

# 1 INTRODUCTION

For years, strategic management scholars have emphasized the importance of aligning organizational strategies to the overall business strategy (Daft *et al.* 2010; Cao *et al.* 2012) since such strategic alignment will lead to a more concerted and focused pursuit of organizational objectives, which in turn improves firm performance (Donaldson 2006; Hooper *et al.* 2010). While prior research has indicated that strategic alignment generally enhances firm performance, it is also “one of the most difficult challenges facing managers” (Vorhies and Morgan 2003, p. 100) and researchers know little about how strategic alignment should be organized to improve firm performance (Vorhies and Morgan 2003; Cao *et al.* 2012). Thus, this study aims to develop our understanding of strategic alignment by addressing the following two research gaps.

The first research gap concerns the lack of understanding of triadic alignment among business, information technology (IT), and marketing strategies. While business strategy clarifies how a firm coordinates organizational activities to achieve its overall goals and objectives (King 1978), marketing strategy supports business strategy by identifying threats and opportunities in the environment to best position the organization in the market place (Varadarajan *et al.* 2001; Babatunde and Adebisi 2012). In other words, marketing strategy focuses on ways in which the firm can differentiate itself effectively from its competitors, capitalizing on its distinctive strengths to deliver better value to its customers within a given environment (Jain 2000). At the same time, IT has increasingly become a significant part of most organizations (Cha *et al.* 2009; Doherty *et al.* 2010) and is significantly influencing how business strategy (Gerow *et al.* 2014) or marketing strategy is implemented (Zhu and Nakata 2007; LaForge *et al.* 2009). Expectedly, a firm’s performance is highly likely to be determined by how effectively and efficiently the firm’s business, IT, and marketing strategies are implemented to support one another (Olson *et al.* 2005). However, prior research has focused on the performance impact of dyadic alignment between, for example, business and IT strategies predominantly (e.g. Chan *et al.* 1997; Chan *et al.* 2006), marketing and IT strategies (e.g. Hooper *et al.* 2010; Trainor *et al.* 2011) or marketing and business strategies occasionally (e.g. Johnson *et al.* 2012; Theodosiou *et al.*

2012). No research seems to have investigated the influence of triadic strategic alignment among business, IT, and marketing strategies on business performance.

A second research gap pertains to the limited understanding of strategic alignment by considering specific strategic orientations of firms simultaneously. Strategic orientation refers to the general pattern of various means employed by a firm to achieve its business goals (Narver and Slater 1990). For example, a firm may have different strategic orientations with regard to business (Miles *et al.* 1978), IT (Sabherwal and Chan 2001), or marketing (Narver and Slater 1990). Thus, firms wishing to align their strategies need to consider their own specific strategic orientations as the latter play an important role in enabling a firm to achieve its strategic alignment and business objectives (Gao *et al.* 2007; Schniederjans and Cao 2009). Nevertheless, strategic orientations are rarely considered when the relationship between alignment and performance is investigated (Yayla and Hu 2012). Without considering a firm's specific strategic orientations, it is difficult, if not impossible, to know the extent to, and manners in which the firm could align different strategies.

This paper therefore seeks to reduce the above research gaps by focusing on the following research questions: To what extent does triadic strategic alignment affect organizational performance? To what extent is a firm's triadic strategic alignment affected by its specific strategic orientation?

First, drawing on contingency theory, this study will develop an understanding of the concept of triadic strategic alignment among business, IT and marketing strategies and its impact on firm performance. Unlike previous studies that focused on pairwise alignment (e.g. Bergeron *et al.* 2004; Chan *et al.* 2006), this study believes a triadic alignment among business, IT, and marketing strategies can enhance firm performance significantly. As suggested by Drazin and Van de Ven (1985), alignment is not restricted to aligning two factors but rather can be multiple; the more factors aligned together, the better the insights that can be provided. As a result, it is expected that an understanding of triadic strategic alignment can help a firm to appropriately formulate particular IT and marketing strategies to coherently support its specific business strategic orientation. Against this backdrop, this study seeks to develop and test a triadic strategic alignment model.

Second, drawing on configuration theory and aiming to identify the fit among multiple factors (Delery and Doty 1996), this study examines the alignment among strategic orientations of business, IT, and marketing. Based on Miles *et al.* (1978), three business strategic orientations can be differentiated, including prospector, defender, and analyzer. As suggested by Sabherwal and Chan (2001), IT strategic orientations include flexibility, efficiency, and comprehensiveness. Additionally, based on Narver and Slater (1990), marketing strategic orientations include customer-focused and competitor-focused. By considering the fit among specific strategic orientations, this study suggests that a firm has an ideal strategic alignment based on its specific strategic orientations, and such an alignment will allow the firm to maximally improve its performance.

The next section of the paper presents the conceptual development, the research model and hypotheses. The subsequent sections describe the instrument development, data collection processes, and findings. The final section discusses the results and implications.

## **2 THEORETICAL BACKGROUND**

### **2.1 Contingency Theory**

While fit or alignment refers to “*the degree to which the needs, demands, goals, objectives, and/or structures of one component are consistent with the needs, demands, goals, objectives, and/or structures of another component*” (Nadler and Tushman 1980, p.45), contingency theory posits that for every given context, there exists an ideal set that fits better than others, resulting in higher performance (Zaefarian *et al.* 2013). In line with this, a firm would perform more effectively if it aligns its strategies (Iivari 1992; Rogers *et al.* 1999). Research on strategic alignment suggests that the fit between a firm’s strategy and its internal and external factors leads to superior firm performance, while misalignment results in performance erosion (e.g. Vorhies and Morgan 2003; Oh and Pinsonneault 2007; Wu *et al.* 2015). Three different streams of research on strategic alignment can be identified as follows:

First, while IT has become “*a ubiquitous and increasingly significant part of the fabric of most organizations*” (Doherty *et al.* 2010, p. 116) and firms have been increasing their IT investments (Cha

*et al.* 2009), the alignment between IT strategy and business strategy (or strategic IT alignment) has been extensively examined because of its significant impact on organizational performance (Chan *et al.* 1997; e.g. Chan 2000). Generally, research suggests that strategic IT alignment enhances a firm's performance in the long term, and the lack of strategic IT alignment is believed to be risky and could possibly lead into a steady decline in the firm's competitive ability (Shore 1996; King and Pollalis 2000; Rathnam *et al.* 2004).

Second, in order for a firm to sustain its growth (Walker Jr and Ruekert 1987), it must realize alignment between its business strategy and marketing strategy (Zeithaml *et al.* 1988) or competitive environment (Iivari 1992; Rogers *et al.* 1999), as marketing strategy is typically developed based on the evaluation of dramatic changes in the overall business environment (McDaniel and Kolari 1987). While there is limited research on the alignment between business strategy and marketing strategy, marketing managers believe this alignment facilitates the achievement of business objectives (Valos and Bednall 2010; Chari *et al.* 2016) and positively affects a firm's performance (Bergeron 2002). On the contrary, Strahle *et al.* (1996) demonstrate that misalignment between business strategy and marketing strategy leads to confusion amongst business and marketing managers.

Third, a few studies (e.g. Jaworski and Kohli 1993; Min *et al.* 2002; Blotnick 2009; Hooper *et al.* 2010) suggest that alignment between IT and marketing strategies ensures that IT can provide marketing with the information systems needed to accomplish its goals, and/or that IT strategy supports marketing through the development of products and services (Henderson and Venkatraman 1989).

While prior research has provided useful insights into different configurations of strategic alignment and its impact on firm performance, it has explored strategic alignment mainly in terms of bivariate relationships (e.g. Oh and Pinsonneault 2007; Fink and Neumann 2009; Cataldo *et al.* 2012). Such pairwise alignment is seen to have limited capacity to capture the complex nature and performance impact of strategic alignment (Kearns and Sabherwal 2006; Cao 2010), and could lead to possible inconsistencies since strategic alignment often involves multiple organizational factors (Drazin and Van de Ven 1985). Thus a more holistic approach to strategic alignment is needed to

enable a firm to integrate multiple strategies and act as a whole (Bergeron *et al.* 2004; Cao *et al.* 2016). Besides, prior research on strategic alignment has often assumed that strategic alignment is generally applicable to all types of firms without taking into account the specific strategic orientations of firms (Chan *et al.* 2006). When strategic alignment is understood by considering the firm's strategic orientation, this could mean that there are different antecedents to strategic alignment and consequently the link from strategic alignment to organizational performance could be different, which is further explored next.

## **2.2 Configuration Theory**

Strategic orientation (Venkatraman 1989b) and strategic configuration (Miles *et al.* 1978) of a firm are closely related concepts, referring to the degree of congruency to which organizational characteristics are orchestrated by a small number of rich themes or patterns, across or within categories (Bensaou and Venkatraman 1995; Miller 1996), that can account for various means employed to achieve the business goals. These will be discussed with reference to business strategy, marketing strategy, and IT strategy in this section.

### *2.2.1 Strategic Orientation*

According to Miles *et al.* (1978), three main strategic configurations of firms can be differentiated: prospector, defender, and analyzer. Prospectors generally seek to continuously develop innovative new products and exploit new market opportunities (Slater and Olson 2001). They focus on innovativeness and flexibility while control and operational efficiency might be compromised (Chan *et al.* 2006). Prospectors tend to view the industry from its own internal perspective and its customer base rather than being concerned with the competition (Bamford and West 2010). In contrast, defenders take their competitors seriously and cautiously and attempt to react swiftly with an intensive attack to any move by a competitor that they deem threatening (Bamford and West 2010). Defenders focus more narrowly on maintaining a secure position in their existing product and market (Camillus and Lederer 1985); they emphasize operational efficiency while rarely seeking new opportunities or making major

organizational changes (Chan *et al.* 2006). As for analyzers, they are a unique combination of prospectors and defenders. They attempt to maintain a stable domain of core products while seeking new product and market opportunities (Vorhies and Morgan 2003). Although they rarely develop new products, they often follow prospectors to introduce possibly better products (Chan *et al.* 2006).

In order to measure a firm's strategic orientations, six dimensions including aggressiveness, analysis, defensiveness, futurity, proactiveness, and riskiness have been developed (Venkatraman 1989b). In the literature, only a limited number of studies examine strategic alignment based on either strategic configurations (Luo and Park 2001; Chan *et al.* 2006; Raymond and Croteau 2009) or strategic orientation with its six dimensions (Chan *et al.* 1997; Sabherwal and Chan 2001; Bergeron *et al.* 2004; Yayla and Hu 2012).

### 2.2.2 *Marketing Orientation*

A firm's marketing strategy refers to its marketing activities and decisions related to generating and sustaining competitive advantage for the firm (Varadarajan *et al.* 2001), focusing on ways in which the firm can differentiate itself effectively from its competitors through capitalizing on its distinctive strengths to deliver better value to its customers within a given environment (Jain 2000).

Based on Narver and Slater (1990), there are essentially two configurations of marketing strategy: customer-focused or competitor-focused. Firms with a customer-focused marketing strategy tend to integrate customer preferences into the product development and marketing process by putting the interests of customers first (Voss and Voss 2000), to encourage a business to be forward looking, and are likely to be more interested in long-term business success as opposed to short-term profits. On the other hand, firms with a competitor-focused marketing strategy seek to analyze competitors in their external market, use competitor intelligence as a frame of reference to guide product development and marketing processes, identify their own strengths and weaknesses, and keep pace with or stay ahead of the rest of the field.

### 2.2.3 *IT Orientation*

IT strategy has become a key element in competitive positioning (Gartlan and Shanks 2007), which determines how IT will be used to facilitate electronic communication to support business processes and needs (Broadbent and Weill 1993; Henderson and Venkatraman 1993). While it is a part of the overall business strategy, it focuses specifically on technology that can alter the rules, change the structure of industries and allow organizations to create competitive advantage (Porter and Millar 1985).

Sabherwal and Chan (2001) suggest that IT strategies can be classified into three configurations: flexibility, efficiency, and comprehensiveness. IT flexibility strategy refers to the use of IT for observing marketing information and changes of market, and providing a basis for decision making. This is seen to be consistent with firms adopting prospector strategies as flexibility and the focus of both prospectors and IT flexibility strategy are rated of high importance (Sabherwal and Chan 2001). IT efficiency strategy refers to the use of IT for monitoring and controlling daily operations, facilitating operational efficiency, supporting the function of information sharing and communication to link with customers and suppliers. Thus this IT strategy is ideally relevant to defenders that rate efficiency highly importantly (Sabherwal and Chan 2001). The IT comprehensiveness strategy refers to the use of IT for observing marketing information and market changes, and supporting the function of information sharing and communication to link with customers and suppliers. This IT strategy seeks to support both flexibility and efficiency, thus is seen to be the ideal IT strategy for analyzers (Sabherwal and Chan 2001).

Briefly, a firm's strategic orientation regarding business, marketing and IT reflects the strategic direction of the firm to create the proper behaviors for superior business performance (Narver and Slater 1990), which clarifies how organizational activities should be coordinated to achieve business goals. Since a firm's strategic orientation can be manifested in business strategy, marketing strategy, and/or IT strategy, a firm's overall strategic orientation could be formed by a combination of particular strategic configurations. This suggests that firms with different configurations could possibly have different antecedents to achieving strategic alignment, different patterns of strategic alignment, and

consequently different links from strategic alignment to organizational performance as well, which will be further discussed next.

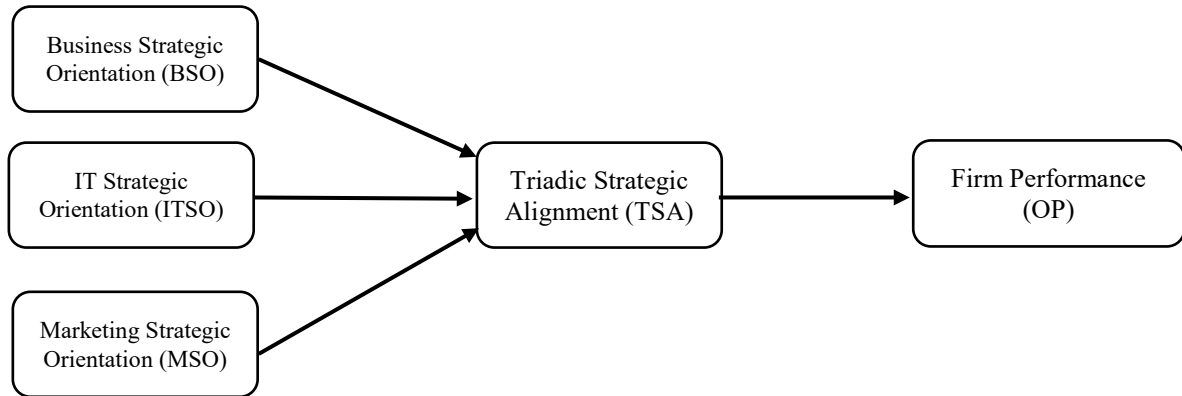
### **2.3 Theoretical Development**

Underpinned by contingency theory and configuration theory and the above discussion, two of the research questions identified earlier may be answered conceptually and tested empirically. First, a firm should seek to achieve triadic strategic alignment among business, IT and marketing strategies as this allows the firm to support its business strategy with IT that has become an integral part of all organizing (Orlikowski and Scott 2008) and marketing strategy that considers dramatic changes in the overall business environment (Iivari 1992; Rogers *et al.* 1999). Such triadic strategic alignment is more holistic since aligning multiple strategies tends to enable a firm to act as a whole (Bergeron *et al.* 2004; Cao *et al.* 2016), thereby achieving a higher level of alignment and better performance (Chen 2010). By including multiple organizational strategies, triadic strategic alignment is likely to give a richer and more realistic view of strategic alignment, as pointed out by Venkatraman and Prescott (1990) who stated that strategic alignment, including multiple factors, has greater explanatory power because of its ability to retain the complex and interrelated nature of the relationships between multiple factors. A few studies have empirically tested that alignment including multiple factors allows a firm to enhance its performance (Bergeron *et al.* 2004; Schniederjans and Cao 2009; Zheng *et al.* 2010). Chatzoglou *et al.* (2011) for example show that the alignment between IT, strategic orientation, and organizational structure has positive effects on organizational performance. Thus, this research proposes that triadic strategic alignment will have a beneficial impact on business performance. The idea of triadic strategic alignment is captured in an unobserved theoretical construct at a higher level than the individual elements of business, IT, and marketing strategies. The assumption is that if business, IT, and marketing have an influence on the triadic strategic alignment, then the triadic strategic alignment model should work better in comparison to the direct effect model without the unobserved construct (Venkatraman 1989a).



Thus, it is conceivable to assume that a firm is likely to improve its performance when it can achieve triadic alignment among business, IT and marketing orientations (Figure 1):

**Hypothesis.** The alignment of business, IT, and marketing strategic orientations is positively associated with firm performance.



*Figure 1. The triadic strategic alignment model*

Furthermore, based on this general hypothesis, three generic configurations of triadic strategic alignment could be identified by considering different strategic configurations of firms. It is expected that prospectors, defenders, and analyzers should be supported and enabled by different IT and marketing strategies, which should result in triadic strategic alignment and better business performance.

Prospectors desire for flexibility and innovativeness in their markets. They are leading innovators; they invest heavily in product R&D and environmental scanning so they can continually innovate new products and enter new markets (Miles *et al.* 1978). As far as IT is concerned, they emphasize flexibility so they can make quick strategic decisions (Sabherwal and Chan 2001). With regards to business environment, prospectors tend to view the industry from their own perspectives and customers; they collect detailed information about customers in order to meet customer needs (Slater *et al.* 2010). Therefore, it is plausible that prospectors with a flexibility and innovativeness orientation will perform better when they are supported by an IT flexibility strategy and customer-focused marketing strategy, which can be referred to as the ideal mode of triadic strategic alignment

for prospectors since all three strategies are consistent with one another. In line with this, prospectors that are supported with either an IT flexibility strategy or customer-focused marketing strategy, but not the two at the same time, can be referred to as medium mode of triadic strategic alignment because only two strategies are consistent with each other while the third is not. When prospectors are supported with neither an IT flexibility strategy nor a customer-focused marketing strategy, this is misalignment and poor performance could be the result (Obel *et al.* 2000). This will provide insight into whether a firm that has achieved triadic strategic alignment would perform significantly better than a firm that has not. It is thus posited:

**Hypothesis 1.** Prospectors with a flexibility and innovativeness orientation aligned with an IT flexibility strategy and customer-focused marketing strategy are associated with better performance than those prospectors supported by other IT and marketing strategies.

Defenders emphasize reducing costs, avoiding organizational change, and maximizing effectiveness and efficiency of production (Miles *et al.* 1978). Thus, they can be best supported by an IT efficiency strategy that is oriented towards internal and inter-organizational efficiencies and long-term decision making (Sabherwal and Chan 2001). Considering business environment, they are competitor-focused; they defend their competitive positions against all competitors by focusing on a limited number of key criteria such as costs (Bamford and West 2010). Thus, defenders with an efficiency and competitor orientation should be supported by an IT efficiency strategy and competitor-focused marketing strategy, which can be referred to as the ideal mode of triadic strategic alignment for defenders; defenders supported by either an IT efficiency strategy or competitor-focused marketing strategy but not both simultaneously can be referred to as medium mode of alignment; and defenders supported by neither an IT efficiency strategy nor a competitor-focused marketing strategy is considered misalignment. Therefore, it is conceivable to assume that:

**Hypothesis 2.** Defenders with an efficiency and competitor orientation aligned with an IT efficiency strategy and competitor-focused marketing strategy are associated with better performance than those defenders supported by other IT and marketing strategies.

The third generic configuration of triadic strategic alignment considers analyzers that are a combination of prospectors and defenders. On the one side, they monitor customer reactions and perform sophisticated customer analysis; on the other hand, they intensively examine competitors' activities (Olson *et al.* 2005). Thus, they focus on maintaining a stable domain of core products, closely watching competitors' activities, and seeking new market opportunities (Miles *et al.* 1978). They are seen to be best supported by an IT comprehensiveness strategy that enables them to make comprehensive decisions (Sabherwal and Chan 2001). Similarly, three different modes of triadic strategic alignment can be differentiated for analyzers: ideal mode refers to analyzers that are supported by an IT comprehensiveness strategy and a marketing strategy focused equally on competitors and customers; medium mode refers to analyzers that are supported by either an IT comprehensiveness strategy or a marketing strategy focused equally on competitors and customers; misalignment refers to analyzers are supported by neither an IT comprehensiveness strategy nor a marketing strategy. Therefore, it is hypothesized that:

**Hypothesis 3.** Analyzers, wishing to maintain a stable domain of core products while seeking new product and market opportunities, aligned with an IT comprehensiveness strategy and a marketing strategy focused equally on competitors and customers are associated with better performance than those analyzers supported by other IT and marketing strategies.

### **3 METHODOLOGY**

Firstly, to answer the general hypothesis and respond to the calls for including additional organizational factors into the relationship of strategic alignment, this research proposes the use of the covariation approach to test the triadic strategic alignment model. As shown in the triadic strategic alignment model (Figure 1), triadic strategic alignment is specified as "covariation", an unobservable or latent construct whose meaning is derived through the observable variables (Venkatraman 1989a; Bergeron *et al.* 2001; Xu *et al.* 2006), namely business, IT, and marketing. The covariation approach captures the multivariate relationship of coherent elements (Venkatraman 1989a). In order to operationalize the covariation approach, structural equation modelling (SEM) is used since the

hypothesis entails forming a new construct (i.e. triadic strategic alignment) that captures the covariation between the set of the first-order variables. Thus, this is carried out through a hierarchical model that includes higher and lower order variables whereas TSA is the higher-order variable.

Secondly, the profile deviation hypotheses were examined empirically using MANOVA which entails developing an ideal profile that can be used as benchmark against which their fit can be examined (Doty *et al.* 1993; Vorhies and Morgan 2003). Hence, operationalizing the three subsequent hypotheses require identifying generic configurations of triadic strategic alignment to examine whether the generic configurations of triadic strategic alignment show differences in their performance. The data sample was thus divided into three distinctive groups: prospectors, defenders, and analyzers; then each group was further divided into ideal, medium and low modes of triadic strategic alignment between business, IT and marketing strategies. The focus of the MANOVA was to compare whether the mean differences between the three modes of alignment within each group on a linear combination of several dependent variables were likely to have occurred by chance. This made it possible to compare the performance differences between three modes of triadic strategic alignment within each group thereby testing the three proposed hypotheses.

### **3.1 Non-Response Bias and Common Method**

The data was also checked for potential non-response bias where the answers of late respondents were compared with those of early respondents. There were 187 participants who responded in the first week and 70 who responded two weeks later after the reminder was sent. An independent sample t-test was used and only three variables out of 32 were found to be statistically significant at the level 0.05. The magnitude of these differences was trivial and negligible (Cheshire *et al.* 2011). Finally, the data was tested for existing common method bias using Harman's single factor. The test result indicated that the first factor accounted for 33.3% of the total variance. Thus, there is no evidence of a substantial respondent bias in this study since the 'total variance explained' is less than 50% (Podsakoff *et al.* 2003; Wu 2013).

### **3.2 Data Collection and Sample**

In order to empirically test the hypotheses, a questionnaire survey of private firms registered in the Ministry of Industry and Trade in Yemen from different industries was randomly selected with respondents consisting of IT, business, and marketing managers, which helps avoid the possible bias in single-sided self-reported data (Wu *et al.* 2015). The sample consisted of variety of industries that will not only provide a reasonably similar context for respondents but also to be broad enough for the results to be generalizable (Olson *et al.* 2005). At first the sample frame consisted of 1,201 firms from private and public sectors. In order to select a sample, all public sectors firms were removed because this study is focused on investigating how organizations can increase their market growth, etc. through the triadic strategic alignment, which is not applicable to the public sector. Also, companies that were known not to have IT infrastructure were dropped. This is because one of the key variables under study is IT strategy. As a result, 700 firms were identified. Based on this, 350 firms were chosen randomly to be representative of the population. A pilot study was conducted and ten managers responded, which resulted in minor adjustments to the survey.

350 questionnaires were distributed to managers and executives in person on July 2014. One week later 187 were returned and a reminder was sent to the others. At the end of July, a total of 257 questionnaires were collected for a response rate of 73%. Respondents came from different industries, for example, 29.8% from telecom industry, 25.2% from banking and finance industry, 11.2% from manufacturing, 5.8% from retail, 4.1% from services, and 3.7 from property (Supplementary Information: Table 1). Of all, 17.8% were from firms with 50 to 249 employees, 37.6% from firms with 250 to 999 employees, and 33.1% from firms with more than 1000 employees.

### **3.3 Data Screening**

Data screening was performed. The first step was to remove uncompleted cases that had more than 10% of missing data since they are likely to result in biased analysis (Tabachnick and Fidell 2001). Out of the 257 cases, a total of 15 cases were excluded. Then Little's MCAR test was performed to determine how to replace missing data. The test was proved not significant ( $p=0.493$ ), suggesting that

data in the sample were missing completely at random. Next, cases with missing data were replaced by the median using SPSS.

### **3.4 Measurements Validation**

In order to operationalize the research model and measure different strategic configurations, 32 indicators have been adopted from prior studies listed in Table 1. A 7-point Likert scale ranging from “strongly disagree” to “strongly agree” was used to assess indicators of business, IT, and marketing strategies.

Strategic orientation is measured using nine indicators adopted from Venkatraman (1989b) in terms of proactiveness, defensiveness, and analysis. IT orientation is measured using nine indicators adopted from Sabherwal and Chan (2001) in terms of the extent to which the employed IT strategy is flexibility, efficiency, or comprehensiveness oriented. Marketing orientation is measured using nine indicators adapted from Narver and Slater (1990) and Olson *et al.* (2005) in terms of a firm being customer-focused or competitor-focused. Organizational performance is measured using three indicators adapted from Croteau and Bergeron (2001a) and Kearns and Sabherwal (2006) to reflect the respondent’s perception of organizational net profit, market share, and financial liquidity (Venkatraman 1989b).

### **3.5 Evaluation of Reflective Measurement Model**

The reflective measurement model was evaluated in terms of the internal consistency reliability (Supplementary Information: Table 2). The acceptable value for the alpha coefficient is between 0.7-0.9 representing high reliability and between 0.5-0.7 representing moderate reliability (Kapoor *et al.* 2014). All reflective constructs displayed high reliability except for prospector and defender constructs of which they indicate moderate reliability. It is suggested by Jörg *et al.* (2009) that value of composite reliability has to be above 0.70 in order to report internal consistency. The results presented show that composite reliability for all reflective constructs are satisfactory.

As this study's research model has not been used in the strategic alignment literature, the study uses a minimum outer loading of 0.50 for reflective indicators to ensure indicator reliability (Hutzschenreuter 2009). All reflective indicators achieved good reliability including the square multiple correlation (the square of the loadings).

Constructs	Indicators	Sources
Proactiveness	We constantly seek new opportunities related to the present operations We seek market share position at the expense of cash flow and profitability We cut prices to increase the market share	(Miles <i>et al.</i> 1978; Venkatraman 1989b)
Defensiveness	We use cost control systems for monitoring performance We use production management techniques We emphasize on product quality through the use of quality circles	
Analysis	Our organization's IT provides support for decision making When making a major decision, we usually try to develop thorough analysis Our organization uses planning techniques and uses the outputs of management information and control systems	
Flexibility	We use competitive intelligence systems We use IT for product marketing and promotion We use IT for obtaining customer feedback and providing service	(Sabherwal and Chan 2001)
Efficiency	We use IT in business processes We use IT to support research and development We use IT to support manufacturing	
Comprehensiveness	We use IT to support strategic planning and decision-making We use IT in risk analysis of processes We use IT in human resource management	
Customer-focused	We continuously try to discover additional needs of our customers of which they are unaware We incorporate solutions to unarticulated customer needs in our new products and services We brainstorm on how customers use our products and services We innovate even at the risk of making our own products obsolete We work closely with lead users who try to recognize customer needs months or even years before the majority of the market may recognize them	Olson <i>et al.</i> (2005) Narver and Slater (1990)
Competitor-focused	We rapidly respond to competitive actions Our top management discusses competitor's strategies We target opportunities for competitive advantage Our salespeople collect competitor information	
Organizational Performance	Our market share gains is much better than our principal competitors The net profit position is much better than our principal competitors The financial liquidity position is much better than our principal competitors	(Croteau and Bergeron 2001b; Kearns and Sabherwal 2006)

Table 1. Measurement Model

Subsequently, the construct validity was assessed using average variance extracted (AVE) in order to achieve convergent validity. It is suggested by Ellwart and Konradt (2011) that AVE should be greater than the variance shared between the construct and other constructs. The AVE, shown in Table 2, was found to be suitable (Fornell and Larcker 1981). As a result, the convergent validity was

achieved. Moreover, discriminant validity is fulfilled as each indicator has the highest loading on its desired construct.

Constructs	1	2	3	4	5	6	7	8	9
<b>1 ANA</b>	<b>0.83</b>								
<b>2 COMP</b>	0.48	<b>0.81</b>							
<b>3 COMPRH</b>	0.69	0.60	<b>0.84</b>						
<b>4 CUS</b>	0.50	0.69	0.63	<b>0.75</b>					
<b>5 DEF</b>	0.47	0.49	0.49	0.58	<b>0.78</b>				
<b>6 EFF</b>	0.52	0.60	0.71	0.59	0.40	<b>0.81</b>			
<b>7 FLEX</b>	0.55	0.54	0.53	0.54	0.44	0.66	<b>0.80</b>		
<b>8 PERF</b>	0.34	0.53	0.41	0.47	0.37	0.32	0.34	<b>0.87</b>	
<b>9 PRO</b>	0.31	0.32	0.35	0.38	0.33	0.29	0.33	0.33	<b>0.71</b>

Note: Diagonal elements are the square root of AVE and highlighted in bold

Table 2. Inter-Construct Correlation

### 3.6 Assessment of Formative Measurement Model

The formative measurement model was evaluated in terms of multicollinearity, the indicator weights, significance of weights, the indicator loadings (Hair *et al.* 2014), and nomological validity (MacKenzie *et al.* 2011). The nomological net test for the formative measurement model is based on the relationship between the formative index and the other constructs in the path model. The empirical results indicate that the structural path coefficients related to the formative construct are significant and strong (Supplementary Information: Figure 1).

Unlike testing the loading of the reflective constructs, the formative construct is tested by the weighting of the indicator which is above the threshold of 0.1. The results show that all the weights of the indicators and path relationships are significant. Hence the estimated indicator weights of formative measurement model are significant and are reliable.

Finally, a multicollinearity test was performed and all the VIF values are below 3.31, indicating low levels of multicollinearity and exhibiting discriminant validity.



## 4 RESULTS

### 4.1 Control Variables

Although control variable is not the main focus of the study, omitting it would make the results less accurate. A control variable is a variable that the researcher suspects is influencing the relationship between the independent and dependent variables (David and Sutton 2004; Rubin 2009). Prior studies indicated that firm size, industry sector, and job position could influence the relationship between alignment and performance (e.g. Powell 1992; Cragg *et al.* 2002; Sproull 2002; Chan *et al.* 2006). Thus this study controlled for these variables. The empirical results indicated that none of the control variables have a significant effect (Supplementary Information: Table 3). Thus, in this study, there is no evidence that firm size, industry, and job position are associated with better firm performance (Modi 2006; Liang *et al.* 2007).

### 4.2 Evaluation of Structural Model

First, the structural model relationships show the path coefficient and the significance and relevance of the relationships (Supplementary Information: Figure 1). There is a remarkable relation between TSA (triadic strategic alignment) and performance (0.59), implying that triadic strategic alignment of business, IT, and marketing strategic orientations indeed positively affects organizational performance. The analysis also indicated that the research model explained variance in performance with  $R^2$  value 0.35 which is higher than threshold of 0.33 indicated by Chin *et al.* (1998).

Second, a one-way MANOVA was performed to differentiate the modes of triadic strategic alignment prospectors, defenders, and analyzers separately. Three dependent variables were used: market share, net profit, and financial liquidity. The independent variable was mode of triadic strategic alignment. Preliminary assumption testing was conducted to check for normality, outliers, linearity, homogeneity, and multicollinearity (Hair *et al.* 2010), with no serious violations noted.

Thereafter, different modes of triadic strategic alignment based on the mean value of performance could be conducted to distinguish alignment modes from one another. In order to

compare the modes of triadic strategic alignment, this study started classifying the modes of alignment based on the business strategy orientation. Prospectors were selected based on each case's three proactiveness indicators scored simultaneously between 5 and 7 (somewhat agree, agree, and strongly agree). Then all cases of prospectors were further divided into three modes: ideal alignment, medium alignment, and low alignment. Ideal alignment refers to triadic alignment between prospector (business strategy), flexibility (IT strategy), and customer-focused (marketing strategy) with all relevant indicators scored 5 or more. Medium alignment refers to prospectors aligned with either IT flexibility strategy or customer-focused marketing strategy. This means only one of the latter two strategies with all its indicators scored 5 or more. Finally, low alignment for prospectors refers to prospectors aligned with neither IT flexibility strategy nor customer-focused marketing strategy. That is, none of the latter two strategies with all its indicators scored 5 or more. The same procedure was performed for defenders and analyzers. As a result, there were 28 prospectors, 41 defenders, and 127 analyzers. There were also 45 cases having mixed strategic orientation, which will be covered elsewhere.

### **4.3 Results of Triadic Strategic Alignment for Prospectors**

28 prospectors were identified: 14 with ideal mode of triadic strategic alignment between business, IT and marketing strategies, 12 with medium triadic strategic alignment, and two with low triadic strategic alignment (Supplementary Information: Table 4).

A one-way MANOVA was conducted. The Box's Test of Equality of Covariance Matrices confirmed that the data did not violate the assumption ( $p = 0.824$ ); the significant values of Levene's Test of Equality of Error Variances for the dependent variables were 0.097 (market share), 0.288 (net profit), and 0.486 (financial liquidity), suggesting the assumption of equality of variance was not violated. The Multivariate tests indicated that there was a statistically significant difference between the three alignment modes on the combined dependent variables, that is, the ideal triadic strategic alignment performed better than medium, which performed better than low alignment, with the

modes'  $F = 2.894$ ,  $p = 0.018$ , Wilks' Lambda = 0.524, and partial eta squared = 0.274. Since the Multivariate Tests were significant, this allowed Tests of Between-Subject Effects to be further conducted (Supplementary Information: Table 5). The results indicated that all three modes of alignment were significantly different on net profit, market share, and financial liquidity. The importance of the impact of the mode on net profit, market share, or financial liquidity could be evaluated using the effect sizes-partial eta squared, which were considered medium (Hair *et al.* 2010), suggesting that the mode could explain 46.3% of the variance in net profit, 36.9% in financial liquidity, and 24.2% in market share.

#### **4.4 Results of Triadic Strategic Alignment for Defenders**

41 defenders were identified (Supplementary Information: Table 6). A one-way MANOVA was conducted. The Box's Test of Equality of Covariance Matrices was  $p = 0.372$ , indicating that the data did not violate the assumption; the significant values of Levene's Test of Equality of Error Variances for the dependent variables were 0.741 (market share), 0.766 (net profit), and 0.485 (financial liquidity), suggesting the assumption of equality of variance was not violated. The Multivariate tests indicated that there was a statistically significant difference between the three alignment modes on the combined dependent variables. The ideal triadic strategic alignment performed better than medium; however, low alignment performed better than both ideal and medium alignment while the number of low cases was only two. The modes'  $F = 4.559$ ,  $p = 0.001$ , Wilks' Lambda = 0.525, and partial eta squared = 0.275. Furthermore, Tests of Between-Subject Effects were conducted (Supplementary Information: Table 7). The results indicated that all three modes of alignment were significantly different on net profit, market share, and financial liquidity. The importance of the impact of the mode on net profit, market share, and financial liquidity could be indicated by the effect sizes-partial eta squared, which were considered medium (Hair *et al.* 2010), suggesting that the mode could explain 30.4% of the variance in net profit, 41.7% in financial liquidity, and 41.9% in market share.

#### 4.5 Results of Triadic Strategic Alignment for Analyzers

127 analyzers were identified with only two modes of alignment (Supplementary Information: Table 8). A one-way MANOVA was conducted to indicate that there was no statistically significant difference between the two alignment modes on the combined dependent variables.

#### 4.6 Hypothesis Testing

Table 3 summarizes the testing results of all hypotheses. The general Hypothesis is supported by the empirical evidence suggesting that the relationship between triadic strategic alignment and organizational performance is rather strong. Hypothesis 1 assumes that prospectors aligned with an IT flexibility strategy and customer-focused marketing strategy (the ideal alignment) will perform better than those prospectors supported with other IT or marketing strategies. This hypothesis is supported by the empirical evidence (Supplementary Information: Table 5), suggesting that prospectors with the ideal alignment perform much better than those with medium alignment and low alignment.

Hypothesis	Empirical evidence
Hypothesis. TSA --> OP (0.59)	Yes
Hypothesis 1. Prospectors aligned with an IT flexibility strategy and customer-focused marketing strategy are more strongly associated with better performance than those prospectors supported by other IT and marketing strategies.	Yes
Hypothesis 2. Defenders aligned with an IT efficiency strategy and competitor-focused marketing strategy are more strongly associated with better performance than those defenders supported by other IT and marketing strategies.	Partially
Hypothesis 3. Analyzers aligned with an IT comprehensiveness strategy and a marketing strategy focused equally on competitors and customers are more strongly associated with better performance than those analyzers supported by other IT and marketing strategies.	No

*Table 3. Summary Results of Hypotheses Testing*

Hypothesis 2 suggests that defenders aligned with an IT efficiency strategy and competitor-focused marketing strategy (the ideal alignment) will perform better than those defenders supported with other IT or marketing strategies. The findings (Supplementary Information: Table 7) suggest that

defenders with the ideal alignment perform better than those with medium alignment; however, low alignment including only two cases perform better than both ideal alignment and medium alignment; thus Hypothesis 2 is only partially supported.

Hypothesis 3 conjectures that analyzers aligned with an IT comprehensive strategy and a marketing strategy that focuses equally on customer and competitor-focused (the ideal alignment) will perform better than those analyzers supported with other IT or marketing strategies. This hypothesis is rejected by the empirical evidence because there was no statistically significant difference between the two alignment modes on the combined dependent variables.

## **5 DISCUSSIONS AND CONCLUSIONS**

The main purpose of this research was to understand triadic strategic alignment among business strategy, IT strategy, and marketing strategy and its impact on firm performance. Specifically, the study intended to examine the extent to which (1) triadic strategic alignment affects organizational performance and (2) a firm's triadic strategic alignment is affected by its specific strategic orientation. The research results partially supported these hypotheses and made the following contributions.

### **5.1 Theoretical Contributions**

An important feature of this research is the fact that it is cross-disciplinary where it demonstrates how strategic conceptualizations of one discipline can be applied to another. It also highlights that the interests and concerns of different disciplines, at least in the management area, are becoming more intertwined. As markets continue to evolve and as the rate of IT change increases, there is a need to adopt a more holistic view of the business as a whole. This paper contributes in the investigation of the alignment of business, IT, and marketing strategies on firm performance, drawing on contingency and configurational theories. The results suggest that these different conceptual foundations should be viewed as complementary instead of competing approaches.

The first contribution of this study is the conceptualization of triadic strategic alignment among business, IT and marketing strategies. Strategic alignment has been extensively examined; but many

prior studies examine strategic alignment using a pairwise approach (Cao 2010), which can only partially capture the nature of strategic alignment that includes multiple factors (Drazin and Van de Ven 1985). Conceptually, it has been suggested that alignment including multiple factors is achievable (Venkatraman and Camillus 1984) and more holistic (Bergeron *et al.* 2004; Cao *et al.* 2016); however, only a limited number of studies examined alignment by including multiple factors such as business strategy, IT strategy and organizational structure (e.g. Chatzoglou *et al.* 2011). Many researchers (e.g. Venkatraman 1989a; Sabherwal and Chan 2001; Olson *et al.* 2005; Hooper *et al.* 2010) have argued that organizations are very complex systems in which numerous contingencies exist. The relationships between multiple factors often exhibit complex and interrelated nature in their evolution (Venkatraman and Prescott 1990). This study is an initial attempt to use triadic strategic alignment among business, IT, and marketing strategies to capture and retain the complex and interrelated nature of the relationships between multiple factors. This study's empirical support for the general hypothesis, that is, the alignment of business, IT, and marketing strategic orientations is positively associated with firm performance, suggests that the firms in this study can achieve better firm performance through triadic strategic alignment. Thus, this research has extended the existing research on strategic alignment by developing and empirically supporting the concept of triadic strategic alignment, which emphasizes simultaneously aligning business strategy, IT strategy that is an integral part of all organizing, and marketing strategy that considers dramatic changes in the business environment. This concept of triadic strategic alignment among three strategies also moves beyond the dominant pairwise approach to strategic alignment, thus makes a conceptual contribution to strategic alignment literature.

Second, this research contributes to configuration theory by identifying three generic configurations of triadic strategic alignment by specifically considering the firms being prospectors, defenders, or analyzers. While the concepts of strategic orientation (Venkatraman 1989b) and strategic configurations (Miles *et al.* 1978) are well discussed in strategic management literature, few studies have used them to examine strategic alignment (Chan *et al.* 2006). Many prior studies assumed

strategic alignment is applicable to all configurations of firms without considering how a firm should support its unique business strategy with appropriate IT and marketing strategies. By taking into account strategic orientation of firms, this research helps understand the antecedents to strategic alignment and consequently the link from strategic alignment to organizational performance. Specifically, this study has suggested that the prospectors in this study find it more beneficial to develop and use market information systems and strategic decision support systems and tend to observe customers in order to develop new products when considering their marketing strategy, while deviating from their ideal alignment can be less advantageous. Thus, this finding provides empirical support for the conceptual prediction about the relationship between a prospector's strategic orientation and firm performance. However, regarding defenders, this study's findings suggest that the defenders in this study with the ideal alignment perform better than those with medium alignment; while low alignment performs better than both ideal alignment and medium alignment. As a result, the prediction about the relationship between a defender's strategic orientation and firm performance is partially supported. Taken together, these findings regarding both prospectors and defenders at least suggest that strategic alignment is not universally applicable to all configurations of firms. This seriously challenges the validity of existing alignment studies that are not considering firms' strategic orientations. One important implication is that strategic alignment studies may need to change or refine their theorizing about strategic alignment. In particular, there is a need to consider strategic alignment and strategic orientations of firms simultaneously. Additionally, the findings suggest that more studies in different research contexts are needed to either confirm or refute the findings from this study which is among the first to examine triadic strategic alignment and is based on data collected from Yemen. More research is also necessary as, contrary to expectation, the findings of this study do not support the hypothesis about analyzers' triadic strategic alignment. Thus, future research could expound upon why or how this may be the case, thus extending the scope of strategic alignment research. Perhaps theorizing about strategic alignment in conjunction with strategic orientation needs to be further refined to capture the complexity of strategic alignment that involves multiple factors; or new and more pertinent measurements are needed to measure complex triadic alignment such as

analysts' pursuing a business strategy that simultaneously focuses on both competitors and customers and using a comprehensive IT strategy.

The findings have generally shown that triadic strategic alignment is positively associated with better organizational performance, and that misalignment (low and medium alignment) between business, IT and marketing strategies will exhibit lower levels of organizational performance. As a result, this research suggests that firms with different strategic orientation need to achieve different configurations of strategic alignment. Therefore, this research has made an important conceptual contribution to the literature by identifying three generic configurations of triadic strategic alignment. The findings also add to the limited number of studies examining strategic alignment using either strategic configurations (Luo and Park 2001; Chan *et al.* 2006; Raymond and Croteau 2009) or strategic orientation (Chan *et al.* 1997; Sabherwal and Chan 2001; Bergeron *et al.* 2004; Yayla and Hu 2012).

Third, the findings contribute to marketing literature by demonstrating that strategic alignment, including multiple factors, has greater explanatory power (Venkatraman and Prescott 1990) and it is more holistic (Bergeron *et al.* 2004; Cao *et al.* 2016). By extending the results of Vorhies and Morgan (2003), this study's findings suggest that ideal triadic alignment for each strategic orientation is associated with better organizational performance than medium alignment that is pairwise alignment between either business strategy and IT strategy or business strategy and marketing strategy. Thus, in order to achieve superior performance, a firm needs to align its marketing strategy simultaneously with both business and IT strategies.

## **5.2 Empirical Implication**

In reconciling this study's findings with previous theoretical and empirical work, potential implications can be drawn. The findings suggest that firms need to take a more holistic approach to achieving strategic alignment by including multiple factors since pairwise alignment has limited capacity and is likely to result in poor performance. The research makes it particularly clear that



triadic strategic alignment provides a valid alternative approach to strategic alignment. For a firm pursuing a particular business strategy to achieve superior performance, it has to implement an appropriate combination of IT and marketing strategies. It emphasizes support business strategy by assessing dramatic changes in the business environment and developing appropriate IT to meet business needs, thus organizational strategies are coherently aligned and act more as a whole.

The central finding and key argument of this study is that successful implementation of IT and marketing strategies is required to adapt to business strategy for superior performance. Also, it suggests that marketing strategy plays a crucial role in strategic alignment and is contingent on the specific business strategy in use. The authors note that the role of marketing strategy in the triadic strategic alignment model has a significant contribution in alignment and performance, as Yayla and Hu (2012) also point out. This research highlights the benefit of different functions of a business striving towards a common purpose of which results from high levels of functional alignment into synergistic benefits. In particular there seems to be a merit in having all CEO, CIO, and CMO working together within the firm, and a shared understanding of the firm's strategic objectives reflects in improved firm performance. Organizations can improve the shared interests between the functions by means of formal training, job rotation, and relying on the establishment of cross-functional teams and units. Therefore, the involvement of marketing managers in corporate strategy formation would increase the chance of strategic alignment influencing business performance significantly.

The three generic configurations of triadic strategic alignment and the three modes of alignment provide useful tools, which can be used by a firm to assess its current status of strategic alignment: its strategic orientation, form of alignment between different strategies, and its performance. Then the firm could seek to achieve the ideal alignment to cope and perform better in their market.

Since this study differentiates between high-performance and low-performance firms throughout the modes of alignment, managers can use the findings from this study to assist performance improvement. Although business strategy, IT strategy, and marketing strategy each affect business performance, their impact is significantly higher when they are aligned. Results from this

study indicate multiple modes of alignment impact differently on performance depending on the firm's business strategic orientation.

### **5.3 Limitations and Future Research**

Despite the above contributions, this study has its limitations and thus caution is needed in interpreting and applying the research findings. First, while the total sample has 242 managers, the sample is divided into prospectors, defenders, and analyzers and further into three modes of alignment; thus this study suffers from the issue of a small sample size sometimes when analyzing each specific group and mode of alignment. Second, the origin of the data used in this study is from companies in Yemen, thus no claim for generalization of the results beyond the sampling frame can be made. Although the sample represents a wide range of industries, they are mainly from the telecom and banking sector. Third, the hypothesis about defenders was partially supported of which could be further investigated under different context. Additionally, the analyzer hypothesis was not empirically supported regardless having the highest number of respondents. Thus, the conceptual prediction about triadic strategic alignment remains inconclusive and needs to be further examined in different research contexts. Finally, firms today may not only take a fixed business strategic orientation as prospectors, defenders, or analyzers, but also dynamically change their orientations according to the situation. As this research doesn't examine the dynamic change of firms' business orientations according to the situation and its impact on the triadic strategic alignment, future researchers may like to address this interesting issue.

Despite the limitations, this study theoretically links triadic strategic alignment between three strategies to business performance, which is empirically supported by the research results. The concept of triadic strategic alignment is thus seen to constitute a valid theoretical foundation on which to further investigate strategic alignment. Future research is encouraged to investigate the generalizability of triadic strategic alignment in other settings. Another interesting route for future research is to

consider how other factors such as organizational structure or environmental dynamisms would affect triadic strategic alignment.

## 6 APPENDIX A. SUPPLEMENTARY INFORMATION

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