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Abstract: The Information Technology (IT) team knowledge of business strategy and the organization team knowledge of information technology are critical factors in the strategic business and IT alignment (BIA). These two factors have in common precisely the importance of "knowledge". The Information Technology team lack of knowledge about business and its strategy and vice-versa should be a major concern for the organization, since this knowledge strongly affects the possibility of an appropriate strategic alignment between business and the IT. It is significantly important to create an enabling environment for the growth of shared knowledge of the business area, encouraging professional IT with actions which increase learning and sensitivity to business issues. In addition to the business strategy and the strategy of IT, it should be highlighted the strategy of knowledge and the importance of alignment with the other two strategies. This article will illustrate the importance of knowledge management in the strategic BIA. It also shows the importance of create a shared knowledge environment for IT and Business teams and the definition of some knowledge growth strategies in Business and IT alignment context. This paper proposes an alternative and complementary view of KM, especially in a context of reaching an alignment between IT and Business strategies.

Keywords: knowledge management, strategic alignment, IT strategy, business strategy, knowledge enhancement, shared knowledge

1 Introduction

As Davenport and Prusak (1998) said “Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information”. It is born and applied in people minds of and, in organizations, it is frequently embedded in documents, repositories and also in routines, processes, practices, and norms (Davenport and Prusak 1998). This paper pretends to contribute to consolidate the importance of Knowledge management (KM) as part of strategic alignment efforts in an organization, especially those ones related with Business and Information technology Alignment (BIA).

Since 1993, Bain & Company has surveyed executives, all around the world about the management tools they use and how effectively those tools have performed (Rigby and Bilodeau 2009). The analysis is based on 25 tools and it is reviewed every year. The 12th survey used a database of proximally 10,000 respondents, supported in executive’s opinions on a variety of key business topics. Last research showed that besides the deep concerns expressed by executives about their short-term financial outlook, because of the crisis, they are voicing optimism about the long term. For the motive of recession, executives’ decisions progressively are more driven by short-term cost-cutting objectives. As a consequence of that, the number one tool since 1998, “Strategic Planning”, was exceeded by “Benchmarking”, a classic cost-cutting tool. Even so, “strategic planning” remains one of the most important tools of top executives. The third most important tool is “Mission and Vision Statements”, reinforcing the strategic concerns of executives. “Knowledge Management” appears at
The enhancement of knowledge environment usually involves a more effective knowledge creation, transfer and use (Davenport, Long and Beers 1998). This enhancement depends on several critical success factors (CSF). Different sets of CSF for implementing KM in small and medium enterprises (SME) have been studied by Wong (2005). This author investigated different authors that have studied the main factors for implementing knowledge management in a firm. He grouped them into a number of generic factors. Combining the frequent factors founded at studied authors with some new ones, Wong (2005) proposed a model of 11 factors for implementing KM in SMEs. They are:

- management leadership and support;
- culture;
- Information and Technology;
- strategy and purpose;
- measurement;
- organizational infrastructure;
- processes and activities;
- motivational aids;
- resources;
- training and education; and
- human resource management

An adequate KM to support and enhance the strategic BIA should take in consideration most of these eleven factors.

The IT team and managers´ knowledge of business strategy and the business team and managers´ knowledge of IT are critical factors in the strategic alignment between business and IT. These two factors have in common precisely the importance of the "knowledge". The lack of Information Technology team´s knowledge of business strategy should be a major concern for the organization, since this knowledge strongly affects the possibility of an appropriate strategic BIA. It is significantly important to create an enabling environment for the growth of shared knowledge of the business area, encouraging professional IT with actions which increase learning and sensitivity to business issues (Chan, Sabherwal and Thatcher 2006). In addition to the business strategy and the strategy of IT, it should be highlighted the strategy of knowledge and the importance of alignment with the other two strategies, the strategy of IT and Business strategy. This article will present an alternative view, with a systemic perspective based on knowledge assets, about the role of KM in the strategic BIA, relating these areas and their possible common impact on organizational performance. On the other hand, strategic knowledge is characterized by being a kind of expertise that deserves special attention.
because of their sensitive and private nature that is already associated with power management in organizations.

2 IT and Business team’s knowledge - The creation of a shared knowledge environment

Several authors focus their concerns in the event of a lack of corporate strategy on the part of IT managers (Reich and Benbasat 2000), giving greater prominence to the “social dimension” in the face of “intellectual dimension” of the alignment. Reich and Benbasat (2000) stress the importance of creating an enabling environment for the growth of shared knowledge of the business area, actions such as encouraging the movement of IT professionals from the business units, their training in various areas of business (which non-IT), or even sponsoring them or periodic visits to commercial customers. Other researches show that decisions made by managers are depending on two main factors, the knowledge and the power they have to decide (Reich and Benbasat 2000).

According to several studies, although the business and IT manager’s seem to understand that a higher level of integration between the two groups would lead to a greater level of liaison between the business planning and IT, are apparently not sufficiently able to develop such relationships (Campbell, Kay and Avison 2005). These surveys seem to indicate that certain organizational cultures prevent the development of this integration, pointing out that various factors are significantly interrelated. For example, it is common for IT professionals may prefer, in certain circumstances to adopt a personal strategy focused on technical aspects of his business, trying to improve its credibility by completing projects successfully, to the detriment of developing relationships with colleagues in the area of business. And only when its credibility is significant is that these professionals may be available to promote a shared knowledge of the business, collaboration and alignment (Campbell, Kay and Avison 2005). The actions of IT managers seem so significantly dependent on the specific dynamics of each organization and past relationships existent that they can influence the attitude of collaboration with colleagues from the business area, promoting the creation of value to the company or, concentrate on the area of technology, providing an IT service reliable and cost effective (Campbell 2007).

Also, an adequate human resource management of the IT team is important in order to guarantee the improvement and grown of their knowledge not only of IT subjects but also of business themes. The same concerns should happens at business area where, besides business competences, it should be weighted some IT knowledge and personal characteristics. The process of finding the person with the knowledge one needs and then successfully transferring it from that person to another is difficult (Davenport, Long and Beers 1998). Successful recruitment of staff is critical since it is through this procedure that knowledge and competences come into the organization (Wong 2005). Employees should be recruited taking into account the necessary knowledge and skills to satisfy knowledge needs. IT recruitment should take that in consideration taking into account the competences on information and technology, but also business competences, even in a lower degree of importance. The recruitment ought to think about the knowledge gaps of the organization, namely those ones related with business sensibility of IT employees. Sometimes it is useful to recruit to the IT team someone with significant business understanding, even with less technique expertise.

Experience provides an historical perception from which is possible to view and understand new situations and events (Davenport and Prusak 1998). The knowledge learned from the experience someone lives easier detects patterns and can easily build associations among what is happening at present and happened before. As Davenport and Prusak (1998) defend “the application of experience in business may be as simple as an old hand’s identifying a down-turn in sales as a seasonal phenomenon and therefore no cause for alarm”. When curriculums are analyzed or employee evaluation made, experience-based insights and experience-based initiatives are appreciated and conduct firms to give more rewards, like for instead, paying higher wages, premiums or bonus or attributing a more important internal organizational status.

Furthermore, employee career development should take into account the enhancement of each one skill and competences (Wong 2005). This enhancement process should be focus on organizational needs and strategy. IT players are supposed to be trained or to be included into others schemas oriented to the increment of knowledge, like mixed meetings between IT and business or several months stages of IT technical in business units playing non-technical activities to “feel” its context, difficulties and opportunities of change and improvement. The more the organization wants the IT to produce valuable contributions to a company like business innovations the more the organization needs to encourage professional development activities of IT employees on business area.
Another aspect that may be significant in terms of IT perception and motivation about business knowledge, concerns and strategy is the organizational structure. The question of the adequacy of the organizational structure to the strategic alignment objective is not sufficiently detailed (Gutiérrez 2009). Gutiérrez (2009) points to the influence of organizational structure on strategic alignment, but leaves unanswered the question of identifying any patterns in the relationship of structure type (centralized, decentralized, or with a more federated type), or other factors, as company size or type of industry with the strategic alignment between business and IS/IT.

On the other hand, Gutiérrez (2009) investigation showed that there is a significant gap between the identified three levels of the organization (strategic, tactical and operational). This gap is even superior to traditional misalignment between business managers and those of IT. This fact indicates that the dynamics between people belonging to various levels should have more attention in future work. This fact reinforces the necessity of explore different knowledge management approaches to top managers, intermediate managers or operational practitioners.

3 Knowledge growth in Business and IT alignment context

Management leadership and support is one main success factor of KM implementations (Wong 2005). Leader’s importance as models to others employees is crucial because they exemplify the preferred behavior for KM. For example, IT and Business managers should demonstrate an enthusiasm to share and offer their knowledge generously among the organization, to constantly learn, and to search for new knowledge or ideas, either in their field or in the other field of knowledge. Their practical example is important because it should influence other workers to imitate them into a more knowledge creative and sharable behavior. Besides leadership competencies like steering the change effort, conveying the importance of KM to employees, maintaining their morale, and creating a culture that promotes knowledge sharing and creation, they should be the ones that define business strategies, IT strategy or knowledge strategy.

Another key aspect about BIA is the reviewing of “what should happen” in confront with “what does happen”. This will allow the “alignment” or “re-alignment” between Business and IT. Several organizations already systemized procedures taking this into account. For example, United States Agency for International Development (USAID) knows that learning from experience is essential to achieve its development mission. The After-Action Review (AAR), proposed by USAID, is an instrument based on knowledge sharing that pretends to help practitioners inside its organization and across the its associate community to better understand key events, activities, or programs (USAID 2006). The collected and compiled knowledge from can be used by higher management, namely the Chief executive officer (CEO), Chief information officer (CIO) and Chief knowledge officer (CKO), to get better outcomes. Then, this knowledge can be shared with professionals in a top-bottom approach, from plan, development, implementation and evaluation tasks. An AAR initiative allows the identification of how to correct problems, maintain strengths, and center on enhanced performance of specific tasks, activities, events, or programs. This is why it should be conducted by those closest to the activity (USAID 2006). In terms of BIA, this is particularly important, for example, with a problem derived from specific information system functionality miss implementation or Enterprise Resource Planning (ERP) bad parameterization, when IT implementers should have the main initiative by planning, developing, implementing and evaluating the problem resolution. Or, when the organization wants to strength some special commercial advantage, as having the right contacts of potential customers, introducing them into the proper system, like CRM (Customer Relationship Management), in order to potentiate the spread and use of “knowledge” by all the commercial team and allowing the definition of an adequate commercial plan to approach them, with consequent development and evaluation actions.

The example of the United States Army’s Center is very interesting as it uses the description of rich truths of genuine situations experienced on the field, rather than from the heights of theory or generalization (USCAC 2010). This practice is supported by its “Center for Army Lessons Learned” (CALL), which pretends to support effective knowledge transfer processes, assumed as being a critical issue for the army. According to CALL, their mission is to collect, analyze, disseminate, integrate, and archive lessons learned. Their purpose is to enhance rapid information sharing and facilitate the integration of best practices and issue resolution across the Army. The “After Action Review” (AAR) program proposed by the U.S Army is a key aspect of the army’s success at KM. This process includes the assessment of what was believed to take place in a certain mission, comparison with what really happened, analysis of the differences between the two, and, most important of all, what can be learned from the differences. CALL offers a stimulating exemplar of knowledge reuse
success for practitioners and the theoretical grounds for knowledge reuse have been opened for further debate for researchers (Chua, Lam and Majid 2006). CALL principles are perfectly adaptable for business and IT alignment efforts, where IT projects phases and outcomes should be evaluated in a common group process analysis in order to reorient or reformulate them or even plan new IT or Business initiatives.

4 A new and complementary view of KM at Business and IT Team

The next figures pretend to represent Business or IT knowledge, either potential knowledge or effective one. It also wants to represent the knowledge’s interaction between Business and IT teams. They pretend to “paint the knowledge space” of both areas of knowledge and create a clear view of the opportunities there are in the common space of knowledge. The common space of knowledge, or the lack of it, will potentiante the different professional’s cooperation or it may represent a limitation to the desired teamwork between these two areas in an organization.

Figure 1 pretends to represent potential knowledge’s, the Business and the IT one. Potential knowledge is a merely theoretical concept which represents the “sea of knowledge’s opportunities” each team as. Part of this knowledge represented by zone A is already controlled by IT team.

![Figure 1: Knowledge representation of IT Team. Zone A represents the potential IT Knowledge. A1 represents the zone with effective IT Knowledge of the IT team at the organization in a certain moment. Zone A2 represents the IT Knowledge that IT team doesn’t have.](image)

On the other hand, part of potential business knowledge (zone B) is also acknowledged by IT team. Zone A1, representing the effective IT Knowledge of the IT team at the organization in a certain moment, covers part of the total hypothetical space of IT knowledge. The other part of potential IT knowledge, not covered by A1, represents a space of opportunities where the organization may grow in terms of IT knowledge, particularly its IT team. It is expectable that A1 is mainly situated at zone A instead of zone B because principal experience and “formation”. The representation exercise done about IT knowledge is also possible to be done about Business knowledge, with the appearance of B1 zone, representing the Business team knowledge (see Figure 3).

Zone A1, the IT team knowledge initially presented at Figure 1 has two components that are represented at Figure 2. A1 area is the result of the union of A11 and A12 areas, respectively the IT team knowledge about IT and the IT team knowledge about business. This representation wants to underline the representation importance of these two distinct but complementary parts of IT knowledge. One of the objectives of this paper is to evidence these different parts.

The knowledge of IT team about other different subjects then IT or business area are not represented at Figure 2 in order to simplify the representation and because of the lack of interest at this point.
Figure 2: Knowledge representation of IT Team. The effective IT Knowledge of the IT team at the organization in a certain moment is the result of union of zone “A₁₁” and Zone “A₁₂”. Zone “A₁₁” represents the IT Knowledge of the IT team about IT and zone “A₁₂” represents the knowledge.

One of the main objective of this article is to explicit the common knowledge between IT and Business teams. This is pretended with Figure 3, where it is shown not only the IT and Business team’s knowledge, but also the common area of knowledge between both groups. This zone is identified as zone C and the vaster it is, the more it potentiate the alignment among these two kinds of professionals with typically different backgrounds (Campbell, Kay and Avison 2005; Davenport, Long and Beers 1998). This interception zone is composed by two parts, one from IT knowledge and another part coming from Business knowledge. This C zone is, photographed in a certain time and in a certain organization, represents the current space where it is possible to develop scenarios of cooperative work. This doesn’t mean that all the knowledge space represented by C is leveraged in terms of future returns. This will depend on several factors, namely the encouragement of people to share and apply knowledge, by establishing the right incentives, rewards or motivational aids (Wong 2005). Nevertheless, incentives or rewards may not resolve, by themselves, this encouragement, as some studies apparently have showed (Bock and Kim 2002). According to Bock an Kim (2002), the development of a constructive approach toward knowledge sharing is found to lead to positive purpose to share knowledge and even to concrete share knowledge behaviors. Table 1 pretends to resume all those domain relations between explained sets of knowledge at IT and Business teams.

Table 1: Resume of domain relations between knowledge sets

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁ = A₁₁ ∪ A₁₂</td>
<td>B₁ = B₁₁ ∪ B₁₂</td>
<td>C₁ = A₁ ∩ B₁</td>
</tr>
<tr>
<td>A₁₁ = A₁ ∩ A</td>
<td>B₁₁ = B₁ ∩ B</td>
<td>C₂ = A₁ ∩ B₂</td>
</tr>
<tr>
<td>A₁₂ = A₁ ∩ B</td>
<td>B₁₂ = B₁ ∩ A</td>
<td>C₃ = A₁ ∩ B₃</td>
</tr>
</tbody>
</table>

It could be interesting to represent the knowledge nature of IT team or Business team. This could be done using some ratios that compare the measures of some of knowledge sets presented before. Consider the possibility of defining a function that supports the dimension D, of a certain knowledge K, defined by D(K). So, the Business weight of knowledge at the IT Team (B₁₁) in one organization is supposed to represent the business sensibility of the IT team among all the knowledge the team has. This could be represented dividing the amount of knowledge the IT team has about business by all the IT team knowledge. If it would be possible to measure it, B₁₁ is supposed to be much lesser than 50% because this team is supposed to have mainly technical skills. Nevertheless, in order to be able
to develop opportunities of defining better and new organization strategies between IT and business and so, potentiate a better alignment between both, it is advisable that $B_{IT}$ is not almost zero, but a not negligible ratio.

![Figure 3](image-url)  
**Figure 3:** Knowledge representation of IT and Business Team, with effective knowledge of the IT team as zone “$A_1$” and zone “$B_1$” as effective knowledge of the Business team. Zone “C” is the interception of zone “$A_1$” and zone “$B_1$” and represents the common Knowledge between IT and Business team. The same exercise could be done to calculate the weight of the IT weight at IT team ($IT_{IT}$). This ratio is supposed to represent the information and technologic sensibility of the team among all the knowledge the IT team have. This could be represented dividing the amount of knowledge the IT team have about IT by all the IT team knowledge. It is precisely the value that is missing from $B_{IT}$ to 100%. This is supposed to be much near 100%. Similar ratios may be considered with knowledge of Business team. All of these ratios are supposed to be always less than one. These weight ratios are represented at Table 2. Of course that, at this point, these weight ratios are probably only theoretical abstractions because of the difficulty in measuring knowledge. The knowledge measurement is still a difficult and expensive practice (Bontis 2001) and it is not an objective of this paper to develop this aspect. Even so, some companies already make efforts to measure knowledge, like Erns & Young for example, that measures the amount of knowledge it reuses in the form of proposals, presentations and deliverables and the contributions of its knowledge repository to closing sales (Davenport, Long and Beers 1998). A review of the models used to measure knowledge was made by Bontis (2001), where among others, present the Skandia example. Skania, considered the first large company that have made a truly articulate effort to measure knowledge assets, uses a value scheme containing both financial and non-financial building blocks that combine to estimate the company’s market value (Bontis 2001). “One goal was to persuade investors of the value of Skania’s knowledge capital” (Davenport, Long and Beers 1998).

**Table 2:** Theoretical Business and IT weights of knowledge at Business and IT Team

<table>
<thead>
<tr>
<th>IT Team Knowledge</th>
<th>Business Team Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A_{IT}$</td>
<td>$B_{IT}$</td>
</tr>
<tr>
<td>$A_{IT} B_{IT}$</td>
<td>$B_{IT} B_{IT}$</td>
</tr>
</tbody>
</table>

The popularity of several terms like intellectual capital, knowledge capital, information assets, intangible assets or human capital increased the importance of knowledge assets in organizations...
Bontis (2001) defend that “measuring knowledge assets is in an experimental phase” where an myriad possible solutions (i.e. new concepts, definitions, criteria and operational measures) are being promoted and tried. This paper proposes another possible view of that, based on a systemic view, with knowledge sets domains that have knowledge assets (KA) elements, eventually shared within each other. This perspective will allow a clearer visual representation of knowledge and potentiate possible KM strategies definitions. Figure 4 shows an example of what could be a knowledge representation in an organization, with a particular interest with Business and IT Team interaction. This departmental representation exercise may be done in other contexts like multi-units in a company evidencing units with certain lack of KA’s, eventually achievable using others units which have those necessary sharable KA’s.

Figure 4: Knowledge representation in an organization with Business Team and IT Team interaction. KA1 represents Knowledge Asset nº 1, KA2 represents Knowledge Asset nº 2 and so on. The number of KA represented does not pretend to be proportional to reality, but just exemplificative. A knowledge asset represented with a stronger line like KA5 or KA8 means it is a strategic asset.

KA1 asset has already been identified as been an IT possible knowledge asset but it is not (yet) apprehended by IT team. IT department may discuss of the interest of try to gain that knowledge. The interest may be a result of an analysis of the cost / benefit of this intangible asset and may include growth/renewal, efficiency or stability indicators (Bontis 2001). Figure 4 shows others knowledge assets like KA5, KA4 or KA7, all assets included in IT team knowledge, nevertheless in different situations. KA5 represent an asset apprehended by IT team, about IT knowledge area, but not shared with Business team, like KA7. KA4 represent an asset not about IT knowledge area but about Business area and may be an exception, because it was not yet apprehended by Business but IT team. Other cases represented at Figure 4 pretend to show additional hypothetical cases.

Time and time again, strategic knowledge and choices lead to substantial changes in power relations between the various managers and other practitioners. Strategic knowledge assets like KA5 or KA8, the first at IT area and the second at the business area, may have a special treatment and management. For example, either they may be only accessible by some employees like managers or it can be defined a plan to share knowledge where strategic KA may be treated as priority.

5 Conclusions
The KM is still walking its first’s steps. One of the main lacks of knowledge management is to have an adequate representation, especially to support knowledge strategy definition and accomplishment or when alignment between IT and Business is wanted. Author proposes an alternative and complementary view of KM, especially in a context of reaching an alignment between IT and Business strategies. Future work should be done in order to better check the applicability of this proposed view according to the most critical factors of success in KM.
6 References


