

***Investigating IT-Business Alignment in an Egyptian Medium-Sized Enterprise
(Case Study)***

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ABSTRACT:

Information technology (IT) has become nowadays a strategic tool that can boost organizations' competitive advantage. This can be reached if organizations have a clear vision of their goals, and can align their IT strategies with their business strategies. Amr Helmy Designs (AHD) realized the benefits that IT can bring: not only to improve the organization's business but also to open new business opportunities that could have never existed otherwise.

As an introduction, this study explains strategic alignment and its value to organizations, and outlines the critical success factors for a successful IT-business alignment. The Paper then focuses on a case study about the use of IT solutions in AHD since inception and throughout its maturity stages. It overviews the dramatic change that the organization business strategy has undergone, and how IT helped in meeting several challenges that transpired accordingly. A description of the status of current information systems is presented. The efficiency of such systems and the level of their exploitation are investigated. The study reveals also the organization's future directions towards expanding IT utilization to realize more benefits and successes. Finally the study discusses the degree of alignment in AHD and proposes suggestions for further improvements.

KEYWORDS

Information Technology, IT strategy, Business Strategy, IT-Business Alignment, Strategic Alignment, Role of IT, IT Management, IT Impact, Egypt.

INTRODUCTION

Information technology (IT) has revolutionized the way most business professionals work and play essential roles in the way businesses compete. IT applications have changed the nature of the workplace; tasks ranging from taking orders to analyzing business plans are automated rather than manually like it is used to be.

Organizations embraced IT due to its effect in improving their internal operations, thereby reducing internal costs and developing products more quickly. IT also supports sales and marketing processes in many ways. It provides salespeople with better information about prospective customers and helped them identify and demonstrate the right product choices. Using IT, companies can set better marketing strategies based on accurate and timely information. In summary, IT can support a company throughout all its value chain:

product design, procurement, manufacturing, sales and marketing, delivery, customer service, and finance.

But for IT to play a major role in realizing firm performance, known as its business value, strategic alignment or alignment of information systems (IS) strategy with business strategy should be achieved. This paper addresses the issue of strategic alignment from several perspectives and states the preconditions necessary to realize it. The study introduces also a number of alignment frameworks and models proposed by researchers in order to help firms determine their alignment level. Finally, the paper presents a case study of an Egyptian manufacturing firm in kitchen design, discusses its strategic alignment situation and recommends ways of evaluating and improving it.

BACKGROUND

Several definitions for IS alignment have been proposed by researchers; according to Henderson & Venkatraman (1993), IS alignment is the internal fit and functional integration between business strategy and IS/IT strategy and how this integration is important to gain a competitive advantage. Luftman et al. (1993), Reich & Benbasat (1996) and Tallon & Kraemer (1999) define alignment as the extent to which the IT mission, objectives, and plans support and are supported by business mission, objectives, and plans.

Chan, Huff, et al. (1997) see strategic alignment as the degree to which the resources being directed to each of the seven dimensions of IS strategy are consistent with the strength of the organization's emphasis on each of the corresponding seven dimension of business strategy (aggressiveness; analysis; defensiveness; futurity; innovativeness; proactiveness, and riskiness)". Luftman (1999) and McKeen & Smith (2003) approach business-IT alignment as applying information technology in an appropriate and timely way and in a harmony with business strategies, goals and needs.

Maes (1999) sees alignment as a concept aiming at the exploitation of IT in an organization, at the effective enabling (and not disabling) of the organization by IT. Reich and Benbasat (2000) defined two types of strategic alignment: short term where business and IT executive understand and are committed to each other's short-term (one to two year) plans and objectives; and long term where business and IT executives share a common vision of the ways in which IT will contribute to the success of the business unit.

Importance of Strategic Alignment

A number of researchers highlighted the value of strategic alignment; it is considered as an important concern to the practitioner community that management has been grappling with since the mid-1980s (Watson *et al.* 1997). Brancheau et al. (1980, 1983, 1986, and 1990) found out that alignment was a perennial top ten IS management issue in a series of surveys (Nickels, 2004). One of the top two concerns of business and IS executives in the 1990s is the need to improve alignment between the organization's business plan and its deployment of IT (Galliers *et al.* 1994, Davies *et al.* 1995, Watson and Brancheau 1991). A recent survey of over 300 CIO's and CEO's revealed that IT-business alignment is currently their number one priority (Beal, 2003). As organizations evolve, and engender

new forms of IT-enabled competitiveness, strategic alignment is likely to assume greater degree of importance (Tallon & Kraemer, 1999).

Researchers noted that strategic alignment is linked to IT business value; they argued that organizations' inability to realize sufficient value from IT investments is due in part to an absence of strategic alignment (Henderson & Venkatraman, 1993; Woolfe, 1993). Alignment between business and IT strategies has been found to positively influence the effectiveness of company information systems (Chan & Huff, 1993). Alignment has been found not only to be a significant and positive predictor of the potential capabilities of an organization's IT infrastructure, but also to be an organization-wide issue that directly impacts overall performance (Xia & King, 2002), and in perceiving higher payoffs from IT (Tallon, Kraemer, & Gurbaxani (2000). Also alignment of organizational and technological infrastructures has been found to enhance business performance (Croteau, Solomon, Raymond, & Bergeron, 2001).

Misalignment in organizations results in a redundancy and inefficiency in IT functions and in an increase in costs and delays (Chan, 2002). It can even be one of the critical reasons behind the failure of IT to improve organizational performance (Chan, Huff, Barclay & Copeland, 1997; Luftman & Brier, 1999). Strategic alignment is not only critical to organizational effectiveness and efficient resource utilization, but alignment must be present before IS can be chosen and diffused to achieve maximum IT effectiveness (Chan & Huff, 1993).

Strategic Alignment Models and Frameworks

Researchers have proposed several frameworks of strategic alignment. Some of them will be presented with a special focus on Henderson & Venkatraman (1990), Van Der Zee & Berend De Jong (1999), and Mike Eom & Surinder Kahai (2004) frameworks.

Strategic Alignment Model of Henderson & Venkatraman (1990)

The strategic model of Henderson & Venkatraman (1990) is widely used by many researchers and organizations to assess the level of alignment in a firm. The model consists of four parts (see Figure 1). Each part contains three components which, when analyzed together, can be used to operationally define each part. These twelve components (see Table 1) are used to determine the extent and type of alignment within a corporation (Henderson & Venkatraman, 1990; Papp, 1995).

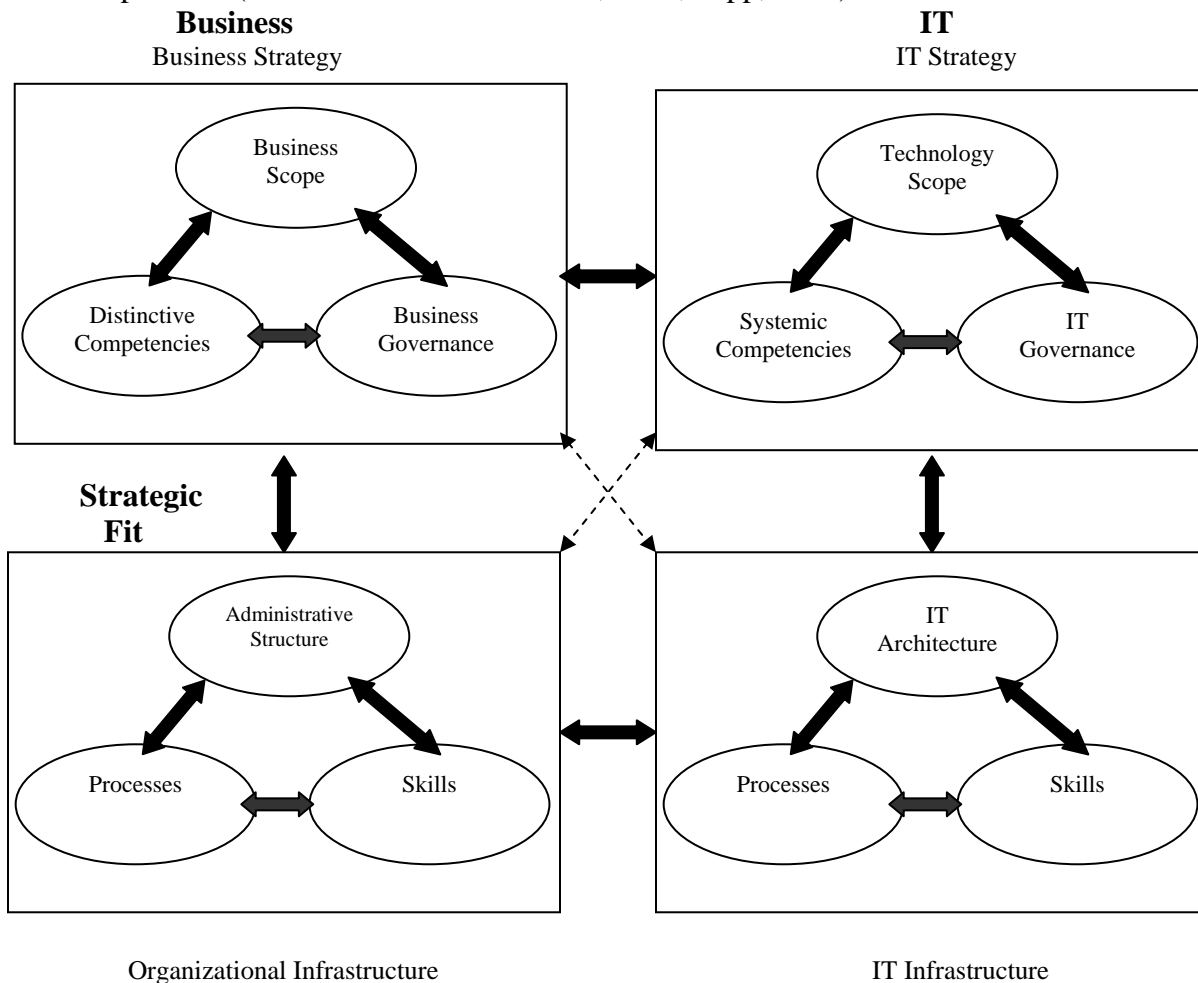


Figure 1: Strategic Alignment Model

Table 1. Components of the Strategic Alignment Model

<p style="text-align: center;">Business Strategy</p> <p>1- Business Scope: type of business the organization is engaged in</p> <p>2- Distinctive Competencies: critical success factors and core competencies that provide a firm with its competitive advantage</p> <p>3-Business Governance: type of relationships (stockholders and board of directors, business alliances and partnerships, effect of government regulations, outsourcing strategies)</p>	<p style="text-align: center;">IT Strategy</p> <p>1-Technology Scope: key technologies and applications important for the business</p> <p>2- Systemic Competencies: accessibility and reliability of vital information to realize the company’ strategy</p> <p>3- IT Governance: how IT decisions are taken (make or buy, IS priorities, technological alliances and partnerships)</p>
<p style="text-align: center;">Business Infrastructure</p> <p>1-Administrative structure: organization structure, and geographical orientation</p> <p>2-Processes: flow of business activities; it also includes value-added activities and process improvement</p> <p>3-Skills: HR aspects of the firm (hire/fire, train/educate, motivate, create corporate culture)</p>	<p style="text-align: center;">IT Infrastructure</p> <p>1- IT Architecture: applications, software, networks, hardware, and data management used by the organization to achieve its IT and business strategies</p> <p>2- Processes: practices and activities performed to develop and maintain applications and manage IT infrastructure</p> <p>3- Skills: IT HR considerations</p>

Two types of links exist in the model, the vertical one representing the *strategic fit* or the use of strategy to determine infrastructure. The second link is the horizontal one that is referred as *functional integration* stating that IT strategies must change as business strategies change and correspondingly, business or IT infrastructures must keep pace as either business or IT undergoes change.

Focusing on three of the four parts of the model at a given time permits both strategic fit and functional integration to be addressed simultaneously (Papp, 1995; Luftman, Papp & Brier, 1999). Thus, eight perspectives result in all combination of each three parts. In each perspective, there exist three components: the anchor, pivot, and impacted domains. The anchor domain is the strongest one driving the changes to be applied to the pivot domain. The pivot domain, or weak domain is the area to be changed by the anchor domain. The impacted domain is directly affected by changes to the pivot domain (see Table 2).

Table 2: Strategic Alignment Perspectives

Anchor Domain Pivot Domain Impacted Domain	Strategy Execution Business Strategy Business Infrastructure IT Infrastructure	Technology Potential Business Strategy IT Strategy IT Infrastructure	Competitive Potential IT Strategy Business Strategy Business Infrastructure	Service Level IT Strategy IT Infrastructure Business Infrastructure
Anchor Domain Pivot Domain Impacted Domain	Organization IT Infrastructure Business Infrastructure IT Infrastructure IT Strategy	IT Infrastructure Strategy IT Infrastructure IT Strategy Business Strategy	IT Organization Infrastructure IT Infrastructure Business Infrastructure Business Strategy	Organization Infrastructure Strategy Business Infrastructure Business Strategy IT Strategy

These eight perspectives can be used to assess the level and type of strategic alignment within an organization. Once the company’s alignment perspective is identified, the next step is to recognize possible future iterations (to be in the same direction as the present alignment cycle) to facilitate long-term planning and strategy formulation. Strategic alignment is achieved by continuous reassessment and adjustments with respect to the perspectives (Papp, 2001; Henderson & Venkatraman, 1990).

Strategic Alignment Model of Van Der Zee & Berend De Jong (1999)

The model proposes the need to integrate business and IT planning using the balanced business scorecard framework. This framework was developed by a research group initiated by Nolan Norton Institute in 1991 to be used in business planning and in measuring business performance (see Figure 2). The balanced scorecard framework measures a firm’s business performance from four perspectives: financial, customer, internal processes, and organizational learning. A simplified example of a scorecard is shown in Table 3.

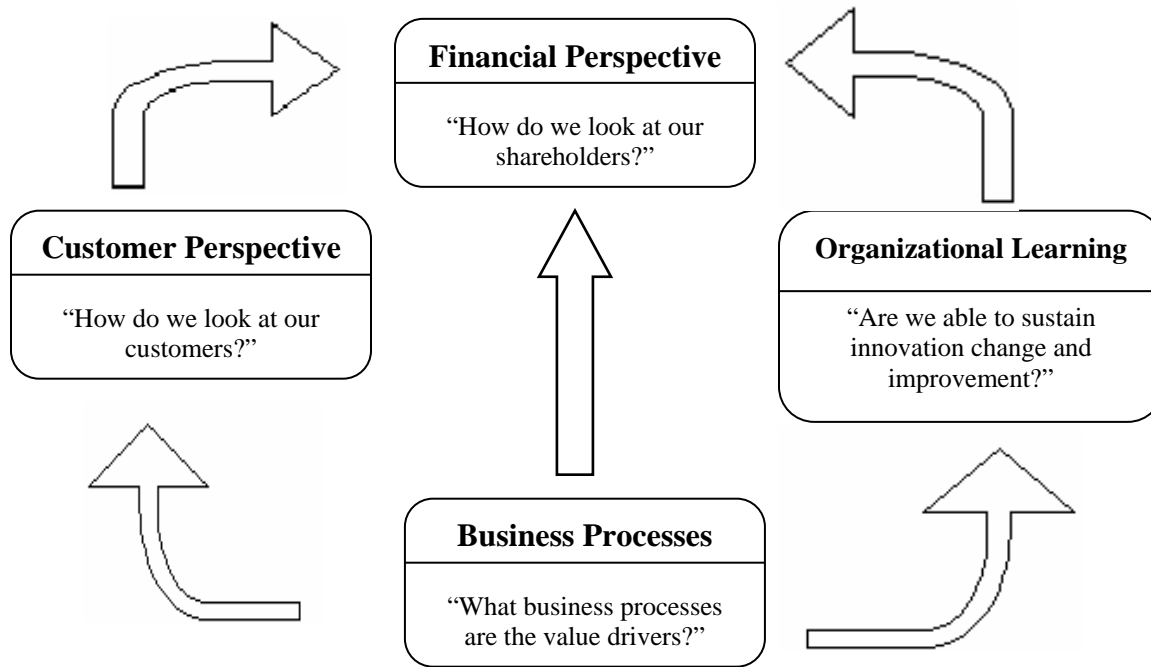


Figure 2: The Balanced Business Scorecard (1991)

Table 3: Example of Balanced Business Scorecard

Perspective	Goals	Performance Indicators
Financial	Revenue Net margin	US\$ 50 M 25%
Customer	Customer satisfaction per project Percentage of total clients retained	8 (out of 10) 90%
Organization Learning	Training hours attended per employee	80 hours/year
Business Processes	Average function points (FP) delivered/employee/day Percentage of productive hours vs. non-productive hours	480 FP/day 75%

When integrating both business and technology using the balanced scorecard, two major problems will be solved: the lack of a common language between business and IT management, and the time lag between business and IT planning processes.

Strategic Alignment Model of Mike Eom & Surinder Kahai (2004)

The model suggests that for alignment to be reached, a degree of agreement and compatibility should be realized between business and IT strategies. The model presents four categories of IS strategy based on Miles and Snow (1978), and Sabherwal & Chan (2001). These categories are: *IS for Efficiency* that is concerned with internal and inter-organizational efficiencies and long-term decisions, and *IS for Flexibility*, which focuses on market flexibility and quick strategic decisions. The third category is *IS for Comprehensiveness*, considered as a combination of both previous strategies, and the

fourth is *No IS Strategy* when IS reacts to internal and external changes in an ad-hoc manner.

Correspondingly, Miles and Snow (1978) proposed four categories of business strategy: *Defender* strategy values stability, internal efficiency and control to produce products for steady customers. *Prospector* strategy welcomes innovation, risks, new opportunities, and growth. *Analyzer* strategy is a mixture of defender and prospector strategies. *Reactor* strategy refers to responding to environmental threats without a special plan.

Eom & Kahai (2004) argued that alignment should be achieved between correspondent types of business and IT strategies. For example, Defender organizations need IT systems to mainly support existing organizational structure and processes, thus, IS for Efficiency could be the best IT strategy in this case. The same concept could be applied with the other strategies' categories.

Other Strategic Alignment Frameworks

Another framework integrating business and IT strategy is the four levels of integration model proposed by Teo & King (1997). The first stage is the *administrative integration* in which there is a weak relationship between business and IT planning. The second level is the *sequential integration* where a sequential relationship exists between business and IT planning, the latter primarily focusing on providing support for business plans. The third level is the *reciprocal integration*, in which a reciprocal and interdependent relationship between business and IT planning, so that the latter plays a role both in supporting and in influencing business plans. Finally, the fourth level referred to as *full integration* where there is little distinction between the business and IT planning processes, both occurring concurrently in an integrated process.

Synnott (1987) proposed another model for planning; it encompasses five types: *No Planning*, where no formal planning exist either for business or IT, *Stand-alone Planning*, where either business or IT plan exists but not both, *Reactive Planning* at which a business plan is prepared and an IT plan reacts to it having a passive role. The fourth planning type is the *Linked Planning* interfacing business an IT plan and system resources are matched with business needs. The last type is the *Integrated Planning* making business and IT planning occur simultaneously and interactively without distinction between them.

Reich & Benbasat (1996) suggested two dimensions in linking business and IT strategies: an *Intellectual* dimension related to IT validity and business objectives; and a *social* dimension regarding mutual understanding and commitment between business and IS executives in an organization. Other researchers have further ideas based on the original model (Papp, 1995; Chan et al., 1997; Kearns & Lederer, 2000).

How to Realize Strategic Alignment

Alignment is not an easy task; it requires large and continuing efforts from the part of business and IS executives. Many researchers proposed several success factors to establish IT-business alignment in organizations. The most important factor to be considered is the existence of a mutual understanding and a shared vision among business and IT executives, and to incorporate their understanding into consistent, integrated business and IS missions, priorities, strategies, and processes (Lederer & Mendelow, 1986; Henderson & Venkatraman, 1991, 1999; Nelson & Coopriider, 1996; Reich & Benbasat, 1996, 2000; Rockart *et al.*, 1996; Chan *et al.*, 1997; Enns *et al.*, 1997; Luftman, Papp & Brier, 1999; Luftman & Brier, 1999; Luftman, 2000; Chan, 2002; Sauer & Willcocks, 2002; McKeen & Smith, 2003). All researches recommend a variety of cross-communication and collaboration between business and IT managers to achieve this understanding.

One of the main enablers of strategic alignment is the necessity of support for IT from the part of senior executives (Luftman, Papp & Brier, 1999; Hilgers, Marcolin, Chiasson, Javidan, 2004; Kotter, 1996; Chan, 2002). Business managers should also be competent in IT to be able to exploit IT investments effectively in the organization (Bassellier, Reich, Benbasat, 2001), and become knowledgeable about the current state of IT practice in order to understand IT-enabled business opportunities (Rockart *et al.*, 1996).

Alignment requires also IT executives to be involved in strategy development (Luftman, Papp & Brier, 1999; Rockart *et al.*, 1996), understand business (Luftman, Papp & Brier, 1999; Chan 2002), and demonstrate IS leadership (Sutcliffe, 1999; Luftman, Papp & Brier, 1999).

A vital factor in ensuring continuous alignment is to consider it as a dynamic and continuous administrative process that does not necessarily follow a rigid plan. Undergoing plans' adjustments should be performed to cope with internal and external changes occurring in the organization (Venkatraman *et al.*, 1993; Beeson *et al.*, 2002; Ciborra, 1991; Chan, 2002; Tallon & Kraemer, 1999; Papp, 2003; Van Der Zee & Berend De Jong, 1999).

Another important issue to be considered is the effect on implementation success on alignment. Many researchers highlighted the importance of implementation as its success engenders trust and cooperation between business and IS executives (Reich & Benbasat, 2000). Failure in IT implementation leaves firms dissatisfied with and reluctant to continue their strategic IS planning (Galliers, 1994a; Lederer & Sethi, 1988, 1992; Premkumar & King, 1994a) and creates problems establishing and maintaining priorities in future strategic IS planning (Lederer & Mendelow, 1993).

CASE STUDY

The case study presented is based on several interviews performed with the CEO, the plant manager, the IS executive, and the IT consultant (*LGF*) of AHD.

Company's Profile

AHD is a company specialized in designing and manufacturing kitchens tailored to the need of each individual customer. The company, 100% owned by Mr. Amr Helmy and family, started its business in 1980. Since then, it went through a tremendous progress and success. At present, it's considered amongst the most successful and professional kitchen design companies in Egypt. What distinguishes *AHD* from other players in the same business is its philosophy in designing DNA kitchens; i.e. kitchens based on civilizations from several regions in the world: Asian, African, Middle Eastern kitchens, etc. (www.amrhelmydesigns.com). Driven by such concept *AHD* products are well perceived among consumers and are typically associated with high expectations.

AHD is considered a medium sized enterprise with a workforce of 180 employees, of which 120 in manufacturing and the rest occupying executive and administrative jobs. The organization has a large showroom consisting of three floors, and two factories. The first factory (factory 1) is located around 2 km. from the showroom and is dedicated for manufacturing. Final assembly takes place in the second factory (factory 2), which is located around 25 km. from the showroom. The organization has recently established an overseas branch in Dubai (opened Sep. 2004), and is about to open new markets in Qatar and Saudi Arabia, and at a later step in Canada.

First Attempts in Using Information Technology

Since 1983, the organization has been using computer aided design systems (CADs), which are considered a major tool for this kind of business. Designers started by using a 2-dimensional drawing application, and then switched to a 3-dimensional one on Apple Macintosh environment.

In 1992, management decided to change all computers in the organization to IBM compatibles to cut software and hardware costs. At that time compatibles prices witnessed encouraging price reductions that was hardly met by Apple. The same applied for application software.

From 1992 to 1996, the organization faced many IT problems. First, the computers used have been always encountering hardware problems. This resulted in a delay in business flow. Moreover, *Logic Consulting Firm (LGF)*, *AHD's* independent marketing consulting firm, requested accurate information regarding customers, suppliers, sales, etc, so that they can propose marketing strategies based on a right information foundation.

AHD had several struggles with more than one small software house to develop an information system that could provide the organization with the information required by *LGF*. Unfortunately, these early initiatives did not succeed due to many reasons such as failure to develop the system as desired, delays in delivering some modules, or possible business discontinuity of these software houses (very thin on the ground and based on 2 or 3 individuals in most cases)

Towards the Right Direction

To overcome hardware deficiencies in compatible machines, the management switched all computers to IBM originals in 1997.

Regarding the information system required, *AHD* decided to develop an in-house system designed by the plant manager using Microsoft Access Database. The system, implemented in 1999, consisted of several separate applications: stocks, suppliers, customers, payroll, planning and quality. At that time, all *AHD* departments including manufacturing were hosted in one building only: the showroom. A Local Area Network (LAN) was installed to connect all computers in the showroom (30 computers over 3 floors). Access files were shared between users as well as other individual Excel or Word files designed by employees in sales or accounting departments.

Concerning the design application, Carat was chosen due to its efficiency and ability to create and edit very accurate and sophisticated designs. Unfortunately, using Carat created a major problem: there was a security policy set by Carat making it inaccessible if its date is updated. Due to the lack of control in the organization's network, users sometimes updated Carat's date accidentally which resulted in a denial of access to the program. In order to log into Carat again, *AHD* had to contact the dealer in Germany to obtain a new entry password.

A Major Shift in Business Strategy

Since it started business, *AHD* targeted a niche at the top end of the market (high net worth individuals, etc.), focusing on product exclusiveness and differentiation. In 2000, the management decided to manufacture products that cater for upper middle class who are also looking for exclusiveness but at a lower budget. As a result of this new strategy, customers' orders increased tremendously, which made the company expand and build 2 factories replacing the original one that occupied part of the showroom building.

In 2003, the organization found itself growing exponentially and had no alternative but to revolutionize how the information flow is managed. Many challenges were faced: the lack of information integration between departments created a communication problem that affected accuracy and promptness. There was a certain degree on uncertainty in the manual accounting outputs (financial statements, cost sheets and periodical reporting, etc). There were problems in managing cash flow, in making analysis and taking decisions based on the information available, and in warehouse management. Most of all, there were no security measures or adequate control on the network, which resulted in unauthorized accesses and virus penetration. Some of the computers in the showroom were connected to the Internet, allowing exchange of files through email sites (hotmail, yahoo, etc). The absence of a mail server in the organization gave a rise to another security problem with regard to the files to be transferred and the limitation on their sizes especially in case of large design files characterized by graphics. Employees were only able to communicate through telephone lines or physically within the showroom and with the two factories due to the lack of a permanent electronic connection. . There was one server on which all Access, Word and Excel files were stored without protection. Another challenge the management faced was the difficulty in enforcing policies and procedures

which became essential in view of the organization expansion, so that business processes would be well structured and not depending on individual management approaches.

A New IT Strategy

Faced by all these challenges, *AHD* and its IT consultant (a newly established unit in *LGF*) cooperated to find the right solution. *LGF* started first by reviewing the company's vision, mission, goals and objectives. It then studied the old IT situation very well to identify areas for improvements.

Two major decisions were concluded: to replace the whole network infrastructure and to implement an ERP system to integrate information in different business areas.

Concerning the operating system, *LGF* set a comparison between Linux and Microsoft Windows. Windows was then chosen because management believes it is better to deal with a well-established body such as Microsoft, possessing a vast experience in research & development, and in meeting users needs. Microsoft Egypt in particular has been expanding its activities by participating in several IT projects with public and private sectors in Egypt. . Based on the above, *AHD* selected a Microsoft environment for their IT solution. There was a reluctance to use Linux given its slow development in Egypt, and lack of professionals' and dealers' support.

Regarding the ERP system to be selected, *AHD* and *LGF* prepared a market study on available systems. Mr. Amr Helmy, CEO of *AHD* stated that the decision approach was based on setting the right balance and synergy between three magic words: "*faster better & cheaper*".

When trying to analyze these three words, *faster* means the fastest implementation cycle possible. When investigating other ERP projects that were implemented in several Egyptian enterprises, the market study revealed that it took these enterprises 2 or 3 years for partial implementation, and sometimes they failed. This is attributed in part to the complexity of these systems compared to actual business requirements.

"*Better*" means the better solution applicable to the organization's business. In most cases, organizations seek latest technologies and highest complexities without checking their compliance with their requirements. *AHD* and *LGF* were aware of this fact, and focused their choice on the most suitable system to *AHD* business.

Finally, the last word "*cheaper*" means the least expensive solution compared to other systems without giving up quality and performance.

Microsoft Great Plains was chosen since it met all above requirements.

A feasibility study was performed to estimate the cost of the new solution. The study considered not only the costs of the software, hardware and consultancy fees, but it

encompassed also the cost of hiring new staff for data entry, and the indirect costs resulting from the time to be spent in training the staff during the implementation period.

Upon identifying the costs, and the hardware and software to be used, *AHD* and *LGF* made contacts with various IBM (for hardware) and Microsoft (for software) dealers and compared several offers until they negotiated and agreed on the most suitable ones.

An implementation team was formed consisting of *AHD*'s CEO, the plant manager, the cost manager, the IT executive, and the consultants from *LGF*. The pre implementation phase included many activities taking place in parallel, such as setting the new network infrastructure, installing the servers' software, installing Great Plains and deciding which modules to start with, providing the necessary training for all the employees involved, deciding on the data to be transferred from the previous Access system, and putting a unified recoding system to be followed for each module. This phase lasted about 3 months from 10/2003 to 12/2003. General training sessions were provided for all employees involved in the new system. The implementation team attended all sessions to acquire the full picture. They believed that each employee attending all sessions would be mainly interested on the part related to his scope of work

The Implementation Phase

On 1-1-2004, the implementation of the IT strategy commenced by entering data on Great Plains by a team hired especially for this task, and working in parallel with the old manual team. The plan was to operate online after three months. The implementation team provided support to employees by explaining the benefits to be obtained from the new solution. There was a special focus on assuring old employees that the new system will not replace them: on the contrary, it will facilitate their work, and provide them with timely and accurate information.

During this phase, individual trainings were given to each operator from the software dealer staff. Many problems aroused, like, for example, the inability of some employees to understand the system, especially, that all menus are in English, which constitutes a language barrier for some of them used to work in Arabic. To overcome this problem, more training was provided along with a translation of some of the English expressions to facilitate using the system.

During the whole process, the implementation team was evaluating the situation on daily basis, while getting feedback from the employees using the system, and acting seriously upon their comments. The most important thing was to make the employees feel that they're part of the organization, and that they can participate in taking decisions, "build a company of *citizens* not *employees*", as Mr. Amr Helmy declared.

In order to endorse the use of Great Plains, management decided that by April 2004, only electronic documents from Great Plains modules would be approved, which means that the manual system in these areas would not be accredited.

Present Situation

Since April 2004, the organization started working online within most departments. The modules implemented are: customers, suppliers, stocks, fixed assets, receivables, bank reconciliation, general ledger, and purchased order enhancements. The license for Great Plains was extended to cover 16 users working simultaneously instead of 8.

Communication between employees in all departments is facilitated through emails, reducing the needs to use phone lines or face-to-face meetings as before.

The new network connects all computers in the showroom departments internally (with 1 GB transfer rate), and with factory 1 through a Virtual Private Network (VPN). The number of computers in the showroom and factory 1 reached 75 computers.

There are 10 servers installed in the showroom: a file server, where all Carat and other data files are stored, 2 servers for Great Plains, an Internet Security and Acceleration server (ISA), a mail exchange server, a Norton server, a domain controller server, a life communication server that provides instant messaging service, and 2 backup servers.

Benefits Acquired

The benefits obtained from this new IT strategy were more than management expected. Most importantly are the accuracy and the better control on accounting transactions and reporting documents avoiding human calculation errors, the ability to keep a close watch on the company's inventory to check the movement of raw materials and final products, The remarkable time saving and punctuality throughout the whole business cycle as well as the cycle compliance proved to be an invaluable plus, since business processes are well organized, and holds and posting procedures are performed in an automatic yet a faster way. In addition, the new strategy paves the way to the direction of a paperless organization.

Connecting factory 1 to the showroom enabled the manufacturing department to see all Carat files instead of getting paper copies of all designs from designers, and provided access to Great Plains as well.

There are also intangible gains of great value like enabling the employees to obtain the information they require in an easy and convenient way, and empowering them with more knowledge and control, which fosters their loyalty to the company. Employees are motivated to increase their collaboration and to share information since management encouraged communication between all departments. The new strategy offered the opportunity for ambitious employees to be upgraded by providing them with the necessary information required for more focused analysis that could lead to a better work performance.

The system had also an effect on enhancing customer support by providing the sales and support staff with the current status of each customer and with a complete tracking of all

his transactions and history with the company. This enables the staff to serve customers better and faster.

Return on Investment

From a return on investment perspective considerable savings were made on many fronts, and meaningful additional profits were realized. To start at the beginning of the activity cycle, the accuracy in quantity determination and a better grip over prices resulted together in reducing the material cost and saving about 10% on purchase orders. Then, at the manufacturing stage, early order planning and schedule optimization allowed a decrease in production cost in the range of 2%. The feedback from the system enabled management to monitor job costs closely hence enhancing budget control and squeeze variances. Sales revenues benefited from the instantaneous access to current and updated bills of material and currency exchange rates. The documentation of change orders requested by customers availed a further 1% cost saving. Finally, to wrap up the activity cycle, the aging receivables alerts prompted better collection contributing to the overall savings by another 1%. From the marketing perspective the company was able to continuously carry out cost-profit-volume analysis by adjusting prices in order to achieve its goals. This caused a significant leap in profitability by about 10%.

Future IT Projects

As for IT future prospects, *AHD* is planning to extend the network to cover the computers in factory 2 as well, to increase the bandwidth of the connection between the organization branches in Dubai and Egypt and connect the showroom in Dubai with Great Plains, and to start working with Microsoft Instant Messaging Service (IMS). This application will allow life communication between computers in the showroom, the factories, and the organization branch in Dubai.

The manufacturing module in Great Plains will be also installed hoping that integrating it with the other modules could automate most of the production cycle.

The Human Resources module will be used after making several changes related to the payroll system in Egypt. The standard HR module produced by Microsoft does not match some aspects of the Egyptian employment regulations.

A business portal (Intranet) will be implemented. This portal will have a great effect on achieving more transparency in the organization since it will contain information of interest to the employees such as performance, appraisal and attendance reports. It will also contain the policies and procedures and will enable more communication and collaboration between the employees by establishing discussion boards, publishing events, memos, meetings, etc. Employees will be able to access Great Plains through the portal remotely from any place to get real-time information about products, customers, inventories, etc.

A company's Web site has just been launched. The management plans to use the site to explore new business opportunities such as, for example, selling kitchen designs globally, and providing tips and information related to the company's fields of expertise.

AHD also hopes to connect Carat application to Great Plains. This can be achieved by making changes on Carat so that it accepts coding of designed units. Once accomplished, kitchens pricing could then be calculated automatically and presented on Great Plains once a design is made.

DISCUSSION

When investigating alignment in *AHD* based on the literature review and the case study presented above, we focus on two main questions: what is the type and degree of alignment in the company? And do the pre-conditions or enablers for alignment exist, and if they do, to which extent?

Regarding the type of alignment in the company, when applying the strategic alignment model of Henderson & Venkatraman (1990) to the case in hand, we conclude that *AHD* is following a *Strategy Execution* perspective. In this perspective, business strategy is the anchor domain meaning that the company has a strong strategy driving changes on the business infrastructure, which in its turn has a major effect on the IT infrastructure. In this case, IT's role is mainly reactive or responsive whose main purpose is to meet the demands of the business strategy. IT goals focus on reducing delays and errors, enhancing quality of services, and on saving business cycle time.

A comparison between business and IS strategy types as mentioned by Miles & Snow (1978) reveals an incompatibility between the two strategies' categories. Business strategy in *AHD* can be categorized under *Analyzer* type - where management maintains stable business while adopting creative initiatives at the same time - and transferring to a *prospector* one focusing mainly on innovations, risks, new opportunities and growth. This business strategy is totally different from the IS strategy adopted by the organization, since the IS strategy can be considered as *IS for Efficiency* concerned with internal and inter-organizational efficiencies and long-term decision-making. In order to be aligned with *AHD* business strategy, more efforts should be exerted to change the IS strategy to *IS for Flexibility* characterized by its dynamic nature, or at least to *IS for Comprehensiveness* which is a mixture of both prior IS strategies.

Another area of improvement could be to fully integrate business and IT planning and processes using the balanced business scorecard to measure business performance in an organization as suggested by Van Der Zee & Berend De Jong. As the model noted, by following this approach, two major problems in IT management can be solved: the absence of a common performance measurement language between business and IT executives, and the time lag between business and IT strategies. In the case of *AHD*, the first problem does not exist since IT management is strongly involved in business, and business executives are extremely competent in IT, which makes both parties use a unified language when communicating with business executives. Following this framework will mainly help in solving the second problem; as we notice from the case

study IT strategies are set and implemented to face challenges resulting from applying business strategies. Integrating both planning processes will allow IT decisions to be taken in parallel with business ones which constitutes a proactive approach instead of initiating IT solutions in response to problems resulting from business changes. Applying the business scorecard framework could also help *AHD* in measuring IT payoffs in more fields not considered by the organization like customer and organization learning perspectives.

Concerning the Preconditions for alignment, the study shows that most alignment enablers presented in the literature exist in *AHD*. There is a strong relationship between business and IT executives, exchange of ideas occurs frequently and takes place in both formal and informal structures. The CEO and the plant manager have a strong IT knowledge and are always aware of IT state and progress in the organization. IT executives are also involved in the business since the IT consultant is aware of the organization's objectives and strategy, and the IT executive in *AHD* was first working in the HR department, and then moved between several departments in the head office and both factories to be well acquainted of all business aspects in *AHD*. The implementation phase passed smoothly as support and involvement were provided by the top management during the whole implementation period.

IT can take a more strategic role in *AHD* in the future, as the environment in the organization is inductive to this direction. Past successful implementation and the long-term and dynamic vision of the management are the building blocks in such approach.

CONCLUSION

The study highlights many aspects related to IT-business alignment revealing its importance in realizing business value for organizations, and presenting ways to achieve it. A case study about an Egyptian company specialized in kitchen design (*AHD*) is then presented to show IT impact on improving the company's business. The research reveals that IT strategy has a supportive role in realizing the organization's business strategy in *AHD*, and suggested guidelines to enhance strategic alignment. The study discusses also the preconditions of alignment in *AHD* and finds that most of them are already available. This means that *AHD* has a promising future in realizing more IT-business alignment.

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