Business and information technology alignment through business service orientation

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Abstract—The alignment issue between business and information technology is one of the most mind boggling problems enterprises encounter in achieving an agile and dynamic business it is so important that has a direct effect on the overall performance of an enterprise, in enterprises that there is an alignment, they have better business and are capable of presenting more suitable services with higher efficiency to customers. That’s why the alignment issue between business and information technology has been transformed in to one of the most important subjects facing organizations chief information officers. One of the mentioned solutions in this field is the discussion of enterprise business service orientation that creates a new concept called service oriented enterprises. Whereas in most services oriented enterprises, business structures begin work from information technology and convert these abilities into a service, information technology services are an important element of alignment.

In this article, a solution has been presented to create an alignment between business and information technology. New modeling services such as business and software service elements rather than business processes are being used so these elements are able to more accurately describe the operations of an enterprise business.

Key-Words—Service oriented Enterprise, Business and IT alignment, Service oriented business, Business componentization, Business services, Information technology services

1 INTRODUCTION

These days, companies are working in a dynamic environment from the business and information technology aspect. For the enterprises to become agile, they have to be able to have the necessary flexibility. One of the main attributes that a company with good efficiency could have is that it could expand the information technology services from its business strategies, goals and needs. On demand business by aligning business and information technology would probably provide swifter, more responsive and more beneficial companies. Today, flexibility is the most important and effective factor in enterprises for presenting high efficiency services to customers. In here flexibility means having the plasticity to comply with new needs of the market and achieving goals. In order for enterprises to increase their flexibility, first they have to look at their collective activities and then determine which one is pivotal and gains the need for a swift coordination with the business. Extraordinary alignment between business and information technology is a result of a service oriented structural approach that has made organizational formations take a special look at this approach for the execution of software projects.

From a business layer view, service oriented architecture creates a connection between business processes and information technology as with the process changes, technology could easily be coordinated. Swift business changes is another fundamental subject that has occupied the mind of information technology executives and the service oriented architecture as an information technology guideline and gains the need for a swift coordination with the business changes.[2]

2 ALIGNMENT BETWEEN BUSINESS AND INFORMATION TECHNOLOGY

One of the main traits that a company with good efficiency could have is expanding information technology in a way that would support the business strategies, goals and needs. Also, identifying, measuring, improving and aligning maintenance problems between business and information technology is gradually having more importance for the organizations chief information officers. By understanding the alignment advantages, organizations for having a dynamic business try to create a link between technology and business so they could have the ability to respond to the customers needs in a quicker, more effective way.

The lack and absence of alignment between business and information technology is one of the main reasons for organizations failure, this is why organization cannot have the necessary benefits from all their investments in the information technology field. [2]

In the proposed approach a model for creating an alignment between business and information technology is introduced through business service orientation, and plans to answer the below questions:

• How could you model all influential aspects of technology in business?
• How could make an alignment between business and technology such that the technology and business changes are coordinated too?
• How could align the goals of information technology and business and eliminates the distance between technology and business?
• How would business orientation alignment creation cause the market renovation, outsourcing and more satisfaction of customers?
• How does service orientation cause the prosperity of an outsourcing market?

3 CHALLENGES IN THE BUSINESS AND INFORMATION TECHNOLOGY ALIGNMENT

Different words that have been used in various articles instead of alignment are as follows: Balance, harmony, coordination, linkage, fusion, communication and relationship. Different words are illustrative of different views that exist in understanding the concept of alignment. There are still lots of unanswered questions that are as follows:
Is it possible to have a single definition for alignment?
Is alignment an outcome, or a process that ends in this outcome?
Is alignment a dynamic process or an event? Is an alignment an adjoined process in an organization that means a business aligned team and information technology should be formed in it and regularly study the alignment or vice versa, once alignment study between business and information technology has ended, the work is done.
Is there a possibility that we could generally measure the alignment level?
What are the most important topics that define or are included in alignment?

Notwithstanding that alignment is a subject that has a lot of importance, still, there is no public consensus on what it is or how it should be defined or what to use to maintain and improve its level. This problem on how business alignment and information technology should be executed in a complicated dynamic environment is a challenge for organizations chief information officers who as of yet have no answer for it.

Also in many organizations how they could evaluate the information technology alignment and business level is another serious challenge. Should the dependency level between business and information technology, or should the efficiency level of agreements that were presented in service levels, and or should the human resource skills levels be measured, the answers to these questions are vague. These aspects will really show the different alignment levels in an enterprise. [2]

4 Business Strategic Alignment Model and Information Technology (SAM)

Strategic alignment model that has been presented by Henderson and Venkatraman is one of the most important and accepted models in the alignment community and many alignment models have gotten ideas from it and used as a reference model for them. [3]

5 Service Oriented Enterprises

The goal of a business is to identify the occurring changes and their effects and adjust itself accordingly. A business that causes the advance of competition and could more quickly provide the consumers needs is called an "Agile Business". Basically the purpose of an active and dynamic business is the same as a flexible business, to realize the “dynamism and agility” they desire, enterprises transform themselves into a service oriented business. Now, if the business performance is designed in well defined services, you could control the complications. Hence, we could witness the emersion of a service oriented enterprise. The need for interaction between information systems, information systems in enterprises and enterprise intractability in the information technology field are the reasons that make the existence of service oriented enterprises necessary. The need for interactions between information systems, the change in enterprise information systems and organizational ability to interact in the information technology field are reasons that make the existence of service oriented enterprises necessary. [3]

Considering that the application of information technology is changing from technology oriented approaches to service oriented ones, technology oriented view does not reflect a correct value of the software services to consumers, whereas the activation of business services by using technology has appeared in many successful business but still, identifying software services has been mentioned as a challenge, for this reason service oriented business modeling in aligning the goals and strategies of an enterprise and identifying software services for business, play an important role in the service oriented organizations efficiency and will present better and more effective services with higher efficiency to the customers. [4]

5.1 Business Alignment Model and Information Technology in Service Oriented Organizations

Service orientation organizations goal is the implementation of business software function (business service) with the ability to flexible and reusable so the software services are not anything but business services realization in the information technology platform.

In the proposed solution, an attempt for the service oriented business modeling to align business and information technology has been made, new modeling elements called business and software services have been introduced, by using these models, businesses could be converted into being agile and achieve a business coordinated with information technology. [5]
The proposed model for the realization of business service orientation has three steps, first step: Identifying, description and business componentization modeling, second step: identification, description and business service modeling, third step: identification and software services description.

5.1.1 FIRST STEP: IDENTIFICATION, DESCRIPTION AND BUSINESS COMPONENTIZATION MODELING

The goal of business componentization is the analysis of components with specified borders which in this process assists in understanding the complexity of the enterprise and the goal facilitates the business goal realization through software solutions. During the business componentization the below goals must be realized: 1) finding sensible groups from dependent activities that could be optimized in one figure. 2) To understand and optimize the components method of interaction with one another for alignment to reach a business goal. [6][7]

As it is seen in table 1, in this step goal identification and business strategy and the extraction of business components is done in alignment with the business goals and strategies. The key business component elements include the submitted services, requested services, business production, business performance and business activities that are extracted for each component. Connection method of these elements is shown in figure 3 in a high level. The utilized technique in this step for business componentization is the CBM technique, IBM Company and efficiency reference model. [8][9]

As it is observed in table 2, the inputs of this step are the business components that had been the first step outputs and the utilized techniques are unified service model (USM) and business reference model (BRM). [9][10] The goal of this step is: 1- identifying business services 2- description of business services (business characteristics, describes a service from a view point of related individuals with business. Business characteristics describe how a service is executed, how it is used, how its efficiency is measured and how it is managed. 3- Modeling explains service activities such as service activities model, different performance realization level from a business architect. Service activities are modeled, to ensure that the provider of the service is committed to his services based on the contract. The key elements of service activity model include business performances, business duties, business sources and achievements. In figure 4 a high level model from business service key elements is shown.

TABLE 1. INPUT, OUTPUT AND TECHNIQUES FIRST STEP OF PROPOSED MODEL

<table>
<thead>
<tr>
<th>Input</th>
<th>Technique</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Business goals</td>
<td>- Component Business Model (CBM)</td>
<td>- Description of a Business Component Model</td>
</tr>
<tr>
<td>- Business operations</td>
<td>- Performance reference model</td>
<td>- High level from business component element constituent</td>
</tr>
<tr>
<td>- Business activities</td>
<td></td>
<td></td>
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<tr>
<td>- Business artifacts</td>
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<tr>
<td>- Strategic capabilities</td>
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</tbody>
</table>

FIG. 2 Business Alignment Model AND INFORMATION TECHNOLOGY IN SERVICE ORIENTED ORGANIZATIONS

FIG. 3 HIGH LEVEL MODEL FROM BUSINESS COMPONENT ELEMENT CONSTITUENT

5.1.2 SECOND STEP: IDENTIFICATION, DESCRIPTION AND BUSINESS SERVICES MODELING

For business orientation only componentization is not enough. Service orientation is the integration key between business components. Each component uses a unique goal and submits one or several services for the utilization of other components. Modeling used in this stage is focused on the service business aspect and supports all of the service oriented business activities. In addition this model states the connections between the service consumer and provider in all of the service hierarchy levels. [10]

TABLE 2. INPUT, OUTPUT AND TECHNIQUES SECOND STEP OF PROPOSED MODEL

<table>
<thead>
<tr>
<th>Input</th>
<th>Technique</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Business Components</td>
<td>- Unified Service Model</td>
<td>- Description of business services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Business Reference Model</td>
<td></td>
<td>- High level model from the business service constituent components</td>
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5.1.3 THIRD STEP: IDENTIFICATION AND SOFTWARE SERVICES DESCRIPTION

The advancement of technology and especially information technology is known as the biggest transformation factor in today’s societies and due to the alignment of information technology and business has accounted for the emergence of new patterns from business and social interactions. Enterprises As social institutions have been affected by these complete changes, enterprises have faced growing complexity in their systems and interactions. Now by business service orientation and identifying related software services with business services and creating an alignment between them, they could bring the transformations under control and aid the organization managers in reducing cost risks and also increase the benefits and efficiency in the information technology world and present better services to the customers.

Whereas the activation of business services by using technology has appeared in many successful businesses, but still identifying business services based on technology is mentioned as a challenge and whereof the goal is identifying services that have the capability of being activated through technology, after the business services identification and placing them the in business domain, every domain is seen as a systematic view and the existing software services in each domain are identified.

The definitions that have been submitted for software services are listed below: [11]

- Business services that have activation capability through information technology,
- Services that implement the enterprise business and have a high impact on the functionality of the enterprise activities.
- Services that are defined based on the customers needs and according to those needs, present values that are a combination of methodology and information.

As it is seen on table 3, the goal of this step is the identification and description of software services, in what domain they are located, what is the goal and reason for the existence of the software services, what systematic activities does the business domain perform, what the presented services by the existing software services in a business domain for other business domains are and what the utilized services by the existing software services in a business domain from other business domain are. [12][13]

6 PROPOSED MODEL’S ASSESSMENT

In this section to discover the article’s proposed modeling usefulness, the model’s responsive method to the service orientation principles in the technology and business alignment has been mentioned and is described below:

- Alignment of business and information technology goals: proposed solution in identifying, extracting and modeling of business services begins based on technology from the enterprise strategies and goals and the analysis of business cost which by this type method of modeling, eliminates the distance between business and technology. [11]
- Quick response to business changes and presenting better services to customers: componentization and service orientation are two enablers in the proposed solution that give business the possibility to quickly adjust to customers needs and market changes and present services with higher efficiency to the customers.
- Utilizing common industrial capabilities between companies and enterprises to reduce cost and increase savings: with the proposed solution, enterprises to convert to a dynamic and active business with customers, partners and personnel completely change their business process into a service so they can integrate with other business process among companies, main partners, providers and consumers.

7 CONCLUSION

In this article it has been attempted to pay more attention to the role of information technology in service oriented businesses in more detail so by reducing the distance between business and technology layers and creating an alignment between them, service oriented enterprises could achieve an agile business. Hence, they could achieve the necessary flexibility against quick market changes, software and technology and comply with customers needs.

Generally, the proposed model begins by eliminating the distance between technology and business field, organization’s goals and higher level strategies. And consequently identifying the aligned software with business services in three steps and gives the possibility of reducing the entire course from business goals to the final implementation in the software.

REFERENCES

IEEE International Conference on


