

# **The Impact of National Cultures on Business & IT Alignment**

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## **ABSTRACT**

*Aligning IT to business needs is still one of the most important concerns for senior management. The message of Business & IT Alignment (BIA) is logical and undisputed, but implementation apparently difficult. As part of a research program on the differences between the theory and practice of BIA this paper presents a conceptual exploration of the impact of national cultures on the maturity of BIA.*

*The paper relies on Hofstede's framework of cultural dimensions (Hofstede, 1980) to understand the concept of culture. We present a compact literature review on the influence of culture on IT that leads to the conclusion that there is an influence and that it is likely that also alignment of business and IT will be affected by cultural aspects. After a brief introduction we analyze this influence by conceptually assessing the potential impact of Hofstede's cultural dimensions on the variables of BIA maturity.*

## **INTRODUCTION**

Information technology (IT) is changing the way companies organize their business processes, communicate with their (potential) customers and deliver their services (Avolio, Kahai & Dodge, 2001). A key success factor for a successful company is an effective and efficient alignment of the way IT is supporting business strategies and processes. The necessity and desirability of aligning business needs and IT capabilities is examined in numerous articles (Pyburn 1983; Reich & Benbasat, 1996; Chan et al., 1997; Luftman & Brier, 1999; Maes et al., 2000; Sabherwal & Chan, 2001) and its importance well recognized (Cumps et al., 2006). The annual survey on top management concerns by the Society for Information Management ([www.simnet.org](http://www.simnet.org)) however ranked 'IT and Business alignment' as the No. 1 concern for four years in a row (Society of Information Management, 2003, 2004, 2005, 2006). In last year's survey, alignment lost its doubtful honor as the 'top concern' to drop to only the second place on the list (Society of Information Management, 2007). The alignment between business needs and IT capabilities therefore still is a prominent area of concern.

After many years of research into the Business & IT Alignment (BIA), Chan and Reich (2007) list over 150 studies, this concern should be surprising. Should it be concluded that academic research still cannot provide solutions for the issues business and IT executives are faced with in practice? We believe this is at least partly true. Some questions that practitioners face are not addressed in academic literature (Chan & Reich, 2007; Silvius, 2007). Amongst these questions is the impact of culture on BIA. Several authors (Watson et al., 1997; Kaarst-Brown & Robey, 1999; Baker, 2004) suggest a relationship between the effectiveness of BIA and the culture within an organization. Other authors show that national cultures affect the way IT is used or perceived (Veiga, Floyd & Dechant, 2001; Livonen et al., 1998). This paper presents a conceptual exploration of the impact of national cultures on the maturity of BIA in organizations.

It is important to study the impact of culture on the alignment of business and IT because organizations are increasingly depending on IT for their communication and business processes. Information has become ubiquitous in many organizations and IT is therefore one of the most important resources of production and knowledge.

However, embedding IT in organizations requires careful consideration of the organization's culture and the culture of its surrounding country (Ross, 2001; Westrup et al., 2003).

After a brief paragraph on the background of the paper, we introduce a framework for studying national and corporate cultures. The following paragraph explores the literature on the relationship between culture and IT in order to establish whether any relationship can be expected. After this introduction we introduce the concepts of Business and IT Alignment and a framework to study the maturity of BIA in organizations. The last part of the paper presents a conceptual mapping of how national cultures can be expected to influence BIA maturity.

## **BACKGROUND**

The central question that this paper addresses is how does culture influence the alignment of business and IT in organizations. This question evolves from a research program aimed at exploring and understanding the differences of BIA in theory and in practice. With this knowledge the theory on BIA can be further developed, especially the organizational contingency factors that influence BIA in practice.

Step one of the research program was a literature review on the topic. The literature review focused on the following questions.

- *How is BIA defined and interpreted?*
- *Which theories are developed on BIA?*
- *What was the development path of BIA?*

This literature is not reported in his paper, but some relevant parts are included in the paragraph defining BIA.

The second step in the program was a number of focused group discussions in order to explore the practical side of BIA. The discussions were aimed at exploring the following questions.

- *Which issues are faced in aligning IT with business requirements in practice?*
- *Which actions are taken to align IT with business requirements?*

This research was reported in Silvius (2007). The results of the discussions give input to the construct of BIA as a result of the relationship between business professionals and IT professionals instead of a systematic methodology. This insight is also found in other studies (Luftman et al., 1999). The relationship can be well established and matured within an organization, with a clear process and assessment, or it can be still in its infancy. The third step of the research program therefore focuses on the assessment of the maturity of BIA in real-life companies and on understanding the contingency factors that influence these assessments.

The results of BIA maturity assessments are recently reported by Luftman (2007) and, on a much smaller scale, by several other authors (De Haes & Van Grembergen, 2008; Cumps et al., 2006; Silvius, 2007b; Ekstedt et al., 2005). These studies pay little attention to the influence of culture on the assessment scores of individual companies. Given however the influence of culture on the use and perception of IT, as was found in several studies (referenced in the paragraph 'Culture and IT'), it seems not unlikely that culture may also have an influence on BIA maturity.

## **THE CONCEPT OF CULTURE**

Hofstede (1991) defines culture as "the collective programming of the mind, which characterize the members of one organization from others." By "collective programming" Hofstede refers to the symbols, heroes, rituals and values that collectively define a culture. Symbols are specific words, gestures, objects of status symbols that carry a particular meaning to people of the same culture. Heroes are people, real or imaginary, dead or alive, that have the ability to influence behavior based on their status, skills or charisma. Rituals are activities that in itself are seemingly unnecessary, but in the culture are considered essential. Symbols, heroes and rituals are the practices of a culture. They are visible and observable to an outside spectator. At the core of a culture lie the values. Values are "broad tendencies to prefer certain states of affairs over others" (Hofstede, 1991). They represent how things "ought to be".

Cultures come in many different kinds or layers. Such as national cultures, organizational cultures, organizational subcultures and occupational cultures (Gefen & Straub, 1997; Hofstede, 1991). In this paper we explore the impact of national cultures on BIA. We rely on Hofstede's dimension framework to understand more about the characteristics of national cultures. Hofstede (1980) presented a model of national cultures, based on a survey of more than 50 countries involving more than 120,000 respondents. The model characterizes culture on four dimensions:

- **PDI (Power Distance Index)**  
The power distance index is an indication of the extent to which less powerful members of a society accept unequal distribution of power. It reveals dependence relationships in a country. A low PDI shows limited acceptance of power inequality and less dependence of subordinates on managers. It also shows a preference for consultation and cooperation.
- **IDV (Individualism vs. collectivism)**  
In cultures that are considered highly individualistic, individuals are loosely tied and are expected to look out for themselves and their family. In 'collectivist' cultures, people are integrated into strongly cohesive in-groups, and group loyalty lasts a lifetime. In individualistic cultures, time, punctuality and schedules are considered highly important, whereas in collectivistic cultures personal relationships and contacts prevail.
- **MAS (Masculinity vs. femininity)**  
In the dichotomy masculine versus feminine, a masculine culture values assertiveness, performance and material success. In a feminine society values like quality of life, tenderness and modesty prevail. In a feminine culture, individuals don't like to stand out or be unique, whereas in a masculine society success and career are valued highly.
- **UAI (Uncertainty Avoidance Index)**  
The uncertainty avoidance index is defined as "the extent to which the members of a culture feel threatened by uncertain or unknown situations" (Hofstede, 1991). Cultures with a high UAI have a large need for rules and regulations to guide tasks. Cultures with a low UAI are less rule-dependent and are more trusting (Mooij, 2000).

Based on follow-up research among students in 23 countries around the world, and criticism that the model represented a very 'western' way of thinking, a fifth dimension was added (Bond, 1984).

- **LTO (Long Term Orientation vs. Short Term Orientation)**  
This dimension is an indication of the perception of time in a culture and is based on the heritage of Confucius, the most influential Chinese philosopher who lived around 500 B.C. Values associated with Long Term Orientation are thrift and perseverance; values associated with Short Term Orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'.

Hofstede's framework is not undisputed. Some authors (Miller, et al. 2006, Smith and Bond, 1998) prefer alternative frameworks like Schwartz's (1994) because of its more recent nature. In this study we preferred Hofstede's framework because it is widely known and used amongst both academics and practitioners and because Schwartz achieved a refinement of Hofstede's work, rather than a contradiction (Miller, et al. 2006). Also the fact that Hofstede measured cultural differences by looking at opinions, actions and views of managers in organizations makes it suitable for our goal. Also BIA maturity is assessed by asking managerial opinions.

In his study, Hofstede measured the score of over 74 countries on these five dimensions. An overview of the scores per country is provided as appendix A.

## **CULTURE AND IT**

National culture influences the way IT is perceived or used. Several authors found proof of this in their studies. Table 2 provides an overview of some studies in this field.

**Table 1: Summary of Comparative Studies of cultural impacts on IT practices.**

<i>Authors</i>	<i>Main findings</i>
Straub (1994)	The author studied the effect of culture on IT diffusion of email and fax in Japan and the United States. His findings suggested why there are differences in email usage and choice among knowledge worker in different cultures.
Livonen, Sonnenwald, Parma, & Poole-Kober (1998)	The authors studied Finnish and American college students that collaborated in a common course using electronic discussion groups. Findings of the study show that cultural attitudes toward technology may influence people's beliefs and use of the technology.
Leidner, Carlsson, Elam, & Corrales (1999)	This study examined whether cultural differences influence perceptions of the relationship between Executive Information Systems (EIS) use and decision-making outcomes. The authors compared the responses from in Mexico, Sweden, and the United States. The study found significant differences, predicted by cultural factors, in the impact of EIS use on management decision-making.
Hofstede (2000)	The paper investigates the specific attributes of countries that influence IT adoption speed. Findings show that cultural variables (individualism and uncertainty avoidance) can be used to predict the ease and speed of changes. Cultures of high uncertainty avoidance are slow of adopting new technologies.
Veiga, Floyd & Dechant (2001)	This study discussed the effects of national culture on the acceptance of IT, using the Technology Acceptance Model (TAM). The authors compared acceptance in Japan and the United States and the findings suggest that Hofstede's dimensions of cultural differences play distinct roles in influencing the acceptance.
Png, Tan & Wee (2001)	This study compared the adoption of frame relay between the United States and Japan. The findings suggest that uncertainty avoidance, one of Hofstede's dimensions, affected the adoption decision of companies differently in the two countries.
Birgelen, Ruyter, Jong & Wtzels (2002)	The authors compared IT use in after-sales service-and-support operations in Sweden, Belgium, France, Spain, Austria, Ireland, Netherlands, United Kingdom, Norway, and the U.S. The findings suggest that cultural characteristics will partly determine the design of effective after-sales service contact modes.
Sørnes, Stephens, Sætre, & Browning (2004)	The authors studied how workers in Norway and the United States use information and communication technology (ICT). Their findings show that ICT use reflects Hofstede's findings for PDI and UAI, but that it doesn't reflect cultural differences for IDV and MAS.
Waartsa & Everdingen (2005)	This study investigates if national culture adds to the explanation of differences in adoption of innovations for firms operating in different countries. The authors performed a large-scale empirical study in 10 European countries concerning the adoption of Enterprise Resource Planning (ERP) software by medium-sized companies. Key finding is that variables describing national cultural highly significantly explain variance in adoption decisions in addition to the traditional micro and meso variables.
Neyestani, & McInturff, (2006)	This article discusses the various impacts from IT globalization and calls for a new global communication awareness.
Van Decrean (2007)	The author studied cultural differences in websites in Germany and the United States, using Hofstede's framework. His findings suggest a reflection of national cultures in the websites of international companies.

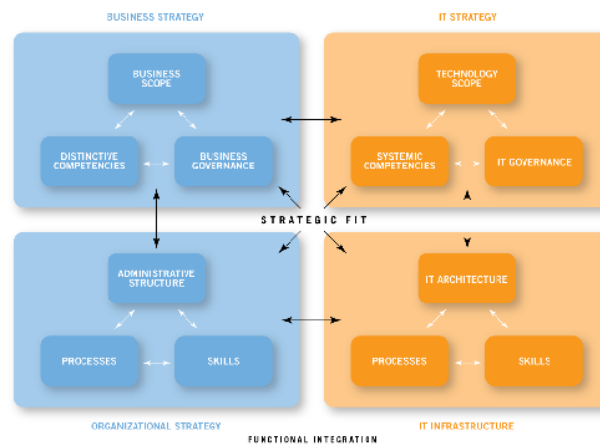
All of these studies show a certain impact of national cultures in the perception and use of IT. Given these findings it can be expected that culture also influences the alignment of IT and business. A relationship between the

effectiveness of BIA and culture is also suggested in several studied (e.g. Watson et al., 1997; Kaarst-Brown & Robey, 1999; Baker, 2004).

## BUSINESS & IT ALIGNMENT

Understanding the potential impact of national cultures on BIA requires an understanding of the concept of alignment. Expressions used to explain 'alignment' are: 'fit' (Venkatraman, 1989), 'harmony' (Luftman et al., 1993), 'integration' (Weill & Broadbent, 1998), 'linkage' (Henderson & Venkatraman, 1993), 'bridge' (Ciborra, 1997) or 'fusion' (Smaczny, 2001). Most of these expressions can be interpreted as a verb or as a noun. Therefore the question arises whether BIA is a 'state', or level that can be achieved, or a 'process', to get to a certain (higher?) state. The concept of BIA as a 'state' is further developed by several authors (e.g. Luftman, 2000; Reich & Benbasat, 1996) in assessment instruments that 'measure' a degree or level of BIA. The process approach to BIA can be found in the methodologies of IT planning developed in the '70s and '80s (IBM Corporation, 1981; Martin, 1982). Also Weill and Broadbent (1998) support the process view when they state 'Alignment is a journey, not an event'.

**Figure 1. The 'Strategic Alignment Model'.**



A second question is whether IT aligns to business or business to IT? Or both? Wieringa et al. (2005) define BIA as 'the problem of matching IT services with the requirements of the business', identifying business as leading. This logical, but also traditional, approach is opposed by Poels (2006) who states that BIA implies a 'mutual influence' between business and IT.

In this jungle of questions and opinions, Business & IT Alignment delivers well over a million Google hits, Chan (2002) distinguishes two prevailing conceptualizations of the alignment problem. The first one focuses on planning and objectives integration and views alignment as the degree to which the business mission, objectives and plans are supported by the IT mission, objectives and plans. This view can be found with Reich and Benbasat (1996), Kearns and Lederer (2004) and Hirschheim and Sabherwal (2001). A more holistic conceptualization of BIA can be found with Henderson and Venkatraman (1993). Their widespread framework of alignment, known as the Strategic Alignment Model, describes BIA along two dimensions (Figure 1). The dimension of strategic fit differentiates between external focus, directed towards the business environment, and internal focus, directed towards administrative structures. The other dimension of functional integration separates business and IT. Altogether, the model defines four domains that have been harmonized in order to achieve alignment. Each of these domains has its constituent components: scope, competencies, governance, infrastructure, processes and skills. Henderson and Venkatraman pay extensive attention to the different approaches of achieving this alignment.

Following this more holistic approach, we define BIA as *the degree to which the IT applications, infrastructure and organization, enable and support the business strategy and processes, as well as the process to realize this*. In this definition both the views of BIA as a 'state' and as a 'process' can be recognized. For the analysis of the impact of national cultures however we rely on Luftman's BIA maturity model, that focuses on an organization's BIA capability as a measurable 'state'.

Luftman based his BIA maturity assessment model on the components of the strategic alignment model and his research on the enablers and inhibitors of BIA (Luftman et al., 1999). In this model six criteria are used to determine the maturity of the alignment of IT and business (Luftman, 2000). These six criteria are described in table 2.

**Table 2. BIA Maturity Variables.**

<i>BIA maturity variable</i>	<i>Description</i>
Communication	How well does the technical and business staff understand each other? Do they connect easily and frequently? Does the company communicate effectively with consultants, vendors and partners? Does it disseminate organizational learning internally?
Value measurement	How well does the company measure its own performance and the value of its projects? After projects are completed, do they evaluate what went right and what went wrong? Do they improve the internal processes so that the next project will be better?
Governance	Do the projects that are undertaken flow from an understanding of the business strategy? Do they support that strategy? Does the organization have transparency and accountability for outcomes of IT projects.
Partnership	To what extent have business and IT departments forged true partnerships based on mutual trust and sharing risks and rewards?
Scope & Architecture	To what extent has technology evolved to become more than just business support? How has it helped the business to grow, compete and profit?
Skills	Does the staff have the skills needed to be effective? How well does the technical staff understand business drivers and speak the language of the business? How well does the business staff understand relevant technology concepts?

In the concept of BIA maturity, the level of maturity indicates an organization's capability to align IT to business needs. As in many maturity models, Luftman's BIA maturity assessments involves five levels of maturity:

1. Initial / Ad Hoc Process
2. Committed Process
3. Established Focused Process
4. Improved / Managed Process
5. Optimized Process

Since its publication, the application of Luftman's maturity model has been reported by several authors (De Haes & Van Grembergen, 2008; Cumps et al., 2006; Silvius, 2007; Luftman, 2007; Ekstedt et al., 2005). These studies analyze the results of the assessments by industry sector, by respondent and/or by organizational contingencies. The potential influence of national cultures on BIA maturity is however not analyzed in these reports.

### **THE IMPACT OF NATIONAL CULTURES ON BUSINESS & IT ALIGNMENT**

Given the impact of national cultures on the use and perception of IT, found in earlier studies, it can be expected that cultures also influence the perception of BIA maturity on the different variables of Luftman's assessment model. For example, in individualistic cultures personal task prevail collective tasks (Veiga et al., 2001). A high IND culture should therefore be expected to result in a lower Partnership maturity. As a conceptual exercise, the potential effects of Hofstede's dimensions of culture on Luftman's variables of BIA maturity are mapped in table 3. Based on indications in literature an analytical reasoning, an expected effect was formulated for each combination of a culture dimension and a BIA maturity variable. Per field in the table, the expectations are formulated by taking a score on the culture dimension as an independent variable and the effect on the BIA maturity variable as dependent.

This exercise of course has all the limitations of a conceptual mapping, but it provides a structure and basis for the formulation of hypothesis that can be empirically tested.

Table 3. The potential effect of Hofstede’s dimensions of culture on Luftman’s variables of BIA maturity.

		Dimensions of national culture				
		Power Distance Index	Individualism vs. Collectivism	Masculinity vs. Femininity	Uncertainty Avoidance Index	Long Term Orientation
Business & IT Alignment maturity criteria	Communications maturity	Based on the findings of Sarnes et al. (2004) it can be concluded that a low PDI score indicates close working relationships between hierarchical levels and assertive behavior by subordinates. This can be expected to result in a higher Communications maturity because of more intensive and less formalized communication.	In individualistic societies, the task will normally prevail over personal relationships (Hall, 1976; Wallis, 1993). A high IND score could therefore indicate a much task oriented communication that will result in a high maturity score, but lacks personal warmth that may be important in case of problems.	Hofstede's (2000) findings support the claim that one-way communication will be more prominent in masculine countries, while two-way communication prevails in feminine countries. It should therefore be expected that a high MAS culture scores relatively lower on Communications maturity.	A high UAI culture can be expected to score relatively lower on Communications maturity because of its tendency towards certainty which does not stimulate open and informal communication	A high LTO culture can be expected to score high on Communications maturity because of its orientation on developing relationships (Hall, 1976; Wallis, 1993).
		PDI ↑ → Communications maturity ↓	IND ↑ → Communications maturity ↑	MAS ↑ → Communications maturity ↓	UAI ↑ → Communications maturity ↓	LTO ↑ → Communications maturity ↑
	Value measurement maturity	Following the motivation stated under 'Communications', a lower PDI score can be expected to result in less need for creating transparency, procedures and reports that enhance Value measurement, therefore resulting in a lower maturity on this factor.	Individualistic cultures will normally show a high appreciation of value and performance. It should therefore be expected that these societies score relatively high on Value measurement maturity.	A high 'masculine' culture values value assertiveness and focus on material success, while 'feminine' countries value modesty, tenderness, and quality of life (Hofstede, 1991). A high MAS score can therefore be expected to score high on Value measurement maturity.	Following the argumentation of Sarnes et al. (2004), a high UAI culture can be expected to avoid uncertainty about value, resulting in a higher score on Value measurement maturity.	A short term orientation will result in more focus on short term performance, therefore a low LTO culture can be expected to score high on Value measurement maturity.
		PDI ↓ → Value measurement maturity ↑	IND ↑ → Value measurement maturity ↑	MAS ↑ → Value measurement maturity ↑	UAI ↑ → Value measurement maturity ↑	LTO ↑ → Value measurement maturity ↓
	Governance maturity	Again based on the findings of Sarnes et al. (2004) that concluded that a low PDI score indicates close working relationships between hierarchical levels and assertive behavior by subordinates, it should be expected that in cultures with a low PDI there is less need for formalised governance processes, resulting in a relatively lower Governance maturity.	In Hofstede's study, the United States scores highest (most individualistic) of all nations on this dimension. The United States also developed strongly in governance as a reaction to fraudulent actions of individuals. It should therefore be expected that High IND cultures also score high on Governance maturity.	Because of its orientation on material success, performance and measurement stated above, a high MAS culture can be expected to score high on Governance maturity.	Following the argumentation of Sarnes et al. (2004), a high UAI culture can be expected to score high on Governance maturity because of its tendency to require certainty	A high LTO culture can be expected to pair with a high Governance maturity because of the guidance that is provided with governance. On the other hand, a short term orientation will result in more focus on short term performance which also requires a high Governance maturity. Therefore no straightforward indication can be found for the relationship between LTO and Governance maturity.
		PDI ↑ → Governance maturity ↑	IND ↑ → Governance maturity ↑	MAS ↑ → Governance maturity ↑	UAI ↑ → Governance maturity ↑	LTO ↑ → Governance maturity ?
	Partnership maturity	Following the motivation given under 'Communications', a lower PDI score can be expected to result in a higher Partnership maturity because of more intensive, less formalized and richer communication	In individualistic cultures personal task prevail collective tasks (Veiga, et al., 2001). A high IND culture should therefore be expected to result in a lower Partnership maturity. On the other hand, Van Biggelen et al. (2002) found that in an individualistic culture people therefore seem to be more innovative and trusting in exchange relationships with external parties, which could be reflected in a higher Partnership maturity.	In more feminine cultures individuals don't like to stick out, be unique or conspicuous, unlike the more assertive and career-seeking individuals found in masculine cultures (Sarnes et al., 2004). This 'live and let live' approach could enhance partnerships between individuals, departments or organizations. A less MAS culture should therefore be expected to result in a higher Partnership maturity.	Given the fact that 'partnership' in general is based more on trust than on certainty, it should be expected that a high UAI culture scores relatively lower on Partnership maturity.	A high LTO culture can be expected to score high on Partnership maturity because of its appreciation for the long term collective goals and interests (Veiga, et al., 2001).
		PDI ↑ → Partnership maturity ↓	IND ↑ → Partnership maturity ?	MAS ↑ → Partnership maturity ↓	UAI ↑ → Partnership maturity ↓	LTO ↑ → Partnership maturity ↑
	Scope & Architecture maturity	Given the characteristics of this factor, no indication was found to indicate how the PDI relates to the Scope & Architecture maturity.	Given the more collective nature of architecture it can be expected that a high IND culture should reflect in a relatively low score on Architecture maturity. On the other hand, the findings of Van Biggelen et al. (2002) mentioned above provide indication that a more individualistic culture reflects in a higher Architecture maturity because of its openness to exchange relationships with external parties.	Because of its tendency to appreciate individual performance and success, a more masculine culture should be expected to score lower in Scope & Architecture maturity, which has a non-individual character.	A high UAI culture can be expected to score high on Architecture maturity because of its tendency to create certainty and security, and the slower rate of adoption of new technologies found by Png et al. (2001)	A high LTO culture can be expected to score high on Architecture maturity because of the long term character of these assets.
		PDI ↑ → Scope & Architecture maturity ?	IND ↑ → Scope & Architecture maturity ?	MAS ↑ → Scope & Architecture maturity ↓	UAI ↑ → Scope & Architecture maturity ↑	LTO ↑ → Scope & Architecture maturity ↑
	Skills maturity	The high level of assertiveness that is expected to result from a low PDI score is stimulating entrepreneurship and initiative in lower organisational levels and can therefore be expected to result in a high Skills maturity.	A high IND culture can be expected to result in a high Skills maturity because of its appreciation of individual skill development	Because of its orientation on work and material success (Hofstede, 1991), a high MAS culture should be expected to result in a higher Skills maturity. On the other hand, a more 'feminine' culture can be expected to stimulate a more diverse skills development that in fact could also result in a higher Skills maturity score.	Based on the findings of Livonen et al. (1998) it can be expected that a high UAI decreases the pace of individual learning and will result in a lower Skills maturity	A high LTO culture can be expected to score high on Skills maturity because of the long term character of skills development.
		PDI ↑ → Skills maturity ↓	IND ↑ → Skills maturity ↑	MAS ↑ → Skills maturity ?	UAI ↑ → Skills maturity ↓	LTO ↑ → Skills maturity ↑

Based on this conceptual mapping, it can be expected that:

- Cultural aspects in general are likely to have an impact on the different variables of BIA maturity assessment.
- The effects of cultural dimensions on BIA maturity scores are not straightforward, but some expectations can be specified:
  - A highly individualistic culture is expected to have a positive effect on most BIA maturity variables, resulting in a higher overall BIA maturity.
  - A strong long term orientation is also expected to have a positive BIA maturity overall.
  - The culture dimensions power distance, masculinity and uncertainty avoidance are expected to influence the BIA maturity variables in different directions.
- Cultural aspects are likely to have the most impact on variables that strongly involve social interaction, therefore the variable 'Scope & Architecture maturity' is expected to be least influenced by cultural aspects.

### IMPLICATIONS

The main contribution of this study is that it identifies national culture as a contingency factor of BIA maturity of organizations. Like other contingency factors, industry (Luftman, 2007), IT strategy (Cumps et al., 2006b) and respondent perception (Silvius, 2007b), understanding the impact of national cultures helps tailoring BIA processes, structures and actions to the specific characteristics of an organization. Tailoring BIA to organizational characteristics is an important addition to the extensive literature in which BIA is treated as a 'one size fits all' concept that provides a solution for all organizations (Cumps et al., 2006b).

## CONCLUSIONS

The conceptual analysis of the potential influence of national cultures on BIA maturity provides indications that this influence is indeed more than likely and that its influence is complex. The limitations of this analysis of course being that it is based on literature research and conceptual mapping. Given these limitations further empirical work needs to be done to test this conclusion. It is our intention to find suitable organizations to perform this research.

Pending empirical testing however it should be taken into consideration that published studies on the alignment of business and IT discard this potential factor of influence. This influence is assumed to be of substantial impact especially in European studies, but also studies that consider organizations based in the United States may be biased by cultural differences between regional cultures within the United States.

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## Appendix A:

## Scores of nations on Hofstede's five dimensions of culture

Country	PDI Distance Index	IDV Individualism	MAS Masculinity	UAI Avoidance Index	LTO Long-Term Orientation	Country	PDI Distance Index	IDV Individualism	MAS Masculinity	UAI Avoidance Index	LTO Long-Term Orientation
Arab World **	80	38	52	68		Luxembourg *	40	60	50	70	
Argentina	49	46	56	86		Malaysia	104	26	50	36	
Australia	36	90	61	51	31	Malta *	56	59	47	96	
Austria	11	55	79	70		Mexico	81	30	69	82	
Austria	11	55	79	70		Morocco *	70	46	53	68	
Bangladesh *	80	20	55	60	40	Netherlands	38	80	14	53	44
Belgium	65	75	54	94		New Zealand	22	79	58	49	30
Brazil	69	38	49	76	65	Norway	31	69	8	50	20
Bulgaria *	70	30	40	85		Pakistan	55	14	50	70	0
Canada	39	80	52	48	23	Panama	95	11	44	86	
Chile	63	23	28	86		Peru	64	16	42	87	
China *	80	20	66	30	118	Philippines	94	32	64	44	19
Colombia	67	13	64	80		Poland *	68	60	64	93	32
Costa Rica	35	15	21	86		Portugal	63	27	31	104	
Czech Republic *	57	58	57	74	13	Romania *	90	30	42	90	
Denmark	18	74	16	23		Russia *	93	39	36	95	
East Africa **	64	27	41	52	25	Singapore	74	20	48	8	48
Ecuador	78	8	63	67		Slovakia *	104	52	110	51	38
El Salvador	66	19	40	94		South Africa	49	65	63	49	
Estonia *	40	60	30	60		South Korea	60	18	39	85	75
Finland	33	63	26	59		Spain	57	51	42	86	
France	68	71	43	86		Surinam *	85	47	37	92	
Germany	35	67	66	65	31	Sweden	31	71	5	29	33
Greece	60	35	57	112		Switzerland	34	68	70	58	
Guatemala	95	6	37	101		Taiwan	58	17	45	69	87
Hong Kong	68	25	57	29	96	Thailand	64	20	34	64	56
Hungary *	46	80	88	82	50	Trinidad *	47	16	58	55	
India	77	48	56	40	61	Turkey	66	37	45	85	
Indonesia	78	14	46	48		United Kingdom	35	89	66	35	25
Iran	58	41	43	59		United States	40	91	62	46	29
Ireland	28	70	68	35		Uruguay	61	36	38	100	
Israel	13	54	47	81		Venezuela	81	12	73	76	
Italy	50	76	70	75		Vietnam *	70	20	40	30	80
Jamaica	45	39	68	13		West Africa	77	20	46	54	16
Japan	54	46	95	92	80						

\* Estimated values

\*\* Regional estimated values:

'Arab World' = Egypt, Iraq, Kuwait, Lebanon, Libya, Saudi Arabia, United Arab Emirates

'East Africa' = Ethiopia, Kenya, Tanzania, Zambia

'West Africa' = Ghana, Nigeria, Sierra Leone

Source: [http://www.geert-hofstede.com/hofstede\\_dimensions.php](http://www.geert-hofstede.com/hofstede_dimensions.php) on February 28th, 2008.

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