Impact of Building Human Resources on Business-IT Alignment

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ARTICLE INFO	ABSTRACT
	The purpose of this research is to understand and quantify the impact of Building Human Resources on Business-IT Alignment and strength of interaction among them. A theoretical framework is proposed regarding the constructs of Human Resources (BHR), and Business-IT Alignment (BIA) and the construct validity was established. The sample data from 65 firms were obtained through structured questionnaires. Structural equation modeling (SEM) was used to understand the relationships among each of the construct and its attributes. Building Human resources had a strong effect on the Business-IT Alignment , and is statistically significant.

1.Introduction

Business IT alignment is defined as the extent to which the IT strategy supports, and is supported by, the Business Strategy.

(Venkatraman, et al., 1993), stated that during the last two decades, Information Technology (IT) has become very critical in providing support, sustaining the competitive position and enabling the growth of business. However the alignment of IT with business strategy has been consistently ranked as the single most important issue facing business and IT executives, not only in North America but also in Europe.

(Kaur & Sengupta, 2011) conducted a research w to understand the reasons for the failure of software. Their findings indicate that majority of the projects fail to meet their objectives due to poorly defined applications, miscommunication between business and IT, poor requirements gathering, analysis and management costing U.S. businesses about $30 billion every year.

2.Method

The following picture describes the method followed to achieve the purpose of this research paper.

3.Literature Review

(Weill & Aral, 2006) Conducted their research and discussion with CIOs and IT managers at 147 U.S. companies in large U.S & European and Asian organizations to understand the IT savvy. They found that many companies are still not able to utilize the total potential of their IT investments, although they implement IT portfolio management as a best practice, The studies show that a measurable premium benefit can be gained by implementing a set of interlocking business practices and processes, known as IT savvy. There are three practices related to IT use and two competencies needed for establishing IT savvy. The three practices for IT are internal & external communication, Internet use, Digital transactions and the competencies needed are companywide IT skills & management involvement. These practices and competencies would facilitate the company to achieve business – IT alignment.

(Heather, et al., 2007) conducted research to understand the issue of how to develop an effective strategy using focus group methodology. The research identified the critical success factors for creating the business value through building the IT strategy and challenges involved. The critical success factors included revisiting the business model on a periodic basis, developing strategic themes to develop business capabilities and building partnerships with business. The major challenges are lack of supportive governance structure, lack of enterprise-wide funding models, lack of appropriate traditional planning and budgetary practices, lack of better skills of business and IT leaders for strategizing and finally inability of IT strategy to create balance among conflicting strategic imperatives.

(Smith & Mckeen, 2010) describe the issues with respect to the communication between the business and IT. One of the most important skills all IT staff need to develop today is how to communicate effectively with business. Over and over, research has shown that if IT and business cannot speak the same language, focus on the same issues and communicate constructively, they cannot build a trusting relationship. And business is consistently more negative about IT's ability to communicate effectively than IT is. In fact, even while IT collaboration is improving, business's assessment of IT's communication skills is declining. While much attention has been paid to organizational alignment between IT and business (e.g., governance, structure) very little has been paid to the nature and impact of the social dimension of alignment, a big element of which involves communication. To explore the business and interpersonal competencies that IT staff will need in order to do their jobs effectively over the next five–seven years and what companies should be doing to help develop them, the authors convened a focus group of senior IT managers from a variety of different organizations.

(Tunuguntla etal,2013), conducted research to understand and quantify the direct and indirect effects of Business Value Planning and Human Resources on Business-IT Alignment. A theoretical framework is proposed regarding the constructs of Business Value Planning (BVP), Human Resources (BHR) and Business-IT Alignment (BIA) and the construct validity was established. The sample data from 65 firms were obtained through structured questionnaires. Structural equation modeling (SEM) was used to understand and quantify the relationships.

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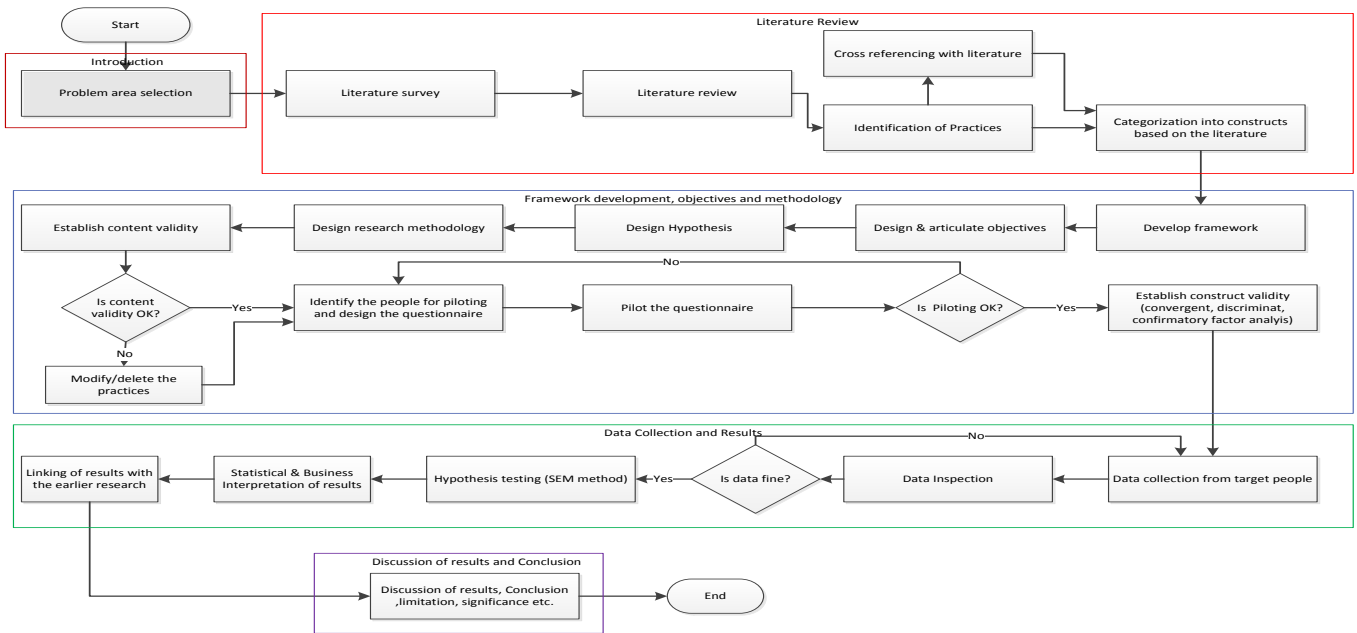
Business Value Planning had a significant Direct effect on the Business-IT Alignment and Human Resources has a significant Direct and Indirect effect on Business-IT alignment. The tested framework suggests that Human Resources is essential and plays a key role during the Business Value Planning contributing to the linkage of Business Value Planning and Business-IT alignment.

(Tunuguntla etal,2013) conducted a study in the context of Indian IT industry to understand and quantify the direct and indirect effects of partnership and building human resources on business-IT alignment. The research identified about seven to eight empirical studies that described the interaction between the factors considered in this study and business-IT alignment. A theoretical framework was proposed regarding the constructs of partnership, human resources and business-IT alignment (BIA). The sample data from sixty-five firms were obtained through structured questionnaires. Structural equation modeling (SEM) was used to understand the strength of relationships among the three constructs and estimate the probability associated with the indirect effects using bootstrap technique. The results showed that building human resources and developing partnership between business and IT groups have a significant direct and indirect effect on business-IT alignment. The results suggest that building human resources and partnership is essential and play a key role to establish business-IT alignment contributing to business strategy.

(Roses, L.K et al, ,2015) proposed a model of conversational competences for Business and IT managers aiming at the strategic alignment between their areas. The theory of this alignment highlights the importance of communication between Business and IT areas, which is explored in the social dimension of their managers' relationship through conversational competences. A survey research was performed with Business and IT managers from public and private organizations in Brazil, whose data were analyzed through multivariate statistical techniques - exploratory and confirmatory factor analysis - and thematic content analysis. The results confirmed the constructs and most of the hypotheses of the proposed research model, which was expanded with new constructs and hypotheses

Mapping of Practices with Literature

The research described above indicates the impact of BHR, on Business-IT alignment. So the literature has been surveyed to get the support from the literature for each of the factors considered under each construct and the same is provided in the form of tables below.

Table 3.1 Mapping between BHR Practices and Literature.

Practice number	Build Human Resources(BHR)	Cross referencing
1	Availability of people who are working in the IT are Business Savvy	(Weill & Aral, 2006) ; (Luftman & Brier, 1999), (Feeny & Willcocks, 1998), (Baets, 1996); (Hatfield, et al., 2008)
2	Availability of people who are on the business side are who are familiar with the aspects of IT	(Luftman & Brier, 1999), (Feeny & Willcocks, 1998), (Hatfield, et al., 2008)
3	Availability of people working in both IT and business side who have strong communication skills	(Luftman & Brier, 1999) (Hatfield, et al., 2008)
4	Availability of people who are good at working at local and virtual teams	(Luftman & Brier, 1999), (Hatfield, et al., 2008)
5	Availability of people who have the adaptability to move between Business and Application/Product development requirements effectively	(Khani, et al., 2011), (Hatfield, et al., 2008)

Table 3.2 Mapping between BIA Practices and Literature.

Practice number	Business – IT Alignment(BIA)	Cross referencing
6	Assessment of the alignment between Business and IT	(Luftman & Brier, 1999), (Callahan & Keyes, 2003)
7	Understanding of Business case (including the value indicators) prepared for the IT Initiatives	(Buckhow & Rey, 2010) (Callahan & Keyes, 2003)
8	Building approach for computing the value indicators (the metrics that quantify the business expectations. For e.g ."billing accuracy" in case of telecom billing products)	(De Haes & Van Grembergen, 2006); (Van Der Zee & De Jong, 1999) (Farrell, 2003) (Callahan & Keyes, 2003)
9	Tracking success of the IT initiatives	(Luftman & Brier, 1999)
10	Updating business case and compares actual benefits with the planned benefits	((Chad, et al., 2005)
11	Assessment of value add to the Business from each portfolio based on the value indicators (for eg dollars saved due to "billing accuracy" incase of Telecom billing products) identified during Business value Planning state.	(Luftman & Brier, 1999)

4. Framework development, objectives and Methodology
4.1 Rationale for developing the Research Frame work

The rationale for the framework is developed by identifying how BHR impacts Business-IT alignment and then the framework is designed by connecting the two constructs.

Table 4.1 Rationale for Research Model Design.

Paths in Research Design			Evidence from Literature survey
BVP	<---	BHR	(Feeny & Willcocks, 1998)
BIA	<---	BHR	(Nelson and Cooprider, 1996)

4.2 Research Framework

Based on the above rationale, the research framework is developed and SEM is used further to model this in quantitative terms.

4.3 Objective of the Study
- To understand the impact of Build Human Resources on Business-IT alignment in the context of Indian IT Industry

4.4 Hypothesis Design

Hypothesis (H1) : Build Human resources does not affect Business-IT alignment

Research Design

The basic research design selected for this initiative is cross sectional survey conducted in the IT cover IT Industry in Chennai, Hyderabad, Pune and Noida who are in System Integration, through stratified random sampling from Middle and Senior Management executives with 5 plus years of experience. The questionnaire has been derived with factors of, Human Resources, and Business-IT alignment using a 5 point scale (1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree). The tools used for Construct Validity are Content Validity, Reliability, Content Validity, Discriminant Validity and Confirmatory Factor Analysis. Correlation, Regression have been used to acquire appropriate inferences and testing of hypothesis. For validating the constructs, confirmatory factor analysis using Structural Equation Modelling has been used (herein after called as SEM).

Control variable

Control variable here is "type of organization". The examples for types of organizations could be that it is a System integration business or product development business or Captive IT. In this research, the target population is only System integration business and it is constant throughout the research.

4.5 Content Validity

A widely used method to measure content validity was developed by (Lawshe, 1975). It is a method for gauging the agreement among the experts regarding the essentiality of a particular item.

It is computed that Mean Content Validity Ratio (CVR) = 0.79 as compared to the target value of 0.50. For each practice the Content Validity ratio has exceeded the expected target value (which is based on the 15 subject matter experts) as per the above table. Since the Mean Content validity and the Content validity for each of the practice have exceeded their expected target values, we can conclude that the practices are in line with the expectations of the Subject Matter Experts and having high relevance in the Indian context to assess the relationship between BHR, and Business-IT alignment.

4.6 Piloting & Construct Validity
4.6.1 Reliability

The pilot survey was conducted with 49 respondents and checked for its reliability (for all the three factors together) with Cronbach alpha test (Cronbach & Meehl, 1955) and found to be 0.81. Since the pilot survey has shown a significant reliability value, the survey was continued to collect the data. Cronbach reliabilities for the pilot study also had been done for all four factors (BHR, and BIA) separately and the outcomes are 0.87, to 0.85.

Table . Content Validity of BHR and BIA.

Item/Practice no	Business-IT alignment						Build Human resources				
	6	7	8	9	10	11	1	2	3	4	5
Computed (CVR)	1	0.9	0.9	0.6	0.9	0.6	0.73	0.6	0.9	0.7	0.9
No of SMEs responded	14	15	15	14	14	14	15	14	14	14	14
Target Value	0.5	0.5	0.5	0.5	0.5	0.5	0.49	0.5	0.5	0.5	0.5

4.6.2 Convergent Validity

(Bagozzi and Phillips 1982) conducted research on convergent validity to understand "if measures of constructs that theoretically *should* be related to each other are, in fact, observed to be related to each other". Convergent validity is "the degree to which two or more attempts to measure the same concept…are in agreement".

Item convergence was assessed through the calculation of the average variance-extracted scores. Commonly, scores greater than 0.50 support a case for convergent validity (Fornell & Larcker, 1981).

According to results obtained, all of the "Average Variances Extracted" for constructs was greater than 0.50. Thus, convergent validity is evident.

According to all the average variances extracted estimates were close to or greater than 0.50 Thus, convergent validity is evident.

4.6.3 Discriminant Validity

Discriminant validity is "the degree to which measures of distinct concepts differs" (Bagozzi & Philips, 1982). Measures of different constructs should share little variance. Discriminant validity is important to the discussion of model fit because it establishes that two or more constructs are separate and distinct from one another. If constructs are separate and distinct from one another, then it can be established whether or not a predictive or causal relationship exists between them.

The results support the existence of Discriminant Validity, as the Average Variance Extracted (AVE) for each of the Constructs was greater than the shared variance between the construct and all other constructs.

Confirmatory Factor Analysis

Upon satisfactory results, Confirmatory Factor Analysis (CFA) was performed to confirm the findings using SPSS Amos 20.0.

Interpretation of CFA

The structural equation modeling approach using Confirmatory Factor Analysis (CFA) compliments traditional methods of evaluating reliability (like Chronbach alpha) and validity. The measurement model examines the relationship of observed indicators to their underlying constructs (latent variables), and provides a confirmatory assessment of convergent validity by evaluating the significance of the estimated indicators coefficients.

The measures were validated through CFA using single factor model (Albright & Park, 2009). Here maximum likelihood method is used in AMOS 20.0 version. For all the items under each of the construct, the regression loadings are shown in the table listed above.

5. Data Collection and results

Questionnaires and interviews are a commonly used method of gathering data for research purposes. The major inputs considered for designing the questionnaire are the research objectives, hypothesis and the research framework and target population of research. The questionnaire is divided in to 2 sections with a total of 11 questions. 269 valid filled questionnaires have been received

5.1 Results

5.1.1 Hypothesis Testing

AMOS 20.0 was used to perform conformatory factor analysis and understand the relationship between the two constructs. In this case the probabilities associated with the building human resources on Business-IT alignment are computed to understand the statistical significance.

Diagram
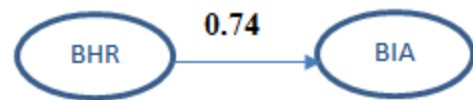
6.1 Effect of Build human resources (BHR) on Business-IT alignment (BIA)

Build Human Resource Skills (BHR) affects the Business – IT Alignment (BIA). The effect of BHR on BIA is 0.74 and it is statistically significant at 1% level. The effect 0.74 indicates that when BHR goes up by 1 standard deviation, BIA goes up by 0.74 standard deviations. *So the null hypothesis (H1) is not supported and alternate hypothesis is accepted.* This signifies that higher levels of capability of IT people to understand business domain and understanding of IT by business people is contributing to Business-IT Alignment. Also the adaptability of the people to move between IT and business seems to effect Business-IT alignment. (Gutierrez, 2011) Conducted his research in UK in a large company in the insurance and finance sector. This study focused on assessing the alignment at enterprise level and business unit level between human resource skills and Business-IT Alignment. The results are found to be positive and support the current study

6.2 Conclusion

The effect of BHR signifies that, Building Human Resources (BHR) supports business processes like business value planning by providing appropriate human resources. It means that higher levels of capability of IT people to understand business domain and understanding of IT by business people is contributing to the factors like understanding of business case and building the approach for computing the value indicators to measure the business expectations and assess the value add to the business that are partly attributes of Business-IT Alignment.

6.3 Research implications

6.3.1 Implications for Theory base

The implications of this research towards the theory are to build a structure for the constructs building Human resources, that is impacting the Business-IT Alignment and provide a framework. The construct structures are designed using the literature survey and tested through confirmatory factor analysis - single factor model using Maximum Likely hood method (ML) through Structured Equation Modeling (SEM). The confirmatory factor analysis showed very good relationships between the constructs and the items under each of the constructs. The model fit values match or exceed the expectations from the literature. The framework developed would add value to the theory base as it describes interaction between the BHR and Business-IT alignment.

6.3.2 Implications for IT organizations

The study describes a very good correlation between Building the Human Resources, and Business-IT alignment. So the focus on Building Human Resources would help the IT organizations to develop appropriate skills like business understanding, ability to move between Business & IT etc.

6.4 Limitation

• The size of the organization could play a role and thus focusing on Small/Medium/Large organizations may result in a different model/Interrelationships.

• In the current study, the maturity of the organization is not considered in the scope and the maturity of the organization could alter the findings.

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