



RESEARCH ARTICLE

FIRM BUSINESS STRATEGY AND IT STRATEGY ALIGNMENT: VALIDATION OF A PROPOSAL MODEL

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ABSTRACT

Business-It alignment is ranked the number one of IT and Business executives concern. Having alignment has been found to lead to stronger business performance, higher perceived value of IT and improved IS strategic planning. However measuring this alignment is still ambiguous. The economic growth in morocco in the last decade has led to greater availability of IT as a critical resource. Despite the increasing interest in Moroccan IS issues by researchers and practitioners, empirical research focusing on Business-IT strategy alignment are limited. So, in this study we tried to measure the alignment degree in 13 Moroccan firms, and to study the maturity levels' of this alignment using SAMM model. Than we validated our model via a linear regression study applied to the results of our model and those of SAMM.

INTRODUCTION

The matter of Business and IT alignment has been discussed since the 1980s. Nowadays, it is impossible to do business and maintain a strong market position without having an aligned IT strategy. Alignment results in a partnership between IT and Business managers in developing and achieving their strategies and goals. The IBM Global CEO Study of CEOs explains that many companies have to deal with a gap in the integration of business and technology, which could lead to lower customer satisfaction, adaptation speed and process flexibility. Literature proposes several models of strategic alignment, but just few studies focused on developing an instrument for measuring business-IT alignment. [Luftman, 2000] proposed a framework called strategic alignment maturity (SAMM) based on SAM model which was developed by [Henderson & Venkatraman, 1999]. Luftman's SAMM framework includes five conceptual levels of strategic alignment maturity (Luftman, 2000; Luftman, 2004). It consisted of six maturity factors: communication, competency, governance, partnership, technology scope, and skills. Each key area identifies a grouping of related mechanisms that, when performed collectively, are considered important for enhancing IT-Business alignment capability.

In this paper we propose to validate our model based on Miles and snow's (Meyer, 1978; Miles, 1978) strategic frameworks (Henderson, 1988), using a questioner addressed to some of the most important firms in morocco, to define the type of IT and Business strategy, than measure the interdependence of these types to get the degree of alignment. The result of our analysis was than compared to the result of SAMM model. The final objective of our study was to prove that when the orientation of strategic IT and strategic Business are similar, the strategic alignment is mature.

Theoretical background

Business-IT alignment

A large number of researches have proposed various concepts related to IT-Business Alignment. Achieving alignment requires an ongoing effort of strategic planning, goal realignment and implementation of best practice in supporting and shaping business strategies. Through strategic alignment, the aim of IT now is not only to improve efficiency but also to improve business effectiveness and to manage organizations more strategically. The importance of alignment has been widely recognized and well documented (Henderson, 1999); however, many companies are still misaligned. And this is due to the absence of practical model to identify the degree of alignment and how to maintain it. [Luftman and BRIER, 99] [Luftman, 1999], proposes a framework to measure the

strategic alignment maturity, based on the model SAM [Henderson and Venkatraman, 93]. This model provides a tool to evaluate the maturity of their strategic choices and alignment activities and identify areas in which they can achieve a higher level of alignment. [Sledgianowski et al., 2004] created an instrument to measure maturity of IT-Business alignment based on SAM. They use the six categories in Table 1 for assessing alignment which contain 39 items. For each item, manager gives an answer on five choice scales, representing a different level of maturity.

Table 1. Criteria of alignment maturity [Luftman, 00]

Factor	Components
Communication	Com1: The degree of understanding Business by the IT functions Com2: The degree of understanding IT by Business Com3: The degree of richness of the methods used for the organizational learning Com4: The style of communication used in the organization Com5: The degree of knowledge sharing throughout the organization Com6: The use of IT Business liaisons
Competency	Comp1: Focus of the metrics and processes used to measure the contribution of the IT Comp2: Focus of the metrics and processes used to measure the Business contribution Comp3: Degree and the orientation of integrated IT and Business measures Comp4: Degree of service level agreements Comp5: Frequency and formality of benchmarking practices Comp6: Frequency and formality of IT assessments and reviews Comp7: Degree of continuous improvement practices Comp8: Contribution of IT in strategic objectives.
Governance	Gov1: The degree of business strategic planning with IT involvement Gov2: The degree of IT strategic planning with business involvement Gov3: Basis of budgeting IT resources Gov4: Basis of IT investment decision Gov5: Frequency, formality and effectiveness of IT steering committees Gov6: Integration of IT projects prioritization Gov7: responsiveness of IT functions to changing business needs
Partnership	Part1: The Business' perception of the role of IT Part2: The role of IT in strategic business planning Part3: Integrated shared risks and rewards Part4: Formality and effectiveness of partnership program Part5: Perception of trust and value Part6: Reporting level of business sponsor/champion
Technology scope maturity (SCOPE)	SCOPE1: Technological and strategic sophistication of primary systems/ applications SCOPE2: IT standards articulation and compliance SCOPE3: :Degree of architectural integration SCOPE4: Degree of infrastructure transparency SCOPE5: Degree of infrastructure flexibility
Skills maturity	Skills1: Degree of cultural innovation Skills2: Degree of integrated locus of power in IT-based decisions Skills3: Degree of a change readiness culture Skills4: Degree of opportunity for skills enrichment through job transfer Skills5: Degree of opportunity for skills enrichment through cross-training or job rotation Skills6: Degree of interpersonal interaction across IT and Business Skills7: Ability to attract and retain IT staff with technical and business skills

An answer of one indicated the lowest level of maturity, and an answer of five indicated the highest level of maturity. Depending on how an organization scores the components of each factor, one of the five levels of strategic alignment maturity is assigned to the organization. The five process levels are:

- Initial/Ad Hoc Process – business and IT are not aligned or harmonized
- Committed Process – the organization has committed to becoming aligned
- Established Focused Process – Strategic Alignment Maturity established and focused on business objectives
- Improved/Managed Process – Reinforcing the concept of IT as a Value Centre
- Optimized Process – Integrated and co-adaptive business and IT strategic planning

Proposed model

The model proposed [Aouatif BENKHAYAT, 2015] is based on Miles and Snow typology that classify strategies in four types: Prospector, defender, analyzer and reactor. In our study we restricted to Prospector, Defender and Reactor typology, for whom we defined tree metrics [Aouatif BENKHAYAT, 2015]. These metrics are compared to each other using a questionnaire that was completed by IT and Business managers. We collected answers in the form of two matrix, one for IT and the other for Business, after standardized them using AHP method, we got a priority vector for each strategy. The degree of alignment corresponds to the degree of similarity of the two vectors [Fenwick, 2012].

Validation of the proposal model

To validate our model, we applied it on 13 Moroccan companies, on which we had already applied the SAMM [Luftman, 2000] model. Than we compare the two results using correlations and multiple regression analyses.

IT issues in Morocco

As Morocco's economy continues to grow, companies made important investment in IT to boost the productivity of their employees. However, the management of IT still remains a new discipline and IT managers haven't enough skills and experience. They lack awareness of IT, of the role of IS department and how to get added value from IT investment. Though, we noticed that in Moroccan companies, IT applications are starting to move away from traditional transaction processing systems. For example, many companies are getting ERP and supply chain management, and the success of these systems requires a developed coordination and collaboration between IT and business unit.

Instrument used

A survey was conducted of 39 IT and business executives from 26 business unit across 13 organizations. This survey includes two questionnaires one for IT and the other one for Business strategy, every executive should give his/her degree of preference of the option one compared to the option two on a

nine choice scale [Saaty and Vargas, 1991; Saaty and Vargas, 2000]. To ensure the validity of the questionnaire content, it was reviewed by two researchers in the area of the business-IT alignment. They were asked to suggest additions, deletions and modifications of the used items or to validate them. The feedback resulted in minor revisions. Then, the questionnaire was pilot tested to check if it is clear and understandable.

Data collection

Thirteen Moroccan organizations participate in this study including the historical telecommunication operator, the railway company, the highway company, the post office, three manufacturers and six firms in the financial, insurance and service industry (Table 3).

Table 2. Business/It strategy matrix

Business Strategy	Prospector			Defender			Reactor		
	P1	P 2	P 3	D1	D2	D3	R1	R2	R3
P 1	1	A12	A13	A14	A15	A16	A17	A18	A19
P 2	10-A12	1	A23	A24	A25	A26	A27	A28	A29
P 3	10- A13	10- A23	1	A34	A35	A36	A37	A38	A39
D1	10- A14	10- A24	10- A34	1	A45	A46	A47	A48	A49
D2	10- A15	10- A25	10- A35	10- A45	1	A56	A57	A58	A59
D3	10- A16	10- A26	10- A36	10- A46	10- A56	1	A67	A68	A69
R1	10- A17	10- A27	10- A37	10- A47	10- A57	10- A67	1	A78	A79
R2	10- A18	10- A28	10- A38	10- A48	10- A58	10- A68	10- A78	1	A89
R3	10- A19	10- A29	10- A39	10- A49	10- A59	10- A68	10- A79	10- A89	1
Total	X1	X2	X3	X4	X5	X6	X7	X8	X9

Table 3. Interviewed companies

Company	Area of operation
Souriau Esterline	Connection technology producer
IAM	Telecommunication operator
ONCF	Moroccan railway company
Sofac	Credit institution
Capgemini	IT service company
Barid Al Maghrib	Letters and parcels delivery company
Nexans	Manufacture of industrial wires and cables and fiber optic cables
Anonymous	Unknown company of metallurgy
SGMB	Bank
RMA Assurance	Insurance company
GROUPE AFMA	Insurance broker
ADM	National company, in charge of building, maintaining and operating the motorway network
a-SIS	Publisher and integrator of complete solutions for logistics

Table 4. Alignment Degree Using Benkhayat Model

Compagnie	Alignement degree
Souriau Esterline	12%
IAM	21%
ONCF	4%
Sofac	5%
Capgemini	62%
Barid Al Maghrib	23%
Nexans	71%
Metallurgie	59%
SGMB	13%
RMA Assurance	76%
GROUPE AFMA	22%
ADM	77%
a-SIS	45%

Table 5. Companies' Maturity Assessments

	Communication	Competency/Value	Governance	Partnership	Scope & Architecture	Skills	Overall Maturity
Souriau Esterline	2,2	2,1	2,3	1,5	2,4	2,7	Level 2
IAM	3,5	2,8	2,7	2,8	4,0	2,6	Level 3
ONCF	1,3	1,4	1,1	1,8	1,4	1,7	Level 1
Sofac	3,0	2,3	3,9	3,0	2,6	2,4	Level 2
Capgemini	3,5	4,4	5,0	4,5	4,8	4,1	Level 4
BaridAlMaghrib	3,5	3,3	3,6	2,8	2,2	2,3	Level 2
Nexans	4,0	4,3	4,4	4,3	4,0	4,7	Level 4
Metallurgy	3,8	3,5	2,9	3,2	2,6	2,3	Level 3
SGMB	3,5	3,1	2,3	2,5	2,8	2,6	Level 2
RMA Assurance	4,2	4,4	4,3	4,2	4,2	3,6	Level 4
GROUPEAFMA	2,0	2,1	2,0	1,7	2,8	2,3	Level 2
ADM	4,7	3,9	3,7	4,5	4,2	4,4	Level 4
a-SIS	3,7	3,4	2,9	3,7	3,6	3,6	Level 3

Table 6. Multiple Linear Regression - Ordinary Least Squares

Variable	Parameter	S.D.	T-STAT	2-tail p-value	1-tail p-value
			H0: parameter = 0		
(Intercept)	-0.4608	0.1475	-3.1240e+00	0.009674	0.004837
SAMM	+1.549	0.2626	+5.8990e+00	0.0001033	5.165e-05

Table 7. Multiple Linear Regression - Regression and residual Statistics

Multiple Linear Regression - Regression Statistics	
Multiple R	0.8717
R-squared	0.7598
Adjusted R-squared	0.738
F-TEST (value)	34.8
F-TEST (DF numerator)	1
F-TEST (DF denominator)	11
p-value	0.0001033
Multiple Linear Regression - Residual Statistics	
Residual Standard Deviation	0.1435
Sum Squared Residuals	0.2266

The number of employees ranged from approximately 500 employees to over 9,000 employees. For the five publicly held companies, total revenue ranged from 6.5 Milliard to 1.2 Million Dirhams. The questionnaire was filled up by managers using google forms, than data was collected and formatted using AHP method. For every company, we calculated Business and IT orientation vector. The degree of alignment ranked between 4% and 77 % (Table 4), which means that alignment needs to be inserted in almost Moroccan companies. To determine whether our model demonstrated acceptable reliability and validity, and whether it was able to give an exact degree of alignment, we applied the SAMM assessment instruments, which are based on best practice for IT-business strategic alignment derived from literature reviews of academic researchers.

The companies' maturity assessment results are listed in Table 5. The alignment maturity degree' varies from level 2 to level 4, with an average of level 3 for each category of the SAMM model. Companies surveyed have almost an established alignment process that is focused on business objectives

For each level we calculate the percentage using this formula:

$$P = \text{Level} * 100 / 5$$

Data Analysis

To cross validate the alignment degree, we used simple linear regression analysis. This allows quantifying the strength of the relationship between the two models. If there is a strong correlation between our model results and calculated P from SAMM model, then we can validate our instrument. The simple multiple linear regression model $R^2=0.787$ was significant ($p\text{-value}<0.01$) (see Table 7). The estimated regression equation is as follow:

$$\text{Benkhayat Model}[t] = -0.460831 + 1.54919\text{SAMM}[t] + e[t]$$

The value of R is 0.8717. According to Pearson's correlation, this is a strong positive correlation, which means that alignment degree from our model goes with high SAMM degree of alignment maturity (and vice versa). The value of R^2 , the coefficient of determination is 0.7598.

This result provides further evidence that the degree of alignment calculated using our proposed model can be deduced using SAMM models. This strong correlation between the result of our model and the SAMM results' proves the validity of our model.

DISCUSSION

Our study was designed to answer the following research question. Is the instrument we proposed for measuring Business/IT alignment reliable and valid? The instrument was evaluated using simple linear regression analysis in comparison to SAMM results', the result was very significant and the correlation was very strong. We also realized that Moroccan companies have an important ware about IT-Business strategy alignment. We found that the average alignment maturity of these companies fell between level 2 and level 4 on the maturity scale. One Moroccan company even failed to achieve level 2 maturity, 5 companies achieve claimed to achieve level 2 maturity to some extent, and only four organizations achieved level 4. The research instrument developed, validated, and tested in this study provides a tool that appears to be useful for practitioners and managers to measure their alignment degree. This will allow them to take actions for performing their business and IT strategy. Further the data from the 13 large companies not only provide a snapshot of the state of business-IT alignment of companies in Morocco but do serve as the starting point of a benchmark against which companies in morocco can improve their alignment maturity.

Limitations and directions for future studies

Like any research, this study has several limitations, which should be mentioned, that can provide opportunity for future research. The primary limitation of this research study is the number of participated companies ($n=13$), which is relatively limited. Also this study was unable to examine any firms with extreme level of maturity, either low or high, and was therefore unable to provide any information about the effect of low or high maturity. Additionally work should be carried out to improve the questionnaire used in our model, to facilitate the data collection and to ensure more answers.

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