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## **Competitive Pattern-Based Strategies under Complexity: The Case of Turkish Managers**

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## **Abstract**

This paper aims to augment current Enterprise Architecture (EA) frameworks to become pattern-based. The main motivation behind pattern-based EA is the support for strategic decisions based on the patterns prioritized in a country or industry. Thus, to validate the need for pattern-based EA, it is essential to show how different patterns gain priority under different contexts, such as industries. To this end, this chapter also reveals the value of alternative managerial strategies across different industries and business functions in a specific market, namely Turkey. Value perceptions for alternative managerial strategies were collected via survey, and the values for strategies were analyzed through the rigorous application of statistical techniques. Then, evidence was searched and obtained from business literature that support or refute the statistically-supported hypothesis. The results obtained through statistical analysis are typically confirmed with reports of real world cases in the business literature. Results suggest that Turkish firms differ significantly in the way they value different managerial strategies. There also exist differences based on industries and business functions. Our study provides guidelines to managers in Turkey, an emerging country, on which strategies are valued most in their industries. This way, managers can have a better understanding of their competitors and business environment, and can develop the appropriate pattern-based EA to cope with complexity and succeed in the market.

**Keywords:** Management strategy, Competitive strategy, Cross-industry analysis, Turkish companies, Complexity

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## **1. Introduction**

The primary goal of this study is to introduce the concept of pattern-based Enterprise Architectures (EA), and to illustrate how this new concept augments the traditional EA. The intermediate goal to serve this primary goal and illustrate the need for pattern-based EA is to reveal the value of alternative managerial strategies across different industries and business functions in a specific country. This value assessment is revealed through both survey based research and thorough investigation of business practices, and motivates the adoption of systemic pattern-based EA.

Complexity, in the context of management science, emerges from diversity, interdependence, ambiguity, and flux (Maznevski et al., 2007). Enterprise Architecture (EA) is a fundamental framework that can be adopted by all types of organizations, including business enterprises, government organizations, and other institutions to tackle with complexity and create and sustain coherent enterprises (Saha, 2007). EA is “the system of applications, infrastructure, and information that support the business functions of an organization, as well as the processes and standards that dictate and guide their evolution.” (O’Neill et al., 2007). There exist an multitude of schemas in literature that describe the possible approaches to establishing an EA, such as the Zachman Framework<sup>2</sup> and the specific EAs that can be or have been implemented, such as the EA of the Internal Revenue Service (IRS) (Bellman, 2012).

In this chapter, upon suggesting pattern-based EAs, we focus on the competitive pattern-based strategies that influence the design of EAs. O’Neill et al. (2007) introduce a visual representation of how organizational strategies, business process strategies and Information Technology strategies interact with EA (inside the dashed circle in Figure 1). Our work extends this view with competitive pattern-based strategies, which can be visualized to form a layer that wraps the EA and the above three categories of strategies (the complete picture in Figure 1). The main contribution of our novel extended view is two-folds: Firstly, we can now incorporate multi-functional strategies that fall into not only one of the above three categories but can encompass two or three of them. Secondly, we can now link the EA to the business environment through these pattern-based strategies, which each find applicability only under certain set of business conditions.

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<sup>2</sup> <http://www.zachmanframeworkassociates.com/>

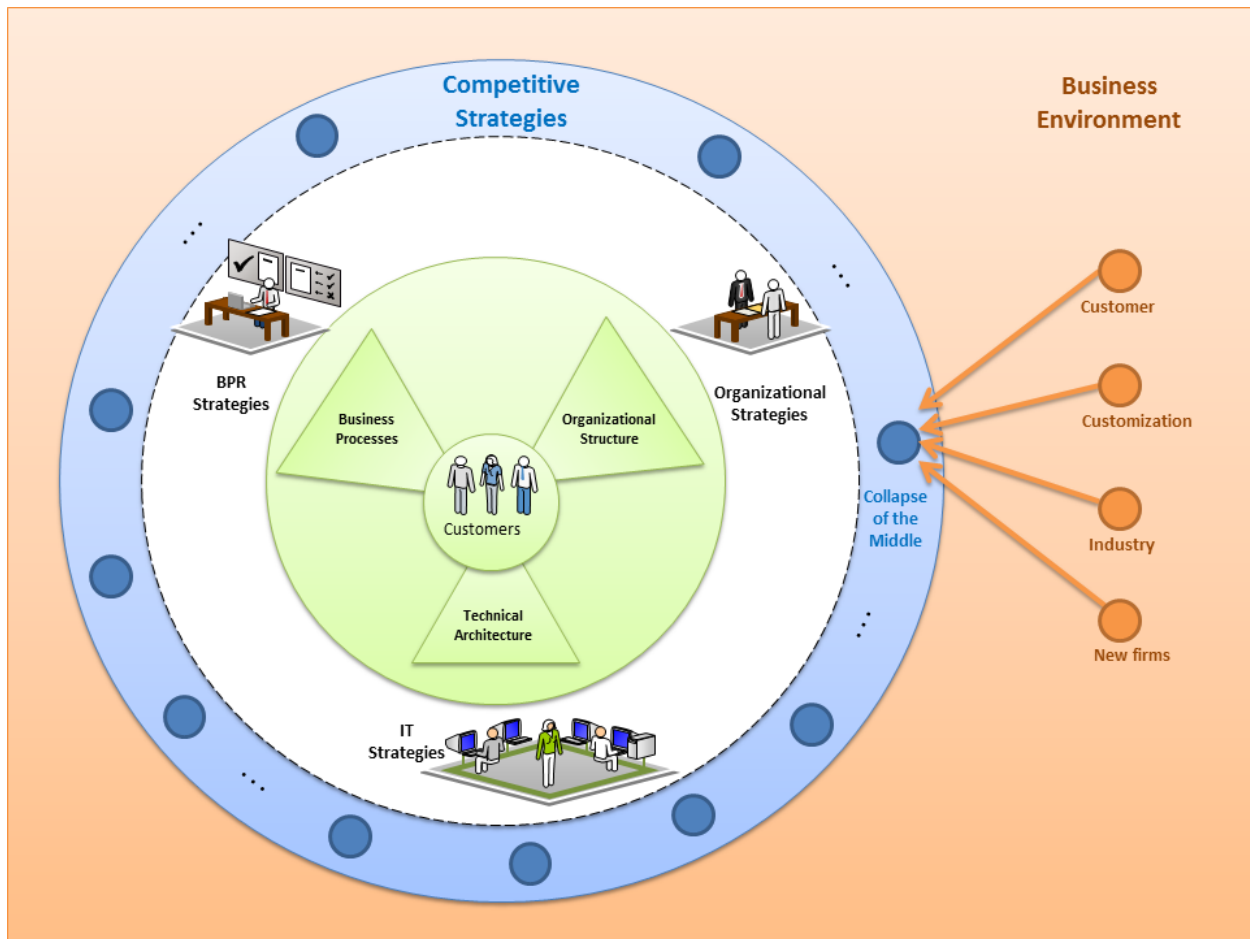


Figure 1. Competitive pattern-based strategies under complexity and the supporting pattern-based EA (Enterprise Architecture). This framework augments the classic EA, which consists of only the region inside the dashed circle.

The specific set of strategies that we consider in this study is taken from an influential business book, *Profit Patterns*, by Adrian Slywotzky (Slywotzky *et al.*, 1999). Slywotzky *et al.* (1999) consider pattern recognition as the essence of business strategy and the primary skill in dealing with complexity. Patterns in this book have been systemically formulated based on extensive case studies and hence are supported by evidence from the real world, and this was the main reason for the selection of this source for constructing the strategy layer that wraps the EA (Figure 1). This pattern-oriented approach for dealing with complexity is particularly helpful for organizations in managing complexity: Instead of having to design exhaustive systems that consider every possible case and take into account every possible environmental variable, the EA needs to be designed only around capturing and understanding the patterns that trigger the selected list of strategies. In Figure 1, the environmental variables that need to be considered by

the EA are shown for a given competitive strategy, namely the “collapse of the middle”. Therefore, in order to embrace and implement Slywotzky’s listed strategies, the appropriate organizational setup and the EA are those that cater the information needed to identify the patterns and to launch the mentioned strategies.

In pattern-based EA, the strategy that should be applied in a particular business situation is found through the application of strategy rules. Figure 2 illustrates a particular set of rules related with Customer. The questions about the different aspects of the business environments reveal which strategies should be suggested by the EA. Figures 3 and 4 illustrate an example enterprise application, a strategic management decision support system (DSS) named StrategyAdvisor (Irdesel et al., 2012), that suggests strategies (Figure 4) given the answers to domain-related questions (Figure 3). The suggested strategies are based on the database of knowledge rules displayed in Figure 2.

Given this extended view, which suggests that EA is a function of strategies, as well as a driver, a fundamental research question is the following: *Which particular strategies are prevalent in different countries and industries?* We answer this research question for the case of Turkish managers.

	A	B	C	
1	Module_No	Module_Name	Node_Type	Text
94	2	Customer	Question	Is the effect of market on value chain economics changed or unaffected?
95	2	Customer	Question	Is the effect of product on commodization changed or unaffected?
96	2	Customer	Continue	
97	2	Customer	Start	
98	2	Customer	Question	Is there a 20%-80% rule (ABC rule) in profit , or is it dispersed among customers?
99	2	Customer	Question	Is the segment range of purchase behaviour wide or limited?
100	2	Customer	Question	Is the segment range of priorities wide or limited?
101	2	Customer	Question	Is the segment range of cost to serve wide or limited?
102	2	Customer	Question	Is the variation level of customer priorities high or low?
103	2	Customer	Question	Are customers consolidated into powerful segments or buyer groups?
104	2	Customer	Question	Is there a shift to new actors at players of decision making?
105	2	Customer	Question	Is profitability of traditional customers high or low?
106	2	Customer	Module Continue	
107	2	Customer	Suggestion	* Invest the time and effort to build a customer profitability system. Update it quarterly
108	2	Customer	Suggestion	* Anticipate the power balance between your customer and supplier successfully. * Offer them perfectly tailor-made options
109	2	Customer	Suggestion	* Identify the most profitable customers. * Offer them perfectly tailor-made options

Figure 2. A database of strategy rules, supporting the pattern-based EA

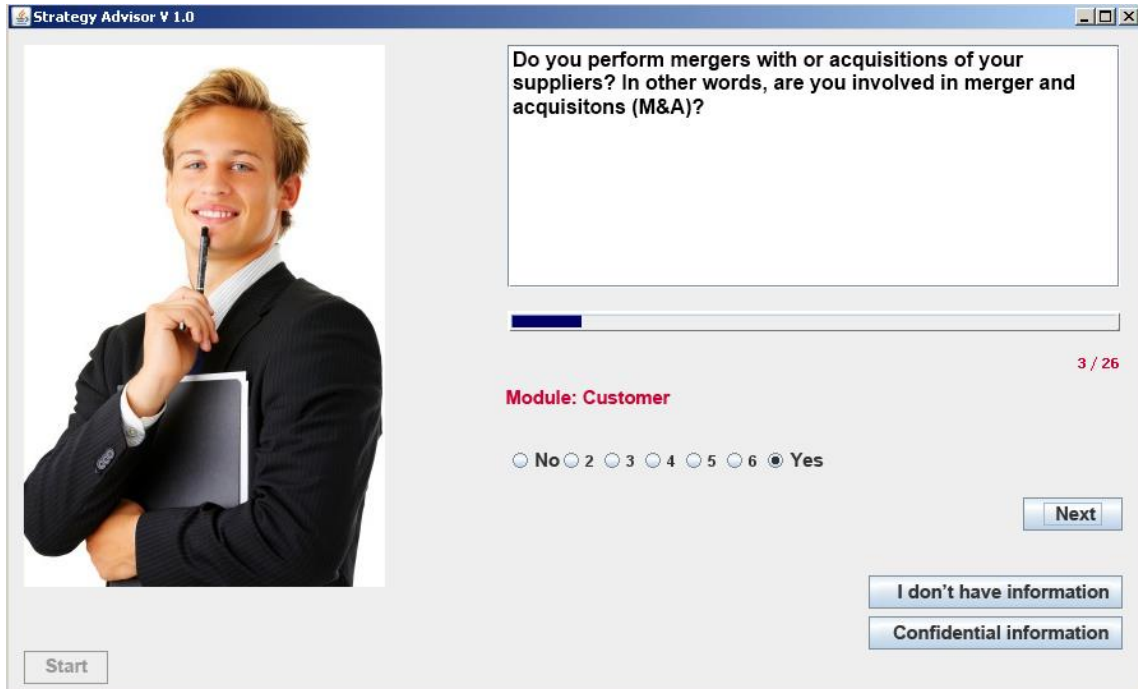


Figure 3. Knowledge acquisition in the sample enterprise application (StrategyAdvisor), running based on the proposed pattern-based EA

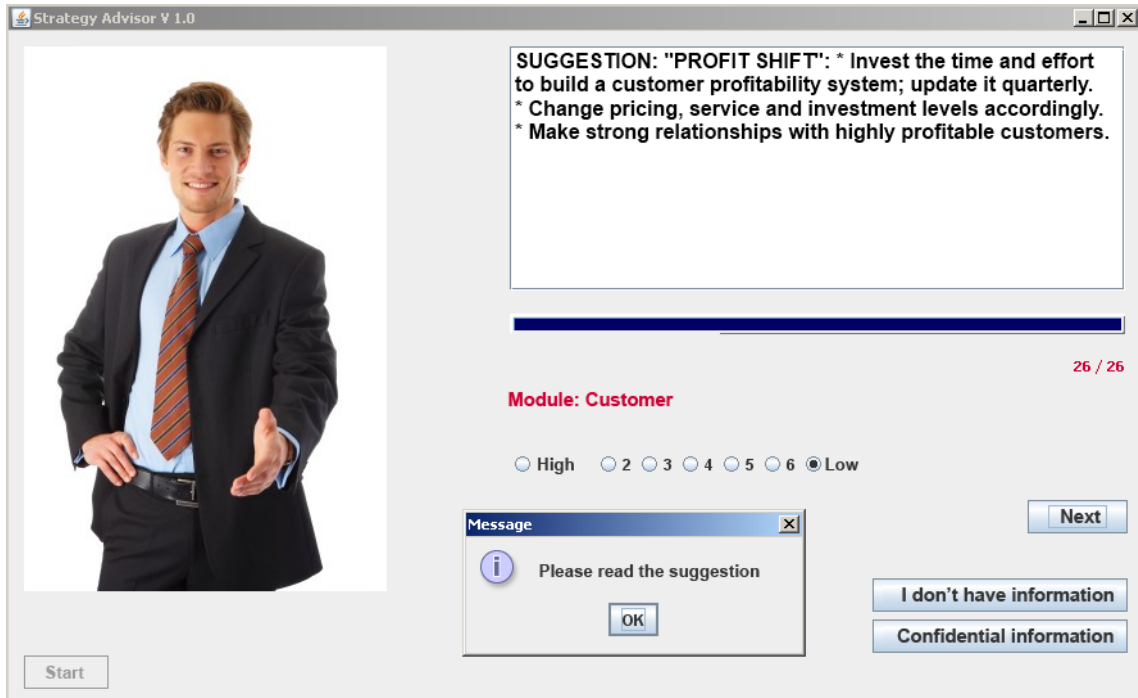


Figure 4. Strategy suggestion in the sample enterprise application (StrategyAdvisor), running based on the proposed pattern-based EA

The industries investigated include textile, construction, and service, as well as others. The business functions investigated consist of channel, customer, value chain, knowledge, organization, and product. Strategic preferences may vary across industries since each industry has a different business environment and set of requirements. In this study, we explore most preferred strategy for different industries in Turkey, and compare the values given for these strategies. The results of this exploration suggest which competitive strategies Turkish managers select under the prevailing business complexity.

Turkey is the 16<sup>th</sup> largest economy in the world, and is the third most populous country in Europe behind Russia and Germany (Cakanyildirim and Haksoz, 2012). IMF and World Bank classify Turkey as an emerging market, and many multi-national companies today run their Middle East, Balkan, Africa, and/or Central Asia operations from their headquarters in Turkey. The analysis of strategy preferences of Turkish managers can be considered part of understanding of managerial strategies in emerging economies.

Firstly, we give some background on textile, construction and service industries, since each of them is vital for the economic life in Turkey.

Atilgan (2006) mention that the *textile and apparel* industry, which comprise about 11-12% of the gross national product, 30% of the export and 12% of total employment, has great importance on Turkey's development and growth. However, the industry is experiencing problems due to poor managerial decisions and business practices, as well as macro factors affecting the industry. Adverse developments in such a large industry would inevitably affect the national economy in the same way. Turkey is the 9<sup>th</sup> biggest textile producer and the 5<sup>th</sup> biggest apparel producer in the world, and strategies are being developed to improve and maintain this position. With this objective, while endeavoring to improve the quality of both product and production, Turkish government launched the "Turquality" project (Turquality, 2012), to acquaint the world with high-quality Turkish brands. The Turquality project aims at actualizing the benefits of some of the well-known business strategies, such as product to brand and reintegration.

With regards to the *construction* industry, Dikmen and Birgonul (2003) reveal that the most prioritized important objective in the Turkish construction industry is building a positive company image, which is seen as a way of enhancing long-term profitability. Companies doing work for the private sector declare quality of services as their major strength. Company image and innovation in services are denoted as major strength factors by companies that utilize a differentiation strategy. When average values are considered, differentiation appears to be the

most frequently used managerial strategy. Moreover, companies having a long-term profitability objective focus on differentiating their services, whereas others that aim at maximizing short-term profits focus on achieving cost advantage.

*Service* industry has become the dominant element in the global economy, especially in the industrialized nations, over the past three decades (Akbaba, 2006). Service quality is a prerequisite for success and survival in today's competitive environment. Capar and Kotabe (2003) report the first attempt to empirically examine the relationship between international diversification and performance in service firms in Turkey.

While Atilgan (2006), Dikmen and Birgonul (2003), Akbaba (2006), and Kotabe (2003) provide insights on the prioritization of specific strategies in certain industries, a cross-industry study covering all the major industries was not encountered in the literature. This chapter, on the other hand, provides such a comprehensive study, and illustrates the need for customized pattern-based EA for different industries. To this end, the hypotheses investigated and tested in this chapter are the following:

**Hypothesis 1.** *Certain strategies are valued more than others in each business function, when industries are considered altogether.*

**Hypothesis 2.** *Certain strategies are valued more than others in each industry and in each business function, when scores across industries are considered.*

The research process that we followed is given in Figure 5. In the survey conduct, the participants were provided with a list of strategies to choose from in each business function, and were asked to assign an importance value (on a Likert scale of 1 to 7) for each of these strategies. As mentioned earlier, the listed strategies come directly from Slywotzky *et al.* (1999). Once the survey data was acquired and cleaned, statistical data analysis was applied to identify strategy preferences, especially across industries. Given these differences, business application literature was scanned to find support or refutation regarding the findings from the survey.



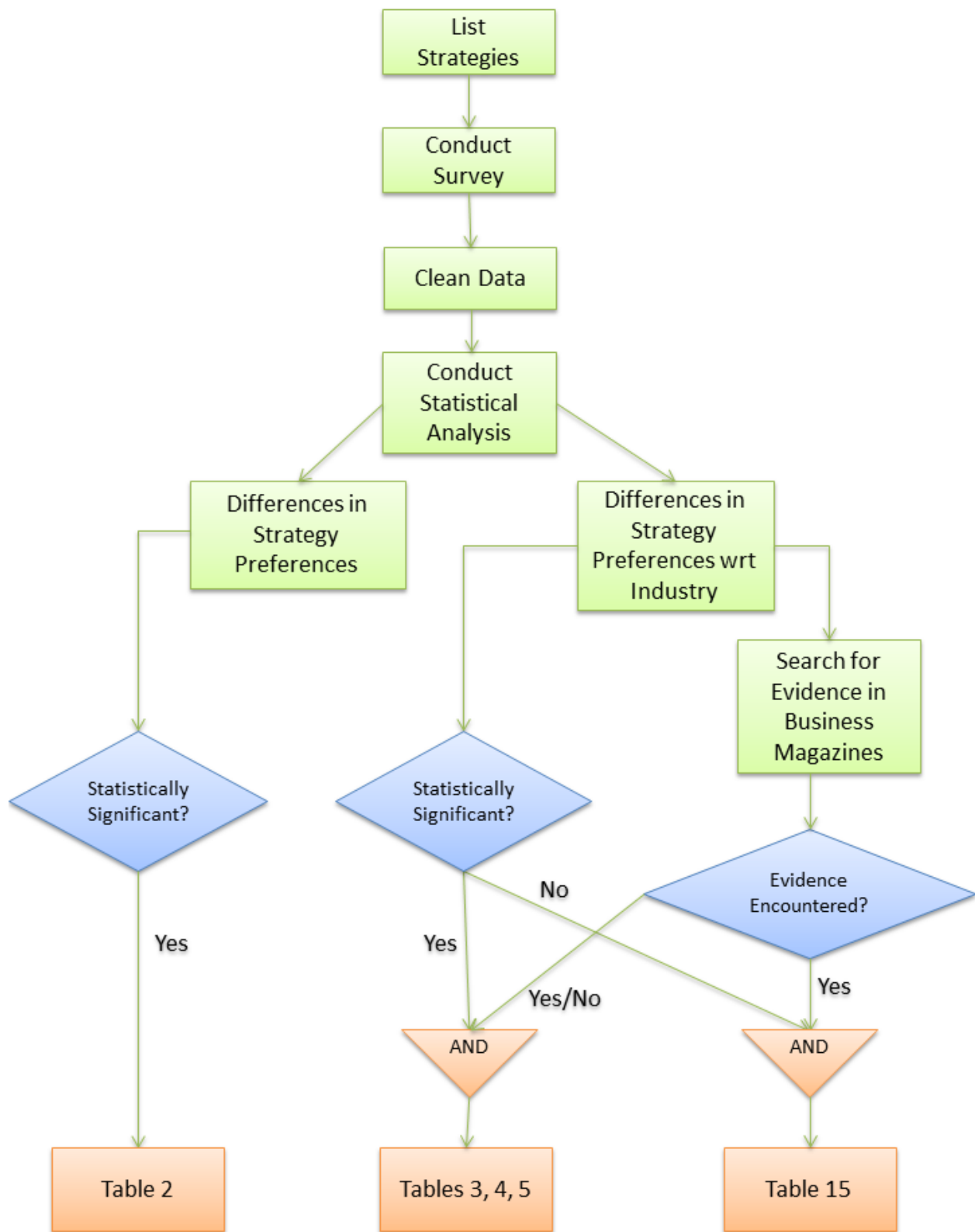


Figure 5. The research process followed in the study

The remainder of the paper is organized as follows: section 2 provides a brief literature review; section 3 describes the methodology followed including the data collection process and the statistical methods employed for the data analysis; section 4 presents the analysis results; and finally, section 5 summarizes the research conclusions and outlines further work.

## **2. Literature**

While being a fundamental question, to the best of our knowledge, there does not exist a study in the literature, for any country, on the value perceptions for alternative managerial strategies across different industrial sectors. With regards to Turkish companies, most of the studies in the literature investigate one of the following three:

- Competitive strategies and innovation (Ulusoy, 2003; Ulusoy and Yegenoglu, 2007; Ulusoy *et al.*, 2007; Alpkın *et al.*, 2010; Gunday *et al.*, 2011; Erbil *et al.*, 2010),
- Relation between strategy and firm performance (Bayraktar and Tatoglu, 2010; Koh *et al.*, 2007; Taslak, 2004; Glaister *et al.*, 2008) and
- Effects of both strategy and industry on firm performance (Ulusoy and İkiz, 2001).

Our literature survey is structured along these groups of studies, and especially focuses on the case of Turkey. We also introduce and discuss the profit patterns of Slywotzky *et al.* (1999), which is the theoretical framework for the analyzed strategies.

### *2.1. Competitive strategies and innovation*

The studies in the first group focus on strategy only in the context of innovation. These studies identify innovation and EA that promotes innovation as the pillars of strategic management: Ulusoy (2003) reveal that the manufacturing industry in Turkey bases its competition strategy mainly on low price, rather than product differentiation (even though the latter is promoted by Porter, 1980). Still, companies are reported to be inclined to increase the weight of the product differentiation strategy within their mixed strategy in near future, particularly through more knowledge-intensive products. In successive studies, Ulusoy and Yegenoglu (2007) and Ulusoy *et al.* (2007) demonstrate that the manufacturing industry in Turkey has indeed increased the weight of the product differentiation strategy against low cost strategy within their mixed strategy. Ulusoy and Yegenoglu (2007) highlight that emphasis on innovation and particularly new product development is steadily increasing. Ulusoy *et al.* (2007) suggest that besides brand reputation or an extensive sales and service network, product differentiation can be achieved

through proprietary technology or through new products. More investment and organizational innovation are needed for R&D projects and new product development. Organizational innovations such as collaboration with other firms are also important for the product differentiation strategy to be successful.

Alpkan *et al.* (2010) expose the factors that contribute to innovative performance: An internal supportive environment providing support (especially management support), tolerance for risk-taking entrepreneurs, and a high quality human capital. When human capital is of low quality, the organizational support was shown to still influence innovative performance positively. However, when human capital is of higher quality, the marginal impact of organizational support on innovative performance diminishes. Gunday *et al.* (2011) report on an innovativeness study in the Turkish manufacturing industry. They show that organizational innovations play a fundamental role for innovative capabilities and innovations performed in manufacturing firms have positive and significant impacts on innovative performance. Hence, they show that innovation strategy is a major driver of firm performance and should be developed and executed as an integral part of the business strategy.

In an analysis of the construction industry, Erbil *et al.* (2010) suggest that introducing new products into the market is one of the main business strategies of building materials suppliers. While innovation and strategies that expand innovation are critical, innovation is not the only source of competitive strategy. Other types of strategies should be analyzed, as we do in our study.

## *2.2. Strategy and firm performance*

The second group of studies focuses on establishing the relation between strategy and firm performance:

There are several studies about strategy and firm performance in the context of Turkish companies in general, or specifically Turkish small and medium size enterprises (SMEs). Koh *et al.* (2007), determine the relation between supply chain management (SCM) practices and operational performance by focusing on SMEs in Turkey. The SCM practices with the highest level of usage by the sample firms included “JIT supply”, “many suppliers” and “holding safety stock”. The finding that both “JIT supply” and “holding safety stock” were the two most cited SCM practices in terms of the level of usage appears to be somewhat surprising. The analysis of the relationship between SCM practices and operational performance indicates that SCM practices might directly influence operational performance of SMEs.

Bayraktar and Tatoglu (2010) study the link between strategy choice and operational performance of Turkish companies. They show that a firm's strategy choice of gaining a differentiation-based competitive advantage improves firm's operational performance. Taslak (2004) shows that the most important formulation problem is “uncertainties arising from national economic conditions”, and the two of most important implementation problems are “implementation activities taking more time than originally planned”, and “uncontrollable factors in the external environment” for the Turkish textile firms. Many firms had much more difficulty in making realistic strategic decisions and successfully implementing them because of national economic uncertainty. Glaister *et al.* (2008) provide new evidence to explain the nature of the strategic planning-performance relationship, drawing on data from Turkish companies. Prior studies that have examined this relationship have tended to focus on firms from industrialized countries. Glaister *et al.* (2008) is one of the first studies that has explicitly modeled and empirically tested the relationship in an emerging country context. Their findings show that there exists a strong and positive relationship between formal strategic planning and firm performance, which confirms the arguments of the prescriptive strategic management literature.

In a related study, Ağca and Uğurlu (2008) investigate the impact of strategic orientation and strategy choices. The authors consider the orientation typologies suggested by Porter (1980) and Miles *et al.* (1978), and reveal that strategic orientations of Turkish manufacturing companies have significant effect on strategy formation capability and business performance.

The mentioned studies in the second group show that strategy choices in Turkish companies have a significant impact on performance. Our study is thus relevant and applicable, since it reveals the strategy valuations in Turkish companies, both on an industry basis, and as a whole.

Several other studies about strategy and firm performance are related to our study, even though they are not in the context of Turkish firms. These are summarized in Appendix A.

While the studies in the second group show the link between strategy selection and industry, they do not analyze how strategy valuations change across industries. Our study specifically investigates and reveals this critical link.

### *2.3. Strategy and industry effects together*

The third group of papers analyzes strategy and industry effects together: Ulusoy and Ikiz (2001) show that there is no appreciable difference between industrial sectors in implementing best manufacturing practices and in achieving high operational outcomes for Turkish firms. The

leaders that adopt the best practices are rewarded by higher business performance. In comparison to foreign competitors, the ability to adopt products is stated to be a key advantage of Turkish companies.

Okumus (2003) presents a comprehensive review of strategy implementation, arguing that strategy implementation is too complex to be explained by prescriptive linear models. The framework he developed can be used for a retrospective analysis of past, future and current cases of strategy implementation.

Gulev (2009) examines to what extent cultural dimensions influence management behavior in different European Union (EU) countries. He identifies the strategic differences stemming from location and culture, as well as other factors. Gulev (2009) argues that variances in culture can have a profound impact on management behavior. He shows that there are some direct linkages between capitalistic and authoritarian cultures on managerial aspects of multi-national corporations.

Other studies that analyze strategy and industry together, that are not in the context of Turkey, are given in Appendix B.

#### *2.4. Profit patterns*

The strategies included in our study are taken from the list of strategies in the *Profit Patterns* book, written by Adrian J. Slywotzky and his colleagues at Mercer Management Consulting (Slywotzky *et al.*, 1999; Mercer Consulting). These patterns/strategies are listed in Table 1, and are explained in Table 6 in Appendix C. The names either directly refer to the strategies themselves or to the pattern under which the strategies are applied. The rationale behind the selection of this book is detailed in Appendix D.

Slywotzky *et al.* (1999) consider pattern recognition as the heart of business strategy and as the heart of managing complexity: Detecting and understanding the key strategic patterns playing out in an industry enables the mapping of the business landscape, and selection of the most appropriate strategy for the observed pattern. An example profit pattern, namely “collapse of the middle”, is explained in Appendix E.

Weill *et al.* (2005) investigates whether business models, such as the profit patterns of Slywotzky, can have a significant impact on company success. The study introduces MIT Business Model Archetypes (BMA), a typology of four basic types of business models, and 16 variations based on these basic types. It is shown that a company’s business model is a

substantially better predictor of its operating income, compared to the company's industry and other control variables.

Slywotzky's profit patterns have been subject of a multitude of academic papers (Slywotzky *et al.*, 1999b; Slywotzky and Morrison, 2001), and have been central to countless strategy applications over the years by Mercer Consulting. Since the strategies were identified through the investigation of global companies (besides local ones), they are globally applicable: Peng *et al.* (2009) apply the value network profit pattern for a Chinese telecom operator and Rodrigues *et al.* (2006) explains how this strategic pattern has been applied by Brazilian banks in the adoption of Automated Teller Machines (ATM) successfully.

**Table 1. List of profit patterns (profit strategies).**

Function	Strategy	Strategy Name
1-Channel	158	Concentration
1-Channel	159	Multiplication
1-Channel	160	Compression
1-Channel	161	Reintermediation
2-Customer	245	Profit Shift
2-Customer	246	Power Shift
2-Customer	247	Microsegmentation
2-Customer	248	Redefinition
3-Value Chain	349	Deintegration
3-Value Chain	350	Strengthening the weak link
3-Value Chain	351	Value chain squeeze
3-Value Chain	352	Reintegration
3-Value Chain	353	Downstream
4-Knowledge	441	Operations to knowledge
4-Knowledge	442	Product to customer knowledge
4-Knowledge	443	Knowledge to product
5-Mega	556	No profit

Function	Strategy	Strategy Name
5-Mega	557	Collapse of the middle
5-Mega	558	Convergence
5-Mega	559	Technology shifts the board
5-Mega	560	De Facto standard
5-Mega	561	Back to profit
6-Organization	643	Skill Shift
6-Organization	644	Pyramid to network
6-Organization	645	Corner-stoning
6-Organization	646	Digital business design
7-Product	783	Product to brand
7-Product	784	Product to pyramid
7-Product	785	Product to solution
7-Product	786	Product to blockbuster
7-Product	787	Product to profit multiplier

### **3. Methodology**

#### *3.1. Data*

Our research was conducted based on real world data collected through a field study survey. The field work has been carried out in Spring 2008, and involved 244 participants from 159 companies in 12 main industries. Each participant was assisted by a Sabanci University student as s/he answered all the 237 questions in a strategic management decision support system (StrategyAdvisor) and the 139 questions in an accompanying survey. A sample size of 244 can be considered reasonable with respect to goals of this study, which investigates the preferences for various strategies by different industries. Benchmark survey-based studies on strategic management, such as the one by Güleş *et al.* (2011) analyze samples of similar or smaller size.

This paper presents the analysis of the following 15 of these 139 questions, across seven business functions:

Q1: “Which industry do you operate in?”

Q2-8: “Which strategy within the business function X do you find most useful?” ( $X \in \{\text{channel, customer, value chain, knowledge, mega, organization, product}\}$ )

Q9-15: “Which score would you assign to the value (benefit) of this strategy (7 being most useful)?”

#### *3.2. Contingency Tables*

Once the data has been systematically cleaned based on the taxonomy of dirty data in Kim *et al.* (2003), the next step was summarizing the frequencies and average scores of strategies. Firstly, contingency tables (Pearson, 1904) were constructed for the strategies in each of the business functions, across all industries. These are given in Table 7 in Appendix F. Then, they were created for each of the industries, for the strategies in each of the business functions. These are given in Tables 8 – 14 in Appendix F. A strategy has been included in a contingency table only if its frequency (the number of times that strategy was selected by the respondent as the most valuable strategy) was greater than or equal to five.

#### *3.3. Statistical Tests*

Once the contingency tables were constructed, statistical analysis was carried out to test for differences between scores given for the strategies. Even though the counts for the strategies



could have been compared using Friedman test (Friedman, 1937, 1939), this was not pursued. We have instead focused on the score values given by the managers for the strategies.

A fundamental issue was the selection of the appropriate statistical tests for measuring the statistical significance of the hypothesized differences in strategy scores (Conover, 1998; Cassidy, 2005). The first decision to be made was whether parametric (t-test, ANOVA) or non-parametric tests (Mann-Whitney, Kruskal-Wallis) should be applied. When applicable, parametric tests are preferred due to their power, their requirement for smaller sample sizes to draw conclusions with the same degree of confidence. However, parametric tests are applicable only when the data follows parameterized distributions, such as the requirement of normal distribution for the t-test and ANOVA. Non-parametric test such as Mann-Whitney and Kruskal-Wallis, on the other hand, use the rank data to compute the test statistics, and do not require the data to come from a particular distribution (Conover, 1998).

Throughout the study, Shapiro-Wilk test (Shapiro and Wilk, 1965) was applied to test normality. t-test was applied for comparing differences among two samples that both follow normal distribution; ANOVA test was applied for comparing differences among three or more samples that both follow normal distribution (Conover, 1998). When any of the distributions were not following normal distribution, Mann-Whitney (Mann and Whitney, 1947) and Kruskal-Wallis (Kruskal and Wallis, 1952) tests were applied instead of t-test and ANOVA test, respectively.

### *3.4. Validation of results*

Any empirical study is bound by the data that it is based on, as well as the assumptions it makes. The assumptions regarding the selection of statistical tests have been tested thoroughly, as described in the preceding section. The validity of the results and insights is a major issue, and should be supported with observations, before being suggested as actionable facts. In our study, this validation was carried out through an in-depth analysis of the Turkish business literature, covering issues of the periodical business magazines Capital<sup>3</sup>, CNBC-e Business<sup>4</sup>, Inc. Türkiye, Infomag<sup>5</sup>, Turkishtime<sup>6</sup>, within the years 2008 and 2009. This approach of searching for empirical proof or disproof in the business periodicals was very time-consuming. Yet, our study is the first study in related literature to conduct this methodological approach.

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<sup>3</sup> <http://www.capital.com.tr/>

<sup>4</sup> <http://www.cnbce.com/business/>

<sup>5</sup> <http://www.infomag.com.tr/>

<sup>6</sup> <http://www.dijimecmua.com/turkishtime/>

## 4. Results

### 4.1. Overall preferences

The first question to ask is whether there exist differences in the evaluations for the strategies' values, ignoring the cross-industry effects. This analysis is important in designing a pattern-based EA that can be deployed in any industry within a given country. The augmented pattern-based EA that we propose in this chapter (Figure 1) supports such a country-specific customization. Hypothesis tests were carried out based on the contingency table (Table 7 in Appendix F) for comparing the scores of strategies that have been selected by at least five respondents for that function-industry combination.

Table 2 shows the results of the statistical tests, at  $p=0.05$  level of confidence. The non-parametric Kruskal-Wallis test (Kruskal and Wallis, 1952) was carried out for testing the statistical significance of the differences in the average value scores. This test was used since the Shapiro-Wilk test (Shapiro and Wilk, 1965) rejected normality for at least one of the score vectors. Under the "Strategy Pair" column, the first strategy in the pair has a higher average value score, with statistical significance. For example, the first line of Table 2 shows that strategy 158 (Concentration) is preferred compared to strategy 159 (Multiplication).

It is very hard to validate these general findings through an investigation of the business literature, since the information regarding the value of a strategy can always be industry-specific. So, the insights are given without any supporting evidence from industry, while such evidence is later presented in the analysis for each function-industry pair.

**Table 2. Statistically-supported observations regarding the valuation of different strategies, across all industries**

Observation	Function	Strategy Pair	Observed Diff	Critical Diff
<b>1</b>	<b>1</b>	158-159	19.72	14.74
1	1	158-160	37.11	15.85
1	1	158-161	29.72	17.65
1	1	159-160	13.64	12.42
<b>2</b>	<b>2</b>	248-245	35.16	16.31

2	2	248-246	27.48	13.61
2	2	248-247	14.48	10.39
<b>3</b>	<b>3</b>	350-349	26.50	14.15
3	3	350-351	25.39	13.40
3	3	350-352	12.76	12.50
3	3	353-349	23.80	15.12
3	3	353-351	18.11	12.82
<b>4</b>	<b>5</b>	556-557	21.26	21.06
4	5	556-559	27.52	20.33
4	5	560-559	13.97	13.77
<b>5</b>	<b>7</b>	785-783	24.05	15.04
5	7	785-787	11.77	10.18

Following an overall analysis, the hypothesis supported by statistical tests (and the insights obtained) when all industries are considered is the following:

**Hypothesis 1.** *Certain strategies are valued more than others in each business function, when industries are considered altogether.*

The statistically significant observations that support Hypothesis 1 are as follows, and are given in Table 2: **(1)** Among the strategies in the “Channel” function, Concentration strategy (158) is the *most* valuable one. The only other significant difference relates to Multiplication (159) having higher value than Compression (160). **(2)** Among the strategies in the “Customer” function, Redefinition strategy (248) is the *most* valuable one. **(3)** Among the strategies in the “Value Chain” function, both Strengthening the weak link (350) and Downstream (353) strategies are *more* valuable than Deintegration (349) and Value chain squeezing (351). Moreover, Strengthening the weak link (350) is also more valuable than Reintegration (352). **(4)** Among the “Mega” strategies, both the strategies under the No profit (556) pattern and the De Facto standard (560) strategy are *more* valuable than the strategies under the Technology shifts the board (559) pattern. Moreover, strategies under the No profit (556) pattern are also

more valuable than the strategies under the Collapse of the middle (557) pattern. **(5)** Among the strategies in the “Product” function, Product to solution strategy (785) is *more* valuable than Product to brand (783) and Product to profit multiplier (787) strategies.

#### 4.2. Value evaluation for each industry

We next analyze the value of alternative strategies for each industry. This analysis is important when designing a pattern-based EA that provides customization for a specific industry. The pattern-based EA that we propose in this chapter (Figure 1) supports such a customization, just as it supports country-specific customization (Section 4.1). The analysis begins with contingency tables (Tables 8-14 in Appendix F) for all the business functions and industries.

Tables 3, 4, and 5 present the statistically significant insights obtained. The Test Type column tells whether a parametric (P) or non-parametric (NP) test was used. The Test column tells whether Kruskal-Wallis (KW) test, t-test (T) or Mann-Whitney (MW) test was used. Under the Strategy pair column, the first strategy in the pair has a higher average value score, with statistical support.

Both supporting and refuting evidence regarding the insights in this section have been searched and found from business magazines. The information on the related evidence has been given under a new column in Tables 3, 4, and 5, which gives the reference to the source of the evidence, and names the companies for which this insight is true (supporting the insight) or false (refuting the insight), with the refutations marked with X.

The tables list only the differences that satisfy one of the following two conditions: 1) Differences that are found to be statistically significant at  $p=0.05$ , *regardless of* whether related evidence exists in literature. 2) Differences that are found to be statistically significant at  $p=0.10$ , given that there *is* related evidence from business magazines.

For example, the first line of Table 3 tells that in the Channel function ( $F_n=1$ ) of companies in Turkish construction industry, strategy 158 is preferred to strategy 160. One example company, as reported in Inc. Türkiye magazine, is ODE Yalıtım (Inc. Türkiye, 2009a).

The hypothesis supported (and the insights obtained) through this analysis is the following:

**Hypothesis 2.** *Certain strategies are valued more than others in each industry and in each business function, when scores across industries are considered.*

The statistically significant observations that support Hypothesis 2 are as follows, and are given in Tables 3, 4, and 5:

**(6)** For the construction industry, among the strategies in the “Channel” function, Concentration strategy (158) is *more* valuable than Compression (160). **(7)** For the consumer products industry, among the strategies in the “Channel” function, Concentration strategy (158) is *more* valuable than Compression (160) and Reintermediation (161). **(8)** For the textile industry, among the strategies in the “Channel” function, Concentration strategy (158) is *more* valuable than Compression (160). **(9)** For the construction industry, among the strategies in the “Customer” function, Profit shift strategy (245) is *more* valuable than Power shift (246). **(10)** For the consumer products industry, among the strategies in the “Customer” function, Redefinition (248) is *more* valuable than Profit shift (245) and Microsegmentation (247) strategies.

**Table 3. Statistically-supported observations regarding the valuation of different strategies in different industries.**

Obs	Fn	Industry	Test type	Test	Strategy Pair	Obs Diff	Crit Diff	p	Evidence
6	1	Construction	NP	KW	158-160	5.48	4.88	0.1	ODE Yalıtım (Inc. Türkiye 2009a)
7	1	Consumer Products	NP	KW	158-160	9.31	8.51	0.05	(X) BANVIT (Inc. Türkiye 2009c), Tuborg & Efes (CNBC-e Business 2008d), Tekin Acar Cosmetics (CNBC-e Business 2008e), Marmaris Büfe (CNBC-e Business 2008h)
7	1	Consumer Products	NP	KW	158-161	12.8 7	9.59	0.05	(X) BANVIT (Inc. Türkiye 2009c), Tuborg & Efes (CNBC-e Business 2008d), Tekin Acar Cosmetics (CNBC-e Business 2008d), Marmaris Büfe (CNBC-e Business 2008h)
8	1	Textile	NP	KW	158-160	4.95	4.37	0.1	Koton, Park Bravo, Damat, Kışlalı (CNBC-e Business 2008c)
9	2	Construction	NP	KW	245-246	6.14	5.74	0.05	Hoffmann İnşaat (Infomag 2008a), TOKİ (Infomag

									2008b)
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**Table 4. Statistically-supported observations regarding the valuation of different strategies in different industries.**

Obs	F n	Industry	Test type	Test	Strategy Pair	Obs Diff	Crit Diff	p	Evidence
10	2	<b>Consumer Products</b>	NP	KW	248-245	16.3	7.39	0.0500	Skullcandy (Inc. Türkiye 2008)
10	2	Consumer Products	NP	KW	248-247	4.75	4.67	0.0500	Skullcandy (Inc. Türkiye 2008)
11	2	<b>Textile</b>	NP	KW	248-246	6.97	5.70	0.0500	
12	3	<b>Consumer Products</b>	NP	KW	350-349	13.54	7.70	0.0500	Pepsico (Turkishtime 2009)
12	3	Consumer Products	NP	KW	350-351	7.21	6.49	0.0500	Pepsico (Turkishtime 2009)
13	5	<b>Construction</b>	NP	KW	559-557	7.48	6.54	0.0500	Hoffmann İnşaat (Infomag 2008a)
13	5	Construction	NP	KW	561-557	7.11	5.91	0.0500	Hoffmann İnşaat (Infomag 2008a)
14	5	<b>Service</b>	P	T	561-559			0.0783	Dursun İnanır ve Güzellik Merkezleri (CNBC-e Business 2008a), Alaçatı Beach Resort, Taş Otel, Sardunaki Konak Otel, Lale Lodge (CNBC-e Business 2008b)

**Table 5. Statistically-supported observations regarding the valuation of different strategies in different industries.**

Obs	F n	Industry	Test type	Test	Strategy Pair	Obs Diff	Crit Diff	p	Evidence
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<b>15</b>	<b>6</b>	<b>Consumer Products</b>	NP	KW	646-643	9.20	8.18	0.0500	Procter & Gamble (Capital 2008a)
15	6	Consumer Products	NP	KW	646-644	8.12	7.27	0.0500	Procter & Gamble (Capital 2008a)
<b>16</b>	<b>7</b>	<b>Consumer Products</b>	NP	KW	785-784	11.86	8.21	0.0500	Procter & Gamble (Capital 2008a), Godiva (Capital 2008c)
16	7	Consumer Products	NP	KW	786-784	9.50	7.88	0.0500	Procter & Gamble (Capital 2008a), Godiva (Capital 2008c)
16	7	Consumer Products	NP	KW	787-784	9.16	6.75	0.0500	Procter & Gamble (Capital 2008a), Godiva (Capital 2008c)
<b>17</b>	<b>7</b>	<b>Service</b>	NP	MW	785-784			0.0516	
<b>18</b>	<b>7</b>	<b>Textile</b>	NP	MW	785-784			0.1092	(X) Yelda İpekli (Inc. Türkiye 2009b), (X) Louis Vuitton (Capital 2008b)

**(11)** For the textile industry, among the strategies in the “Customer” function, Redefinition (248) is *more* valuable than Power shift (246) strategy. **(12)** For the consumer products industry, among the strategies in the “Value chain” function, Strengthening the weak link (350) is *more* valuable than Deintegration (349) and Value chain (351) strategies. **(13)** For the construction industry, among the “Mega” strategies, Technology shifts the board (559) and Back to profit (561) are both *more* valuable than Collapse of the middle (557). **(14)** For the service industry, among the “Mega” strategies, Back to profit (561) is *more* valuable than Technology shifts the board (559). **(15)** For the consumer products industry, among the strategies in the “Organization” function, Digital business design (646) is *more* valuable than Skill shift (643) and Pyramid to network (644) strategies. **(16)** For the consumer products industry, among the strategies in the “Product” function, Product to solution (785), Product to blockbuster (786), and Product to profit multiplier (787) are all *more* valuable than Product to pyramid (784). **(17)** For the service industry, among the strategies in the “Product” function, Product to solution (785) is *more* valuable than Product to pyramid (784). **(18)** For the textile industry, among the

strategies in the “Product” function, Product to solution (785) is *more* valuable than Product to pyramid (784).

Some of the observations above are also supported with evidence from the academic literature. One example is for the textile industry: The textile and clothing sectors, which comprise about 11-12% of the gross national product, 30% of the export and 12% of total employment, have great importance on Turkey’s development and growth (Atilgan, 2006). The problems in this industry were alleviated by the “Turquality” project launched by the Turkish Government (Turquality, 2012), which acquaints the world with high-quality national brands. The Turquality project corresponds to the combination of Concentration (observation **8** under Hypothesis 2) and Redefinition (observation **11** under Hypothesis 2) strategies, which are shown to be more valuable than (certain) other strategies in their respective functions with statistical support.

Some of the function-industry combinations were observed to contain only a single strategy selected at least five times. Statistical analysis was not carried out for comparing the scores of the strategies in these cases. So these observations are not statistically supported, but instead they are given in Table 15 in Appendix G for these cases simply state that the strategy was the most frequently selected one.

## **5. Conclusions and Discussions**

The main novelty of the paper is the introduction of the pattern-based Enterprise Architecture (EA), which augments existing EAs. The main finding in this paper is that managers in different industries have differing perceptions of the value of various managerial strategies. This will play an important role in the design and implementation of the proposed pattern-based EAs. Our study confirms this expected result and identifies these differences with statistical rigor and support from real-world case studies. The insights obtained through statistical data analysis are validated through findings from academic and business literature. The references to the business literature name the specific companies that have preferred certain strategies over other alternative ones. While the search for the business literature was carried out, the cases that *refute* the statistical findings (besides those that *support*) were also searched and revealed, but were seldom encountered. Hence, objectivity was maintained at the risk of having some of the statistically significant differences being refuted by real world cases.

The presented study can be extended in several directions through future research:



- The sample was too small for some industries, which makes it impossible to carry out hypothesis testing or causes many score differences to appear statistically insignificant. So, additional data collection, as in all empirical research, would be helpful in future replications of this study.
- The sample should include a more balanced representation of industries, so that hypothesis testing will be possible for more industries. However, since this would require the collection of more data, the study can focus on selected industries.
- Recently emerging profit patterns, reported by Slywotzky in his more recent books can be included. The pattern-based EA introduced in this chapter is flexible and can incorporate any set of patterns.

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## **Appendix A**

Several other studies about strategy and firm performance are related to our study, even though they are not in the context of Turkish firms.

Falshaw et al. (2006) establish the link between formal strategic planning and company performance for companies in UK. They consider not only financial measures, but also measures such as quality and employee satisfaction for appraisal of company. Prajogo (2007) examines the underlying strategic target of quality performance and investigates the impacts of differentiation and cost leadership on quality performance in the context of Australian manufacturing firms. He shows that quality is primarily predicted by differentiation strategy and this relationship is moderated by cost leadership strategy. Raymond and Croteau (2006) examine the use of advanced technology in SMEs. Since advanced manufacturing systems (AMS) could help creating new distribution channels, products, services etc., the development strategies of small manufacturing firms can be associated with AMS. They consider three types of SMEs as local, transition and world-class and they conclude that compared to transition SMEs, local SMEs show equal levels of market and network development, but higher levels of product development, and higher levels of AMS integration. In addition, transitions SMEs have the capacity to benefit more from advanced manufacturing technologies but are not yet capable of reaching the same level of performance as world-class SMEs. Each one seems to follow a distinct logic of strategy that leads them to attain higher performance. The authors suggest that SMEs should integrate IT considerations with company-wide strategic development and put this principle into action through IT management policies and practices.

## **Appendix B**

Hawawini et al. (2003) study the relative importance of industry- and firm-level effects on performance. They show that for most firms in an industry, i.e., for those that are not leaders or losers in their industry, the industry effect turns out to be more important for performance than firm-specific factors. Spanos (2004) examines the impact of firm and industry-specific factors on profitability, using census data on Greek manufacturing. The author shows that the more generic strategy dimensions included in the strategy mix, the more profitable the strategy is, provided that one of the key components is low cost. Pure strategies generally appear to produce below-average results. Firms pursuing pure differentiation strategies are found less profitable even when compared with firms having no clear strategy.



## Appendix C

**Table 6.** Strategy explanations, taken directly from Slywotzky et al. (1999) and Mercer Consulting web site.

<b>Function</b>	<b>Strategy</b>	<b>Strategy Name</b>	<b>Strategy Explanation</b>
1-Channel	158	Concentration	Model future situations before competitors. Consolidate some of the operations. Consider acquisition of smaller players. Provide better product/service selections to your customers at lower prices.
1-Channel	159	Multiplication	If you are the manufacturer, use new channels earlier than your competitors; become the default choice of your customers. If you are a traditional channel, design new business models and channels that respond to how your current and potential customers want to buy. Pioneer new channels ahead of your competitors to satisfy customer priorities. Grow rapidly in where, when and how customers buy products and services.
1-Channel	160	Compression	Create early direct connections with your suppliers to achieve lower sourcing costs. If you are still “the old channel”, create new value added offerings, or disinvest. Simplify and eliminate the redundant processes in your distribution operations.
1-Channel	161	Reintermediation	Use the new channels early. Maximize your value added. Accelerate your investment in the new channels to minimize the free space available for other new entrants. Serve customers that are

			dissatisfied with the current business practices by introducing new alternatives, by enabling more efficient transactions and new value-added services. Integrate your products by using multiple vendors.
2-Customer	245	Profit Shift	Invest the time and effort to build a customer profitability system; update it quarterly. Change pricing, service and investment levels accordingly. Make strong relationships with highly profitable customers.
2-Customer	246	Power Shift	Anticipate the power balance between your customer and supplier successfully. Choose the right side that you need to control carefully.
2-Customer	247	Microsegmentation	Identify the most profitable customers; offer them perfectly tailor-made options; build a barrier around them, so that your competitors find them too expensive to convert. Use technology, share information, and customize in the market.
2-Customer	248	Redefinition	Look beyond your current customer set. Search the broader system for the most important and the most profitable customers. Build your business design around them. Target untapped customers or segments.
3-Value Chain	349	Deintegration	Dominate an important cell of the new, broken-up value chain and specialize in it. Make specialists serve on formerly secure position of the chain. Outsource non-core operations. Perform cost-cutting activities.
3-Value	350	Strengthening the	Assist the members (suppliers, intermediate

Chain		weak link	customers, distributors) in terms of investment, equity positions, volume shifting, system standardization, information sharing, training and alliance. Perform exclusive contracts in order to fix the weak link.
3-Value Chain	351	Value chain squeeze	Improve your performance faster than your neighbours do. Limit the strength of their position by encouraging new entrants. Perform differentiation and consolidation in current chain steps.
3-Value Chain	352	Reintegration	Control the industry over customer relationships and product presentations. Enhance the attractiveness and uniqueness of customer's offerings. Rebalance the power equation between customer and supplier. Move closer to the customer. Use contracts, relationships or minority ownership.
3-Value Chain	353	Downstream	Help carriers plan and network. Supply technical support to end users. Deal with finance, logistics management, distribution and training beyond the factory gate.
4-Knowledge	441	Operations to knowledge	Translate operations into unique knowledge. Create a form (contract or a database) for selling it and sell it.
4-Knowledge	442	Product to customer knowledge	Minimize cost by mass marketing, inventory reduction or stockout reduction. Perform just-in-time management. Perform targeted sales. Perform category management. Try to perform successful innovation. Listen to your transactions for your customer and get the message. Then apply this message to create new offerings,

			develop new systems, and improve the customer's economics and your own.
4-Knowledge	443	Knowledge to product	Identify the most valuable knowledge of your organization. Try to make it have a highly replicable structure that is easy to sell, easy to train and easy to improve. Advertise it, sell it, and most importantly improve it.
5-Mega	556	No profit	Invent a new way of doing business.
5-Mega	557	Collapse of the middle	Be the first to go to the extremes. Be a high end specialty and low cost focused firm by tailor solutions and systems integration.
5-Mega	558	Convergence	Identify the new rules of competition. Define your best opportunity space. Become its leader. Eliminate all other options for your customer and motivate your new rivals to look elsewhere.
5-Mega	559	Technology shifts the board	Exploit the new strategic landscape. Go to where the power will be.
5-Mega	560	De Facto standard	In terms of the art of optimal coalition building, sell product for profit margin, use these products' differentiated performance technology and try to create a standard in the part of the value chain.
5-Mega	561	Back to profit	Observe the customer base again; see the undiscovered and unmet needs; build a new business design to meet these.
6-Organization	643	Skill Shift	Look at how the customer is changing. Identify tomorrow's skill, and try to build it today.
6-Organization	644	Pyramid to network	Maximize your external exposure; use whatever organizational change it takes.

6-Organization	645	Corner-stoning	Be the optimum at something. Search for the next best space; experiment to find it; go there first; then find the next best space.
6-Organization	646	Digital business design	Shift the nature from an episodic encounter to a electronically continuous flow of customer information by transactions, customer services and customer communications.
7-Product	783	Product to brand	Realize the customers' need and request of valuable brand; increase the mindshare of this brand.
7-Product	784	Product to pyramid	Create multiple product levels according to different functionality, different performance attributes, different styles and different price points. Maximize profitability by using upper levels to bring in profits. Protect profitability by using lowest level to keep competitors out.
7-Product	785	Product to solution	Study your customers' system and understand better than they do. Create solutions for your customers such as reducing customer costs, reducing complexity of operations for customers, reducing time-to-market or enhancing utility to customers.
7-Product	786	Product to blockbuster	Design a new pipeline or system focusing resources on selected products with blockbuster potential and consistently generating blockbuster products.
7-Product	787	Product to profit multiplier	Organize to identify how your product, brand or skill can be sold; find the most profitable ways and build a system that puts them to work.

## Appendix D

Slywotzky, a well-known business thinker and management consultant, was listed in 2007 among the top fifty business thinkers in the world<sup>7</sup>. His “*Profit Patterns*” book (Slywotzky *et al.*, 1999). book was selected as the knowledge source, mainly because the book is structured after “profit patterns”, observed recurring patterns across industries, together with their corresponding strategies. This book was selected also because it includes newly emerged profit patterns (such as *Microsegmentation*), due to the developments in information technology, as well as classic patterns (such as *Convergence* and *Collapse of the Middle*).

## Appendix E

Slywotzky *et al.* (1999) consider pattern recognition as the heart of business strategy: Detecting and understanding the key strategic patterns playing out in an industry enables the mapping of the business landscape, and selection of the most appropriate strategy for the observed pattern. For example, the “collapse of the middle” pattern in the “Channel” business function refers to the collapse of the middle player along a value chain, which offers differentiated product/service performance at premium price. This value proposition is neighbored by the players that offer acceptable quality at lowest price and superior products at an equal or premium price. The realization of this pattern can be detected from several indicators: The customer being polarized with respect to priorities, needs for customization, or level of knowledge; the industry being mature or moving from average to extremes; new firms entering the market with high-end specialty focus or low cost focus. The strategic solution for the middle player about to be collapsed is to choose a non-middle position on both product and information. The company should create a new business design with which it can successfully compete for future value in its industry, pushing its boundary towards the value propositions of its neighbors (Slywotzky *et al.*, 1999).

## Appendix F

Table 7 presents the contingency tables for all the business functions, that contain the frequencies and average value scores for each of the strategies. The strategies with the highest

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<sup>7</sup> <http://www.thinkers50.com>

average value score for each business function are shown in bold. Frequency of selection and average scores are given for each strategy, grouped by business function.

Tables 8 – 14 contain the frequencies and average value scores for each of the strategies for each function-industry pair. The strategies with the highest average value score for each business function are shown in bold. Since a breakdown was made based on industry, some function-industry pairs had only one strategy selected at least five times. Therefore, Tables 8 – 14 also give us insights on which strategies are valued most for those function-industry pairs.

**Table 7.** Contingency table for the strategies in each of the business functions, across all industries

Function	Strategy	Strategy Name	Frequency	Avg Score
<b>1</b>	<b>158</b>	<b>Concentration</b>	<b>32</b>	<b>6.13</b>
1	159	Multiplication	61	5.61
1	161	Reintermediation	27	5.30
1	160	Compression	42	5.17
<b>2</b>	<b>248</b>	<b>Redefinition</b>	<b>32</b>	<b>6.31</b>
2	247	Microsegmentation	48	5.58
2	246	Power Shift	41	5.46
2	245	Profit Shift	55	5.44
<b>3</b>	<b>350</b>	<b>Strengthening the weak link</b>	<b>27</b>	<b>6.15</b>
3	353	Downstream	21	6.10
3	352	Reintegration	43	5.77
3	349	Deintegration	30	5.63
3	351	Value chain squeeze	31	5.23
<b>4</b>	<b>443</b>	<b>Knowledge to product</b>	<b>37</b>	<b>5.78</b>
4	442	Product to customer knowledge	93	5.61
4	441	Operations to knowledge	39	5.51
<b>5</b>	<b>556</b>	<b>No profit</b>	<b>12</b>	<b>6.00</b>
5	560	De Facto standard	29	5.93



5	558	Convergence	24	5.67
5	561	Back to profit	49	5.59
5	557	Collapse of the middle	31	5.32
5	559	Technology shifts the board	41	5.07
<b>6</b>	<b>646</b>	<b>Digital business design</b>	<b>52</b>	<b>5.77</b>
6	645	Corner-stoning	42	5.60
6	643	Skill Shift	41	5.37
6	644	Pyramid to network	36	5.25
<b>7</b>	<b>785</b>	<b>Product to solution</b>	<b>37</b>	<b>6.03</b>
7	784	Product to pyramid	46	5.65
7	786	Product to blockbuster	19	5.63
7	787	Product to profit multiplier	33	5.61
7	783	Product to brand	30	5.43

**Table 8.** Contingency table for the strategies for business function “Channel” (1), for each industry

<b>Function</b>	<b>Industry/Sector</b>	<b>Strategy</b>	<b>Strategy Name</b>	<b>Frequency</b>	<b>Avg Score</b>
<b>1</b>	<b>Construction</b>	<b>159</b>	<b>Multiplication</b>	<b>10</b>	<b>6.00</b>
1	Construction	158	Concentration	7	6.00
1	Construction	160	Compression	8	5.25
<b>1</b>	<b>Consumer Products</b>	<b>158</b>	<b>Concentration</b>	<b>6</b>	<b>6.17</b>
1	Consumer Products	159	Multiplication	15	5.53
1	Consumer Products	160	Compression	13	5.00
1	Consumer Products	161	Reintermediation	7	4.43
<b>1</b>	<b>Manufacturing</b>	<b>159</b>	<b>Multiplication</b>	<b>7</b>	<b>5.00</b>
<b>1</b>	<b>Mining</b>	<b>159</b>	<b>Multiplication</b>	<b>5</b>	<b>4.80</b>
<b>1</b>	<b>Service</b>	<b>159</b>	<b>Multiplication</b>	<b>8</b>	<b>5.63</b>
<b>1</b>	<b>Textile</b>	<b>158</b>	<b>Concentration</b>	<b>6</b>	<b>6.50</b>
1	Textile	159	Multiplication	8	6.00
1	Textile	160	Compression	5	5.20

**Table 9.** Contingency table for the strategies for business function “Customer” (2), for each industry

Function	Industry/Sector	Strategy	Strategy Name	Frequency	Avg Score
<b>2</b>	<b>Construction</b>	<b>245</b>	<b>Profit Shift</b>	<b>8</b>	<b>6.00</b>
2	Construction	247	Microsegmentation	7	6.00
2	Construction	246	Power Shift	10	5.10
<b>2</b>	<b>Consumer Products</b>	<b>248</b>	<b>Redefinition</b>	<b>8</b>	<b>6.75</b>
2	Consumer Products	247	Microsegmentation	8	5.38
2	Consumer Products	245	Profit Shift	20	5.20
2	Consumer Products	246	Power Shift	6	5.17
<b>2</b>	<b>Manufacturing</b>	<b>245</b>	<b>Profit Shift</b>	<b>7</b>	<b>5.14</b>
2	Manufacturing	247	Microsegmentation	6	5.00
<b>2</b>	<b>Mining</b>	<b>245</b>	<b>Profit Shift</b>	<b>6</b>	<b>5.17</b>
<b>2</b>	<b>Service</b>	<b>248</b>	<b>Redefinition</b>	<b>5</b>	<b>6.60</b>
2	Service	246	Power Shift	7	6.00
2	Service	247	Microsegmentation	7	5.71
<b>2</b>	<b>Textile</b>	<b>248</b>	<b>Redefinition</b>	<b>7</b>	<b>6.57</b>
2	Textile	247	Microsegmentation	8	6.25
2	Textile	246	Power Shift	5	5.60

**Table 10.** Contingency table for the strategies for business function “Value chain” (3), for each industry

<b>Function</b>	<b>Industry/Sector</b>	<b>Strategy</b>	<b>Strategy Name</b>	<b>Frequency</b>	<b>Avg Score</b>
<b>3</b>	<b>Construction</b>	<b>349</b>	<b>Deintegration</b>	<b>8</b>	<b>5.50</b>
3	Construction	352	Reintegration	8	5.00
<b>3</b>	<b>Consumer Products</b>	<b>350</b>	<b>Strengthening the weak link</b>	<b>5</b>	<b>6.80</b>
3	Consumer Products	352	Reintegration	10	6.10
3	Consumer Products	351	Value chain squeeze	9	5.78
3	Consumer Products	349	Deintegration	8	5.63
<b>3</b>	<b>Manufacturing</b>	<b>351</b>	<b>Value chain squeeze</b>	<b>6</b>	<b>4.67</b>
<b>3</b>	<b>Service</b>	<b>352</b>	<b>Reintegration</b>	<b>8</b>	<b>5.63</b>
<b>3</b>	<b>Textile</b>	<b>353</b>	<b>Downstream</b>	<b>6</b>	<b>6.33</b>
3	Textile	352	Reintegration	7	5.86

**Table 11.** Contingency table for the strategies for business function “Knowledge” (4), for each industry

<b>Function</b>	<b>Industry/Sector</b>	<b>Strategy</b>	<b>Strategy Name</b>	<b>Frequency</b>	<b>Avg Score</b>
<b>4</b>	<b>Chemical</b>	<b>442</b>	<b>Product to customer knowledge</b>	<b>9</b>	<b>5.89</b>
<b>4</b>	<b>Construction</b>	<b>443</b>	<b>Knowledge to product</b>	<b>10</b>	<b>5.90</b>
4	Construction	442	Product to customer knowledge	16	5.69
<b>4</b>	<b>Consumer Products</b>	<b>443</b>	<b>Knowledge to product</b>	<b>14</b>	<b>6.00</b>
4	Consumer Products	442	Product to customer knowledge	10	5.60
4	Consumer Products	441	Operations to knowledge	16	5.38
<b>4</b>	<b>Energy</b>	<b>442</b>	<b>Product to customer knowledge</b>	<b>5</b>	<b>6.00</b>
<b>4</b>	<b>Manufacturing</b>	<b>442</b>	<b>Product to customer knowledge</b>	<b>11</b>	<b>4.45</b>
<b>4</b>	<b>Mining</b>	<b>442</b>	<b>Product to customer knowledge</b>	<b>7</b>	<b>6.00</b>
<b>4</b>	<b>Service</b>	<b>442</b>	<b>Product to customer knowledge</b>	<b>12</b>	<b>5.75</b>
<b>4</b>	<b>Textile</b>	<b>441</b>	<b>Operations to knowledge</b>	<b>7</b>	<b>6.29</b>
4	Textile	442	Product to customer knowledge	14	5.79

**Table 12.** Contingency table for the strategies for business function “Mega” (5), for each industry

Function	Industry/Sector	Strategy	Strategy Name	Frequency	Avg Score
<b>5</b>	<b>Construction</b>	<b>559</b>	<b>Technology shifts the board</b>	<b>7</b>	<b>6.57</b>
5	Construction	561	Back to profit	10	6.50
5	Construction	557	Collapse of the middle	11	5.45
<b>5</b>	<b>Consumer Products</b>	<b>560</b>	<b>De Facto standard</b>	<b>10</b>	<b>5.90</b>
5	Consumer Products	558	Convergence	8	5.63
5	Consumer Products	557	Collapse of the middle	8	5.25
5	Consumer Products	561	Back to profit	9	5.00
<b>5</b>	<b>Mining</b>	<b>559</b>	<b>Technology shifts the board</b>	<b>5</b>	<b>3.40</b>
<b>5</b>	<b>Service</b>	<b>561</b>	<b>Back to profit</b>	<b>7</b>	<b>6.14</b>
5	Service	559	Technology shifts the board	7	5.29
<b>5</b>	<b>Textile</b>	<b>559</b>	<b>Technology shifts the board</b>	<b>5</b>	<b>6.40</b>
5	Textile	560	De Facto standard	5	6.20

**Table 13.** Contingency table for the strategies for business function “Organization” (6), for each industry

Function	Industry/Sector	Strategy	Strategy Name	Frequency	Avg Score
<b>6</b>	<b>Chemical</b>	<b>646</b>	<b>Digital business design</b>	7	<b>5.71</b>
<b>6</b>	<b>Construction</b>	<b>646</b>	<b>Digital business design</b>	7	<b>6.00</b>
6	Construction	645	Corner-stoning	9	5.89
6	Construction	644	Pyramid to network	10	5.30
<b>6</b>	<b>Consumer Products</b>	<b>646</b>	<b>Digital business design</b>	<b>8</b>	<b>6.13</b>
6	Consumer Products	645	Corner-stoning	14	5.43
6	Consumer Products	644	Pyramid to network	9	5.22
6	Consumer Products	643	Skill Shift	10	5.20
<b>6</b>	<b>Manufacturing</b>	<b>646</b>	<b>Digital business design</b>	7	<b>5.29</b>
6	Manufacturing	643	Skill Shift	7	4.57
<b>6</b>	<b>Service</b>	<b>643</b>	<b>Skill Shift</b>	<b>6</b>	<b>6.00</b>
6	Service	646	Digital business design	6	5.50
<b>6</b>	<b>Textile</b>	<b>646</b>	<b>Digital business design</b>	<b>9</b>	<b>5.89</b>
6	Textile	643	Skill Shift	5	5.80

**Table 14.** Contingency table for the strategies for business function “Product” (7), for each industry

<b>Function</b>	<b>Industry/Sector</b>	<b>Strategy</b>	<b>Strategy Name</b>	<b>Frequency</b>	<b>Avg Score</b>
7	<b>Construction</b>	<b>784</b>	<b>Product to pyramid</b>	7	<b>6.00</b>
7	Construction	785	Product to solution	9	5.67
7	Construction	783	Product to brand	5	5.40
7	<b>Consumer Products</b>	<b>785</b>	<b>Product to solution</b>	<b>6</b>	<b>6.17</b>
7	Consumer Products	787	Product to profit multiplier	15	5.87
7	Consumer Products	786	Product to blockbuster	7	5.71
7	Consumer Products	783	Product to brand	8	5.50
7	Consumer Products	784	Product to pyramid	7	4.71
7	<b>Manufacturing</b>	<b>784</b>	<b>Product to pyramid</b>	<b>5</b>	<b>5.20</b>
7	<b>Service</b>	<b>785</b>	<b>Product to solution</b>	<b>6</b>	<b>6.50</b>
7	Service	784	Product to pyramid	6	5.50
7	<b>Textile</b>	<b>785</b>	<b>Product to solution</b>	<b>5</b>	<b>6.80</b>
7	Textile	784	Product to pyramid	11	5.91



## Appendix G

Some of the function-industry combinations were observed to contain only a single strategy selected at least five times. Statistical analysis was not carried out for comparing the scores of the strategies in these cases. So these observations are not statistically supported, but instead these observations given in Table 15 for these cases simply state that the strategy was the most frequently selected one.

**Table 15.** Observations without statistical support but with support from business literature, regarding the valuation of different strategies

Observations	Fn	Industry	Strategy	Strategy Name	Evidence
<b>19</b>	<b>1</b>	<b>Manufacturing</b>	159	Multiplication	Arçelik (CNBC-e Business 2008g)
<b>20</b>	<b>3</b>	<b>Manufacturing</b>	351	Value chain squeeze	Baytek (Turkishtime 2009)
<b>21</b>	<b>3</b>	<b>Service</b>	352	Reintegration	Alaçatı Beach Resort, Taş Otel, Sardunaki Konak Otel, Lale Lodge (CNBC-e Business 2008b)
<b>22</b>	<b>4</b>	<b>Chemical</b>	442	Product to customer knowledge	Gripin (CNBC-e Business 2008g), Bilim İlaç, Merck Sharp & Dohme, Pfizer (Inc. Türkiye 2009)
<b>23</b>	<b>4</b>	<b>Manufacturing</b>	442	Product to customer knowledge	Baytek (Turkishtime 2009)

The observations from Table 15 are given below:

**(19)** Multiplication (159) is the most selected strategy in the “Channel” function for the manufacturing industry, within the selected sample. **(20)** Value chain squeeze (351) is the most selected strategy in the “Value Chain” function for the manufacturing industry, within the

selected sample. **(21)** Reintegration (352) is the most selected strategy in the “Value Chain” function for service industry, within the selected sample. **(22)** Product to customer knowledge (442) is the most selected strategy in the “Knowledge” function for chemicals industry, within the selected sample. **(23)** Product to customer knowledge (442) is the most selected strategy in the “Knowledge” function for the manufacturing industry, within the selected sample.

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