

Continuous Improvement of Strategic Alignment Model

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Abstract. Good management information system (IS) is the key of success of good IT governance and this can only be achieved if all strategic goals of the company are respected. That's why, it will be necessary to ensure alignment with general objectives, to respond to the business model of the company and to define and anticipate the orientations of technical and economic choices.

In this context, strategic alignment is applied to two elements: Business strategy and IT strategy and allows them to be linked [1]. However academics are more interested about the part concerning the strategic alignment [2, 3] and neglect the ideal conditions of its operation and continuous improvement.

This works presents a model gathering between the concepts of strategic alignment presented by the Strategic alignment model (SAM) and principles of lean management presented by PDCA method.

Keywords: Information system · Strategic alignment model · Lean management · IT strategy · PDCA method

1 Introduction

The contribution of Information Systems department in organizations is no longer viewed just a support function but also a major asset taking part to a successful strategy and the financial bottom line when properly aligned.

Our aim was to provide a more concrete and reliable model as guidelines for transforming organizations into a competitive and lean environment, that's why improvements should be made with an awareness of the effect that these changes will have on other aspects of the organization.

In this context, strategic alignment ensures that the operating elements of the company all work in harmony and that will allow organization to use information technology efficiently to achieve its business objectives. And in order to optimize evaluate and sustain improvements to operational performance we suggested to integrate the PDCA cycle during the implementation of SAM

2 Lean IT and Transformation in Organizations

The application of Lean principles, includes continuous improvement of the system, requires profound changes in organizations.

To solve problems on the ground, organization should involve both operational and managerial staff, that's the first major change, however change is perceived in large organizations as something "top-down", Where little autonomy is left for the operational ones in the taking of initiative.

In IT organizations (Information Systems department), deploying a lean approach will also require involvement of multidisciplinary teams (from user demand to daily operation of the service), this is the only model able to solve problems in short cycles [4]. This type of organization is in breach with the specialized organization of work (collection of needs, specifications, development, integration, qualification, exploitation) which is standard in the management information systems.

2.1 The Sustainable Lean Iceberg Model

In order to go Lean and stay lean, organizations should continually understand the competitive marketplace in which it lives and the needs of its customers and what they value.

To remain focused on these needs organization must define its value streams, its processes and also its supply chain so as to detect its different failures and wasteful activities which could block any positive change in strategies and harm a perfect strategic alignment affecting all of its departments.

Next organization has to find ways of:

- setting the direction
- fixing targets
- Seeing whether or not change is actually occurring.
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It is gainful to consider the Lean process as an iceberg "Fig. 1,".The technology, tools and techniques that affect processes are those visible above the water. [5]

Nevertheless the most important part of the iceberg is under the surface and invisible. It is this part that makes the iceberg strong and heavy.

Managing all these elements of the iceberg is essential to ensure a successful, sustainable transformation. However, this constitutes only part of the lean maturity of which the team that will set up this lean must have it.

The dependency between all the components of the iceberg "above the water" and "below the water" forms a balance of this iceberg.

So effective strategy and alignment can only be implemented if there is good leadership, which in turn can only be successfully achieved in a positive organizational culture that accepts any form of learning and improvement.

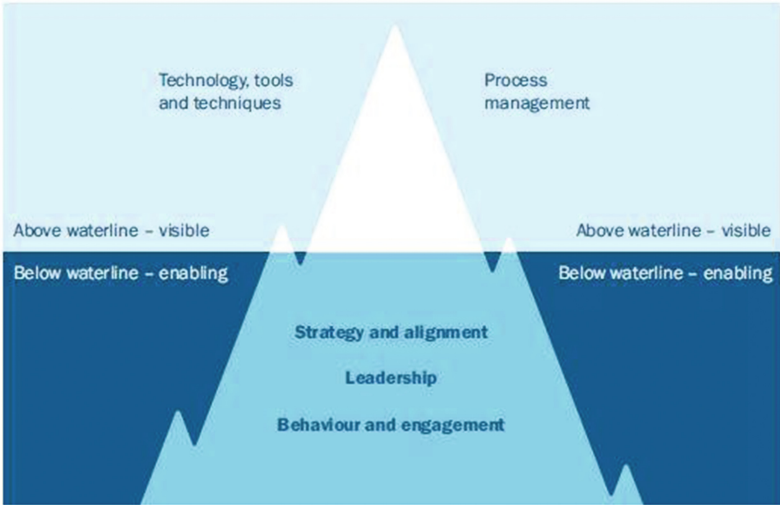


Fig. 1. The sustainable lean iceberg model

2.2 Lean Tools and Techniques

As we mentioned the technology, tools and techniques “Fig. 2,” that affect are those visible above the water and the fifth element of the sustainable Iceberg Lean [5].

Section	Lean tools and techniques
Strategy and alignment	Policy deployment / Hoshin Kanri A3 planning and storyboards Catchball PDCA Visual management
Leadership	Lean leadership
Behaviours and engagement	7 Lean skills Team cultures Lean coaches Continuous improvement
Process management	Big Picture mapping Four Fields mapping Pull systems Voice of the Customer insight tool

Fig. 2. Lean tools and techniques

Those tools must be guided by the needs of the client, the companies and the people within the organization, they should be pulled, not pushed.

These different techniques can be applied to each section of the Lean Iceberg. It will be necessary to begin by inspecting these Lean tools and techniques and then examining the role of the technology before deploying them in the environment that we are trying to make it Lean.

In order to realize that, it's primordial to start by analyzing each section of the organization separately according to the sections of Lean iceberg.

In general, a deployment is planned and coordinated according to the company's strategy. It begins locally on pilot sites before generalizing it.

A Lean deployment is an approach giving priority to its tools and methods, it's not necessarily uniform, some groups let their subsidiaries making choice of details but impose the reference framework and a toolbox to unify and gather new standards to which all the entities must comply with.

2.3 The PDCA Method

The PDCA (plan-do-check-act), sometimes seen as (plan-do-check-adjust) is a repetitive four-step approach for continuous improvement in business process management.

The PDCA model is also known as the Deming circle/cycle, or plan-do-study-act (PDSA).

This approach is implemented to test various solutions to a problem to identify the most effective solution before implementation.

PDCA was popularized by Dr. W. Edwards Deming, an American engineer, statistician and management consultant. It can be used by any department, from supply chain to finance to IT department.

3 Lean Concept and Alignment Approach

The lean concept is necessary for an efficient management of organization, which seeks to redesign its overall strategy and technological development strategy so that they become in perfect harmony [6].

This implies a coherence of the general strategy with the administrative infrastructure on the one hand and with the infrastructure of the applications on the other hand.

As we mentioned before in order to implement this alignment approach, lean management uses methods and techniques such as the PDCA method, which is the most important one and which is considered as a framework represented in a PDCA cycle (design, implement, monitor, review, and continually improve), This cycle came out of the quality and continuous improvement field it is also integrated into the monitoring and evaluation process. [7, 8] which are consolidated in lean thinking.

Thus the key principles of lean [9] relate to the PDSA cycle although possessing specific meaning to lean thinking, which means defining value and planning for the flow of value with as little waste as possible in order to achieve the perfect optimization.

The creation and integration of a process model is the final part of this conceptual model, This is achieved by aligning lean processes with business processes and this is

the key to the proper use of strategic alignment to the approaches of continuous improvement and Lean.

Anywise it is not surprising that the strategic alignment approach matches with lean management, since both had roots in the quality and continuous improvement systems.

3.1 Strategic Management Alignment

The word Strategic alignment “Fig. 3,” has been studied by different academics and practitioners that’s why several approaches were developed [10].

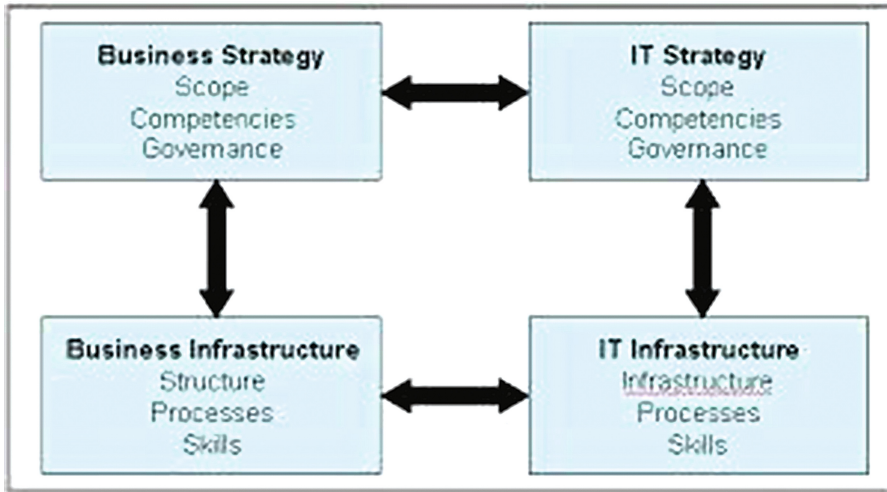


Fig. 3. Strategic alignment model, four domains of strategic choice

Among these approaches, Strategic Alignment Model (SAM) (Henderson and Venkatraman) [11] is the most popular and appreciated by academics.

The main features of this approach are:

1. To provide operational guidelines for achieving strategic alignment.
2. To distinguish the external perspective of information technology (IT strategy) from its internal development (IT infrastructure and process).

So, SAM changes the traditional role of IT from a support role of organization’s activities to a more strategic role, and that’s enables it to cover not only strategic alignment to its business plan, but also provides the tools which allow alignment extended to the environment.

3.2 Structure of Strategic Alignment Model

The SAM model is structured into three classes of different elements:

- Domains: Business and Information Technology (IT)

- Perspectives or Levels (which subdivide each domain): external strategy and internal structure.
- Components which structure and characterize each level:
 - Infrastructure, skills and knowledge, and processes for the internal level
 - Perimeter, skills and governance for the external level.

Thus, the Business domain is formed of two levels of strategic choices:

- Competitive strategy or Business Strategy, in the external level, concerning how to make decisions about the products and the position of the company in the market.
- Organizational structure and Processes in the internal domain.
- In the same way the IT domain is described by two levels.
- IT strategy, in the IT external level, concerning the technological perimeter, distinctive technological competencies and strategic technological alliances (technological governance).
- IT infrastructure and process which refers to the technical architecture of Information system design Processes, evolution, monitoring and also management of technological knowledge and skills.

3.3 Building Blocks of Strategic Alignment Model

The alignment of an Information system is conceptualized in the Strategic Alignment Model by two Building Blocks

- Strategic fit: between the external level and the internal level of the same domain.
- Functional integration: Between the external or internal levels of different domains (Business and IT in this case).

For functional integration, the SAM determinate two types of integration:

- A strategic integration: it takes place between the IT strategy and the competitive strategy in order to establish the IT potential at a strategic level. These opportunities are fundamental because IT is now seen as an important source of competitive advantage.
- Operational integration: it takes place between the internal aspects of the business and IT domains, that means between ‘organizational structure and business processes’ and ‘IT infrastructure and processes’.

4 PDCA Cycle Adapted to Strategic Alignment Model

The Strategic alignment model (SAM) has been widely exploited in research related to the strategic dimension of IT.

As part of our work we use Strategic alignment model (SAM) as a framework for analyzing IS (information system) alignment with Business, and in order to make it a viable model accepting continuous improvement we applied to it the PDCA approach.

The conceptual elements of the SAM are interesting because they provide:

- Components to structure and formalize the domains which must be aligned
- Building Blocks (strategic fit and functional integration) to build alignment prospects which must be verified.

Realizing a complete IT alignment in organization, leads to plan, implement, evaluate and adjust in order to eliminate discrepancies and respond in the best way to expectations and integrate many uses, as IS users are numerous and varied in terms of their skills, experience and relation with its Information System.

In addition, it is necessary to evaluate the different technological possibilities in order to choose the appropriate components for the development of the IS and configure the organization's system.

The structure of sectors and departments of organizations can be reproduced from the SAM by analogy of concepts. And since, the original SAM makes a distinction between the external and internal levels, we propose the same for any sector having an external level (strategy) and an internal configuration (infrastructure and process), in a similar way, each level of an organization should include three elements: scope, competencies and governance in the external level and infrastructure, skills and knowledge, and processes in the internal level.

To be sure that the components of this structure are adapted to the SAM model, We propose to integrate strategic fit and functional integration in a PDCA cycle and to repeat its 4 steps (Plan - Do - Check - Act) until the expected level is reached "Fig. 4,". Let's explain each step individually.

- Plan

The "plan" process establishes objectives, targets, controls, processes and procedures in the external part which will be deployed using strategic fit for the program to deliver results in accordance with an organization's overall business and IT strategy.

To make this strategy actionable, organization should in operational terms translate it into objectives and measureable targets in order to accomplish its mission and achieve its vision

- Do

The "do" process implements and operates the business continuity policy, controls and procedures. This includes a number of actions and internal functional integration in order to understand, strategize, plan, and test organization's infrastructure skills and knowledge, and processes, for business continuity events.

- Check

The "check" process monitors and reviews performance against established management system objectives and policies and reports the results to management for review. The program should be subject to internal review in internal level to measure program performance against pre-defined policies and objectives in external level.

- Act

The "act" process corrects the defects and make it comply to the specifications maintains and improves the program by taking preventive actions for all the root causes identified and implement the preventive actions and check whether the outcome is

as expected. This includes updating and maintaining the corrective and preventative actions list and a post-incident review process.

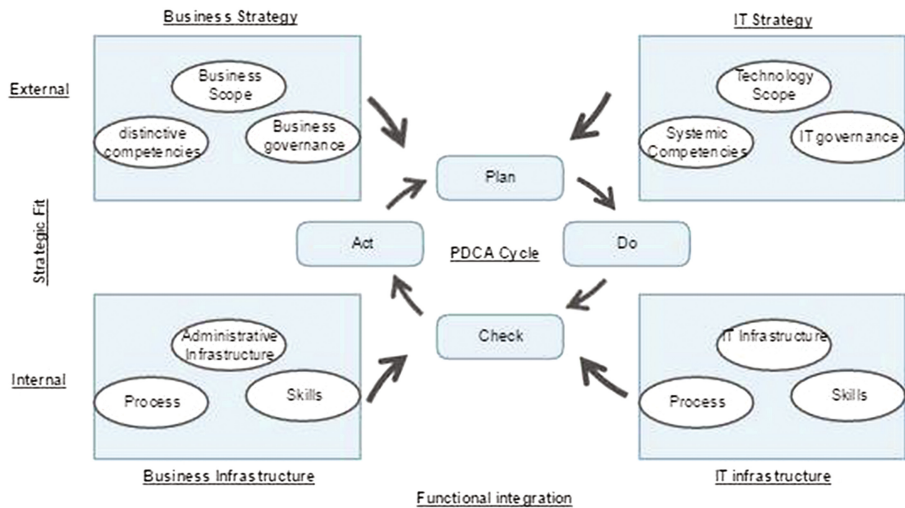


Fig. 4. PDCA cycle applied to SAM

5 Recommendations for Good Implementation of Our Model

So that our model can be well adopted by organizations we suggest a formula of recommendations and directives allowing the implementation of the reliable strategies in order to satisfy the operational requirements and meet the needs of the continuous growing business.

- Evaluate the maturity of the business continuity's management to understand the current maturity level of the plans of continuity and the way to reach the desired state
- Make of the continuity a pertinent easy and simple one to be understood by all the main actors of the organization constituting the executive committee of inter functional management.
- Evaluate the risk and analyze its impact on the business and plan a communication related to the intervention in case of problems
- Launch programs of testing, training and exercise in order to raise awareness of the organization's actors.
- Be sure that the objectives of corporate governance are realistic and that its steering committee can make available all the necessary resources allowing to reach them.

6 Conclusion

The objective of this work was to explore how lean management methods are supportive and applicable to Strategic alignment model. It determines also the effectiveness of strategy development, implementation, and subsequent competitive success. Also a strategic approach that is aligned with IT guarantees that an organization's employees, skills, and abilities contribute to the achievement of its business goals.

As we have shown that it is possible to integrate lean management and strategic alignment, It is also possible to integrate other methods of lean management like Value stream mapping which is a lean-management method for analyzing the current state and designing a future state for the series of events that take a product or service from its beginning through to the customer. At Toyota, it is known as "material and information flow mapping". [12] It can be applied to nearly any value chain.

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