Does Entrepreneurial Strategy Influence Business-IT Alignment? Evidence from Saudi Arabia's Start-Up Organizations

Waleed Saeed Afandi
King Abdulaziz University
Saudi Arabia

Abstract

The role of entrepreneurial strategy in business-IT alignment formation and development of IT capabilities has only recently become a point of interest of organizational and information technology studies. This paper contributes to this this research area by investigating whether different types of strategy bring about distinct forms of IT-business alignment in startup firms. A survey of Saudi managers and IT specialists in such firms was conducted to test for differences in strength across six types of alignment defined within Strategic Alignment Model (Henderson & Venkatraman, 1999). The results of the study demonstrated statistically significant differences in five types of alignment based on a startup's chosen strategy. Theoretical and practical implications are discussed and further research areas are suggested.

Keywords: Entrepreneurial Strategy, Business–IT Alignment, Intellectual Property, Value Chain, Architecture, Disruption, Saudi Arabia.

1. Introduction

Studies in organizational and information technology (IT) fields have long recognized the importance of business-IT alignment (BITA) for organizational success (e.g., Chan et al., 2006; Gerow et al., 2015; Karpovsky & Galliers, 2015). A wide variety of relevant research areas emerged as a result. Notable theoretical developments have been undertaken to conceptualize BITA (Avison et al., 2004; Chan & Reich, 2007; Tallon, 2016) and develop alignment models (Bhattacharya, 2018; Henderson & Venkatraman, 1993). Empirical investigations explored BITA antecedents and barriers (Alaceva& Rusu, 2015; Chan et al., 2006; Rahimi et al., 2016; Yayla & Hu, 2009) as well as the links between BITA, organizational performance, and other organizational outcomes such as improved efficiencies, responsiveness, and competitive advantage (Almajali, 2011; Gerow et al., 2014; Yayla & Hu, 2012; Wu et al., 2015).

Still, one area where BITA research seems lacking is the role of entrepreneurial strategy which applies in the context of start-up firms. Indeed, recent systematic literature reviews show that while BITA has been investigated in both private and public organizations and organizations of different size, new ventures received very little attention (Jonathan et al., 2020). Sun and Chen (2006) used a Dynamic Capability perspective to examine how strategic alignment was achieved in a new venture through integration and reconfiguration of IT resources. More recently, a case study by Street et al. (2018) examined the process of initiating and developing BITA in two new ventures. While these studies offered good insights into the process of achieving BITA in newly created firms, they were limited in scope and the number of participant organizations thereby making the results difficult to generalize. Further, these studies did not answer the questions whether distinct differences in terms of BITA emerge in different types of ventures and whether any of these approaches is superior for creating strategic alignment. This study aims to fill this gap in knowledge by analyzing a large sample of startup ventures with the purpose of examining the effect of different entrepreneurial approaches on BITA development and comparing those effects.

2. Literature Review

Two strands of literature are relevant for examination of entrepreneurial strategy effects on BITA. One relates to entrepreneurship theory and considers the concepts of entrepreneurial strategy, orientation, and action. The other strand focuses on strategic alignment theory and action. These literature strands form a basis for the conceptual model applied in this study.

2.2 Entrepreneurial Strategy

Entrepreneurial strategy (ES) has been used in research literature for several decades. Murray (1984) defined it as "the means through which an organization establishes and re-establishes its fundamental set of relationships with its environment" (p. 1). More recent views on ES consider it as a value creation process based on choices where individuals exploit opportunities through effective combination of resources and skills to create new products services, and technologies (Dyduch, 2019; Gans et al., 2018; Johnson et al., 2017). It can be said that ES literature

closely relates to and draws from other fields such as decision making under environmental uncertainty (Gavetti& Rivkin, 2007; Vecchiato, 2012) and entrepreneurial experimentation (Contingiani, 2020; Kerr et al., 2014).

Entrepreneurial strategy is strongly linked to the process of establishing and creating a new organization. New ventures operate and organize strategically under different conditions than the established firms (Gans et al., 2018; Hampel et al., 2020). From the very beginning, a startup has to position itself innovatively in a way that ensures survivability in a given environment (Collis 2016; Drori et al., 2009). In contrast, the established organizations are likely to be less resource-constrained and time-constrained. On the other hand, new ventures are usually not dependent on the established systems, organization of work or culture, which offers their founders a wider strategic choice (Gans et al., 2018). The value of such freedom of choice and possibility of experimentation has been acknowledged in literature (Kerr et al., 2014; Ries, 2011). At the same time, it is recognized that the strategic decision in new ventures is path dependent; that is, when a particular strategic entrepreneurial choice is made, alternative choices are either reduced or eliminated (Gans et al., 2018). This means that there are distinct types of entrepreneurial strategies in startup ventures that can be defined and compared.

The entrepreneurial strategy compass proposed by Gans et al. (2018) considers distinct entrepreneurial strategies for start-ups based on strategic opportunities arising across the dimensions of competition and innovation. Accordingly, four distinct strategies are defined: 1) Intellectual Property; 2) Value Chain, 3) Architectural; and 4) Disruption. The description of each strategic orientation is provided in Table 1.

Table 1. The Four Distinct Entrepreneurial Strategies for Start-Ups

		Attitude toward Competition	
		Collaborate	Compete
Attitude towards Innovation	Defend ("build a moat")	Intellectual Property -Maintaining control of innovation while attempting to create value for the existing market and partnering with incumbents.	Architecture -Competing by designing a completely platform or value chain and establishing control over it.
	Attack ("storm a hill")	Value Chain -Establishing oneself within the existing markets and value chains by developing unique capabilities to become a partner of choice for incumbent firms.	Disruption -Competing directly with the incumbents by creating a disruptive business model, redefining the existing value chains, and moving fast to establish a strong position in the market.

Source: (Gans et al., 2018).

Information technology (IT) is an integral part of entrepreneurial activity given its role in various aspects of organizational operations from product and service development to innovations and new business models (Cohen et al., 2017; Raymond & Bergeron, 2008; Spender et al., 2017). However, given the fundamental differences in the approaches to starting a venture as outlined above, it is likely that the firms may also develop different approaches to technology treatment and its strategic use. Accordingly, various aspects of business-IT strategic alignment are likely to be emphasized.

2.3 Business-IT Strategic Alignment in Start-Ups

Business-IT strategic alignment (BITA) is defined as "linkages between business and IT at the strategic or planning level, which is the degree to which the IT mission, objectives, and plans support, and are supported by, the business mission, objectives, and plan" (Reich &Benbasat, 2000, p. 82). Because BITA has been consistently found to have a positive relationship to organizational outcomes (e.g.Almajali, 2011; Chan et al., 2006; Liang et al., 2017; Yayla & Hu, 2012), achieving it has been a major concern among the top managers (Gerow et al., 2014; Kappelman et al., 2013).

While not much research is available on BITA in new ventures, there are sufficient predispositions for it to matter in BITA success. Studies emphasized the importance of technology strategy choice on start-up growth and innovation for quite a long time (e.g., Dowling & McGee, 1994; Siegel et al., 1993; Stuart, 2000). Gilbert et al. (2006) mentioned it as one of the key factors defining new venture growth.

Specific positive outcomes of technology use by new firms were identified, such as easier access to capital and financing (Bollingtoft, 2003), higher initial sales level (Lee et al., 2001), and commercialization of ideas (Chen, 2009).

Both theoretical and practical research suggests that start-up organizations would pursue different approaches to BITA development. Within the framework for start-up ventures by Gans et al. (2018), technology decisions arise directly from the entrepreneurial strategy choice as firms decide whether to use it as a competitive/collaborative tool and how to apply it within the value chain activities in the chosen market. Applying different theoretical approaches to entrepreneurial action (Andries et al. 2013; Daniel et al. 2014; Nummela et al. 2014; Solesvik et al. 2013), Street et al. (2018) found that effectuation, causation, and bricolage types of entrepreneurships were associated with BITA, although they recognized that the effect strength could be different and further influenced by the external environment.

In sum, while the importance of BITA for new ventures is recognized in both theoretical and empirical literature, there is still little clarity regarding the efficacy of various entrepreneurial strategies in creating alignment. This study aimed to fill this gap in knowledge.

2.4 Differences in BITA Elements

In its classical understanding, alignment is the degree to which one element or component of a strategy is consistent with another element. The strategic information technology literature envisions alignment as a composite of fits between business and IT strategies, infrastructures, and processes (Chan &Reich, 2007; Gerow et al., 2015). This is well reflected in the Strategic Alignment Model (SAM) proposed by Henderson and Venkatraman (1999) (Figure 1).

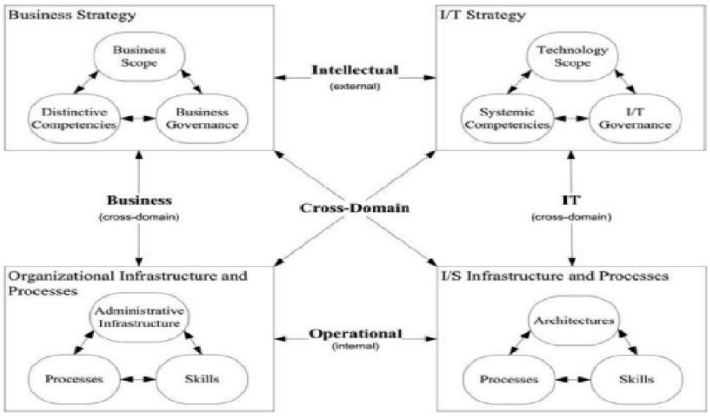

Figure 1. Strategic Alignment Model (Henderson & Venkatraman, 1999, p. 476)

Due its holistic nature, the SAM may also pinpoint the different aspects of alignment in which some firms may excel while other may not. Based on the SAM, this study envisions BITA as a product of six components as presented in Table 2.

Table 2. SAM Framework Components and Descriptions

Alignment Component	**Domain**	**Description**
Intellectual Alignment	Strategy	The link between business and IT strategy
Operational Alignment	Infrastructure	The link between organizational and IT infrastructures
Business Alignment	Strategy/Infrastructure	The link between organizational strategy and infrastructure
IT Alignment	Strategy/Infrastructure	The link between IT strategy and infrastructure
Cross-Domain Alignment A	Strategy/Infrastructure	The link between business strategy and IT infrastructure
Cross-Domain Alignment B	Strategy/Infrastructure	The link between business infrastructure and IT strategy

Source: (Henderson & Venkatraman, 1999)

Since technology plays an important role in start-up organizations defined within Gans et al. (2018) framework, it is expected that each choice of entrepreneurial strategy within that framework would be related to BITA. This is also prompted by Street et al.

(2018) who found that well defined albeit different entrepreneurial strategies have positive relationships with BITA. However, the strength of entrepreneurial activity effect on BITA is likely to vary in terms of its components. This can be explained that technology is assigned different roles in Gans et al's (2018) framework. For example, The Intellectual Property strategy is focused on idea creation - developing modular technologies for the industry

and incumbents rather than for the company's own infrastructure. This is likely to imply a stronger effect on Intellectual Alignment although a weaker link in the IS infrastructure domains. On the other hand, the start-ups pursing the Value Chain strategy will likely to emphasize strong IS infrastructure development as a key to gaining a competitive advantage over incumbents. At the same time, earlier research suggests that some firms decide to pursue alignment in its totality, seeking integration and links between IT and business strategies and infrastructures, and cross relationships between them (Aversano et al., 2012; Porra et al., 2005). Therefore, the following hypotheses are formulated:

Hypothesis One*:* There will be differences in strength of Intellectual Alignment between firms with different entrepreneurial strategies.
Hypothesis Two*:* There will be differences in strength of Operational Alignment between firms with different entrepreneurial strategies.
Hypothesis Three*:* There will be differences in strength of Business Alignment between firms with different entrepreneurial strategies.
Hypothesis Four*:* There will be differences in strength of IT Alignment between firms with different entrepreneurial strategies.
Hypothesis Five*:* There will be differences in strength of Cross-Domain Alignment A (business strategy-IS infrastructure and processes) between firms with different entrepreneurial strategies.
Hypothesis Six*:* There will be differences in strength of Cross-Domain Alignment B (IT strategy-business infrastructure and processes) between firms with different entrepreneurial strategies.

3. Method

To test the study hypotheses, a simple random sample was drawn from the Saudi Arabia Business Directory to include the companies created no earlier than 2015 (five years on the market). The companies were contacted by email which included a link to an online questionnaire. A total of 600 emails were dispersed.

The questionnaire consisted of 41 items grouped by General Information, Entrepreneurial Strategy, and six BITA dimensions (Appendix A). The item for Entrepreneurial Strategy is a multiple-choice question coming from the strategy descriptions by Gans et al. (2018). The items for BITA were originally formulated and validated by Gerow et al. (2015). These items were previously back translated into Arabic and applied in the context of Saudi ventures, showing high levels of validity and reliability (Afandi, 2017). The questionnaire was pilot tested with a group of ten IT and business professionals. The participants were asked to rate each item on a 0 to 10 scale for comprehension and clarity. All items received at least the minimum required score of 18 on both scales and, therefore, all were included in the final version of the questionnaire. The data analysis was conducted with SPSS v.22.

4. Results

4.1 Preliminary Analysis

The total number of valid questionnaire responses was 179, which represents a 29.8% response rate. This is an acceptable rate of response, given that the similar studies demonstrated the rates not exceeding 20% (e.g., Gerow et al., 2015; Oh & Pinsonneault, 2007; Preston et al., 2006). Table 3 provides the descriptive statistics of the study sample. By the time of the research, the majority of the surveyed companies were active for 3 or 4 years (44 firms, 24.0% and 43 firms, 24.6% respectively), followed by companies active for 5 years (37 firms, 20.7%). Companies active for two or one year represented 30 firms, 16.8% and 25 firms, 14.0% of the sample respectively. The most commonly represented industries in the sample were retail (32 firms, 17.9%), information technology (29 firms, 16.2%), hospitality (23 firms, 12.8%), and construction (20 firms, 11.2%) with fewer companies representing oil and gas and manufacturing (18 firms, 10.1% each), finance (17 firms, 9.5%), and real estate (13 firms, 7.3%). The "other" grouping was used for the industries represented by 3 or fewer companies: medical services, education, automotive, telecom, and recycling. This group consisted of9 firms making up 5.0% of the sample.

Table 3. Distribution of Firms in the Sample by Year of Origination and Industry

Year	**Frequency**	**Percent**
2015	37	20.7
2016	44	24.6
2017	43	24.0
2018	30	16.8
2019	25	14.0
Total	179	100.0
Industry	**Frequency**	**Percent**
Oil and Gas	18	10.1
Manufacturing	18	10.1
Information technology	29	16.2
Hospitality	23	12.8
Retail	32	17.9
Finance	17	9.5
Real Estate	13	7.3
Construction	20	11.2
Other	9	5.0
Total	179	100.0

In terms of entrepreneurial strategy followed (Table 4), the most popular among the surveyed firms was The Value Chain strategy (64 firms, 35.8%), followed by Architectural strategy (50 firms, 27.9%), Intellectual Property strategy (43 firms, 24.0%), and Disruption strategy (22 firms, 12.3%).

Table 4.Distribution of Firms by Entrepreneurial Strategy

Entrepreneurial Strategy				
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Intellectual Property	43	24.0	24.0	24.0
Value Chain	64	35.8	35.8	59.8
Architectural	50	27.9	27.9	87.7
Disruption	22	12.3	12.3	100.0
Total	179	100.0	100.0	

An EFA analysis for unidemnsionality check demonstrated the R-matrix determinant at 0.0000199, an acceptable level above 0.00001 (Field, 2009). The Bartlett sphericity test ($p<.001$) and the Kaiser-Meyer-Olkin value test (0.861) confirmed a good fit for the data. The factor loadings based on Varimax Method with Kaiser Normalization showed sufficient variances from the variables with the loadings of 0.7 and above (Table 5).

Table 5. Exploratory Factor Analysis of the Data

Rotated Component Matrix						
	Component					
	1	2	3	4	5	6
BA1						.751
BA2						.830
BA3						.749
BA4						.768
BA5						.847
BA6						.752
IA1	.925					
IA2	.871					
IA3	.873					
IA4	.888					
IA5	.799					
IA6	.744					
IA7	.925					
OA1					.873	
OA2					.888	
OA3					.799	
OA4					.734	
OA5					.748	
OA6					.746	
ITA1		.713				
ITA2		.718				
ITA3		.789				
ITA4		.769				
ITA5		.782				
ITA6		.724				
CAa1				.779		
CAa2				.755		
CAa3				.750		
CAa4				.878		
CAa5				.860		
CAa6				.775		
CAb1			.811			
CAb2			.862			
CAb3			.666			
CAb4			.863			
CAb5			.847			
CAb6			.818			
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						

The normality of the data was checked with the absolute values of skewedness and kurtosis for items. The values for skewedness did not exceed 1.8 and for kurtosis 3.1; therefore, both were within the acceptable levels (e.g., Curran et al., 1996; Fabrigar et al., 1999). The data reliability was checked with the Cronbach's alpha values for the constructs, all of which were above 0.7 thereby showing acceptable scores (Cronbach & Shavelson, 2004).

The average variance extracted method showed no issues with the construct and discriminant validity, as all values were above 0.5 and the Ave scare roots exceeded cross-construct correlations (Hair et al., 2010). Finally, common bias was not an issue with the data, as the Harman's single factor test showed the highest factor loading at 28.79%, well below the acceptable 50% level (Podsakoff et al., 2012).

4.2 Hypotheses Testing

A series of six ANOVA tests were performed to investigate the differences between the four groups representing entrepreneurial strategies. First, the Levene's tests were performed for the assumption of equal variances. The results across all variables except for Cross-Domain Alignment B showed that the variances would not be assumed homogenous for the ANOVA analyses (Table 6).

Table 6.Levene's Test of Homogeneity of Variances

	Levene Statistic	**df1**	**df2**	**Sig.**
Intellectual Alignment	18.177	3	175	.000
Operational Alignment	2.192	3	175	.041
Business Alignment	7.958	3	175	.000
IT Alignment	10.472	3	175	.000
Cross-Domain Alignment A	3.648	3	175	.014
Cross-Domain Alignment B	1.391	3	175	.247

The results of ANOVA analyses are presented in Table 7. Statistically significant differences were observed across all types of alignments except for Cross-Domain Alignment B. Therefore, only Hypothesis 6 was not supported by the study results.

Table 7. ANOVA Results

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Intellectual Alignment	Between Groups	5194.260	3	1731.420	164.746	.000
	Within Groups	1839.181	175	10.510		
	Total	7033.441	178			
Business Alignment	Between Groups	290.848	3	96.949	8.411	.000
	Within Groups	2017.074	175	11.526		
	Total	2307.922	178			
Operational Alignment	Between Groups	1955.109	3	651.703	40.022	.000
	Within Groups	2849.629	175	16.284		
	Total	4804.737	178			
IT Alignment	Between Groups	1141.579	3	380.526	27.437	.000
	Within Groups	2427.058	175	13.869		
	Total	3568.637	178			
Cross-Domain Alignment A	Between Groups	509.582	3	169.861	13.419	.000
	Within Groups	2215.156	175	12.658		
	Total	2724.737	178			
Cross-Domain Alignment B	Between Groups	3.011	3	1.004	.079	.971
	Within Groups	2222.967	175	12.703		
	Total	2225.978	178			

Post Hoc tests were performed to examine the direction of differences. Since the samples for entrepreneurial strategies' firms were not equal and equal variances were not assumed, the conservative Tahmane T2 was used for the analyses (Shingala&Rajyaguru, 2015). The results are discussed below.

Hypothesis One*:* There will be differences in strength of Intellectual Alignment between firms with different entrepreneurial strategies.

The highest mean scores were observed for the Intellectual Property (46.72) and the Value Chain (46.30) strategies whereas the lowest for the Architectural (35.78) and the Disruption (34.86) strategies. Tahmane's tests demonstrated significant differences between Intellectual Property and Architectural ($p < .001$), Intellectual Property and Disruption ($p < .001$) as well as Value Chain and Architectural ($p < .001$) and Value Chain and

Disruption ($p < .001$) strategies. Therefore, the hypothesis was confirmed: firms pursuing Intellectual Property and Value Chain strategies had stronger Intellectual Alignment than firms pursuing Architectural and Disruption strategies.

Hypothesis Two*:* There will be differences in strength of Operational Alignment between firms with different entrepreneurial strategies.

The mean scores for Operational Alignment were 38.36 for Architectural strategy, 35.55 for Value Chain strategy, 32.02 for Intellectual Property strategy, and 28.18 for Disruption strategy. Tahmanes tests demonstrated statistically significant differences between Architectural strategy and other strategies ($p < .$

001 in all cases) as well as between Intellectual Property and Disruption strategies ($p = .022$) and Value Chain and Disruption strategies ($p = .005$). Therefore, the hypothesis was confirmed. The highest level of alignment was observed for firms pursuing Architecture strategy, followed by Intellectual Property and Value Chain strategies. Firms pursuing Disruptive strategy demonstrated the lowest level of Operational Alignment.

Hypothesis Three*:* There will be differences in strength of Business Alignment between firms with different entrepreneurial strategies.
The mean scores for Business Alignment were 38.50 for the firms pursuing Disruption strategy, 35.86 for Architecture strategy, 35.79 for Intellectual Property strategy, and 34.34 for Value Chain strategy. Tahmane's tests demonstrated statistically significant differences between the firms pursuing Disruption strategy and the firms pursuing other strategies: Intellectual Property ($p = .004$), Value Chain ($p < .001$), and Architecture ($p = .001$). Therefore, the hypothesis was confirmed. Firms pursuing Disruption strategy demonstrated the higher level of alignment in comparison to firms pursuing other strategies.

Hypothesis Four*:* There will be differences in strength of IT Alignment between firms with different entrepreneurial strategies.

The mean scores for IT Alignment were: 38.38 for the firms pursuing Architecture strategy, 33.53 for Value Chain strategy, 32.98 for Intellectual Property strategy, and 31.27 for Disruption strategy. Tahmane's tests demonstrated statistically significant differences between the firms pursuing Architecture strategy and other strategies ($p < .001$ in all cases). Therefore, the hypothesis was confirmed. The study demonstrated that IT alignment was higher for the firms pursuing Architecture strategy.

Hypothesis Five*:* There will be differences in strength of Cross-Domain Alignment A (business strategy-IS infrastructure and processes) between firms with different entrepreneurial strategies.

The mean scores for IT Alignment were: 38.82 for the firms pursuing Disruption strategy, 34.48 for Architecture strategy, 33.98 for Value Chain strategy, and 33.11 for Intellectual Property strategy. Tahmane's tests demonstrated statistically significant differences between the firms pursuing Disruption strategy and other strategies ($p < .001$ in all cases). Therefore, the hypothesis was confirmed. The study demonstrated that Cross-Domain Alignment between business strategy and IS infrastructure was higher for the firms pursuing Disruption strategy.

Hypothesis Six*:* There will be differences in strength of Cross-Domain Alignment B (IT strategy-business infrastructure and processes) between firms with different entrepreneurial strategies.

This hypothesis was not confirmed by the ANOVA analysis results.

Table 8 summarizes the key findings of the study.

Table 8. Summary of Study Results

Hypothesis	**Confirmed?**	**Differences Between**
Differences in Intellectual Alignment strength	Yes	Intellectual Property and Architecture (p< .001) Intellectual Property and Disruption (p < .001) Value Chain and Architecture (p < .001) Value Chain and Disruption (p < .001)
Differences in Operational Alignment strength	Yes	Architecture and Intellectual Property (p < .001) Architecture and Value chain (p < .001) Architecture and Disruption (p < .001) Intellectual Property and Disruption (p = .022) Value Chain and Disruption (p = .005)
Differences in Business Alignment strength	Yes	Disruption and Intellectual Property (p = .004) Disruption and Value Chain (p < .001) Disruption and Architecture (p = .001)
Differences in IT Alignment strength	Yes	Architecture and Intellectual Property (p < .001) Architecture and Value Chain (p < .001) Architecture and Disruption (p < .001)
Differences in Cross-Alignment strength A	Yes	Disruption and Intellectual Property (p < .001) Disruption and Value Chain (p < .001) Disruption and Architecture (p < .001)
Differences in Cross-Alignment strength B	No	-

5. Discussion

From the analysis of the findings, several important insights emerge. First, the results demonstrated that startup firms pursuing different entrepreneurial strategies, indeed, have different dominant types of BITA. The presence of these differences fits well both with common logic and the existing research of theoretical and empirical nature. The conceptual framework proposed by Gans et al. (2018) proposes that startups will align their technology development decisions with the entrepreneurial strategy choice such as, for example, use technology for competitive or collaborative purposes. Accordingly, the firms in the sample that pursued Intellectual Property strategy (maintaining control over innovations) would seek to achieve higher levels of intellectual alignment by establishing links between business and IT strategy. These firms compete by creating modular systems for the industry players. They are more interested in pursuing intellectual alignment and to a lesser extent to own infrastructure development. In contrast, firms that chose to compete by creating new platforms and value chains (Architecture) would establish a higher degree of operational alignment and IT alignment by focusing on organizational and IT infrastructures.

The firms that focused on Disruption competitive strategy would seek to establish novel business models. This is reflected in the higher levels of alignment between organizational strategy and infrastructure and cross-domain alignment. Finally, Value Chain firms demonstrated high degrees of alignment in both Intellectual and Operational areas. Because these companies compete predominantly by establishing themselves within the existing markets and value chains by developing unique capabilities, it is logical that they seek to establish strong links between business and IT strategies and infrastructures. These are the firms that seem to seek alignment in its totality in the same manner as established earlier by other researchers (Ling et al., 2009; Porra et al., 2005).

Overall, the results of this study confirm the existing empirical research findings that different forms of entrepreneurship, leadership, and strategy are associated with different BITA outcomes (e.g., Aversano et al., 2012; Kyobe, 2008; Shao, 2019; Street et al., 2018). Again, this arises from the different roles that businesses assign strategically to technology as explained above. That is not to say, however, that startups pursuing specific strategies choose to ignore some forms of alignment over others. Rather, it is more appropriate to say that there is focus on some components of BITA over others. While it seems logical that, for example, startups pursuing Architecture strategy seek a very strong alignment between organization and IT infrastructures, it would probably be imprudent for these firms to ignore the importance of business strategy and IT strategy alignment. From a practical standpoint then, it is proper to state that startups should seek specific forms of alignment matching their chosen strategy first while also establishing minimal alignment requirements across the BITA framework. Overall, the choice of a specific entrepreneurial strategy will likely dictate particular approaches to align business strategy and technology.

6. Conclusions

This study aimed to investigate the relationship between specific types of entrepreneurial strategies and business-IT alignment (BITA) components in the context of startup organizations. The study results clearly demonstrated that different strategies are associated with higher levels of specific BITA components. The major practical implication is that entrepreneurial action has to be considered along with the supporting technology and the specific components that make the technology most useful to attain the major goals for startup firms. According to the research model used in this study, these goals will be defined across two dimensions: attitudes towards the firms in

a given industry (compete or collaborate with them) and attitudes towards innovation use (maintain tight control or spread quickly into marketplace). As entrepreneurs can determine the fitting strategic approach for their business, they can also plan on the strategic business-IT alignment components to sustain that approach. The results of this study, at least in the context of Saudi Arabia, may offer insights into specific forms of alignment to seek. Arguably, this will help produce a more sustainable approach to value creation and commercialization of an idea.

From a theoretical standpoint, this study extends the SAM to the context of startup firms. To the knowledge of the author, there have been no previous attempts to combine it with the Four Distinct Entrepreneurial Strategies for Start-Ups model (Gans et al., 2018). However, this study results demonstrated applicability of both theories in this context by providing statistically supported, actionable outcomes. Therefore, future studies could build upon this foundation to explore the relationship between strategy and technology in startups. One way to expand this study results could be to explore the outcomes of the firms following different entrepreneurial strategies and achieving specific forms of alignment. While this study showed the link between particular strategies and alignment components, it did not answer the question whether such links result in superior performance. Another possible avenue for research is to explore the influence of environmental factors on the strategy-alignment risks. Indeed, it is generally suggested that entrepreneurs take into account the environment in which they are planning to do business (Fisher, 2012). Time of market entry, industry specifics, and type of technology being used are some potential factors to explore in this regard.

Finally, there should be some caution in generalizing the study results. Saudi Arabia has a business and socio-cultural environment which may differ to various extents to other countries and regions. Some variations may even exist among the Gulf nations. At the same time, comparative studies from different national environments may offer useful insights into whether macro-context plays a role in the formation of specific entrepreneurial strategies and establishing BITA links. Testing for applicability of the frameworks used in this study could also offer insights on whether there is convergence or divergences of entrepreneurial strategies and the corresponding approaches to technology implementation in different national and socio-cultural contexts.

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