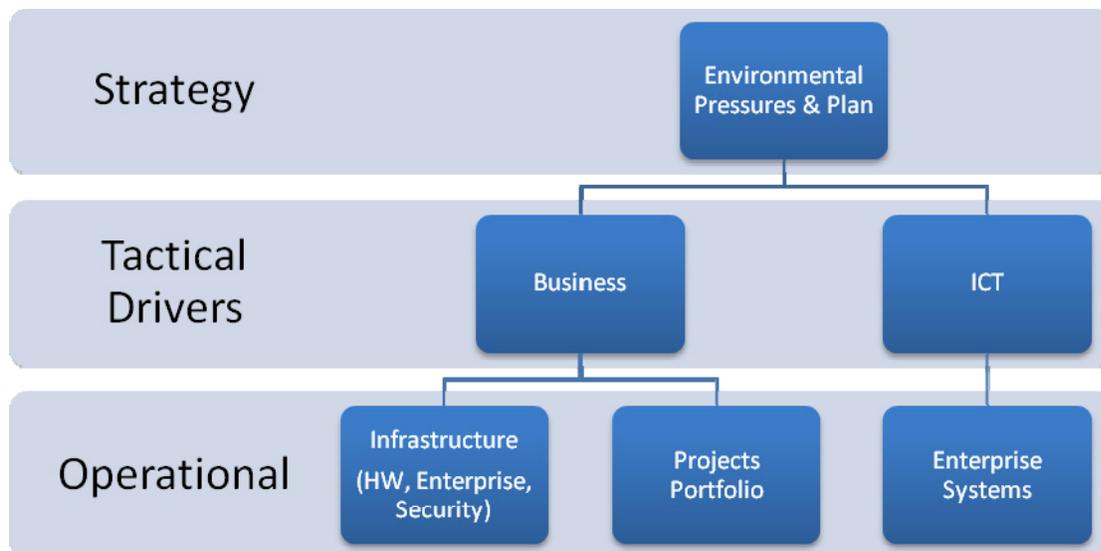


Figure 2. Conceptual view of an enterprise architecture.

Among the many efforts and initiatives that an organization undertakes to maintain a healthy business state is by investing in its enterprise architecture (EA) (a high level view of an EA is shown in Figure 2 above). The EA refers to the comprehensive description of all of the key elements and relationships that make up an organization (Kang et al., 2010). In fact, the EA can be viewed as the blueprint which systematizes the various constituencies of the organization ranging from business process, data architecture to information technologies. The EA enables members of the organization to:

- Understand detailed organizational structure, and
- How the various organizational components relate to each other.

Within the EA activity is the question of how to develop one for a specific organization. To that, ISO/IEC 42010 (IEEE Std 1471) proposes a formalization of architecture framework within the ontology of the standard. In the field of software engineering, the term architecture framework dates back to the 1970s. An enterprise architecture framework (EAF) is a prefabricated structure that you can use to organize your enterprise architecture into complementary views (Emery & Hilliard, 2009).

Enterprise information systems, contrary to software engineering, reflects the knowledge of the enterprise structure, strategies, plans, people, activities, processes, resources, business rules and others. The total representation of all organization's information is called the EA. To develop EA for a specific enterprise an EAF is necessary to facilitate communication and provide terminology for the meta-architecture. Various EAFs have been proposed by industry, government and research community such as Zachman Framework, ARIS, TOGAF, FEAF, C4ISR, DoDAF and many more (See Chen & Pooley, 2009 for details). Among them, the most popular is Zachman's framework (1987) (for details on the Zachman framework, see <http://www.zachmaninternational.com>).

Regardless of what framework is used to implement an EA, the management of that EA is necessary for the transformation to occur within the specific organizational context. A common method to support the transformation of the organization is the enterprise architecture management (EAM) approach whose primary goal is to sustain the strategic alignment between business and information technology (IT) (Henderson & Venkatraman, 1993). Effectively executing an EAM leads to the following organizational impacts:

- Cost reduction by increased standardization,
- More efficient project management due to increased responsiveness,
- Facilitate risk management by reducing organizational complexity,
- Enhanced strategic business outcomes via increased business process efficiencies, and
- Increased control on organization change management due to a wider view of the organization.

Change Management

It is difficult to argue that strategy, driven by a number of forces external and internal to the organization, can only be realized by EA related activities. These activities in turn necessitate the implementation of business process projects resulting in the evolution of the organization. The evolution of the organization in which ever form it takes, undergoes change. Subsequently, the successful management of this change is crucial to any organization in order to survive and succeed in the present highly competitive and continuously evolving business environment (Rune, 2005).

A critical review of organizational change management is given in Rune (2005), where the author provides a review of some of the main theories and approaches to organizational change management as an important first step towards constructing a new framework for managing change.

Change management is defined by Moran and Brightman (2001) as *'the process of continually renewing an organization's direction, structure, and capabilities to serve the ever-changing needs of external and internal customers'*. Change is not only present, but a necessary condition and exists at the strategic and operational levels (Burnes, 2011).

The environment at which the need for change is identified often is unpredictable. Consequently, the realization that change is needed tends to be primarily a reactive response to a situation of organization crisis triggered hierarchically top-down. Balogun and Hailey (2004), have reported that around 70% of all change programmes initiated failed. They suggested that this may mostly be due to the lack of a fundamental framework on how to implement organizational change.

The body of knowledge on approaches to change are incohesive, dispersed and superficial. Academics and practitioners disagree and contradict each other as explained and elaborated in Rune (2005). The reasons for this range from invalid and weak assumptions to the lack of implementation of change works due to the body of knowledge being mostly description and at the abstract level.

Proposed ICT Driven Change Model

It is accepted that the evaluation or even identification of direct causal links is very difficult. As mentioned earlier, that this is due to the fact the most change management initiatives, if not all, are complex, multi-faceted and dynamic such that the environmental conditions are continuously changing throughout the duration of the projects portfolio intended for creating and managing change. One way to address these uncertain conditions experienced in an organizational change development projects portfolio is by using the "Ripple Model" shown in figure 3 (Hailey & James, 2003).

In the "Ripple Model", capacity building or sustainability social development projects entailing one or more change management projects can be viewed as a drop of rain or pebble falling in water. This pebble or drop of rain introduces ripples that flow outwards with potential change across the different social levels (James, 2002, Hailey & James, 2003):

- Individual (beliefs, attitudes, behavior ...)
- Groups (functionality, respect, trust ...)
- Departments (planning, development, behavior, capacity ...)
- Areas/bureaus (decision making, policies, procedures, equality, ...)
- Organization (policies, programs, funding...)

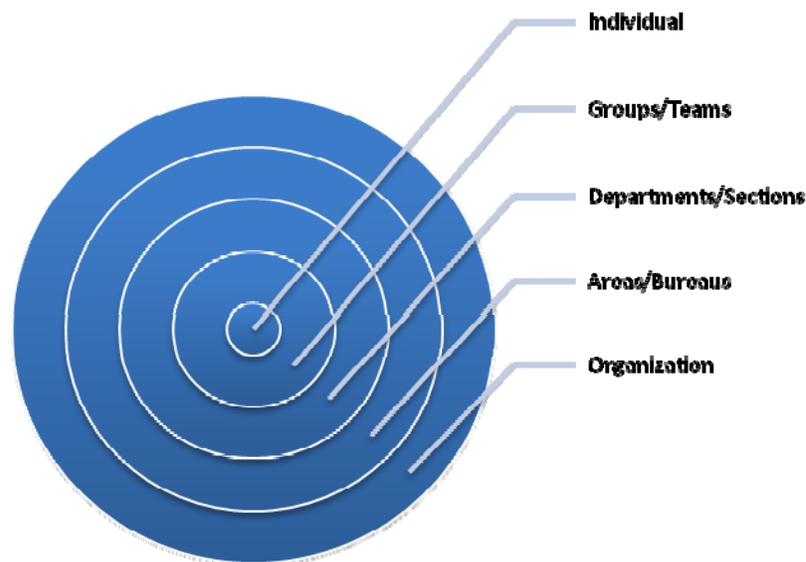


Figure 3: The ripple model for change management analysis.

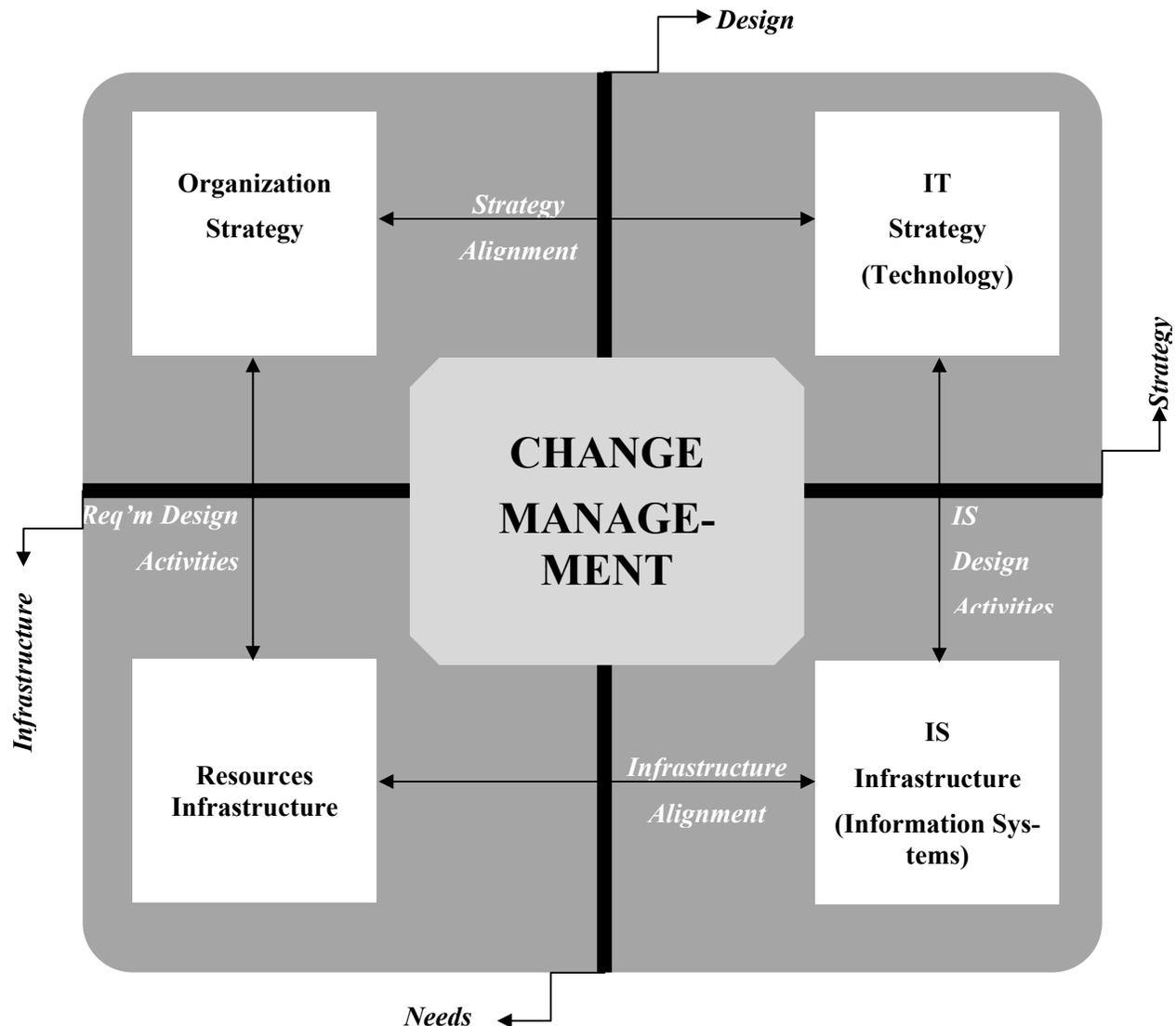
An aggregated view of a generic framework for change management driven by enterprise architecture can be created as shown in figure 6 below which presents the following:

1. **Ex-ante:** A snapshot of all activities along the timeline of a change management program identified by the projects portfolio. **This is an analysis of what-if scenarios:**
 - a. New strategy and goals
 - b. Desired organizational restructuring
 - c. Enterprise architecture
 - i. Planning
 - ii. Design
 - iii. Implementation
 - iv. Management
 - d. Adverse conditions / Risks and mitigation of risks
 - e. Expected organizational change
 - f. Influence on EA
2. **Projects-time configuration planning:** The timing configuration of implementing projects is planned.
 - a. Projects portfolio management strategy and policies
 - b. Resources management guidelines and structure
 - c. Adverse conditions and risk management
3. **Projects portfolio execution:** This is the actual execution of the family of projects:

Exploring Enterprise Architecture

- a. Analysis
 - b. Design
 - c. Implementation
 - d. Interpretation
 - e. Evaluation
 - i. Adverse conditions
 - ii. Challenges
 - iii. Barriers
 - iv. Feasibility
 - f. Based on e, go back to 2
4. **Change assessment:** Assess change based on the ripple model. Use triangulation approach:
- a. Quantitative
 - b. Qualitative
 - c. Observations
5. **Diffusion:** At this point planning for the diffusion of change elements should be created. A diffusion plan can include a number of activities such as communications, meetings, presentations, online support, etc. which are dependent on the context at which change and where change is desired to occur.
6. **Institutionalization:** This is the stage at which change needs to have a support mechanism whereby this support becomes less necessary over time. Once this trend is achieved then change would have been integrated into operations.

The framework identified above is a life cycle for change management. That life cycle is dependent on the organization's nature and business environment that it operates in. so the life cycle may be 3 years, or 10 years. This change management lifecycle entails a continuous alignment of critical organizational structural elements as shown in figure 4.



The latter figure demonstrates the continuous efforts to balance the most critical structural elements of an organization to ensure effectiveness of change (and transformation of the organization). At the business level where transformation (due to process change) of an organization is driven by the direct influence of the enterprise architecture, a business process model that is evolutionary and dependent on the organization's cultural ecosystem can be drawn.

The strategic EAM planning process should be setup by allowing various stakeholder groups of the ICT community to reflect on the organization's past, present and future and to explore and articulate in various forms potential opportunities for growth and much needed impact.

It is in the strategic plan that we interpret 'institutional drivers' as the business activities specific to the various stakeholder groups which are viewed to be necessary to deliver and meet the requirements set by the vision and mission of the organization. Considering the institutional drivers from a strategic perspective, we can view 'strategy' as either a 'goal oriented' or 'action oriented' approach. *Strategy as a 'goal oriented'* approach focuses on the dynamic environment of the organization and attempts to organize its responses to the changing environment based of pre-set high level goals that seek to optimize benefits for employees, clients and other stakeholders.

Strategy as 'action oriented' approach manages a set of actions revealing the organization's priorities by which when executed journey's it as a whole from the present state of health to higher fitness terrain, with a clear articulation of the destination allowing for the optimal allocation and management of scarce resources.

Conclusion: Success Factors for Change

Existing systems of change management (e.g. results based management, logical framework analysis, and impact assessments) should be utilized and modified to accommodate the change management ecosystem. Information beyond the traditional surveys and focus groups should be collected even if people are busy and reluctant to do any more reporting than they already have to. Otherwise, change management would be very difficult to assess and not sustainable due a primary factor which involves the attrition and frequent change of senior management responsible for the transformation of the organization. This is why support to information gathering is necessary and should use a triangulation method as proposed in this article. Once you have the information, it needs to be analyzed and fed back into the strategy of the organization for the next cycle of transformation. Moreover, lessons learned need to be fed back to those managing and carrying out the work, as well as to others who stand to benefit from the work. Communicating evaluation conclusions stimulates interest in further work; heartens those involved; impresses those being influenced; and forges new alliances. Other factors to keep under considerations are:

1. Different views on the meaning of success
2. Be content in a modest assessment of change
3. Include subjective criteria as well as anecdotal comments
4. Keep initiatives and projects component-based that can be aggregated to larger ones
5. Be practical, flexible and ready to compromise
6. Monitor changes in your strategy itself and the impact of these changes on the timing of your projects
7. Promote collaborative intervention so the success is shared by all and failure does not fall on one manager but can be measured
8. Share evaluation results with a wide range of people to show the disbelievers that the intervention can work; to motivate those who have been involved; to raise funds for a continuation of the work; and to create the space within the organization to mainstream the successful approaches etc. (Laney, 2003)

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Biographies



Dr. Raafat George Saade has been teaching in the faculty since 1998. He obtained his Ph.D. in 1995 (Concordia University) after which he received the Canadian National Research Council postdoctoral fellowship, which he completed at McGill University in Montreal. Dr. Saade has published in journals such as *Information & Management*, *Decision Sciences*, and *Expert Systems with Applications*. His research interests include the development and assessment of information systems, and the supply chain of digital information products.



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