

T. C.
DOKUZ EYLÜL ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İNGİLİZCE İŞLETME ANABİLİM DALI
İNGİLİZCE İŞLETME YÖNETİMİ PROGRAMI
YÜKSEK LİSANS TEZİ

**BALANCED SCORECARD AND ITS EFFECTS ON
FIRM PERFORMANCE OF NON-FINANCIAL FIRMS
IN ISTANBUL STOCK EXCHANGE(ISE)**

Özgür Barış HAZİR

Danışman
Yrd. Doç. Dr. Çağnur BALSARI

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Yüksek Lisans Tezi olarak sunduğum “ **Balanced Scorecard and its effects on firm performance of non-financial firms in Istanbul Stock Exchange(ISE)**” adlı çalışmanın, tarafımdan, bilimsel ahlak ve geleneklere aykırı düşecek bir yardıma başvurmaksızın yazıldığını ve yararlandığım eserlerin bibliyografyada gösterilenlerden oluştuğunu, bunlara atıf yapılarak yararlanılmış olduğunu belirtir ve bunu onurumla doğrularım.

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Adı ve Soyadı : Özgür Barış Hazır
Anabilim Dalı : İngilizce İşletme
Programı : İngilizce İşletme Yönetimi
Tez Konusu : Balanced Scorecard and its effects on firm performance of non-financial firms in Istanbul Stock Exchange(ISE)
Sınav Tarihi ve Saati :

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ABSTRACT

Master with Thesis

**Balanced Scorecard and its effects on firm performance of non-financial firms
in Istanbul Stock Exchange(ISE)**

Özgür Barış HAZİR

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In the recent years, research on performance has been increasing in number. Performance concept is developing as performance measurement frameworks, performance measurement systems and performance management systems in order to satisfy the needs of complex organizations. Balanced Scorecard, developed by Robert Kaplan and David Norton, performance management system is seen one of the most preferred management systems according to previous literature. Balanced Scorecard, being composed of four perspectives; financial, customer, internal, business process and, learning and growth is employed for increasing firm performance.

The study investigates Balanced Scorecard's effect on financial performance. Previous research is indicated to be lack of proving the statistical evidence that Balanced Scorecard improves performance. This is due to the use of case studies and implementation plans based on survey results in previous studies. This study uses objective numeric data to analyze effect of Balanced Scorecard on financial performance.

The questionnaire used in the study which has been sent to 195 non-financial companies listed in Istanbul Stock Exchange (ISE) was responded by 35 firms as 20 companies using Balanced Scorecard and 15 companies not using Balanced Scorecard. Also adding 20 companies as a control group, it is found that Balanced Scorecard user companies perform better than non-user companies. They have higher return and sales growth and lower production costs. However, no statistical difference between Balanced Scorecard user companies and non-respondent companies is observed. As another result of the study, it is seen that Balanced Scorecard user companies improve their return on assets and return on equity measures.

Keywords: Balanced Scorecard, firm performance, Istanbul Stock Exchange, performance management, performance measurement.

ÖZET

Yüksek Lisans Tezi

Performans karnesinin İstanbul Menkul Kıymetler Borsasındaki finansal olmayan şirketlerin firma performansına etkisi

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İngilizce İşletme Anabilim Dalı
İngilizce İşletme Programı**

Son yıllarda performans kavramı giderek artan sayıdaki akademik çalışmanın konusu olmuştur. Performans kavramı performans ölçüm yaklaşımları, performans ölçüm sistemleri ve performans yönetim sistemlerine dönüşerek karmaşık örgütlerin ihtiyaçlarına uygun olarak gelişmektedir. Robert Kaplan ve David Norton tarafından geliştirilen Performans Karnesi, Dünya genelinde yapılan araştırmalarda Dünya'nın en çok tercih edilen performans yönetim sistemlerinden biri olarak öne çıkmıştır. Finansal, müşteri, süreçler ve öğrenme ve gelişme olarak 4 boyuttan oluşan performans karnesinin şirketlerin firma performansını artırdığı öne sürülmüştür.

Bu çalışma, Performans Karnesi'nin finansal performansa olumlu etkisini araştırmaktadır. Daha önceki çalışmalarda performans karnesinin istatistiksel olarak firma performansına olumlu etkisinin yeterli derecede araştırılmamıştır. Bunun sebebi vaka analizi, uygulama planı şeklinde anket cevapları kullanılmış olmasıdır. Bu çalışma objektif sayısal veriler kullanarak Performans Karnesi'nin finansal performansa etkisini analiz etmektedir.

İstanbul Menkul Kıymetler Borsası'nda işlem gören 195 finansal olmayan şirkete gönderilen ankete 35 kullanılabilir cevap alınmış; 20 şirketin Performans Karnesi kullandığı, 15 şirketin ise bu sistemi kullanmadığı görülmüştür. 20 şirketin de kontrol grubu dahil edildiği çalışmada Performans Karnesi kullanan şirketlerin, kullanmayan şirketlere göre daha iyi performans gösterdiği bulunmuştur. Performans Karnesi kullanıcılarında daha yüksek getiri ve satış büyümesi ve daha düşük üretim maliyeti gözlemlenmiştir. Fakat kontrol grubuna göre ise belirgin bir farkı olmadığı gözlemlenmiştir. Çalışmanın bir diğer sonucunda Performans Karnesi kullanan şirketlerin öz sermaye yeterliliği ve varlık yeterliliği ölçütlerini geliştirdiği görülmüştür.

Anahtar Kelimeler: Performans karnesi, Firma performansı, İstanbul Menkul Kıymetler Borsası, performans yönetimi, performans ölçümü.

BALANCED SCORECARD AND ITS EFFECTS ON FIRM PERFORMANCE OF NON-FINANCIAL FIRMS IN ISTANBUL STOCK EXCHANGE (ISE)

TABLE OF CONTENTS

ABSTRACT	IV
ÖZET.....	V
TABLE OF CONTENTS.....	VI
LIST OF TABLES	VIII
LIST OF FIGURES	X
INTRODUCTION.....	1

CHAPTER 1

PERFORMANCE MEASUREMENT AND MANAGEMENT

1.1. LITERATURE ON PERFORMANCE MEASURES	7
1.1.1. SELECTION CRITERIA	8
1.1.2. CHARACTERISTICS.....	9
1.1.3. USAGE OF NON-FINANCIAL MEASURES	11
1.2. LITERATURE ON PERFORMANCE MEASUREMENT AND MANAGEMENT FRAMEWORK AND SYSTEMS	13
1.2.1 TRADITIONAL PERFORMANCE MEASUREMENT AND MANAGEMENT SYSTEMS	17
1.2.2. EMERGING PERFORMANCE MEASUREMENT AND MANAGEMENT FRAMEWORKS AND SYSTEMS	23
1.2.2.2 <i>Emerging performance measurement systems</i>	24
1.2.2.3 <i>Emerging performance management systems</i>	36

CHAPTER 2

BALANCED SCORECARD

2.1. INTRODUCTION AND EVOLUTION OF BALANCED SCORECARD .	41
2.2. THE NEED FOR BALANCED SCORECARD.....	43
2.3. PERSPECTIVES OF BALANCED SCORECARD	47
2.3.1. FINANCIAL PERSPECTIVE	47
2.3.2. CUSTOMER PERSPECTIVE	50
2.3.3. INTERNAL BUSINESS PROCESS PERSPECTIVE.....	52
2.3.4. LEARNING AND GROWTH PERSPECTIVE	54
2.3.5. ADDITIONAL/REPLACEMENT PERSPECTIVES	56
2.3. APPLICATIONS OF BALANCED SCORECARD	57
2.4.1. APPLICATIONS IN TURKEY.....	57
2.4.2. APPLICATIONS IN WORLD.....	60

2.5. RELATIONSHIPS BETWEEN OTHER MANAGEMENT TOOLS AND BALANCED SCORECARD	64
2.6. EMPIRICAL LITERATURE ON BALANCED SCORECARD	68
2.7. CRITIQUES AND OBJECTIONS AGAINST BALANCED SCORECARD... ..	71

CHAPTER 3

IMPLEMENTATION OF BALANCED SCORECARD

3.1. DEVELOPING MISSION AND VISION STATEMENT	74
3.2. LINKAGE TO THE STRATEGIES	76
3.3. CAUSE AND EFFECT RELATIONSHIPS.....	78
3.4. STRATEGY MAPPING.....	79
3.5. THE CHARACTERISTICS OF ELEMENTS USED IN THE BALANCED SCORECARD	81
3.6. PUTTING THE BALANCED SCORECARD INTO ACTION.....	84

CHAPTER 4

METHODOLOGY AND DATA ANALYSIS

4.1. DATA COLLECTION	97
4.2. DATA ANALYSIS	103
4.2.1. TREND OF RATIOS FOR GROUPS OF COMPANIES.....	104
4.2.2. TEST OF NORMALITY AND ANOVA TEST	107
4.2.3. T TEST BETWEEN USER AND NON-USER COMPANIES, AND DIFFERENCE STATISTICS FOR RATIOS WITHIN GROUPS.....	109
4.3. RESULTS OF DATA ANALYSIS	114
DISCUSSION, IMPLICATIONS AND CONCLUSION	116
REFERENCES.....	120
APPENDIX.....	140

LIST OF TABLES

TABLE 1: THE EVOLUTION OF PERFORMANCE MEASUREMENT.....	16
TABLE 2: TRADITIONAL AND EMERGING MEASURES OF PERFORMANCE	19
TABLE 3: CHARACTERISTICS OF PERFORMANCE MEASUREMENT SYSTEM.....	25
TABLE 4: PERFORMANCE MANAGEMENT SYSTEMS.....	26
TABLE 5: PERFORMANCE SYSTEMS AND APPROACHES	26
TABLE 6: PERFORMANCE MEASUREMENT FRAMEWORKS	27
TABLE 7: PERFORMANCE MEASUREMENT SYSTEMS AND PERFORMANCE MANAGEMENT SYSTEMS	28
TABLE 8: MEASURES FOR BUSINESS STRATEGIES AND THEMES.....	47
TABLE 9: FINANCIAL PERSPECTIVE OF ABB INDUSTRIE AG BALANCED SCORECARD .	49
TABLE 10: COMMONLY USED FINANCIAL MEASURES	49
TABLE 11: COMMONLY USED INTERNAL BUSINESS MEASURES.....	54
TABLE 12: LEARNING AND GROWTH PERSPECTIVE OF HCS	55
TABLE 13: COMMONLY USED LEARNING AND GROWTH MEASURES	56
TABLE 14: CONSULTING FIRMS STRATEGIC PERFORMANCE MEASUREMENT OFFERING SUMMARY	62
TABLE 15: TQM-BSC LINKAGES	65
TABLE 16: SUPPLY CHAIN MANAGEMENT- BALANCED SCORECARD LINKAGE	67
TABLE 17: PROPERTIES OF AN AUTOMATED SCORECARD	86
TABLE 18: BALANCED SCORECARD TEAM COMPOSITION	92
TABLE 19: BALANCED SCORECARD IMPLEMENTATION PLAN	94
TABLE 20: DISTRIBUTION OF ISE COMPANIES' IN TERMS OF SECTORS	99
TABLE 21: DISTRIBUTION OF BALANCED SCORECARD USERS ACCORDING TO ISTANBUL STOCK EXCHANGE INDUSTRY INDEX.....	100

TABLE 22: ANSWERS TO BALANCED SCORECARD USAGE	101
TABLE 23 PERSPECTIVES USED IN BALANCED SCORECARD USERS	101
TABLE 24: REASON FOR START USING BALANCED SCORECARD	102
TABLE 25: COMPUTER PROGRAMMING IN BALANCED SCORECARD APPLICATION IN BALANCED SCORECARD USERS	102
TABLE 26: KOLMOGOROV-SMIRNOV ONE-SAMPLE TEST RESULTS FOR EACH VARIABLE	108
TABLE 27: P-VALUES IN INDEPENDENT SAMPLES T TEST FOR RATIO ANALYSIS DUE TO YEARS	110
TABLE 28: LOWER-TAIL T TEST RESULTS FOR BALANCED SCORECARD USER COMPANIES	112
TABLE 29: LOWER-TAIL T TEST RESULTS FOR BALANCED SCORECARD NON-USER COMPANIES	112
TABLE 30: LOWER-TAIL T TEST RESULTS FOR NON-RESPONDENT COMPANIES.....	113

LIST OF FIGURES

FIGURE 1: THE PERFORMANCE MEASUREMENT SYSTEM AND ITS ENVIRONMENT.....	13
FIGURE 2: FORCES IMPACTING PERFORMANCE MEASUREMENT SYSTEM EVOLUTION AND CHANGE.....	15
FIGURE 3: EVOLUTION OF PERFORMANCE MEASUREMENT SYSTEMS	15
FIGURE 4: TRADITIONAL VERSUS EMERGING PERFORMANCE MEASUREMENT SYSTEMS	16
FIGURE 5: DU PONT POWDER COMPANY’S PYRAMID OF FINANCIAL RATIOS.....	18
FIGURE 6: THE NESTED TABLEAU DE BORD.....	22
FIGURE 7: PERFORMANCE MEASUREMENT MATRIX	28
FIGURE 8: BROWN’S PERFORMANCE PERSPECTIVE	29
FIGURE 9: INTEGRATED PERFORMANCE MEASUREMENT SYSTEMS (IPMS)	31
FIGURE 10: AMBITE PERFORMANCE CUBE	32
FIGURE 11: MEDORI & STEEPLE APPROACH.....	32
FIGURE 12: KANJI’S BUSINESS SCORECARD.....	33
FIGURE 13: HOUSE & PUTTERILL APPROACH	34
FIGURE 14: THE PERFORMANCE PYRAMID.....	37
FIGURE 15: PERFORMANCE MEASUREMENT SYSTEM FOR SERVICE INDUSTRIES.....	38
FIGURE 16: PERFORMANCE PRISM FACETS IN THREE DIMENSIONS	39
FIGURE 17: BALANCED SCORECARD	46
FIGURE 18: CORE MEASUREMENT GROUP.....	50
FIGURE 19: THE CUSTOMER VALUE PROPOSITION.....	51
FIGURE 20: COMMONLY USED CUSTOMER MEASURES	52
FIGURE 21: THE INTERNAL BUSINESS PROCESSES PERSPECTIVE	53
FIGURE 22: LEARNING AND GROWTH MEASUREMENT FRAMEWORK.....	55

FIGURE 23: STRATEGY MAP IN ECZACIBAŞI VİTRA	59
FIGURE 24: MISSION STATEMENT, CORE VALUES AND VISION	74
FIGURE 25: TRANSLATING VISION AND STRATEGY: FOUR PERSPECTIVES	75
FIGURE 26: STRATEGY MAP OF MOBIL OIL	80
FIGURE 27: SIX ISSUES FOR SCORECARD IMPLEMENTATION	85
FIGURE 28: BALANCED SCORECARD PROJECT TIMELINE	93
FIGURE 29: BALANCED SCORECARD STARTING USAGE YEAR	102
FIGURE 30: SALES GROWTH AVERAGE TRENDS IN THREE GROUPS	104
FIGURE 31: COST OF GOODS SOLD PER SALES AVERAGE TRENDS IN THREE GROUPS ..	105
FIGURE 32: RETURN ON ASSETS AVERAGES TRENDS IN THREE GROUPS	106
FIGURE 33: RETURN ON EQUITY AVERAGES TRENDS IN THREE GROUPS	106

INTRODUCTION

There is a broad agreement on the management literature that performance evaluation becomes a prerequisite for organizations to find their position in their operating areas. Thus, evaluation of performance in organizations requires a great amount of hard work in operational activities. Nevertheless, the need for an effective way of performance evaluation compels the researchers to study on intensively. This study is an example of these studies examining a performance evolution tool; Balanced Scorecard. The aim of the study is to provide the empirical evidence on the success of Balanced Scorecard in improving performance using a questionnaire on the non-financial companies in Istanbul Stock Exchange.

Performance evaluation has emerged from the need to check the parties, the senior managers and their subordinates in terms of produced outputs. Agency theory that has been founded in 1970s is the base for the need to develop performance evaluation. Esienhardt (1989) informs that agency theory is a metaphor of contract which designates the agency relationship that the principal delegates to the agent who performs at work. Esienhardt (1989) adds that agency theory deals with two problems since the desires or goals of principal and agent conflict, and it is difficult or expensive for the principal to verify what the agent is actually doing. The general problem arises from different actions and behaviors of principal and agent with respect to their risk preferences.

Eisenhardt (1989) points out that agency theory deals with the turnout whether the contract should be selected on behavior-oriented (salaries, compensation etc.) or outcome-oriented design (profitability etc.). Behavior-oriented contracts refer to cost control whereas outcome-oriented contracts deal with market position and business activities. Eisenhardt (1989) emphasizes the choice of behavior-oriented contract or outcome-oriented contract would depend on the decisions of the agent. The agent could become risk-averse and find behavioral oriented contract attractive or choose to take on the risk about organizational outcomes that will provide him understandable incentives which are available on an outcome-oriented

contract. Sloof and van Praag (2005) indicate that agency theory is involved in the trade-off between compensation and incentive. Therefore, agency theory has been argued in terms of risk attitudes of the principal and agent, assessing the compensation and incentives determination in the contracts that specify measures and promise rewards.

According to Hatch (1997: 335), “agency problem involves the risk that agents will serve their own interests rather than those of the principals”. The problem in agency theory is caused by agents’ misleading behaviors of activities that conceive discrepancies with the contract between the principal and the agent. Hatch (1997: 336-337) asserts that the control of agents’ performance is problematic since principals are forced to control the cost of compensations to the company in behavior-oriented contracts and evaluate the outcomes for assessing outcome-oriented contracts. This problem is also caused by the behaviors of the agents whose priorities for gaining better compensation may distort the outcomes and show the situation of an activity better than it is. Therefore, the principals aim to attain the complete and accurate information about the agents and outputs generated by them (Hatch, 1997; Eisenhardt, 1989). Turner (1994) points out that the principal comes across with the hidden information. According to this, the principal has to decide if the agent has the characteristics he seeks for and construct a strategy to uncover the insufficient information problem. For this reason performance context implies measures benefiting the principals to evaluate the activities performed by the agents. On the other hand, Wright, Mukherji and Kroll (2001) criticize agency theory as it executes too narrowly to consider the group and organization side. In other words, the relationship between the principal and the agent excludes the context of group and organization while these two parties make an effort on achieving their goals. Hence, group and organization context progress in designing the performance systems to view not only the principal-agent relationship but also its effects to group and organizational performance.

Performance evaluation in management literature has been evolving the further researches on agency theory where an optimum contract has been sought by

the two parties, the principal and the agent. Both parties are deliberately trying to achieve their goals that are why a negotiation is exactly needed to satisfy a contract due to the conditions. Performance evaluation then becomes a necessity for the further assessment of outcomes generated and agents' behavior. Meanwhile, performance evaluation also addresses the group and organizational parties by which the whole organization can be examined whether it improves itself or not through the present conditions. Thus, literature on performance evaluation has argued for easily accessible measures to monitor the outcomes and performance definitions, followed by creating systems on performance measurement and how to manage performance in organizations.

The evolution of performance concept has been based on the efforts of several researches on constructing performance measurement and management systems. In the last two decades, the number of developed systems raised to enable the principal to monitor the performance for his decisions in a setting.

Balanced Scorecard is one of the performance management systems generated by Robert Kaplan and David Norton that has been widely employed all over the world. However, the practitioners of Balanced Scorecard have to deal with the problems in design and implementation phases as the usage and benefits of Balanced Scorecard can be misjudged by employees and faults in these phases undermine the effectiveness of the system. Besides, there are still doubts over the benefits of Balanced Scorecard on improved performance because the majority of the research on Balanced Scorecard composes of case studies and recommendations about implementation phases. Thus, research on Balanced Scorecard is in shortage of empirical evidence which would prove the validity of the system in improving performance for user organizations compared to non-user organizations.

As a conclusion, this study investigates the impact of Balanced Scorecard on financial performance of companies in Istanbul Stock Exchange by using sales growth, cost of goods sold per sales, return on assets and return on equity. According to the findings, Balanced Scorecard improves performance indicated in the

comparison between Balanced Scorecard user companies and non-user companies. Also, Balanced Scorecard provides improvement in return on assets and return on equity analyzed with a four years' trend in difference.

This study is organized as follows; Chapter 1 includes a literature review on performance measurement and management. The demonstration of Balanced Scorecard takes part in Chapter 2 whereas the implementation phases lie in Chapter 3. Chapter 4 provides the results of the statistical analysis of Balanced Scorecard with respect to the companies in Istanbul Stock Exchange which has been surveyed towards Balanced Scorecard usage. The research is finalized with the conclusion and recommendation for managerial implications in practice.

CHAPTER 1: PERFORMANCE MEASUREMENT AND MANAGEMENT

The importance of measurement and management is rising in the management literature due to the hard competition and complex environment of executing the businesses. The research in the last decades shows the increasing interest to performance in management literature. The changing nature of organizations and the relationship between the principal and the agent that is extending into group actions and organizational scope brings out that need which has been influencing the researchers to study on performance, performance measures and performance measurement and management.

The term performance is argued thoroughly in the literature. O' Donnell and Duffy (2002) argue that the definition of performance lacks consistency in literature. Some researches elaborate on definitions of performance which are generally focused on efficiency; resources expected to consumed/resources actually consumed (Rolstadas, 1998) and effectiveness; the extent to which an organization achieve its goal (Price, 1997), but others define performance as the "attainment of objectives" (Zairi & Sinclair, 1995; Van Drongelen & Cooke, 1997; Dwight 1999). Other definitions that are similar to "attainment of objectives" also exist in the literature. Laitinen (2002) defines performance as the level of outcomes for an object in order to reach its set of target in terms of a dimension that clarifies whether targets are realized or not. Furthermore, according to Flapper, Fortuin and Stoop (1996) performance can be defined as the way that the organization succeeds in its goals, thus the success of the organization is directly affected by its performance which can be measured in different ways.

All organization need to measure their performance to monitor whether it can reach its goals or increase its effectiveness or efficiency. Thus, performance measurement is an essential part of performance concept that has been discussed heavily by two decades. Neely, Gregory and Platts (1995) define performance measurement as the process of quantifying the efficiency and effectiveness of action

whereas Sinclair and Zairi (1995) define it as the process of determining how successful organizations or individuals have been in attaining their objectives. Van Drongelen and Cook (1997) refer to the acquisition and analysis of information about the actual attainment of company objectives and plans, and about factors that may influence this attainment. Furthermore, Waggoner, Neely and Kennerly (1999) indicate that performance measurement should focus on people and resources.

Performance measurement also takes part in strategic planning, compensation and reward systems, to achieve the objectives and show managerial effectiveness (Ittner and Larcker, 1998; Malina and Selto, 2004). As a result, performance measurement has been given emphasis in the organizations since it reflects the utilization of strategies (Pun and White, 2005). In line with the emphasis put on performance in organizations, academic research on the topic has been evolved in the last two decades. (Neely, 1999; Folan and Browne, 2005).

Academic research on performance measurement is developed in different areas. Folan and Browne (2005) categorize the efforts for research agenda on performance measurement into two; first one is research on performance measures, the second is research on performance measurement framework and system design. The research on performance measures is intensified on selection criteria of measures, characteristics and the usage of non-financial and financial performance measures.

On the other hand, the research on performance measurement framework and system is divided into two investigating the structure and procedures on the performance measurement framework and systems. According to Folan Browne(2005) performance frameworks are not accepted as systems for the reason that managers' aim of establishing a comprehensive view to measure the whole performance exerts the performance measurement frameworks to be more complex due to the time span, but it is still not feasible to measure the whole performance effectively. Thus, that is why performance measurement systems do not exist as

much as performance measurement frameworks since the frameworks could not be perceived as a system for all occasions.

Furthermore, it should be considered that performance management systems also evolved from performance measurement systems. Amaratunga and Baldry (2002) indicate that the transition from measurement to management enables performance measurement outcomes to be effectively used in evaluating the overall performance. Performance management is defined as the use of performance measurement information to achieve positive change in organizational culture systems and processes, by helping to set agreed-upon performance goals, allocating and prioritizing resources, informing managers to either confirm or change current policy or programmed directions to meet those goals, and sharing results of performance in pursuing those goals (Amaratunga and Baldry, 2002).

The rest of the chapter is going to demonstrate performance measurement and management frameworks and systems. They will be classified them into performance measurement frameworks, performance measurement systems and performance management systems.

1.1. Literature on performance measures

Performance measures are the basic entities of performance measurement showing the benchmarks for further decision making. Agency theory discussed in introduction aims to find an optimum contract situation by which demands of the principal and the agents could be satisfied. Hence, performance measures also allow senior managers to observe both individual and organizational outputs to examine the trend for achieving the goals. Neely, Gregory and Platts (1995) define performance measure as a metric used to quantify the efficiency and/or effectiveness of an action. Waggoner, Neely and Kennerly (1999) investigates performance measures in an interdisciplinary view distinguishing the approaches as;

- (1) the *engineering approach*, which relates expected output to specified input at each stage in the value chain and thus measures the input/output ratio,
- (2) the *systems approach*, which sets objectives for each work unit or individual and measures the achievement of these objectives,
- (3) the *management accounting approach*, which measures the achievement of a set of financial results by each cost/performance centre,
- (4) the *statistical approach*, which extends the engineering approach by providing empirically tested information on the strength of relationships in the input/output process,
- (5) the *consumer marketing approach*, which measures consumer satisfaction
- (6) the '*conformance to specifications*' *variant of quality management approaches*, which advocate the use of a checklist of attributes of a product or service together with its service delivery system

Coskun (2006: 7-39) also separates the performance measures according to managerial areas of finance, manufacturing and marketing while offering also other initiatives for performance measurement. According to Coskun (2006), financial performance is measured by financial ratios, EVA (economic value added) and residual income; manufacturing performance by productivity, efficiency, effectiveness, quality of working life and innovation; marketing performance by marketing productivity and effectiveness, sales analysis, sales performance index, market share analysis and marketing ratio analysis.

1.1.1. Selection criteria

Performance measures differ from each other according to the criteria that measures are selected for. Thus, performance measures have an important place in performance measurement and, establishing good performance indicators (named instead of measure in this research) and its associates in the performance measurement systems allows organizations to base a well-grounded performance management overview.

According to Flapper, Fortuin and Stoop (1996), performance indicators are classified in five items as financial versus non-financial, global (for top managers) versus local (for lower level managers), internal (functions) versus external (stakeholders), level of organizational hierarchy that means the indicators change in number and their characteristics in a top-down approach and area of application which differs according to department of measurement. Also, the performance evaluation can be perceived differently if there is a performance management system that benefits from subjective measures determined by top-management instead of objective measures.

Ittner, Larcker and Meyer (2003) inform about how performance measurement systems differ according to the attributes. Their research shows that performance measures are separated into two perspectives as economic-based and psychology based perspectives. The economic based perspective is chosen when the selection of performance measures coincides with the agents' goals and due to the informativeness as a compensation system for the employee motivation. On the other hand, psychology-based perspective considers the psychological effects on the choices of measures and gathers the possibilities as driver based versus outcome based measures, non-financial versus financial measures and quantitative measures versus qualitative measures.

1.1.2. Characteristics

The characteristics of performance measures are one of areas that are less investigated under performance measurement and management. Malina and Selto (2004) list the attributes of performance measures after reviewing the literature in performance measurement. According to Malina and Selto (2004), performance measures should be : diverse and complementary, objective and accurate, informative , more beneficial than costly, based on cause-and-effect relationships between actions and outcomes, communicating strategy, creating incentives for improvement, supporting for improved decisions. On the other hand, Neely *et al.* (1997) indicate that performance measure selection is very important for improving

company for performance and it should have strong relationship with the priorities and objectives of an organization. Neely *et al.* (1997) also point out the recommendations for the attributes of performance measures with respect to the previous literature and gathers all the recommendations. According to Neely *et al.* (1997), performance measures should:

- be derived from strategy
 - be simple to understand
 - provide timely and accurate feedback
 - be based on quantities that can be influenced, or controlled, by the user alone or in cooperation with others
-
- reflect the "business process"
 - relate to specific goals (targets)
 - be relevant
 - be part of a closed management loop
 - be clearly defined
 - have visual impact
 - focus on improvement
 - be consistent
 - provide fast feedback
 - have an explicit purpose
 - be based on an explicitly defined formula and source of data
 - employ ratios rather than absolute numbers
 - use data which are automatically collected as part of a process whenever possible
-
- be reported in a simple consistent format
 - be based on trends rather than snapshots
 - provide information
 - be precise - be exact about what is being measured

- be objective - not based on opinion

However, Hudson, Smart and Bourne (2001) state that many of the characteristics for performance measures presented by Neely, Gregory and Platts (1995) duplicated and focus on 7 of them after reviewing literature on performance measures; be derived from strategy, be clearly defined with an explicit purpose, be relevant and easy to maintain, be simple to understand and use, provide fast and accurate feedback, link operations to strategic goals and stimulate continuous improvement. Meyer (2003: 6) claims that performance measures should include the characteristics of parsimony (few measures to avoid information losing), predictive ability (non-financial measures being leading indicators of financial measures as lagging indicators), persuasiveness (applicability in everywhere), stability (changing gradually and applicability to compensation (compensation based on financial results and results of non-financial measures))

1.1.3. Usage of non-financial measures

The use of non-financial and financial measures is a great question of performance measurement and management framework and systems. Recent studies try to answer this question clarifying the need for non-financial measures in performance measurement and management. For instance, performance measures must go beyond the presentation of financial figures and serve as the driver for fostering performance not only in financial terms but also in non-financial aspects like quality, customer satisfaction, innovation and market share (Chin, Pun & Lau, 2003). Ittner and Larcker (1998) indicates that there are three reasons for adopting non-financial measures such as perceived limitations in traditional-accounting based performance measures that would enable firms to evaluate the factors that lead to creation of the value in business, not only firm value, competitive pressure that is intensive and requires to monitor non-financial “value drivers” and outgrowth of other initiatives like Total Quality Management. Ittner and Larcker (2003) emphasize the importance of non-financial performance measures in the competitive world and points out that the companies fail to utilize the benefits of non-financial measures. They interpret the reasons of not benefiting from the non-financial

performance measures as: not linking the measures to strategies, not validating the links in the causal model, not setting the right performance targets, measuring incorrectly. Ittner and Larcker (2003) also add that the right way of benefiting from non-financial performance indicators begins with constructing a causal model to clarify the strategic action plans and goes along with gathering the needed data, maintaining the information about strategic roadmaps from the data, revising the model, clarifying the drivers of financial performance and reevaluating the outcomes of the model. On the other hand; Banker, Potter and Srinivasan (2000) state that the literature on performance measures has a consensus on non-financial measures as these direct measures of managerial actions are lead indicators of financial performance and non-financial measures can explain performance better than financial measures because of providing direct and immediate measures of managerial effort and being less prone to manipulation with a easy understanding.

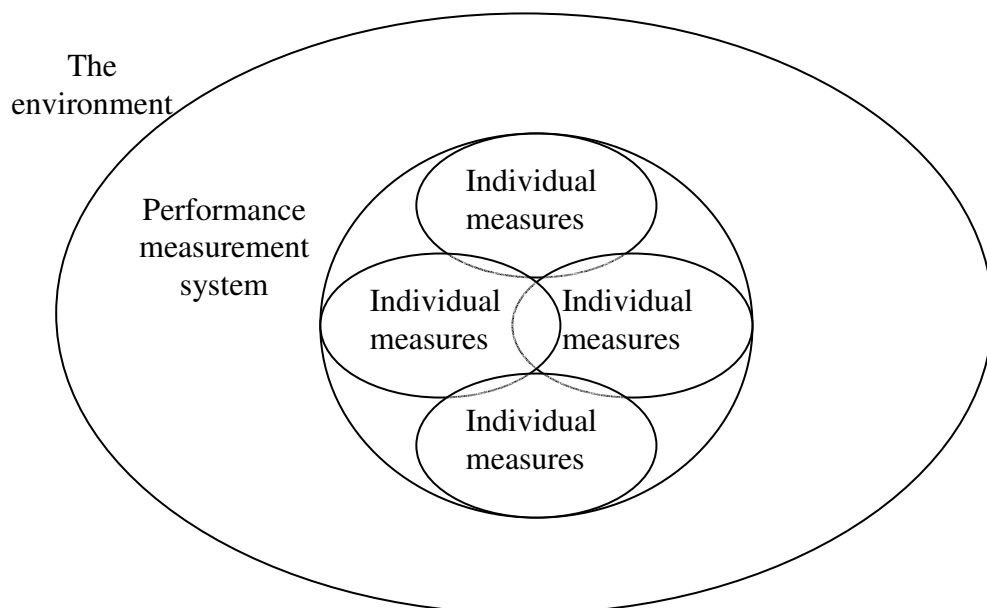
Some research investigates the benefits of non-financial measures' usage for performance with statistical evidence. Hoque (2004) support the use of non-financial measures as his research finds that there is positive correlation between increased organizational performance and the usage of non-financial measures. In another research, Ittner and Larcker (1998) emphasize that customer satisfaction is one of the most powerful driver for leading incremental financial performance. Hoque, Mia and Alam (2001) preserve the literature on the performance measures by examining their integration with market competition and computer-aided manufacturing. It is indicated that changing business environment in terms of competition and computer-based manufacturing forces multidimensional performance measures to be a necessity for the organizations. In this study, the relationship between multiple performance measures and market competition, computer aided manufacturing becomes significant despite the weights of performance measures vary due to their competition level and usage of computer aided manufacturing systems. Besides, Hoque and James (2000) insist on the necessity of non-financial measures with financial measures and use customer satisfaction and product quality as measures for organizational performance whereas Banker, Potter and Srinivasan (2000) find that customer satisfaction is a significant correlate of financial performance.

1.2. Literature on performance measurement and management framework and systems

Literature on performance measurement and management framework is first influenced by the change and evolution on performance measurement and management. Studies in this area are mainly focused on changing business environment and adaptation of performance measurement and management frameworks and systems to the environment. Thus, the reasons for change and evolution in this content are investigated in the literature.

Neely, Gregory and Platts (1995) define performance measurement system as the set of metrics used to quantify both the efficiency and effectiveness of actions. It also differs the performance measurement system in three levels as individual performance measures, the set of performance measures and the relationship between the performance measurement system and the environment within which it operates.

Figure 1: The performance measurement system and its environment



Source: Neely, Gregory and Platts (1995), p. 81

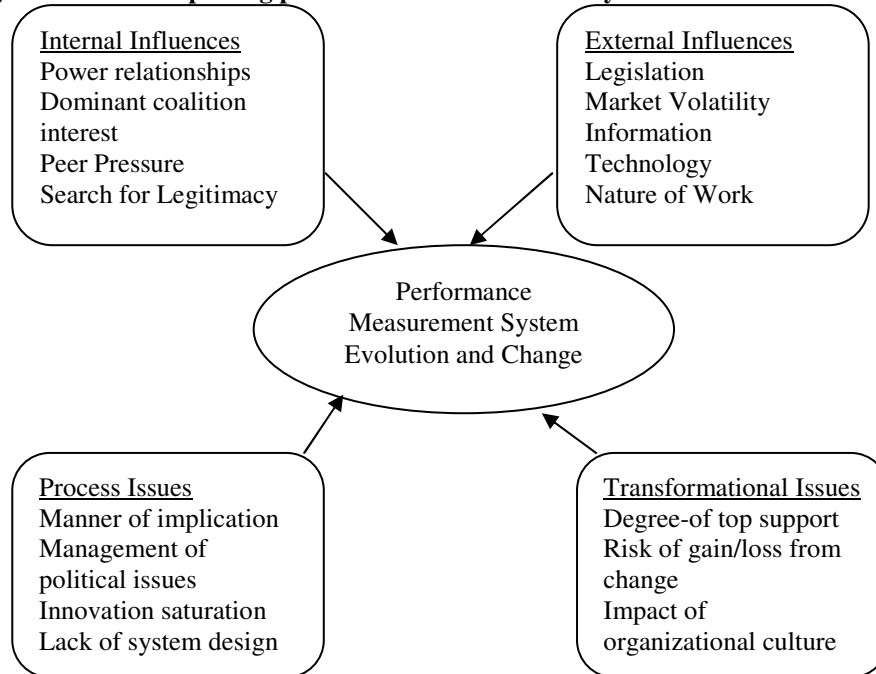
The research on the performance measurement and management are begun to be written intensively by the 1990s focusing on the changing environment its reflections on performance measurement and management. In his article named “The performance measurement manifesto”, Eccles (1991) informs about the new perception of performance evaluation as strategies and competitive realities, which will result in new performance measurement systems. Although managers suffer from short-sighted mind sets that are already convinced that a few financial measures are sufficient to evaluate performance, the prioritization of measures changes place where measures such as customer satisfaction, manufacturing effectiveness and innovation are used instead of earnings per share. Eccles (1991) adds that quality-based internal measurement, customer satisfaction based external measurement, benchmarking and developments in information technologies will be the necessities for organizations to monitor in the following years. Neely (1999) indicates that there are seven reasons for being interested in performance measurement in the last decades:

- 1) the changing nature of work
- 2) increasing competition
- 3) specific improvement initiatives
- 4) national and international awards
- 5) changing organizational roles
- 6) changing external demands
- 7) the power of information technology

The evolution of performance measurement as the outcomes of the efforts for classifying and distributing the reasons for the obvious change in the structure of performance concept is discussed in literature. Waggoner, Neely and Kennerly (1999) indicate that the evolution and change in performance measurement systems is caused by four categories; internal influences, external influences, process issues and transformational issues. The figure shows the sub-categories and the relationship between categories and performance measurement system evolution and change. On the other hand, Neely and Kennerly (2002) indicates that the evolution of performance measurement systems are based on two main themes, drivers of change

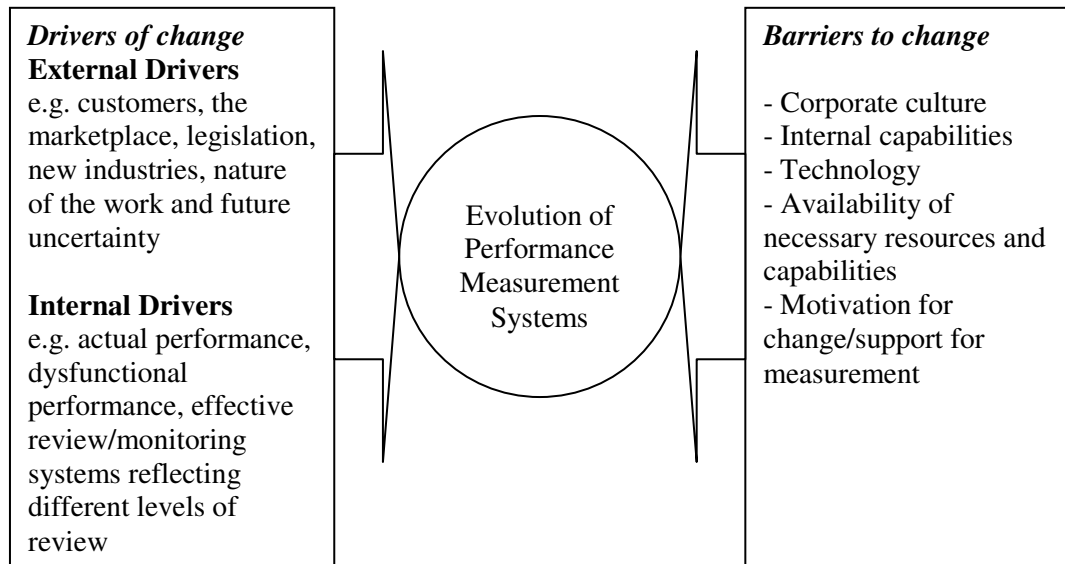
(those factors that cause change to be necessary and barriers to change (those factors that must be overcome if change is to be effective). These evolution themes can be illustrated with Figure 2:

Figure 2: Forces impacting performance measurement system evolution and change



Source: Waggoner, D. B. , Neely, A. D. & Kennerly, M. P. (1999), p. 56

Figure 3: Evolution of performance measurement systems



Source: Neely, A. & Kennerly, M. (2002), p. 1227

On the other hand, Swamy (2002) points out the changing trends in performance measurement agenda in the last 50 years . The figure below introduces the evolution of performance measurement:

Table 1: The evolution of performance measurement

Measures	1960s	1970s	1980s	1990s	1999-2000
Main Focus	Financial	Financial	Financial/Managerial	Financial/Non-Financial	Primary Web Metrics
Key developments	- Accounting Earnings - Earnings per Share - ROI¹ - NPV	- Accounting Earnings - Residual Income - ROI	- Unit Costs - Joined Budgets - Operating Profits - Cash Flows	- Balanced Scorecard - Economic Value Added - Activity-Costing	- Hits - Page views - Unique visitors - Visit

Source: Swamy, R. (2002) , p. 44

The evolution of performance measurement as stated above is influenced by the introduction and applications of non-financial measures by the middle 1980s. Pun and White (2005) splits the old approaches to performance measurement and newest approaches in the last two decades as traditional performance measurement systems and emerging performance measurement systems. Pun and White (2005) compare traditional and emerging performance measurement systems according to their features.

Figure 4: Traditional versus emerging performance measurement systems

Traditional performance measurement systems	Emerging performance measurement systems
Based on traditional accounting system Based on cost/efficiency Trade-off between performance Profit-oriented Short-term orientation Prevalence of individual measures Prevalence of functional measures Comparison with standard Aims at evaluating Hinders continuous improvement	Based on company strategy Value-based Performance compatibility Customer-oriented Long-term orientation Prevalence of team measures Prevalence of transversal measures Improvement monitoring Aims at evaluating and involving Stresses continuous improvement

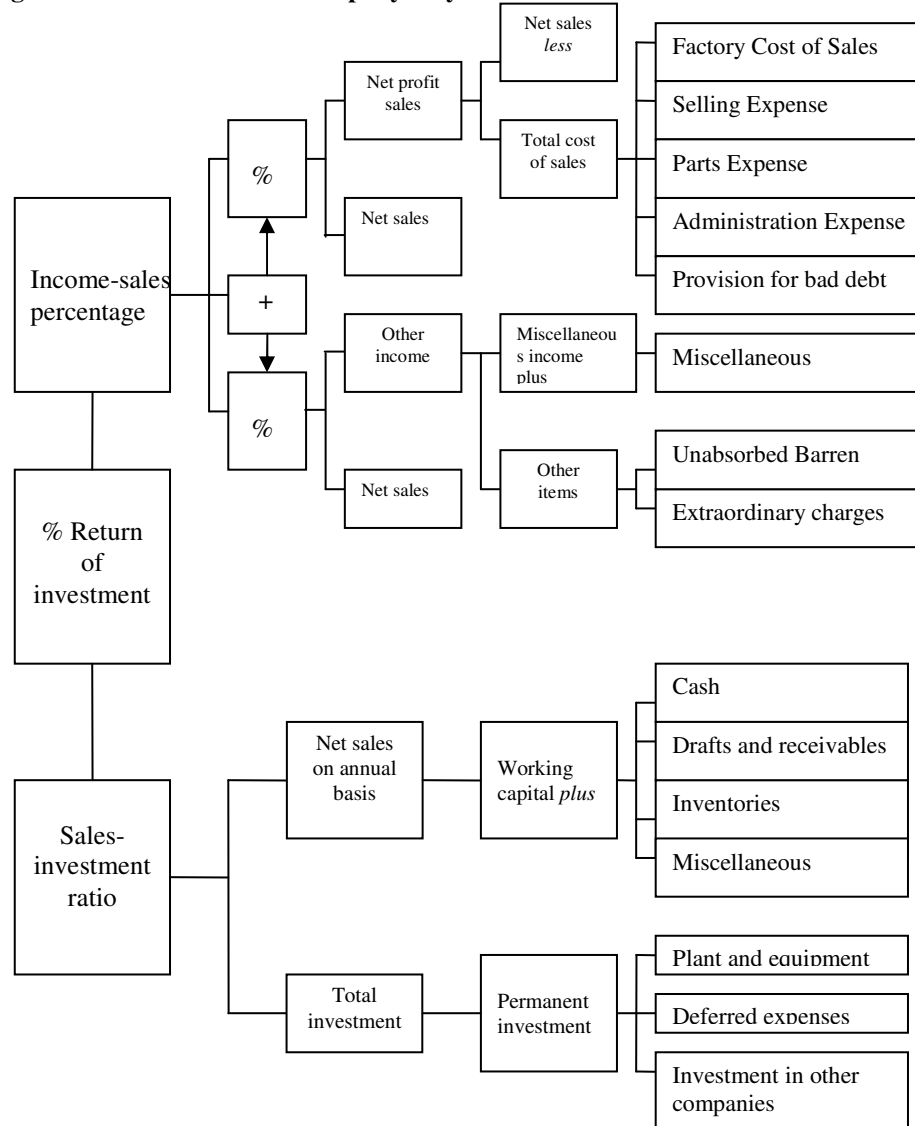
Source: Pun and White (2005) , p. 53

¹ ROI refers to Return On Investment, NPV is equivalent with Net Present Value

1.2.1 Traditional performance measurement and management systems

Traditional frameworks and systems is oriented towards traditional accounting systems that improved financial performance is the main focus and performance measures are concentrated on financial ratios. Performance measurement that has been changing enormously for a century is started with the data collection and evaluation of financial measures. Neely, one of the most studying researchers on performance measurement informs the changes from traditional performance measurement and management systems from traditional to emerging ones (1999). The Du Pont view's by 1910 of employing basic management techniques in big businesses is thought to be the base of performance measurement. Du Pont Powder Company's Pyramid of Financial Ratios is a pioneering technique obtaining financial performance in 20th century (Neely *et al.* 2000).

Figure 5: Du Pont Powder Company's Pyramid of Financial Ratios



Source: Adapted from Neely *et al.* (2000), p. 1124

Furthermore, established in 1951, GE's "measurement project" tends to create performance metrics whereas traditional measures employed have been criticized in 1980s and 1990s through the given reasons; being short-sighted, suffering from strategic viewing and data analysis, not examining the whole picture and focusing on sub-divisions, not focusing on continuous improvement, and ignoring the demands of customers and benchmarking. As Swamy (2002) states the performance measurement from 1950s to 1980s is focused on financial performance. Peterson and Peterson (1996) discuss the traditional performance measurement with the financial measures. Peterson and Peterson (1996) divide traditional measures of performance

Table 2: Traditional and emerging measures of performance

Measure type	Formulation	Advantages	Disadvantages
Traditional measures			
Return on investment	(Basic earning power ratio)=Earnings before interest rate and taxes/ Total Assets	Ease in calculation Can evaluate the source of return changes	Sensitive to choice of accounting data Data From different time periods Being backward-looking Not considering risk Do not adjust controllable versus non-controllable factors
	(Return on assets)= Net income/Total Assets		
	(Return on equity)= Net income/Book Value of Equity		
Tobin's q	$q = \frac{\text{Market value of assets}}{\text{replacement cost of assets}}$	Estimation of intangible assets	Gauging past performance Hardness in the estimation of replacement cost of assets
Emerging measures			
EVA	Net operating profit after taxes – (Cost of capital x Capital)	Longer-sighted decision making	Hard to calculate Sensitivity in cost of capital misleads profit calculation
MVA	Market value added = Market value of the firm – Capital	Consider market value Based on forward-looking data Sensitive in yields	Hard to calculate Dependent on economic profit
CFROI	Calculated after many steps	Cash flows as income Inflation adjusted	Complex to use Dependent to cost of capital

Source: Adapted from Peterson, Pamela P. & Peterson, David R. (1996), p. 7-46

into two; return on investment and market-to-book (Tobin's q). Return on investment ratios are basic earning power ratio, return on assets and return on equity. Besides, Tobin's q is a measure of real value created by a firm's management.

In addition to traditional measures of performance expressed by Peterson and Peterson(1996), there are other financial performance systems, EVA(Economic Value Added), MVA(Market value added) and CFROI(Cash flow return on investment) will be discussed under traditional performance measurement systems as they lack strategy link and customer orientation, but more comprehensive to measure the performance of a company than traditional financial ratios presented above because of the improvement in examining year to year performance and better explanation of value added by management. EVA (also called as economic profit) is the difference between operating profits and the cost of capital, where the cost of capital is expressed in dollar terms (Peterson and Peterson, 1996).

Besides, Ittner and Larcker (1998) examine the newest trends in performance measurement discussing on also economic value measures as EVA and CFROI. According to them, EVA is superior to traditional financial ratios in predicting stock returns and CEO turnover, but fails as a result of being complex and not easily calculated, being based on historic measures and ignoring customer orientation and the beliefs on the benefits of traditional accounting measures that avoids managers working on EVA. Therefore, EVA employment is remarkably abandoned by companies because of the perceived benefits according to its costs. EVA also does not explain the effects of actions that increase future profitability and shareholder wealth, and because of emphasis on short term earnings the processes for continuous improvement would corrupt the outcomes of EVA underestimating business performance (Epstein and Manzoni, 1998). Another value added system is Market Value Added (MVA) that is the difference between the firm's market value and its capital (both in dollars) that can be expressed as (Peterson and Peterson, 1996):

Peterson and Peterson (1996) add that performance evaluation in market value added examines the changes in market value added over a period. Besides,

different from EVA, MVA uses forward-looking stock prices and can be negatively correlated with EVA that is based on historical-single period accounting data and MVA is sensible the changes in yields that lowers in efficiency in estimating overall performance. Peterson and Peterson(1996) imply that the employment of value added measures(both EVA and MVA) is discouraged because of the challenges in using CAPM (Capital Asset Pricing Model), estimating market risk premium and using historical data. Lastly, CFROI (known as HOLT's model) that is return on investment expected the average life of the firm's existing assets and measures the return on the investments made in past and currently that are expected to generate future cash flows. CFROI is calculated with the following statements consecutively; calculate the life of assets, calculate gross cash flow, calculate gross cash investment, calculate the sum of no depreciating assets, solve for the rate of return and compare CFROI with the benchmark (Peterson and Peterson, 1996). According to Peterson and Peterson (1996), CFROI provides a similar assessment of performance as return-on-investment measures, considers time dimension and borders (adjusting inflation) and uses cash flows, which makes it a useful performance measurement system, but it is very dependent on the benchmark that is the cost of capital which is also required the calculation of value-added systems and hard to calculate.

On the other hand, due to its common usage in European countries, the French system for performance measurement has also been discussed within two approaches; one of them is "methode des sections homogenes", a costing based system similar to activity based costing, and the other one is "Tableau de Bord" which is the performance measurement system meaning "dashboard" or "instrument panel" that gives availability to monitoring the organizational performance (Lebas, 1994). Tableau De Bord, improved in 1930s, fails to be perceived as an emerging performance management system because of overemphasis on financial measures and lacking strategy and customer dimensions of the business (Epstein and Manzoni, 1997). Tableau de Bord generates the pilotage chance for managers for whole organizations, identifying key success factors for the performance through flexibility in approach and content. The purposes for Tableau de Bord are distinguished into three from the managers, the peers and the superior view. The manager view

enhances the process of seeking for potential future opportunities whereas the peer checks the performance characteristics for the responsibility center and the superior checks for subordinates' performances. Tableau de Bord is based on the objectives, strategies and tactical choices which are nested into the system and the dialogue along intra-organization initiatives are built so that the performance management system is sufficiently implemented (Lebas, 1994). On the other hand, Epstein and Manzoni (1998) criticize Tableau de Bord by having overemphasis on financial measures, comparison with previous year's data instead of benchmarking, being based on indicators neglecting vision and strategies as a prior objective, leading to sub optimization with only internal activities evaluation and giving little importance to discussion in senior management. Epstein and Manzoni (1997) indicate that most Tableau de Bord applications compare internal targets and goals with last year's performance and Tableau de Bord is used as a supporting management device more than a performance measurement system. In another study, Bessire and Baker (2005) criticize Tableau de Bord because of lacking conceptualization. According to the Epstein and Manzoni (1998), the French Tableau de Bord should be nested and should not be limited to financial indicators as implemented before in the previous applications.

Figure 6: The Nested Tableau de Bord

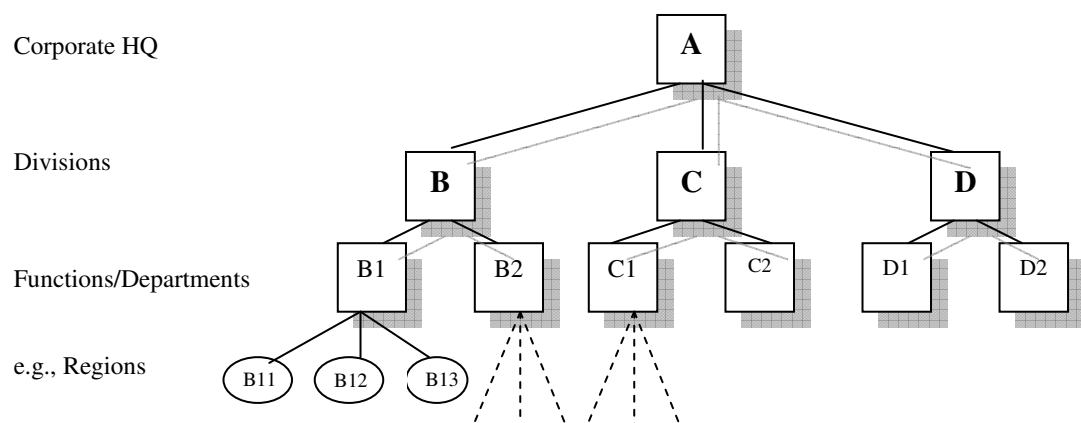


Tableau de Bord A = B + C + D
 Tableau de Bord B = B1 + B2
 Tableau de Bord B1 = B11 + B12 + B13

Source: Epstein, M. & Manzoni, J. (1998) , p. 192

Briefly, traditional performance measurement and management frameworks and systems fail to put comprehensive models for overall performance evaluation because of emphasis on financial performance and exclude customer dimension with other external issues, not building upon strategy and vision-mission statements and being on short oriented focusing on profit maximization. Therefore, companies have been starting to employ emerging performance measurement and management frameworks and systems which try to evaluate performance comprehensively.

1.2.2. Emerging performance measurement and management frameworks and systems

Emerging performance measurement and management frameworks and systems have been increasingly discussed in the literature, but there is not a consensus in distinguishing the classification of the frameworks and systems in terms of measurement and management. Firstly, Rouse and Putterill (2003) separate framework and system in measurement defining performance measurement framework as it assists in the process of performance measurement system building, by clarifying performance measurement boundaries, specifying performance measurement dimensions or views. Folan and Browne (2005) indicate that framework provides more information than a recommendation, but less than a system. On the other hand, Amaratunga and Baldry (2002) imply on the transition from performance measurement to management as management is built upon the information generated from performance measurement and adding a strategic view and methodology for changes in management, thus performance evaluation has been transforming in the literature as Folan and Browne (2005) state that performance management evolves from performance measurement systems that is integrated by analysis and response to the measurement outcomes with reviewing strategy. Folan and Browne (2005) distinguish performance measurement systems as intra-performance measurement that outlooks internal measures and inter-performance measurement that examines external environment, therefore a performance management system should consider all performance measurement systems.

According to the writings in the literature about performance evaluation, we can differentiate the evolution of performance as:

- Performance measurement frameworks
- Performance measurement systems
- Performance management systems

However, there are different analyses of performance evaluation in the literature; there is lack of agreement on the tools to be classified which are frameworks and systems, also which one can be perceived as a management system. Different researches show that some of the tools can be named as framework and some of them called as system. Therefore, this paper tries to classify some of the emerging performance evaluation tools as performance measurement frameworks, performance measurement systems and performance management systems.

1.2.2.2 Emerging performance measurement systems

Emerging performance measurement systems are presented in different studies. Neely *et al.* (2000) assert the desirable characteristics for a performance measurement system design process within Table 3:

Table 3: Characteristics of performance measurement system

Desirable characteristics of a performance measurement system design process	Desirable characteristics of the output of the process
Performance measures should be derived from the company's strategy	Performance measures should enable/facilitate benchmarking
The purpose of each performance measure must be made explicit	Ratio based performance measures are preferable to absolute numbers
Data collection and methods of calculating the level of performance must be made clear	Performance criteria should be directly under the control of the evaluated organizational unit
Everyone(customers, employees and managers) should be involved in the selection of the measures	Objective performance criteria are preferable to subjective ones
The performance measures that are selected should take account of the organization	Non-financial measures should be adopted
The process should be easily revisitable-measures should change as circumstances change	Performance measures should be simple and easy to use
	Performance measures should provide fast feedback
	Performance measures should stimulate continuous improvement rather than just monitor

Source: Adapted from Neely,A. et al. (2000), p. 1131

The choice of performance measurement and management systems is discussed widely by Neely *et al.* (2000). It is informed that the selection and execution of metrics would be a competitive advantage for companies and recent performance measurement systems are introduced. According to the Table 4, most comprehensive systems to manage performance are listed:

Table 4: Performance management systems

Founder	Year	Name of the system
Keegan <i>et al.</i>	1989	Performance measurement matrix
Fitzgerald <i>et al.</i>	1991	Results and Determinants Framework
Lynch & Cross	1991	The Performance Pyramid
European Foundation of Quality Management	1992	Business Excellence Model
Kaplan & Norton	1992	Balanced Scorecard
Institute of Charactered Accounts of Scotland	1993	Performance measurement framework
Brown	1996	Inputs, processes, outputs, outcomes perspective

Source: Adapted from Neely,A. *et al.* (2000), p. 1119-1145

On the other hand, Pun and White (2005) present one of the researches that the performance systems are all perceived as performance measurement systems and approaches based on the study of Hudson, Smart and Bourne (2001) that compare the following system according to their typology and effort for finding the fit of performance measurement approaches and systems to SMEs (Small and Medium Enterprises). Table 5 includes these tools.

Table 5: Performance systems and approaches

Performance measurement systems and approaches
Strategic measurement Analysis and reporting technique(SMART) Performance Measurement Questionnaire(PQM) Results and Determinants Matrix(R&DM) The Balanced Scorecard(BSC) Comparative Business Scorecard(CBS) Cambridge Performance Measurement Process(CPMP) Consistent Performance Measurement Systems(CPMS) Integrated Performance Measurement Systems(IPMS) Dynamic Performance Measurement Systems(DPMS) Integrated Performance Measurement Framework(IPMF)

Source: Pun, K. F. & White, A. S. (2005), p. 54

Folan and Browne (2005) also list the emerging performance measurement frameworks and systems, evaluating many of the tools generated as frameworks for performance measurement in Table 6.

Table 6: Performance measurement frameworks

Sinkle & Tuttle	Internal/external configuration framework	EFQM Model
Performance measurement matrix	Kaydos' framework	SME performance measurement framework
Results and determinants framework	Wisner and Fawcett's framework	Performance prism
Performance measurement system models	Balanced Scorecard	Framework for multinational companies
Performance pyramid	AMBITE Performance Measurement Cube	Integrated performance measurement framework
Ten-step model	Brown's framework	

Source: Folan, P. & Browne, J. (2005) , p. 667

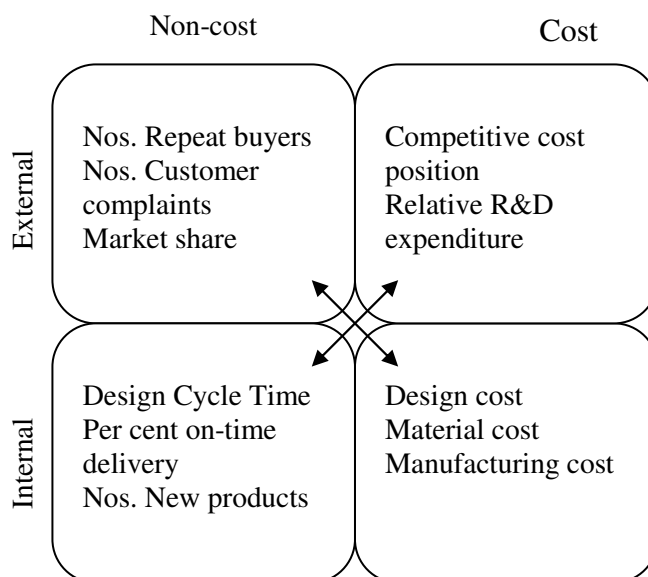
According to the findings in the literature, performance measurement systems and performance management systems that will be studied in this research can be separated from each other like in Table 7. All these systems are explained in detail as in order of Table 7.

Table 7: Performance measurement systems and performance management systems

Performance measurement systems		Performance management systems
Performance measurement matrix	Brown's performance perspective	Performance Pyramid
Quantitative model for performance measurement systems	Performance Measurement Questionnaire	Results and determinants matrix
Consistent Performance Measurement Process	Integrated Performance Measurement Systems	Performance Prism
AMBITE system	Kanji's Comparative Business Scorecard	Balanced Scorecard
Rouse and Putterill's system	EFQM Model	

Neely *et al.* (2000) indicate that performance measurement matrix is a system that offers a performance measurement for financial and non-financial, internal and external measures, but fails to link the dimensions of measures.

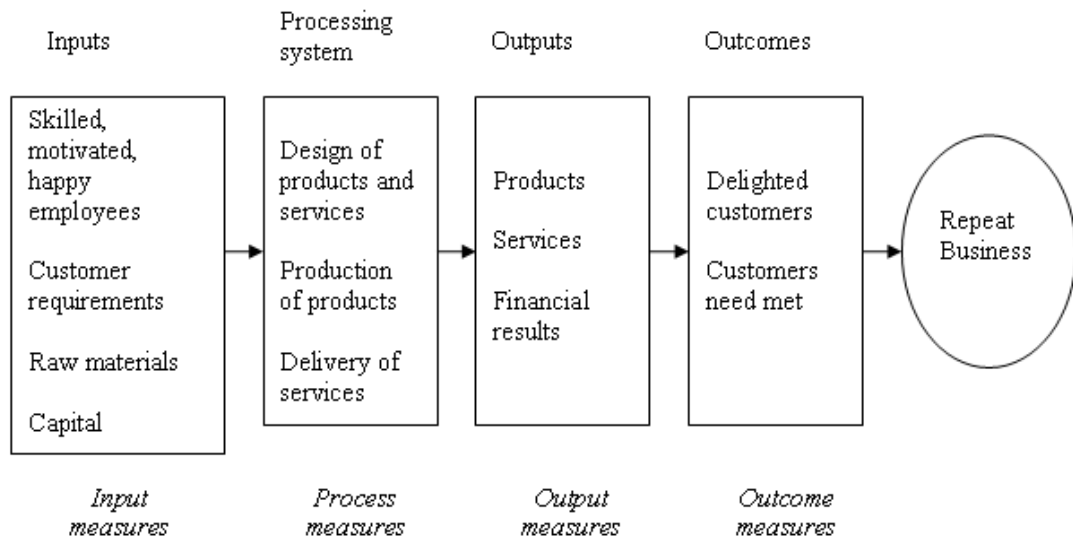
Figure 7: Performance measurement matrix



Source: Neely, A. *et al.* (2000), p. 1122

Brown's (1996) perspective considers outputs, process, inputs and outcome measures, measuring them in a sequential flow that is to be built to reach to goals.

Figure 8: Brown's performance perspective



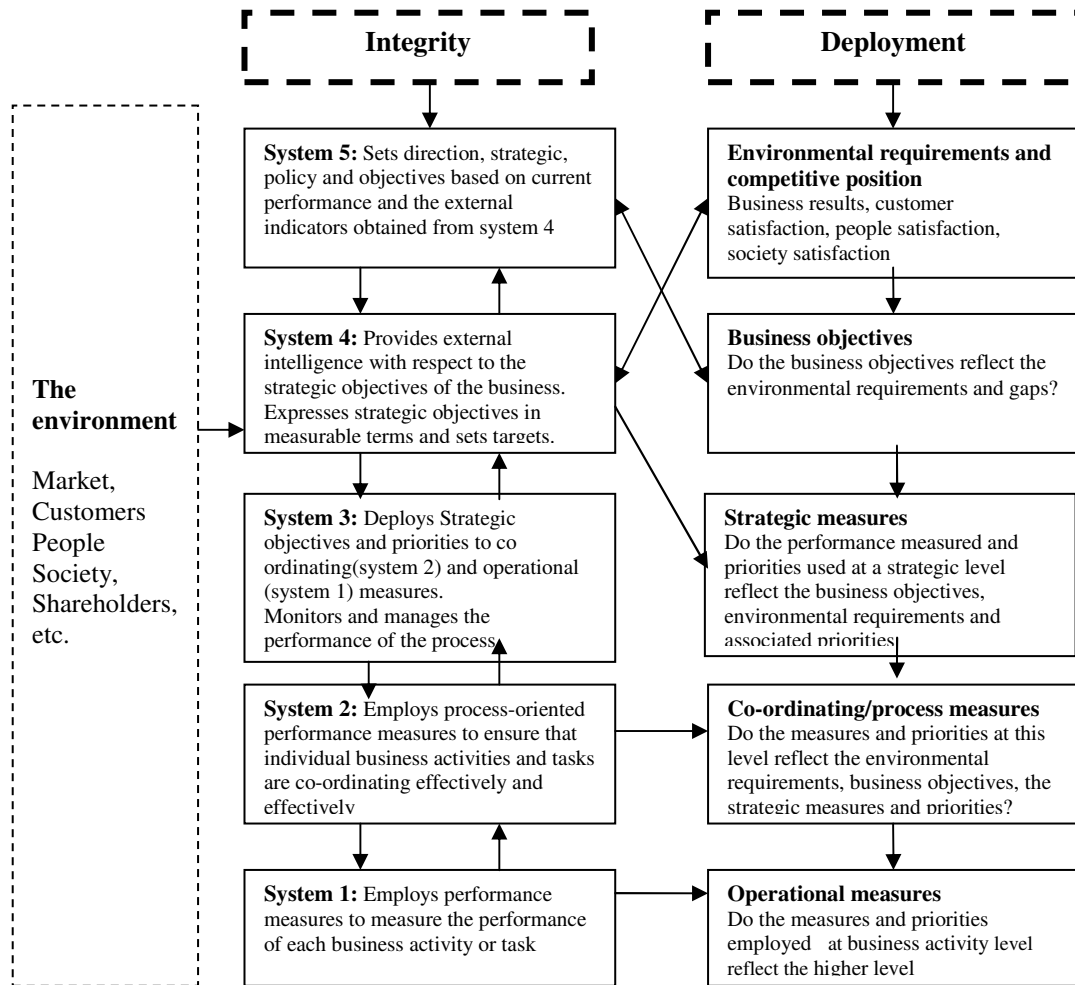
Source: Neely,A. *et al.* (2000), p. 1125

Bititci, Suwingjo and Carrie (2001) states the quantitative model for performance measurement system (QMPMS) for manufacturing strategies. The QMPMS has a three step procedural framework that consists of identification of factor affecting performance and their relationship, structuring the factors hierarchically and quantifying the effects of factors on performance. The QMPMS is also assessed in terms of simplifying the performance measures while the it proposes a quantitative model for performance measurement which remedies from a framework that monitors the impacts of measures to overall performance alerting the management team for which measures have to be changed due to their impact to the performance along with the time dimension (Suwingjo, Bititci and Carrie , 2000). In this system, measures can be quantified where the critical factors are to be prioritized and the most critical factor is selected as it impacts the performance most. Thus, the QMPMS differs from other approaches in which the efforts to examine the

performance measurement system aims to reduce the measures in a measure which means the system is subjective and depends upon the group judgment.

Performance Measurement Questionnaire (PMQ) consist of four parts; a data collection part, an assessment part of long-term improvements, an assessment part of performance measures and a performance measurement generation part. Consistent Performance Measurement Process (CPMP) demonstrates performance measurement system steps that consider a set of processes designing performance measures and their fits to corporate objectives. According to this system, performance measurement is satisfied with a three-step action; the design of performance measures, the implementation performance measures and the use of performance measures. Integrated Performance Measurement Systems (IPMS) involves in a closed loop controlled system where organization manages its performance. The system is viewed in Figure 9:

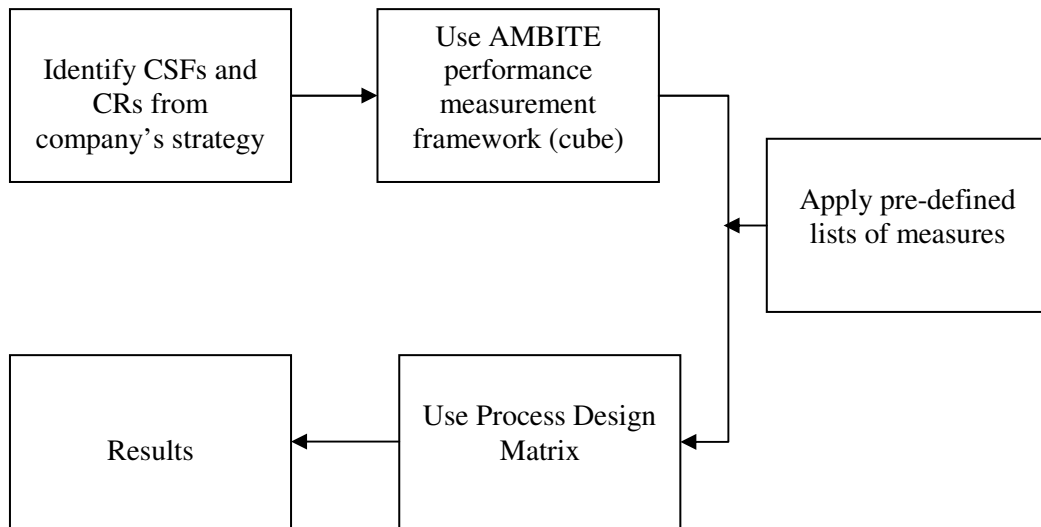
Figure 9: Integrated Performance Measurement Systems (IPMS)



Source: Pun, K. F. & White, A. S. (2005), p. 61

AMBITE performance cube is based on a tri-axis view including business processes, competitive priority and manufacturing environment in three axis. A point combined from three axis compounds a strategic performance indicator (SPI) is then associated to a critical success factor (CSF); a determinant for the companies' priorities and to a customer requirement (CR); a determinant for the customers' priorities. The pre-defined measures are embedded after the relations have been organized and process design matrix is created to see the results of performance evaluation. The execution of SPIs and their fit to the pre-defined measures is the evaluation of the performance, so process design matrix monitors the efficiency of the cube. The AMBITE performance cube design system is as follows in Figure 9:

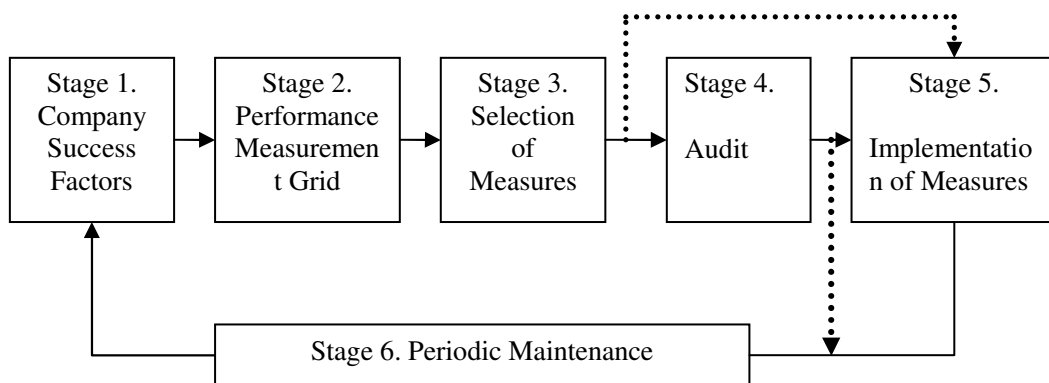
Figure 10: AMBITE performance cube



Source: Folan, P. & Browne, J. (2005), p. 669

Medori and Steeple (2000) emphasize the importance of non-financial measures in their system giving their advantages as being timely than financial measures, measurable and precise, consistent with goals and strategy, changeable and flexible, but criticize them due to the huge numbers of measures that can be created leading to the misjudgment of selection for evaluation. Medori and Steeple (2000) present their performance measurement framework within a six-stage plan and spectrum/checklist document. According to the framework, the six-stage plan is organized as a loop as shown in Figure 11:

Figure 11: Medori & Steeple approach

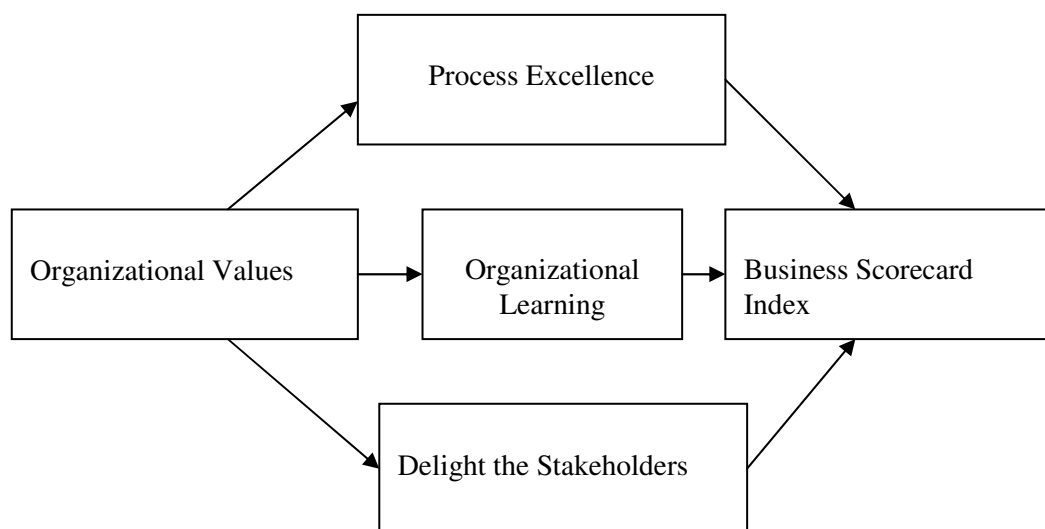


Source: Medori, D. & Steeple, D. (2000), p. 523

The six-stage plan first evaluates company success factors, then along performance measurement grid, the fit between the success factors and framework's competitive 6 priorities; quality, cost, flexibility, time, delivery and future growth is evaluated. Selection of measures includes the selection of the most appropriate measures for the organization which are the new measures to be placed in the "spectrum/checklist". Afterwards, the audit of the new measures versus old measures results in "gaps", new measures do not exist in the current system, "false alarms", existing measures that are found to be useless or harmful to the organizations so that would be removed soon. The "gaps" are embedded in the current performance system in the implementation of measures phase, and lastly, the system would get feedbacks in the "periodic maintenance".

Kanji and Sa (2002) describe Kanji's Business Scorecard Index (KBSI) which is formulated and derived from Kanji's Business Excellence Model (KBEM) including organizational values, process excellence, organizational learning and delighting the stakeholders. It claims that Balanced Scorecard lacks explaining the critical factors that lead to superior performance and KBEM fills this part with the index and formulation.

Figure 12: Kanji's Business Scorecard



Source: Kanji, G. K. & Sa, M. P. (2001), p. 902

On the other hand, another tool “benchmarking” is set to be a system for performance measurement expands its usage rate since its benefits to evaluate the performance subject to internal and external changes in competitive business environment. Prasnikar, Debeljak and Ahcan (2005) define benchmarking as “the process of creating business knowledge by comparing and analyzing business information about other companies with the goal of improving the quality of decision making.” Prasnikar, Debeljak and Ahcan (2005) adds that the improvements in the decision making would reflect an improvement in overall performance. Jarrar and Zairi (2001) indicate that benchmarking is used for finding out the best practices to apply and adapt in the organization gaining a real improvement in the benchmarks that are measures to analyze in benchmarking. Jarrar and Zairi’s research (2001) also find that benchmarking benefits in strategic decision making, deployment of resources and process improvement. An organization could employ benchmarking in different circumstances. Coulter *et al.* (2000) divide industrial benchmarking as competition benchmarking; the selected measures are benchmarked within competitors, sector-related benchmarking that aims to evaluate the trends in the sector, sector-independent benchmarking which seeks for better practices in improvement and reference model-based benchmarking in order to compare the scores with other enterprises that uses the same reference models such as European Foundation of Quality Management (EFQM).

The success of benchmarking also differs with the execution of the phases in implementation. Prasnikar, Debeljak and Ahcan (2005) define the phases of benchmarking:

- Planning phase, where the objectives and purpose of benchmarking are clearly defined;
- Collecting business information phase, where both primary and secondary data about other companies are gained;
- Comparison and analysis phase, where new business knowledge about the subject of benchmarking is created on the basis of an analysis of data about other companies and a comparison with the subject company; and

- Application phase, where the business knowledge gained is used in decision-making

Benchmarking could not be accepted as a performance management system since its orientation in internal activities has not been evolved to generate the overall performance results. Thus, it is more appropriate to use benchmarking to analyze the situation of organization in its external environment. It is hard to complete a process-driven benchmarking thereby organizations tend to evaluate a results-driven benchmarking in which the data is much easier to be collected (Hutton and Zairi, 1995). Another concern is that the evaluation of benchmarking depends on the gaps between the organization and the selected organizations to be benchmarked in definite measures or activities (Andersen and Jordan, 1998). Consequently, the analysis phase in benchmarking could mislead the decisions in improvement because of the inappropriate selection of benchmark organizations and pre-defined benchmarks as they show lack of coherence with the goals of the organization. However, the way that benchmarking compares the organization with others makes it applicable in many settings as a performance measurement system. This enlarges the importance of benchmarking in management literature with its superiority assessing the external environment and leading in better decision making and continuous improvement in performance.

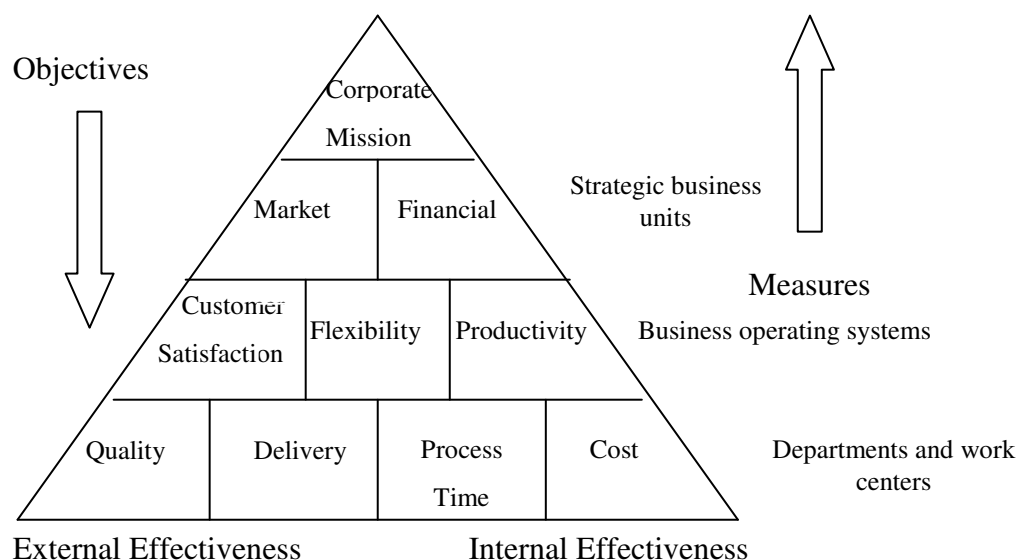
1.2.2.3 Emerging performance management systems

Nillson and Kald (2002) observe the performance management systems of three main areas of competition; USA, Japan and Europe. In the US perspective, the performance is evaluated in the short-term profitability and the systems are financially oriented. Despite the revisions in the performance management systems by integrating non-financial performance measures have been arising, performance evaluation in US companies is still being dominated by finance. Secondly, Japanese perspective succeeds in integrating the financial focus of return on investment and the use of non-financial measures that provides them to label long term objectives and improve product and process development rather than short term savings in

USA. Finally, European perspective forms a heterogeneous view to performance management as UK shows a similar characteristic to USA where financial perspective of management is remarkable in performance evaluation, but French managers' mind set consists of the use of non-financial measures. Actually, French and Italian firms commonly use the French system, Tableau de Bord whereas German and UK firms prefer Balanced Scorecard.

Laitinen (2002) focuses on the three measurement systems as Balanced Scorecard, The Performance Pyramid and Performance Measurement System for Service Industries. Balanced Scorecard is a four-axis performance management system including financial, internal, customer and internal & learning perspective. Balanced Scorecard is perceived a multidimensional system and gives controlling abilities for managers in many areas of performing, which is a necessity in the competitive and complex world. Performance Pyramid, on the other hand, constructs a pyramid for the organization begins from the operations to the corporate vision. The main logic of Performance Pyramid is that it translates the objectives from top to down and measures from down to top and the evaluation of the whole system is assessed by external effectiveness and internal efficiency.

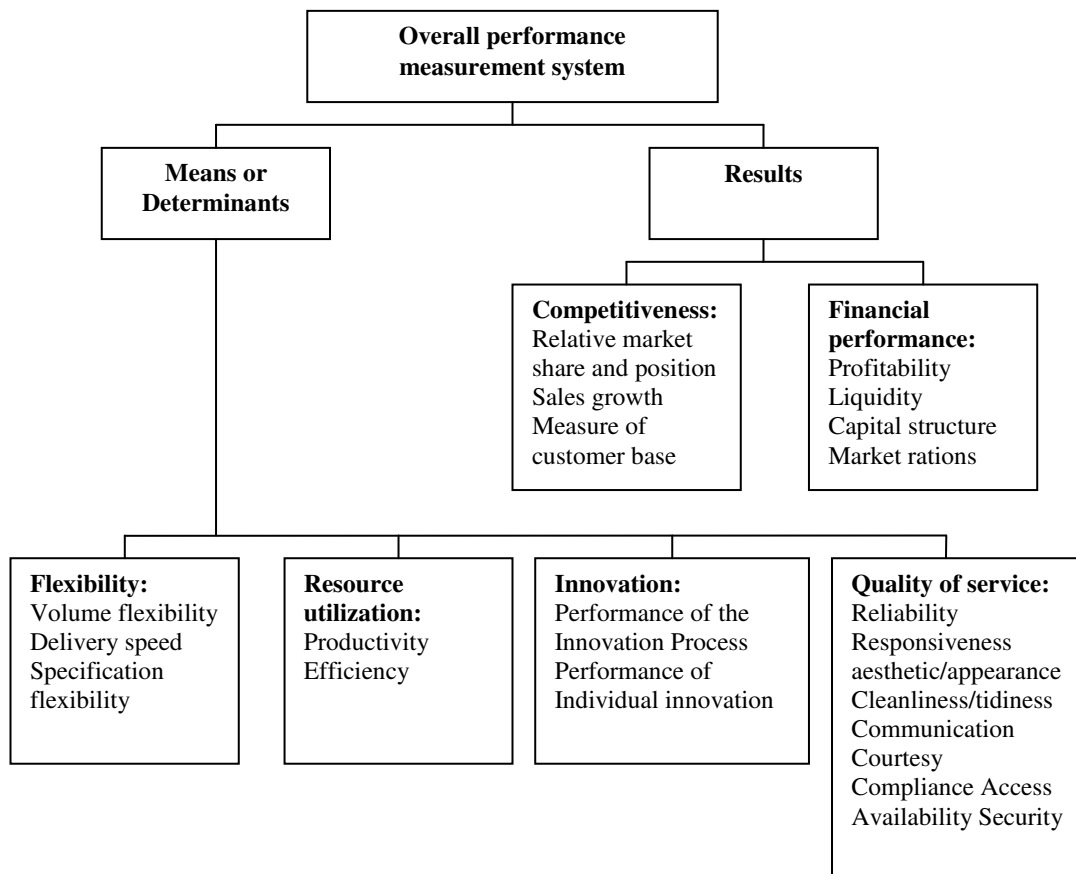
Figure 14: The Performance Pyramid



Source: Laitinen, E. K. (2002) , p. 73

Finally, the Performance Measurement System for Service Industries (also known as “results and determinants matrix”) developed by a group of researchers outlooks the performance in two subdivisions; results (effects) and determinants (as causes of success) and six dimensions; competitiveness and financial performance for results and quality of service, flexibility, resource utilization and innovation for determinants.

Figure 15: Performance measurement system for service industries



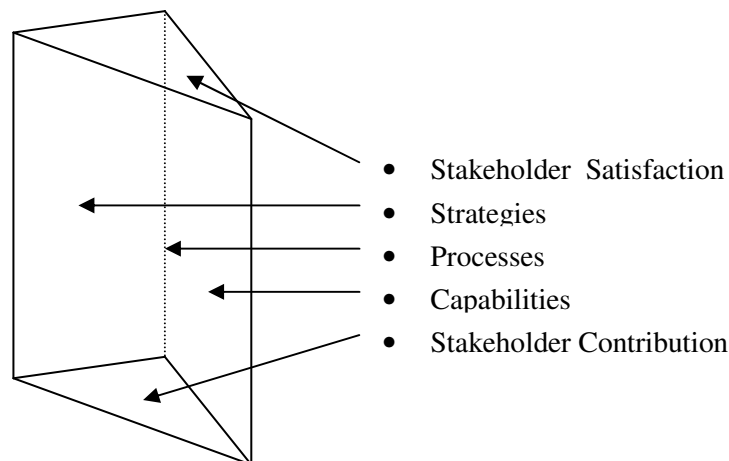
Source: Pun, K. F., White, A. S. (2005), p. 56

As an example for the system, Ballantine *et al.* (1998) applies Fitzgerald *et al.* 's “the results and determinants framework” on health service industry within a United Kingdom and Sweden case, and as a result of the case, “the results and determinants framework” can be a useful tool for efficient resource allocation.

Neely *et al.* (2002) emphasize on the stakeholder value more than shareholder value in the improvement of business performance. According to them, “executives have to understand what their various stakeholders want and need from the organization and what the organization wants and needs from them. They have to align their strategies, processes and capabilities to satisfying those diverse sets of wants and needs so that they can deliver value to their stakeholders.” Besides, performance prism generated by Cranfield School of Management and Andersen Consulting² offers a five-faceted model for performance management (Neely and Adams,2002). The five facets in performance prism are:

- Stakeholder Satisfaction- who is the key stakeholders and what do they want and need?
- Strategies- what strategies do we have to put in place to satisfy the wants and needs of these key stakeholders?
- Processes – what critical processes do we require if we are to execute these strategies?
- Capabilities – what capabilities do we need to operate and enhance these processes?
- Stakeholder Contribution – what contributions do we require from our stakeholders if we are to maintain and develop these capabilities?

Figure 16: Performance prism facets in three dimensions



Source: Neely, A. & Adams, C. (2002),

<http://www.som.cranfield.ac.uk/som/research/centres/cbp/downloads/prismarticle.pdf> (1 July 2007)

² See www.andersen.com

Performance Prism considers stakeholders as the main focus different from Balanced Scorecard. Therefore, performance prism has been designed in three dimensions; stakeholders satisfaction as a one dimension, stakeholder contribution as a second one and processes, strategies and capabilities stand as a third dimension. Neely and Adams indicate that the reasons of failing strategies in organizations are invalidity of strategy and management model, organizations processes not aligned to strategies, falsely measured processes, not focusing on organization's abilities and competitors and insufficient contribution of stakeholders.

Balanced Scorecard is another performance management system. It is introduced in the next chapter in detail.

CHAPTER 2: BALANCED SCORECARD

2.1. Introduction and evolution of Balanced Scorecard

Balanced Scorecard appears to have a great impact on management being long-term oriented as Eccles (1991) emphasizes the increasing competition and criticizes traditional measures that lack of insight in the future of the organizations. Otley (2001) states that literature has improved little until 1980s, but the book, written by Kaplan and Johnson, “Relevance Lost: The rise and fall of management accounting” that pioneers the introduction of non-financial measures. On other hand, Galbraith (2005: 11-14) emphasizes on the customer dimension and the design of the organizations have been building as customer-centric rather than product-centric in the last decades giving the causes of increasing customer dimension of business world as globalization, customer relationships, e-commerce and solutions management. Marr and Schiuma (2003) fastidiously work on the extend of the literature to show which of the references are most cited in PMA conference reports from 1998 to 2002 , the period that studies on performance measurement has peaked. According to the results, most cited paper in these conferences is Kaplan and Norton’s book “The Balanced Scorecard-Translating strategy into action” in 1998, 2000 and 2002. The second one is in all three years is the article “The Balanced Scorecard-measures that drive performance” of again Kaplan and Norton. Recent years’ papers show that the use of Balanced Scorecard increases due to its flexibility and researchers’ perceptions that they find Balanced Scorecard evolving from a system for performance measurement to performance management and finally to change management.

As discussed in Chapter 1 and above, the management literature need to have a system that considers both financial and non-financial measures aligned to the objectives of the organizations, evaluating also the increasing competition and new management initiatives. Robert Kaplan and David Norton have executed their system Balanced Scorecard on different organization as a result of the demands in changing the performance systems. Balanced Scorecard is first introduced with four

perspectives within Kaplan and Norton's (1992) article "The Balanced Scorecard: Measures that drive performance". These perspectives are defined as financial, customer, internal business and, innovation and learning. However "internal business" and "innovation and learning" perspectives are replaced as "internal business process" and "learning and growth" perspectives (1996a: 25). Then, Kaplan and Norton wrote their second article "Putting the Balanced Scorecard to work" in 1993 that mentions about the applications of Balanced Scorecard on specific companies. Afterwards, their first book, "The Balanced Scorecard: Translating strategy into action" have been published giving the detailed information on the Balanced Scorecard approach and implementation phases are demonstrated. The same year, two other articles are also released for explaining the perspectives and their linkages to strategy (1996c) and translating the strategy to employees (1996b). The research on Balanced Scorecard has been enormously increased by many studies including case studies, comparisons and relations with other systems and initiatives, recommendations and criticizes. This chapter will deal with the perspectives of Balanced Scorecard and its applications on various sectors in different countries.

Balanced Scorecard studies have been changing after strategic management fit and "strategy maps", which is an entity of Balanced Scorecard that will be discussed detailed in Chapter 4, are put into work. A strategy map translates the strategies, values and vision well and guides the executives to understand the working environment effectively. Kaplan and Norton's (2000) effort on "strategy maps" is a tool for translating the strategy to work is followed by their two articles published on "Accounting Horizons" (2001) and their book "The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment"(2001) that give comprehensive outlook to Balanced scorecard and strategy relations. In addition to the studies about "strategy maps", Kaplan and Norton wrote "strategy maps: converting tangible assets into intangible assets" and following articles in 2004 in order to realize the value of intangible assets in performance management and its alignment to strategy maps and thus, strategy.

2.2. The need for Balanced Scorecard

Balanced Scorecard is the tool for the demands of organizations that want to compete in the globalized world. There are several reasons named in various studies to employ a Balanced Scorecard in an organization. Kaplan and Norton (1992), introducing Balanced Scorecard in the literature, mention their comments of organizations on performance management in their article:

“In observing and working with many companies, we have found that senior executives do not rely upon on set of measures to the exclusion of the other. They realize that no single measure can provide a clear performance target or focus attention on the critical areas of the business. Managers want a balanced presentation of both financial and operational measures.” Furthermore, Balanced Scorecard is seen as a beneficial tool for managers to measure and manage performance in the organization within two reasons:

- Balanced Scorecard is an agenda for a holistic view that considers both financial and non-financial dimensions of performance and gathers the metrics in one tool.
- Sub optimization of the managers which is mainly based on short-term performance is rejected as it prevents organizations to see further. “ (Kaplan and Norton, 1992)

Besides, Kaplan and Norton (1996a:5) points out that 21st century business world would be different from industrial-age time period. They ground this idea on a cross-functional way of management. In this management style, the roles of employees from different departments intersect, links to customers and suppliers maintain a competitive edge for organizations, customer segmentation is intense, innovation and global scale is vital for surviving and the importance of knowledge workers will rise.

According to the Kaplan and Norton (1996b), Balanced Scorecard is a complementary item to the financial measures and would not replace it. For the traditional performance systems are more involved in financial measures which prevent them to implement strategies with long-term objectives, Balanced Scorecard is designed to link short term actions with long term objectives so that strategies of the organization could be successfully implemented.

Kaplan and Norton (1996a: 25) indicate the usage of Balanced Scorecard as articulating the strategy of the business and communicating the strategy of the business and to help align individual, organizational, and cross-departmental initiatives. Furthermore, Balanced Scorecard tool integrates the entities of performance aspects within cause-and-effect relationships and performance drivers that divided into lagging indicators (mix of outcomes) and leading indicators (performance drivers) (Kaplan and Norton, 1996a: 29). Also, Kaplan and Norton (2001b) express Balanced Scorecard as:

- 1) Balanced scorecard makes the linkage of measurement to strategy and cause-and-effect linkages that describe the hypothesis of the strategy.
- 2) Balanced Scorecard forces organizations to focus on intangible assets that become the source of competitive advantage.

Kaplan and Norton (1996a: 147) list the reason of building a scorecard as follows:

- The scorecard describes the organization's vision of the future entire organization.
- The scorecard creates a holistic model of the strategy that allows all employees to see how they can contribute to organizational success.
- The scorecard focuses change efforts and the need for building a scorecard is listed as (Kaplan & Norton, 1996a:299) :
 - Clarify and gain consensus about vision and strategy
 - Build a management team
 - Communicate the strategy

- Link the reward to achieving strategic objectives
- Set strategic targets
- Align resources and strategic initiatives
- Provide a foundation for strategic learning

According to Frigo (2002), Balanced Scorecard users link the corporate strategy to the performance strategy better, integrate performance measures and system efficiently and maintain new performance measures. Zanini (2003) also adds that after Enron and WorldCom scandals have happened, Balanced Scorecard is perceived as a useful instrument to share true information.

Kaplan and Norton (1993) also points out that Balanced Scorecard provides a comprehensive view for organizations to work informing the characteristics of Balanced Scorecard.

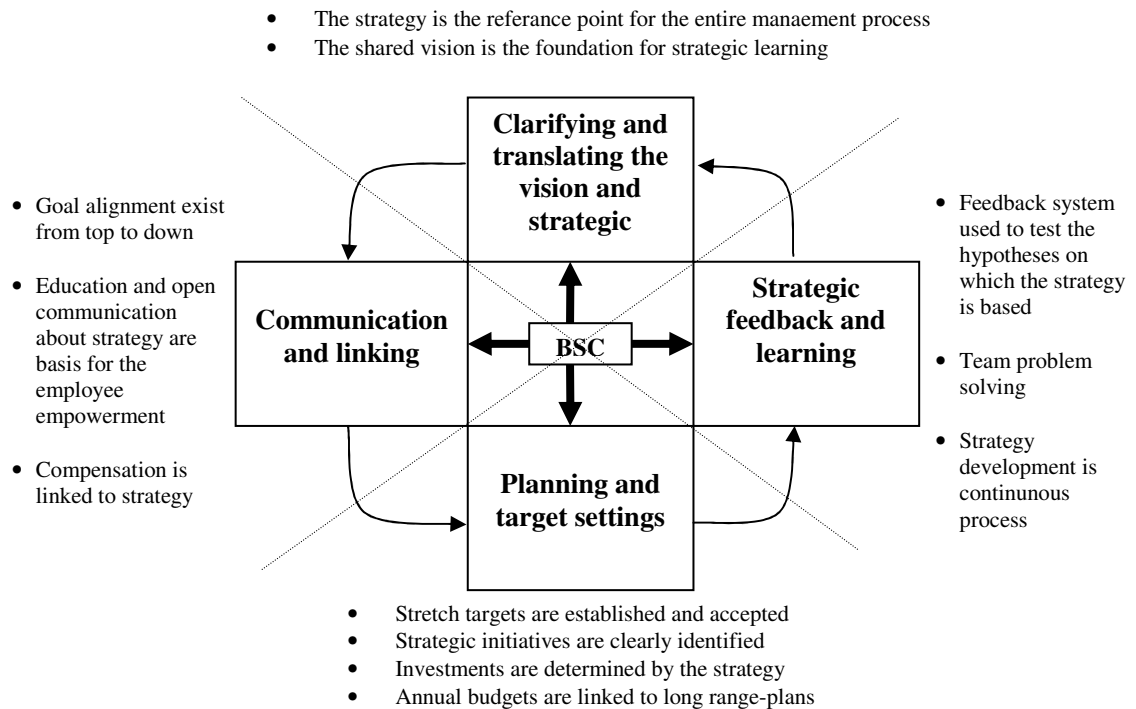
- Measures that are grounded in an organization's strategic objectives and competitive demands focusing to the vision.
- Forward-looking reporting
- Availability for trade-off between measures and support managers to see future possibilities in key success factors.
- A focal point for organization's efforts, defining and communicating priorities to stakeholders.

With presenting a single, succinct document, Balanced Scorecard is a useful tool remarking the tradeoffs and forming communication for translating strategy. Besides, it clarifies the strategy and makes it simple, shared by management team (Epstein & Manzoni, 1998).

Intangible asset valuation is one the critical tools of the performance evaluation as the effect of intangible assets value creation to financial outcomes can not be predicted because of complex relationships and the value created from intangible assets differ from organization to organization and strategy to strategy can not be gauged as a tangible asset. Niven (2002:35) indicates that nearly 75% of an

organization's value is provided by its intangible assets and Balanced Scorecard is useful for companies to use intangible asset valuation.

Figure 17: Balanced Scorecard



Source: Adapted from Kaplan, R. and Norton, D. (1996a), p.197

Mooraj, Oyon and Hoosteller (1999) discuss the necessity of Balanced Scorecard and inform their comment as Balanced Scorecard is a useful system for companies. Giving examples from its applications in Europe including Whirlpool, British Airways World Cargo and Tetrapak, the research evaluate Balanced Scorecard as reducing the time for data digestion and increasing it for decision making process. Besides, Balanced Scorecard enables organizations to create an environment of learning organization using cause-and-effect relationships and 360⁰ feedback. The research also indicates that with its balanced measures considering both financial and non-financial measures, Balanced Scorecard is an adoptable system due to its availability being aligned to strategy, existing systems and culture.

Balanced Scorecard has four perspectives; financial, customer, internal business process and, learning and growth. Chapter 2-3 introduces the perspectives of Balanced Scorecard.

2.3. Perspectives of Balanced Scorecard

2.3.1. Financial perspective

Financial perspective of the Balanced Scorecard considers more than one measure for evaluating overall performance. It tries to answer the question: “How do we look to shareholders?” (Kaplan and Norton, 1992). As Kaplan and Norton (1996a, p. 47) criticize EVA (economic value added), one of the most used performance indicator), as being a single objective but they add that it is impossible compare different companies from different industries with a same single measure. In the financial perspective, there are three business unit strategies; growth (specific measures: % in growth and revenue), sustain (sales growth rate, ROE, ROCE etc.) and harvest (cash flow, reduction in working capital).

Table 8: Measures for Business Strategies and Themes

		Strategic Themes		
		Revenue Growth and Mix	Cost Reduction/Productivity Improvement	Asset Utilization
Business unit strategy	Growth	- Sales growth rate by segment - Percentage revenue from new product, services, and customers	- Revenue/Employee	- Investment (Percentage of sales) - R&D (percentage of sales)
	Sustain	- Share of targeted customers and accounts - Cross-selling - Percentage revenues from new applications - Customer and product line profitability	- Cost versus competitors' - Cost reduction rates - Indirect expenses (percentage of sales)	- Working capital ratios(cash-to-cash cycle) - ROCE by key asset categories - Asset utilization rates
	Harvest	- Customer and product line - Profitability percentage of unprofitable customers	- Unit costs (per unit output, per transaction)	- Payback - Throughput

Source: Kaplan, R. S. & Norton, D. (1996c), p. 58

Growth strategy is sustained by investment in new products, construction for extending the production capacity, building operating capabilities, investing in structure and network within distribution and customers' relationships. Sustain strategy is built upon a maintained market share and therefore, bottlenecks, continuous improvement and capacity extension is the main focus point, expecting high return of capital. Lastly, harvest strategy concentrates on cash flow as no more investment is required for extending capacity as the product lifecycle reaches to maturity (Kaplan and Norton, 1996c; Kaplan and Norton, 1996a, p. 48-50).

In addition to the stages given above, three strategic themes are defined for each stage which is revenue growth and mix, cost reduction/ productivity improvement and asset utilization/investment strategy. New products, applications, customers and markets, products and service mix and pricing strategy are the drivers for revenue growth and mix whereas cost reduction/productivity improvement theme is fed by increasing revenue productivity, reducing unit costs, improving channel mix and reducing operating expenses. Lastly, asset utilization/investment strategy considers cash-to-cash cycle and improvement in asset utilization (Kaplan and Norton, 1996a, 51-59).

As an example for financial perspective of Balanced Scorecard, Ahn (2001) presents a scorecard application of ABB Industrie AG, a leading worldwide supplier of automation products, drive units and complex electronic systems and Table 9 shows the financial perspective of ABB Industrie AG:

Table 9: Financial perspective of ABB Industrie AG Balanced Scorecard

Strategic goals	Measures	Milestones		Target
		End of 1st year	End of 2nd year	End of 3rd year
Net margin is constantly > 15%	Net margin	13%	15%	> 15%
ROCE ³ is > 30%	ROCE	15%	20%	> 30%
Turnover with end customers is $\geq$ 30%	Turnover with end customers	15%	20%	30%

Source: Ahn, H. (2001), p. 451

Niven (2002, p. 119) lists commonly used financial measures in Table 10:

Table 10: Commonly used financial measures

Total assets	Revenue per employee	Shareholder loyalty
Total assets per employee	Return on equity (ROE)	Cash flow
Profits as a % of total assets	Return on capital employed (ROCE)	Total costs
Return on net assets	Return on investment (ROI)	Credit rating
Return on total assets	Economic value added (EVA)	Debt
Revenues/total assets	Market value added (MVA)	Debt to equity
Gross margin	Value added per employee	Times interest earned
Net income	Compound growth rate	Days sales in receivables
Profit as a % of sales	Dividends	Accounts receivable turnover
Profit per employee	Market value	Days in payables
Revenue	Share price	Days in inventory
Revenue from new products	Shareholder mix	Inventory turnover ratio

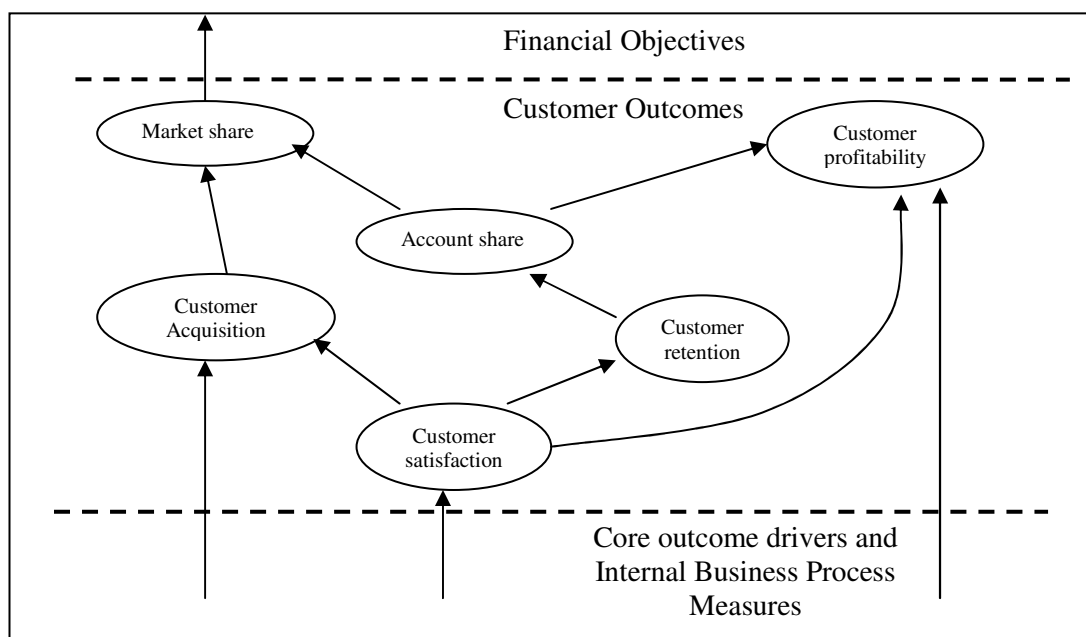
Source: Niven, P. R. (2002), p. 119

³ Return on capital employed

2.3.2. Customer Perspective

The customer perspective is one of the most essential parts of the Balanced Scorecard considering customer dimension of a business unit that is the highest priority given in many enterprises finding the attitude towards the question: “How do customers see us?” (Kaplan and Norton, 1992). Hence, managers must translate their mission and strategy statements into specific markets and customer based objectives (Kaplan & Norton, 1996a, p.63). Kaplan and Norton point out that there exist two sets of measures for customer perspective; core measurement group and measuring customer value propositions. Core measurement group includes market share, customer retention, customer acquisition, customer satisfaction and customer profitability.

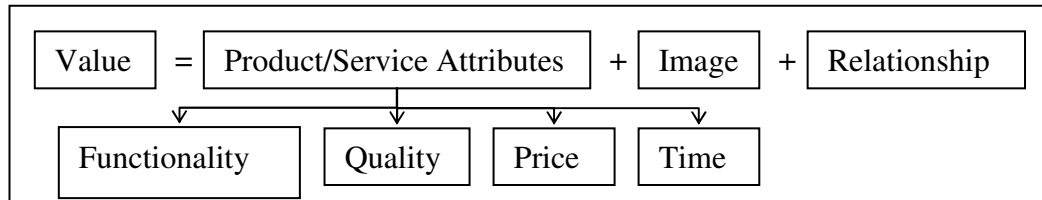
Figure 18: Core measurement group



Source: Kaplan, R. S. & Norton, D. (1996c), p. 59

On the other hand, customer value propositions are composed of product/service attributes, customer relationships and, image and reputation.

Figure 19: The customer value proposition



Source: Adapted from Kaplan, R. S. and Norton, D. (1996a), p. 74

Products/service attributes include the functionality, quality and price and time dimension, whereas image and reputation makes the organizations to be known in the market and customer relationship includes the delivery of the product/service to the customer, including the response and delivery time dimension and customers' feelings about purchasing activity (Kaplan and Norton, 1996c).

An example can be given to customer perspective of Balanced Scorecard from Kaplan and Atkinson's (1998, p. 438) study on Gasoline Marketing that is responsible for developing strategies for the sale of Mobil-branded gasoline in US. According to the Gasoline Marketing Balanced Scorecard, customer perspective has the following strategy objectives:

- Develop and maintain resale vision and strategies
- Develop and support programs that enhances franchise value
- Assist NBU's with strategy implementation
- Value added working relationship

where the measures are defined as client satisfaction (service agreement feedback); NBU and ELT, and tracking versus program/tool Key performance indicators.

Another example for customer perspective application is Ahn's study (2001) in ABB Industrie. According to Ahn (2001), ABB Industrie's goal in customer perspective is to offer an innovative service concept. The measures generated for

examining this strategic goal lie as the number of process optimizations and share of sold systems with additional service contracts.

Niven (2002, p. 127) informs a number of measures are appropriate for customer perspective:

Figure 20: Commonly used customer measures

Customer satisfaction	Customer retention	Brand recognition
Customer loyalty	Customer acquisition rates	Response rate
Market share	Percentage of revenue from new customers	Number of trade shows attended
Customer complaints	Number of customers	Sales volume
Complaints resolved on first contact	Annual sales per customer	Share of target customer spending
Return rates	Win rate (sales closed/sales contacts)	Sales per channel
Response time per customer request	Customer visits to the company	Average customer size
Direct price	Hours spent with customers	Customers per employees
Price relative to competition	Marketing cost as a percentage of sales	Customer service expense per customer
Total cost to customer	Number of ads placed	Customer profitability
Average duration of customer relationship	Number of proposals made	Frequency (number of sales transactions)
Customers lost		

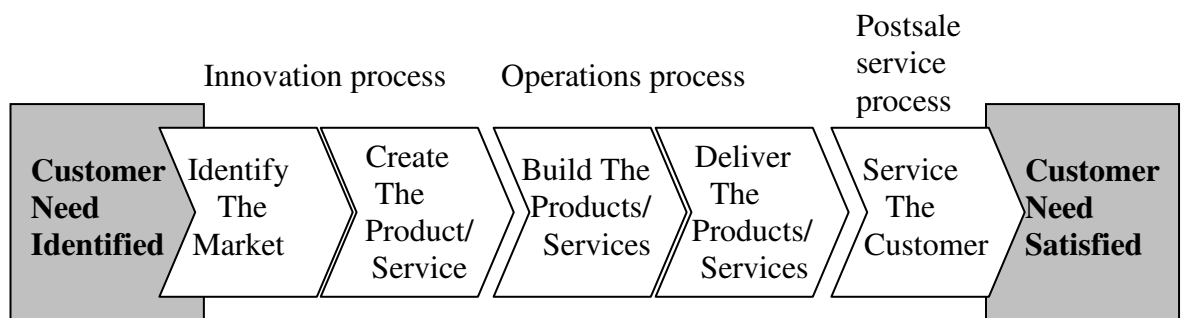
Source: Niven, P. R. (2002), p. 127

2.3.3. Internal Business Process Perspective

Internal Business Process perspective considers the processes inside the business environment within the organization dealing with the question: “What must we excel at?”(Kaplan and Norton, 1992). Kaplan and Norton (1996a:92) inform that managers have to identify the processes that are the most critical for achieving

customer and shareholder objectives. Inside the internal business process perspective, three main parts stand upon the scorecards: innovation; long wave of value creation, operations; short wave of value in organizations, and post sales service; warranty and repair activities, treatment of defects returns, processing of payments (Kaplan and Norton, 1996a:96-105). The concentration on innovation is R&D facilities and innovative products, operations is quality, cycle time and cost, and post sales service is as invoicing and collection processes (Kaplan and Norton, 1996a:105-107).

Figure 21: The Internal Business Processes perspective



Source: Adapted from Kaplan, R. S. & Norton, D. (1996c), p. 63

Gumbus and Johnson (2003) address the application of Balanced Scorecard in Futura Industries for the Balanced Scorecard Perspective. Futura Industries that operates in aluminum extruding, finishing, fabrication, machining and design has the following objectives for Internal Process perspective:

- Plan and deliver flawless new products
- Plan and deliver in order to deliver what we say, when we say,
- Identify new opportunities in products and processes
- Reduce our cost continually

which are measured by percent of sales from new products; cost of quality(recoveries, plant scrap, rework); total production cost per standard hour; pounds packed per person and dollars packed per person.

Niven (2002: 134) lists appropriate measures for internal business perspective.

Table 11: Commonly used internal business measures

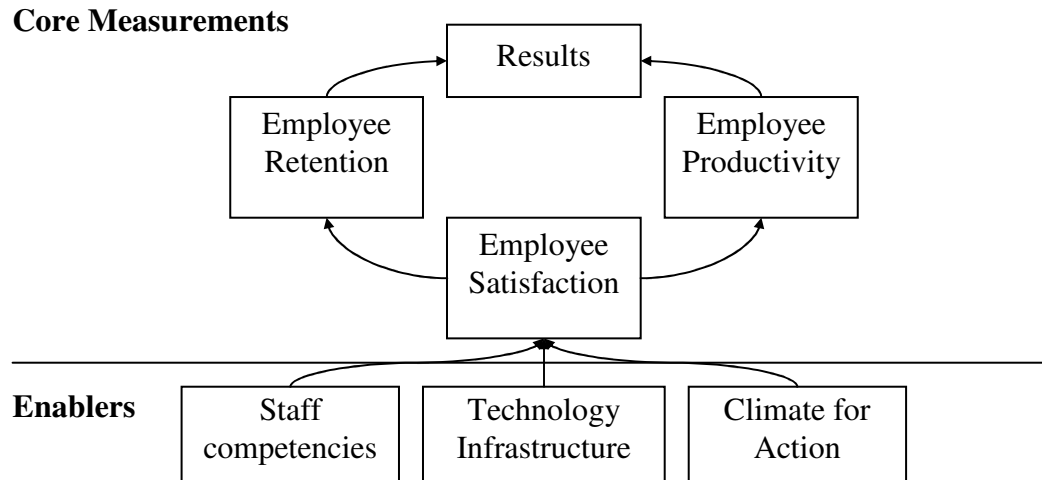
Average cost per transaction	Stockouts	Lead user identification
On-time delivery	Labor utilization rates	Products and services in the pipeline
Average lead time	Response time to customer requests	Internal rate of return on new projects
Inventory turnover	Defect percentage	Waste reduction
Environmental emissions	Rework	Space utilization
Research and development expense	Customer database availability	Frequency of returned purchases
Community involvement	Breakeven time	Downtime
Patents pending	Cycle time improvement	Planning accuracy
Average age of patents	Continuous improvement	Time to market of new products/services
Ratio of new products to total offerings	Warranty claims	New products introduced

Source: Niven, P. R. (2002), p. 127

2.3.4. Learning and Growth perspective

Learning and growth perspective deals with employee interaction with the organization that must answer to:” Can we continue and improve value?” (Kaplan and Norton, 1992) and is diverged into two as core employee measures and organizational learning and growth. Core employee measures include satisfaction and retention and productivity whereas organizational learning and growth issue is measured by employee capabilities, information system capabilities and motivation, empowerment and alignment (Kaplan and Norton, 1996a: 127-135).

Figure 22: Learning and growth measurement framework



Source: Adapted from Kaplan, R. S. and Norton, D. (1996a), p. 129

Moore, Rowe and Widener (2001) serve a proposed Balanced Scorecard for Holloway Consulting Services (HCS) that provides managed business solutions. According the proposed Balanced Scorecard, Learning and Growth perspective is as follows:

Table 12: Learning and growth perspective of HCS

Strategic Objectives and Core values	Possible Performance Measures
To maintain an open and collaborative culture in order to attract and retain employees	Employee satisfaction
	Voluntary turnover
To seek diversity among employees(diversity)	Diversity of undergraduate degrees
	Variety of skills and interests represented
To ensure that our employees have achieved a sense of balance in order to give us the ongoing energy to be efficient and effective	Employee satisfaction score
	Amount of overtime hours worked
	Amount of vacation time taken

Source: Adapted from Moore, C., Rowe, B. J. & Widener, S. K. (2001), p. 595

Niven (2002, p. 134) asserts that learning and growth perspective can be measured with a number of measures:

Table 13: Commonly used learning and growth measures

Employee participation in professional or trade associations	Value added per employee	Competency coverage ratio
Training investment per customer	Motivation index	Personal goal achievement
Average years of service	Outstanding number of applications for employment	Timely completion of performance appraisals
Percentage of employees with advanced degrees	Diversity rates	Leadership development
Number of cross-trained employees	Empowerment index (number of managers)	Communication planning
Absenteeism	Quality of work environment	Reportable accidents
Turnover rate	Internal communication rating	Percentage of employees with computers
Employee suggestions	Employee productivity	Strategic information ratio
Employee satisfaction	Number of Scorecards produced	Cross-functional assignments
Participation in stock ownership plans	Health promotion	Knowledge management
Lost time accidents	Training hours	Ethics violations

Source: Niven, P. R. (2002), p. 134

2.3.5. Additional/replacement perspectives

Kaplan and Norton (2001b) investigate the available Balanced Scorecard applications for not-profit and government organizations (NPGOs) and find that these organizations' performance management systems lack of strategy definition, misjudge the perception of customers and feature an operational excellence strategy.

For these organizations, financial perspective and customer perspective evolve as they do not seek for profit or other goals that are accountable and the definition of customers' changes according to organization's service and goals. Then these perspectives are to be combined in three perspectives supposed to deliver their mission. These three perspectives are:

- 1) Cost incurred: Minimizing the direct and social costs by increasing operational efficiency.
- 2) Value created: Outputs generated from the activities that creates value by the agency to citizens.
- 3) Legitimization Support: The legislature, citizens and taxpayers to funds for all activities.

2.3. Applications of Balanced Scorecard

2.4.1. Applications in Turkey

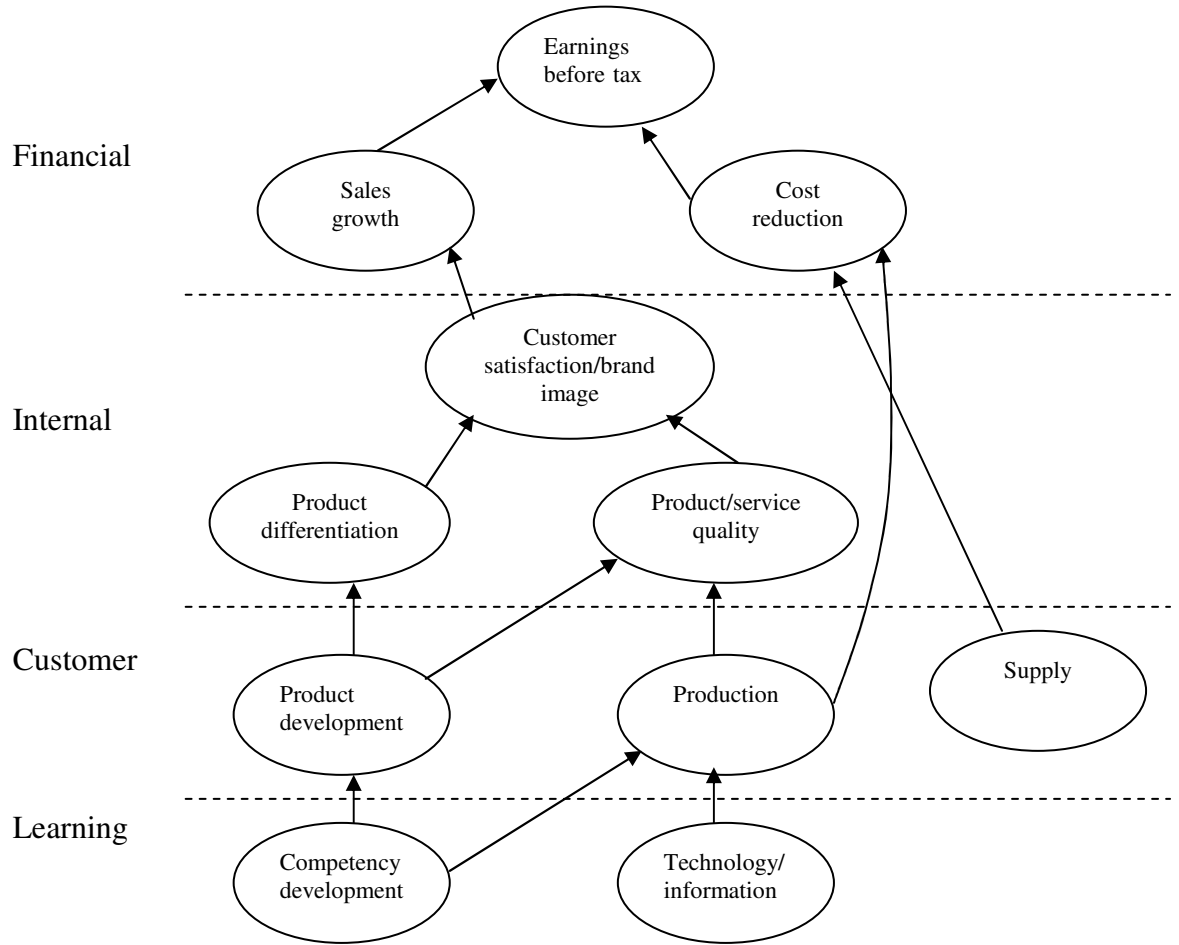
Balanced Scorecard has been employed by Turkish companies in a growing number but there is not much literature about Turkish companies Balanced Scorecard usage rate because the usage of Balanced Scorecard is not measured as worldwide consultancy groups have done in the last 15 years.

For the best example of these researches in Turkey, Coskun (2006: 94-106) indicates that 18.6% of the biggest 500 firms in 2003(released by Istanbul Chambers of Industry annual list of 500 biggest industry firms in Turkey) have employed Balanced Scorecard, according to the survey done in his doctorate thesis. In the survey, the questionnaire prepared by being influenced from the researches done in the literature has been sent to 501 firms (17 firms that are named in the range of 501-521. are replaced by the firms whose names are not declared in the list of 500 firms) and 107 of the respondents replied. According to the results, 20 firms have employed Balanced Scorecard and 17 of them have been planning to use in a not defined time period. Besides, 27 firms they have never heard about Balanced Scorecard

applications. Nearly half of the users (11 firms) relate Balanced Scorecard usage with Total Quality Management putting it into TQM program and 16 of the Balanced Scorecard users are owned by private sector.

Some of the examples of Balanced Scorecard implementation are publicly released as Genc (2004) presents the application of Balanced Scorecard in Siemens A. Ş. According to the Balanced Scorecard program, the management team determine the measures as EVA and expense budgeting in financial perspective; orders, revenue, sales and customer satisfaction in the customer and market perspective, CRM, EFQM, Supply chain management, self assessment and employee satisfaction, personnel interview, competencies and training facilities in employee perspective(replaced instead of learning & growth perspective). Genc (2004) adds that Balanced Scorecard benefits their organization in identifying strategies to all employees, applying SMART in objectives, deciding the processes to achieve the goals, helping employees to gauge their benefits with an objective incentive system, clarifying the exact contribution of employees to the organization and tracing the whole system with an Intranet and e-Scorecard system. Pakdogan (2004) states a Balanced Scorecard application on the Er-Bakır that is included in the “company goals and performance” part of the business performance system and Balanced Scorecard outcomes are added into strategic plans of the organization. Besides, Arpac (2002) indicates that Balanced Scorecard is linked with strategic planning and its integration to operations management in Eczacıbaşı Vitra.

Figure 23: Strategy map in Eczacıbaşı Vitra



Source: Adapted from Arpac, E. (2002), , <http://www.kalder.org/page.asp?PageID=394> (1 May 2007)

Another application of Balanced Scorecard in Eczacıbaşı Group is in Eczacıbaşı- Baxter that operates in health sector (Yılmaz, B.; 2005). Balanced Scorecard connects the strategic plan and business plan in performance system in this example. Cakmak and Aydin (2005) also demonstrate the Balanced Scorecard program in Trikotek Tekstil that operates in textile industry with its building steps and integration with other processes. According to the Balanced Scorecard program in Trikotek, financial perspective objectives become profitability and growth; customer objectives as customer profitability, customer satisfaction and customer loyalty; internal business objectives strong customer relations, good understanding of customer demands, efficient and effective production and on time delivery and learning as employee motivation and development, supplier development and

innovative approach. Balanced Scorecard usage in Kordsa is also employed with strategic management tools as SWOT analysis, BSC Matrix etc. during the interviews with board of directors. The outcomes of the interviews enable “core team”, which is responsible for Strategic Planning Processes, to construct the strategy map. Thus, the projects for the objectives and individual performances goals are held (Yilmaz, A. A., 2005). Balanced Scorecard is implemented in Tofaş, one of the biggest automatic vehicles producers as a part of performance management system (Sessizoglu, 2006). Finally, Zaim (2006) indicates that Balanced Scorecard can be offered to a great variety of organizations including not-for profit organizations.

2.4.2. Applications in World

A survey conducted in India shows that 24 companies out of 53, the number replies of the survey from the biggest 579 companies of India, use Balanced Scorecard and the most important reason for using Balanced Scorecard is initiating change and broadening performance measures (Anand, Sahay ve Saha , 2005)

Another research done in New Zealand shows that the usage of Balanced Scorecard is still low as just 12 of the 106 respondent companies have been using Balanced Scorecard (Lord, Shanahan & Page, 2005). The research also questions the Balanced Scorecard whether the benefits that Kaplan and Norton propose about their system is valid and applicable or not. According to this, companies that install BSC generally use less than 4 perspectives, but cause-and-effect relationships are seen as vital items to use BSC effectively and BSC increases the awareness of employees about strategies. Besides, BSC is not perceived to increase the performance, but thought to be useful and not seen as a fad. On the other hand, the reasons of not using Balanced Scorecard are listed as company size as small businesses are built on simple information system and implementing a Balanced Scorecard program is costly, lack of management buy-in; lack of leadership and low commitment of top management, other system deemed to be more appropriate and lack of resources especially in time and qualified managers that will be responsible of Balanced Scorecard approach.

Darrell Rigby (1999) from Bain & Company, Inc. informs about the survey, the consulting firm has been regularly conducting to companies in order to find out which management tools are implemented, showing the results that have become from the replies of 475 companies all around the world. According to this, Strategic Planning, Mission and Vision Statements and Benchmarking reach to the top 3 management tools in the results, and despite Balanced Scorecard is not located among the top tools, it has been named in the survey. Rigby(2001) indicates according to the results of Bain & Company, inc. 2000 global survey receiving from 451 companies that Strategic Planning(76%), Mission and Vision Statements(70%) and Benchmarking(69%) remain in the first three positions, but Balanced Scorecard(36%) comes just 5% lower the mean usage rates of management tools in percentages. Again, the 2002 survey results taken from 708 companies from all over the world shows that the first have not changed with increasing usage rates of 89%, 84% and 84% (Rigby, 2003). On the other hand, the usage of Balanced Scorecard has jumped to 62%, but still below the mean 65% usage rate. Finally, 2004 survey that 906 companies added in reflects that the position of Mission and Vision Statements are reversed with Customer Relationship Management(75%), and the usage rate of Balanced Scorecard is defined as 57% where that rate climbs to 75% in big sized companies which provides a revenue more than \$2 billion (Rigby,2005) . Besides, Silk (1998) indicates 60% of the Fortune 1000 firms have adopted Balanced Scorecard.

Coskun (2006) introduces many of the applications of Balanced Scorecard around the world and Turkey placed in management literature for both for-profit and not-for-profit organizations. Coskun (2006) also distinguishes these applications as industrial firms' applications and service firms applications in which the business units of the firms are to be considered⁴. Besides, the not-for profit organizations' applications are presented, which the organizations are included from many

⁴ See Appendix 1

developed countries' departments of government services, law institutions, police and army associations and city councils⁵.

Zanini (2003) investigates the offerings of famous consulting firms that are extremely known around the world about Balanced Scorecard and according to the 11 firms considered in this study, the performance metrics usage and Balanced Scorecard implementation is shown in the Table 14:

Table 14: Consulting firms Strategic Performance Measurement Offering Summary

Group Offerings	Accentue	Deloitte Touche Tohmatsu	Ernst & Young	KPMG	Price Waterhouse Cooper	AT Kearney	Bain & Company	Booz Allen Hamilton	Boston Consulting Group	McKinsey and Company	The Monitor Group
Financial and Non-financial metrics	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Performance measures tied to strategy	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Ability to do Balanced Scorecard in Certain Applications	yes	yes	yes	yes	yes	no	no	no	no	no	no
Balanced Scorecard viewed Favorably	yes	yes	yes	yes	yes	yes	yes	no	no	Yes	No
Actively Promote Balanced Scorecard by name	no	no	yes	no	yes	no	no	no	no	no	No
Offering very similar to Balanced Scorecard	Yes	Yes	No	yes	No	Yes	Yes	Yes	No	No	No

Source: Adapted from Zanini, M.T. (2003), p. 37

According to the figure given above, only two of the famous consulting groups, Ernst & Young and PricewaterhouseCoopers promote Balanced Scorecard (BSC) by its original name, and 6 companies offer a similar system to Balanced Scorecard (BSC). Only Boston Consulting Group and Monitor Group are not

⁵ See Appendix 2

interested in Balanced Scorecard neither their offerings, nor their views. On the other hand, all groups offer both financial and non-financial metrics and tie performance to strategy in their solutions.

One of other research area about Balanced Scorecard applications throughout the world is the usage of Balanced Scorecard in small and medium enterprises. The place of small and medium enterprises (SMEs) in the Balanced Scorecard literature limited with few studies. Fernandez, Raja and Whalley (2006) indicate that SMEs are discouraged implementing Balanced Scorecard because of limited resources, but a successful deployment of methodology makes it available to employ Balanced Scorecard in such companies. Therefore, little studies vary that gives contribution to Balanced Scorecard literature. Generally, the studies are concentrated on survey results (Davig, Elbert & Brown., 2004; Sousa, Aspinwall & Rodriguez, 2006), but case studies such as Biddle Air Systems (Fernandez, Raja & Whalley, 2006) exist in the literature. Davig, Elbert and Brown's (2004) study considers firms using financial measures aligned with a traditional cost-based system and firms using non-financial measures of competitive success with a total number of firms as 75 and the findings show that there is no significant difference between two types of firms in performance which can also be caused from the sample size. According to the results, firms are facing with a remarkable inconsistency in linking data to measures, little importance is given to employee training and many of the data becomes waste due to non-use in business activities. Sousa Aspinwall and Rodriguez (2006) inform about a more detailed survey including the parts with TQM usage. A regression model is generated in the research that the perception of performance measurement is affected positively by financial, quality performance and training of employee and negatively by customer performance and innovation. According to the results from 52 SMEs out of 400 in UK, financial measures are most important and more used. On the other hand, productivity, employee training measures and customer measures are given importance, but not used with the level of importance which is obviously higher. Fernandez, Raja and Whalley (2006) show the findings from the case study in Biddle Air Systems (BAS). Putting a systematic methodology, Fernandez, Raja and Whalley (2006) use a 9-step plan for Balanced Scorecard implementation; effective

communication of Balanced Scorecard, strategy clarification, strategy analysis with using prioritization of strategic objectives, key performance indicator analysis, measurement analysis, strategy initiation, implementation plan and formal review. Many benefits as monitoring key performance indicators easily, achieving stability and portability with increasing income, minimizing inventory, decreasing stock turnover and speeding information flow are satisfied after the implementation of Balanced Scorecard.

2.5. Relationships between other management tools and Balanced Scorecard

The research on Balanced Scorecard has been extending on the integration with other management tools. Balanced Scorecard has been implied with the effects on other initiatives by its comprehensive view in recent researches.

Michalska (2005) integrates the enterprise's effectiveness with Balanced Scorecard and indicates that the steel industry in Poland increases its effectiveness calculates as the ratio of net sales per quality costs is increasing and BSC also aids in this increase.

Hoque (2003) argues the relationship between Total Quality Management (TQM) and balanced Scorecard (BSC) and integrates them with respect to management issues. According to Hoque (2003) "organizations require the direction to succeed that a commitment to TQM provides and they require the measurement indicators that BSC provides to control and steer their employees and processes to ensure their continued future success." Hoque (2003) adds a framework that compares TQM and BSC areas of interest.

Table 15: TQM-BSC linkages

Key TQM related activities	TQM related performance metrics	BSC Dimension
Executive commitment and management competence	Employee opinion survey Employee satisfaction New techniques introduction compared with competitors	Learning and growth Internal business processes
Customer relationships	Customer satisfaction survey Customer acquisition rate Customer retention (loyalty rate) % of the industry market share Number of customer complaints Warranty repair cost	Customer Financial (or shareholders)
Supplier relationships	Supplier-satisfaction survey Supplier retention rate	Internal business processes
Benchmarking	Labour efficiency compared with competitors Rework/scrap rate Cost of quality(% of sales) Return on investment Market share	Internal business processes Financial(or shareholders)
Employee training	Employee satisfaction survey	Learning and growth
Open, less bureaucratic culture and employee empowerment	Customer satisfaction survey Employee satisfaction survey The degree of decentralization in corporate governance	Customer Learning and growth
Monitoring quality programs (Zero defects culture)	Incidence of product defects Material and labour efficiency variances Percent shipments returned due to poor quality Warranty repair cost	Internal Business Process Customer
Internal business process improvement and manufacturing innovation	Investment in high technology Introduction of new management systems Sales growth	Internal Business Process Financial(or shareholders)

Source: Hoque,Z. (2003), p. 557

Coskun (2006: 97) adds that %55 of the companies that have employed Balanced Scorecard in his research indicate they apply Balanced Scorecard as a component of Total Quality Management.

One of the applications of Balanced Scorecard (BSC) is on retailing as Thomas, Gable and Dickinson(1999) combine the traditional measures used in retailing to evaluate performance and BSC to measure the performance of the overall business unit. The data is collected from 542 stores of a huge retail-chain of U.S in

1996 and 14 measures are selected to link with BSC after numerous meetings are held with the senior-managers. The total performance is evaluated by three output variables as operating profit, sales per square foot and gross margin return on investment. Six of the measures are significantly correlated with these variables and could be named as number of transactions (internal process), annual occupancy cost per square foot of selling space (financial), age of stores in years (innovation and learning), store manager's tenure in year (innovation and learning), number of full-time employees per square root of selling space (customer) and, wages and salaries per payroll hour (customer).

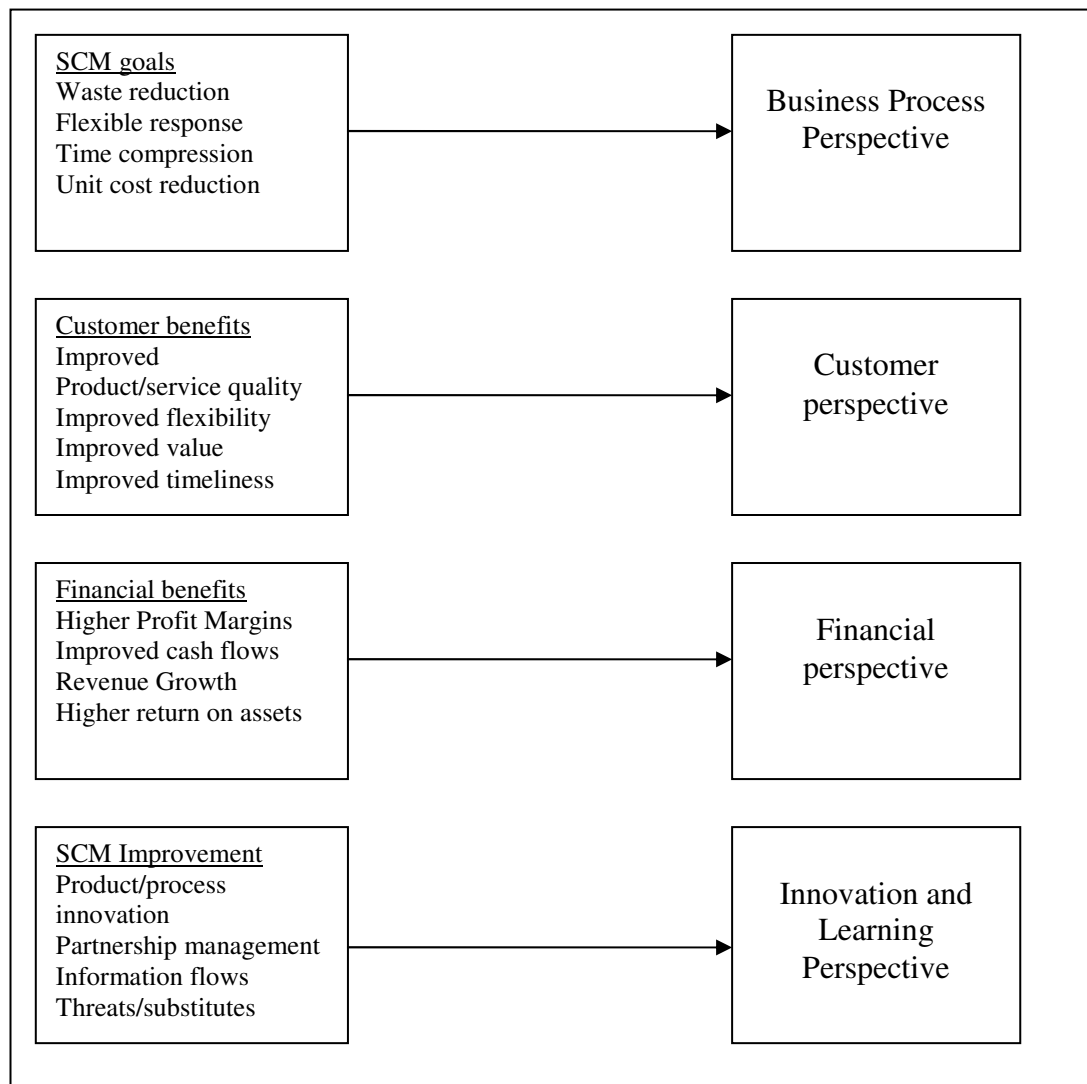
One of the researches about Balanced Scorecard (BSC) deals with the market implications and organizational features leading to organizational performance. Hoque and James (2000) investigate the possible relationships between organizational size, product life-cycle stage and market position, and BSC by hypothesis testing. The impact on BSC on organizational performance is also discussed using a survey conducted in Australia with a questionnaire that 66 of 188 manufacturing firms have replied. According to the results; larger firms have more tendency to use BSC and early product life-cycle stage and BSC usage is positively related, but there is no difference on intention of BSC usage due to the market position. In addition to this, BSC usage results in the improved performance.

Fang and Lin (2006) integrate Balanced Scorecard with Enterprise Resource Planning (ERP) both observing the measurement in non-financial and financial measures together. Out of 85(9.17 %) companies surveyed in Taiwan ERP supervisors, the findings show that Balanced Scorecard perspectives are strongly correlated with the following objectives: "Requirement of supply chain management", "Requirement of e-Commerce", "Reducing existing inventory cost", and "Requirements for multinational enterprise". Besides, financial measures are correlated with non-financial measures found by multiple stepwise regressions.

Brewer and Speh (2001) indicate that there exists a gap between theoretical framework of Supply Chain Management and actual use in terms of accurate

performance measurement. Therefore, a number of appropriate measures managed with a system are needed to increase the effectiveness of Supply Chain Management. Furthermore, Brewer and Speh (2000) state that Supply Chain Management and Balanced Scorecard have an interrelationship that enables organization to orientate its Supply Chain Management using Balanced Scorecard. The research criticizes the traditional logistics performance measures by insufficient assessment in supply chain performance and lack of motivation in employees. Brewer and Speh (2000) link Supply Chain Management framework with Balanced Scorecard's four perspectives given in Table 16:

Table 16: Supply Chain Management- Balanced Scorecard linkage



Source: Adapted from Brewer, P. C. & Speh, W. T. (2000) , p. 85

Brewer and Speh (2000) assign a measure for each goal of these perspectives and assert that the new system enable firms to work together and coordinate functions with a balanced management. Also, this system will stimulate employees to produce appropriate measures and focus on achieving goals. Besides, Bhagwat and Sharma (2007) present a number of measures used in Supply Chain Management and distribute them into four perspectives. The research including 3 case studies that are composed of interviews with the most knowledgeable members of each company shows that Balanced Scorecard may fail since measures used contradict in terms of perspectives they are placed. In spite of its hard usability, Balanced Scorecard can be a strategic management tool if it is executed on a daily routine basis that constitutes simultaneous operations integration. However, Brewer and Speh (2001) emphasize on the hurdles in front of implementation, but recommend that working with cross-functionally managed partners, senior management involvement and selecting small numbers of measures in the initial project would undermine these hurdles.

2.6. Empirical literature on Balanced Scorecard

Davis and Albright (2004) test by using financial measures if using Balanced Scorecard would result in improved financial performance. Their research shows that 4 of the bank branches that have employed Balanced Scorecard perform better than the 5 non-using branches. Also the findings reflect a significant relationship between non-financial performance measures and improved financial performance. Furthermore, Balanced Scorecard provides more benefit compared to a performance measurement system focused only on financial measures.

Lipe and Salterio (2000) investigate the effectiveness of scorecard organization, usage of non-financial measures and common measures' effect in the Balanced Scorecard applications. Developing an experimental analysis based on survey, the researchers find that the evaluation of performance in an organization is affected by Balanced Scorecard format and non-financial measures will alter

organization performance evaluation. Besides, common measures show more difference in managers' relative evaluations than unique measures do in judgmental effects.

McWhorter (2001) analyzes the effects of three Balanced Scorecard characteristics derived in this study; strategy link, perspective framework and short term/long term trade-off on managers' job satisfaction and performance evaluations. Also, the research investigates the mediating effect on role conflict on managers' satisfaction. Job satisfaction and performance evaluation are affected positively by strategy link and long-term/short term trade-off, but the significance for performance evaluation is less than job satisfaction.

Malina and Selto (2001) study if Balanced Scorecard could be accepted as an effective communication device and management control tool. According to the semi-structured interviews made by 31 distributors of a big company that has executed a distributor-balanced scorecard (DBSC) for each one. Effective management control causes positive outcomes mediating aligned strategy and effective motivation, but effective communication has no relationship between effective motivation, strategic alignment and positive outcomes. Furthermore, ineffective communication and management control would cause conflict and tension in Balanced Scorecard applications. The research also states that Balanced Scorecard is perceived to be an effective measurement and management system provides change and improvement while its elements are causally linked and tied to each other. However, inaccurate measures, inappropriate benchmarks and one-way communication from top to down would cause to conflict and tension which affect the outcomes negatively.

Cohen, Thiraios and Kandilorou (2006) assert that there is little literature that finds empirical evidence between Balanced Scorecard usage and improved performance. The researchers test the interdependency among non-financial Balanced Scorecard perspectives with respect to the sequence; Learning and Growth, Internal Business Process and Customer. In addition to this, the positive relationship

between non-financial perspectives and financial perspective is also tested according to the difference in the improvement of non-financial perspectives in the companies that have maintained improved financial performance. Gathering 90 questionnaires from Greek companies, Cohen, Thiraios and Kandilorou (2006) find a strong positive relationship among non-financial perspectives sequentially (from Learning and Growth at the bottom to Customer at the top). Also, companies which have improved financial performance based on ratio analysis of Return on Assets (ROA) and Return on Equity (ROE) take more concentration to non-financial perspectives than companies who have decreased Return on Assets and Return on Equity.

Banker *et al.* (2004) indicate that a trade off between financial and non-financial metrics is necessary to maintain a motivational incentive for managers supported by a reward system. Banker *et al.* (2004) hypothesize the 4 metrics for four perspectives of Balanced Scorecard with a sample of nearly 50 local exchange carriers in US. Return on assets (ROA) (Financial), access lines per employees (Internal Process), percentage business access lines (Customer) and percentage digital access lines (Innovation and learning) are deduced and grouped into a single metric group. According to the analysis using DEA(Data Envelopment Analysis), it is found that there is a trade-off between ROA and percentage business access which should be noticed by managers to set incentive systems to motivate the improvement in those areas.

Hoque and James (2000) find in their research based on a questionnaire that 66 of 188 Australian manufacturing firms have replied, Balanced Scorecard usage is positively correlated with organizational size and the number of new products of an organization product portfolio, but there is no relationship between market position and Balanced Scorecard usage. Hoque and James (2000) also indicate that Balanced Scorecard usage is associated with improved organizational performance, not depending on organizational size, product life cycle and market position.

Neely, Kennerly and Martinez(2004) investigate whether Balanced Scorecard works or not relatively to their research based on a field study of two subdivision of

an electrical wholesale firms in UK, one using Balanced Scorecard and one does not, and their data which is paired due to the branches in the similar locations. First subdivision (called Electrical in the research) that has employed Balanced Scorecard for one year (2001) and has removed in the following year has been influenced by Balanced Scorecard usage positively in terms of growth and net profit according to the 77 branches data. However, compared with the second subdivision (that refers to Sister in the research) data used in paired-t test reveals that Balanced Scorecard usage does not differ from non-Balanced Scorecard usage in terms of improving growth and net profit. However, Neely, Kennerly and Martinez (2004) emphasize the importance maintaining control group accurately to seek the empirical evidence for the proven benefits of Balanced Scorecard.

DeBusk and Crabtree (2006) indicate that according to the survey conducted to managers that are members of Institute of Management Accountants (IMA), BSC usage rate becomes 23% and 88% of the respondents' reports an operational improvement in operating performance. Besides, cause and effect linkage and management compensation considered in Balanced Scorecard would result in operating performance. However, the research asserts that 70% of the Balanced Scorecard implementation fails due to ineffective communication and difficulties in translating strategy into action.

Lord, Shanahan and Page (2005) indicate that 12 out of 106 companies in their research in New Zealand use Balanced Scorecard and 60% of the companies have never heard of Balanced Scorecard. Besides, the mean size of companies that have employed Balanced Scorecard is statistically larger than the ones that have never heard of it. In another research, a survey shows 60% of the firms use Balanced Scorecard (Silk, 1998).

2.7. Critiques and objections against Balanced Scorecard

Epstein and Manzoni (1998) indicate that Balanced Scorecard should not be perceived as a management- from-a-distance and management-by-exception mind set

and there are four important difficulties in employing Balanced Scorecards in organizations. These are:

- 1) not built consensus on clear and shared view of strategies
- 2) employees discouraged because of increasing workload
- 3) managers afraid of increasing transparency and thus losing their authority
- 4) embedded beliefs on the strength of financial measures and targets which have been benefiting to top managers (other perspectives are not cared)

Norreklit (2000) pay attention to the structure of the Balanced Scorecard. According to the Norreklit, financial results are a matter of logical relationship and can not be built on cause-and-effect relationship that can be empirically proven. Besides, Balanced Scorecard does not consider the time lag between the effects activities and their reflection to financial results. One of the criticism of Norreklit (2000) is that a logical fallacy appears along the cause-and-effect relationship for Kaplan and Norton (1996a)'s claim that customer satisfaction will lead to financial results is unlikely to be valid without statistical evidence as disloyal customers would be profitable, but the opposite dialogue may not be proven. Norreklit also states the interdependency of perspectives and the tendency to finality, not causality.

On the other hand, Norreklit (2003) claims that Balanced Scorecard is not based on scientific ground and lacks theoretical base becoming merely rhetoric and the argumentation lacks solid and unbiased reasoning, standing upon untenable statements. In brief, Norreklit insists on the Balanced Scorecard to be an illusion of scientifically incoherent concepts and untenable argumentation. Besides, Pun and White (2005) emphasize the problems around the relevance of defined measures and strategy perception. Balanced Scorecard also hinders the contribution of employees and suppliers although it claims to consider all stakeholders (Kanji and Sa, 2001; Norreklit, 2000). Lord, Shanahan and Page (2005) imply that the Balanced Scorecard criticism is concentrated on inflexibility of Balanced Scorecard, its being rigid and static, the overload of measures and its low credibility as a management solution. However, Lord, Shanahan and Page (2005) do not agree in Norreklit's (2000)

analysis of cause-and-effect relationship because their research shows that the perception against causality in practice goes similar with Kaplan and Norton's approach, but adds that the link between Balanced Scorecard and strategy awareness is not strong as Norreklit (2000) states that the top-down hierarchy hinders the understanding of strategy and managerial roots can provide strategy implementation failure.

Meyer (2003: 2-3) claims that Balanced Scorecard do not prove the significance of performance measures as common-sense measures and these measures are uncorrelated. If measures are correlated with strongly with the performance, then any of the measure can explain the performance so there is no need for multiple measures. On the other hand, Meyer (2003) asserts that corporate strategies can not be based on measures which can only be second-best measures because any existing measure is imperfect.

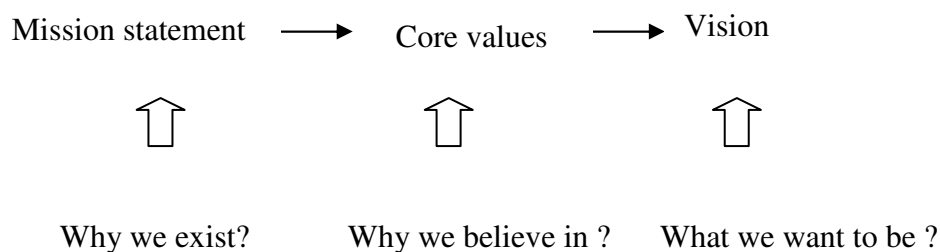
Briefly, Balanced Scorecard is a comprehensive performance management tool that translates the strategy and vision of the organization, separating the activities with a four-perspective template that considers both financial and non-financial measures. Besides, Balanced Scorecard aids in communication of senior managers and employees, setting strategic targets, building a learning and improvement dimension and linking the performance to rewards to gain a sustainable workforce that leads in improvement activities. However, Balanced Scorecard examines external environment lesser than internal environment which may mislead performance evaluation of the organization. The use of benchmarking in Balanced Scorecard applications should be considered to extend the evaluation area fully. In addition to this, linking rewards to Balanced Scorecard is understood insufficiently thereby the benefits of Balanced Scorecard are underestimated by employees. The phase of linking rewards to performance and Balanced Scorecard should be supported by a reporting system easily understandable by organization members.

CHAPTER 3: IMPLEMENTATION OF BALANCED SCORECARD

3.1. Developing mission and vision statement

Mission and vision statements are the vital elements for firms to examine their existing reasons and the point they want to reach. Kaplan and Norton (2004c) state that mission refers to the existence reason of the organization, purpose of the activities and values whereas vision translates long-term goals of the organizations.

Figure 24: Mission statement, core values and vision



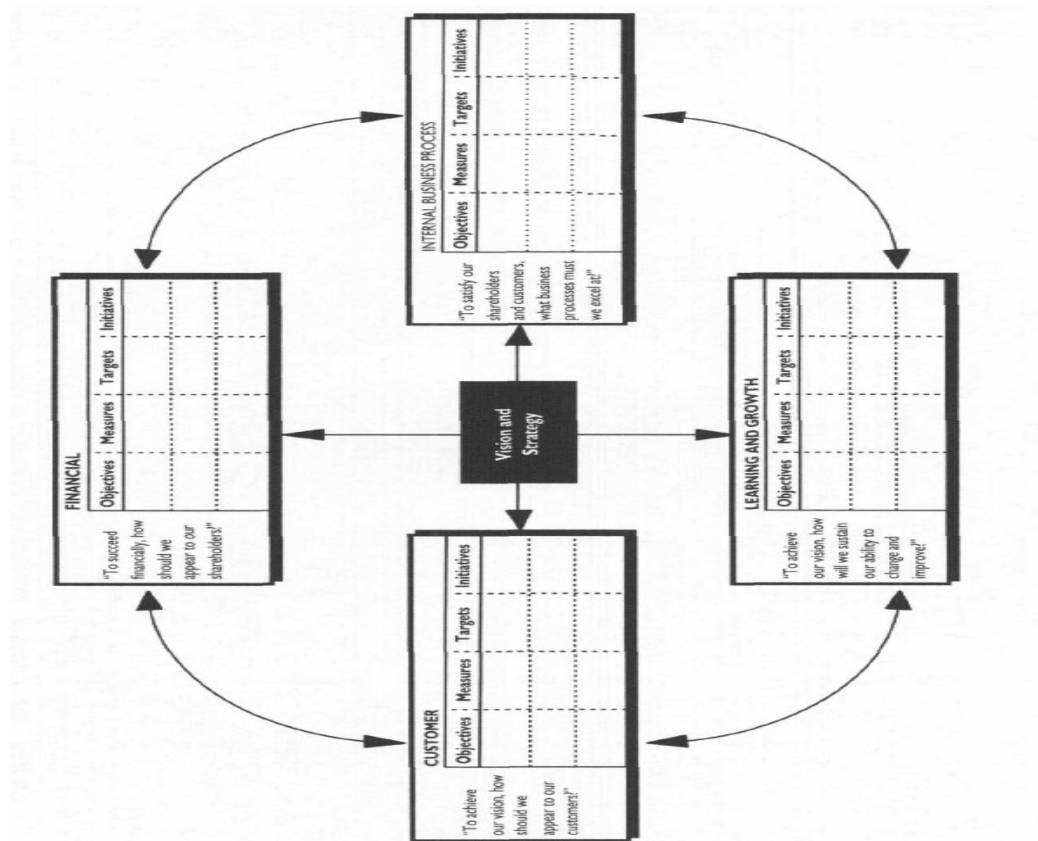
One of the strengths of Balanced Scorecard is that it articulates mission, values, vision and strategy into performance objectives and measures and “ensures that all employees are aligned with and working toward the mission (Niven, 2002: 75-76). Values are generally the main structure of organizations driven by the enthusiasm of the CEOs (77). Niven (2002: 81) informs that “the measures selected must be consistent with the values of the organization to ensure that everyone is headed in the same overall direction.”

Ahn (2005) indicates that the implementation of Balanced Scorecard can cause discrepancies between mission statement and Balanced Scorecard perspectives unless mission statement and strategy is defined clearly. In order to hinder the discrepancy between mission statement and Balanced Scorecard, Ahn (2005) improves a perspectives and goal deduction method where concepts are classified as normative level and strategic level. Normative level structure refers to the mission of the company which will lead the fundamental higher-level goals that are aligned with the perspectives of the Balanced Scorecard. On the other hand, strategic level refers

to the strategies of the company which will lead to instrumental lower-level goals that are aligned with strategic goals in the scorecard. Ahn (2005) claims that would clarify the concepts of mission statements and strategies, and Balanced Scorecard perspectives and reduce the discrepancies and increase the understanding of the detailed procedure.

Niven (2002: 83-84) states that vision follows mission and motivates people to take action, forces them for change and leads for coordination intra organization. Besides, he mentions about the characteristics of the vision statement to be concise, appealing to the stakeholders, consistent with the mission and values, verifiable, feasible and inspirational.

Figure 25: Translating vision and strategy: Four perspectives



Source: Kaplan, R. S. & Norton, D. (1996c) , p. 54

Balanced Scorecard combines the activities linked with measurement to make the vision to be put into action so that the organization will achieve the objectives for

the desired future (Niven, 2002: 88). According to Niven (2002: 92), “the scorecard describes the strategy, breaking it down into its component parts through the objectives and measures chosen in each of the four perspectives. The Balanced Scorecard is ideally created through a shared understanding and translation of the organization’s strategy into objectives, measures, targets and initiatives in each of the four Scorecard perspectives.” Furthermore, the link with the strategy for a scorecard absorbs the set of activities that aid an organization to find out and employ competitive advantage.

3.2. Linkage to the strategies

Kaplan and Norton (1996c) mention about the relationship between strategy and Balanced Scorecard implementation as: “The Balanced Scorecard is not really a “strategy formulation” tool. We have implemented the scorecards in organizations where the strategy has already been well articulated and accepted in the organization. However we have more often found that even when the senior executive team thought they had prior agreement on business unit’s strategy, the translation of that strategy into operational measurements forced the clarification and redefinition of the strategy. The disciplined framework enforced by the Balanced Scorecard stimulated a new round of dialogue and debate about the specific meaning and implementation of the strategy.”

Balanced Scorecard has the purpose of customization of the scorecard to subunits and alignment of the subunits within the company’s vision and strategy (Epstein & Manzoni, 1998). As Epstein and Manzoni emphasize, “cascading the Balanced Scorecard involves two inter-related processes: taking the part of the overall strategy and indicators that are applicable to subunit, and designing other indicators that reflect local needs.”.

Kaplan and Norton (2001c) indicate that a strategy focused organization has 5 principles:

- 1) Translate the strategy to organizational terms: A strategy map and Balanced Scorecard that translates the strategy is maintained so that employees can easily observe the critical points.
- 2) Align the organization to the strategy: Organizations are diversified within functional departments, so the communication lacks when it comes to create a corporate synergy. When the corporate role expresses the linkages among divisions, the business-unit departments choose the measures that are directly affecting divisional scorecard. Divisional scorecards are consequently combined into a corporate scorecard in which the strategy is well defined and understood that is also ready to be monitored by strategy maps and Balanced Scorecards. Finally, the strategies are aligned with the relationships with the external parties that maintain a discussion to define possible contribution between each party.
- 3) Make strategy everyone's everyday job: As the success of the strategies requires the contributions of all employees, organizations should try preserving a strong top-down communication. Along with the communication, organizations develop personal scorecards to point out personal objectives which contribute to overall performance if remarkably achieved. Also, incentive systems are vital for sustaining the employee involvement that results in the motivation of employee involvement that results in the motivation of employees to make out the way they could contribute to overall scorecard.
- 4) Make strategy a continual process: Organizations usually suffer from insufficient discussion on strategy where all time is spent on tactical meetings. Balanced Scorecard integrates tactics with strategies with three processes. First one is linking strategy to the budgeting process that distinguishes "operational budget for existing processes for the existing services and products, and strategy budget for new market entrances, products and improvements on the existing system. Besides, single management meetings are required to attract everyone to make them have suggestions on Balanced Scorecard. The last one is the process for learning

and adapting the strategy that tests the strategy assumed on the Balanced Scorecard statistically and qualitatively.

5) Mobilize leadership for change: Balanced Scorecard implies on change in the strategy implementation phase. The Balanced Scorecard project is defined as: “the focus is on mobilization and creating momentum, to get the process launched. Once mobilized, the focus shifts to governance to install the new performance model. Finally, and gradually over time, a new management system evolves, a strategic management system that institutionalizes the new cultural values and processes into a new system for managing. In this manner, mobilization consists of establishing a sense of urgency, creating a guiding coalition and developing a vision and strategy. Governance introduces new values to organization, creates teams and organizes meetings and communication whereas strategic management system reflects the changes into competition.

3.3. Cause and effect relationships

Kaplan and Norton (2000) emphasize on the importance of giving detailed information through a good communication to the executives because one of the reasons of failures come from the misunderstanding of the strategies by executives. In order to get rid of the failures, they offer the strategy maps that give the detailed parts of the strategies adding the cause-and-effect relationships. Besides, they reveal the effects of intangible assets so that executives could make out the value given to an intangible asset to succeed in the strategy. The strategy map combines the objectives and related measures in 4 perspectives (from Financial Perspective to Learning and Growth Perspective). Financial perspective deals with maximization of shareholder value and generates this value from revenue growth and productivity. Besides, customer perspective linked to financial perspective is built on customer value propositions where can be expressed with customer intimacy, operational excellence or product leadership. Internal Business Perspective composes of processes that support value propositions and productivity whereas Customer

Learning and Growth perspective that is constituted by core competencies, skills, technology and corporate culture.

3.4. Strategy mapping

Strategy map is a vital tool in order to implement a Balanced Scorecard because it translates the strategy to employees in a simple way. Strategy maps are first introduced in an article published in 2000 named “Having Trouble with your strategy? Then map it” (Kaplan & Norton). Kaplan and Norton (2000) emphasize on the increasing questions about how to create value in information age with respect to changing competition principles and items. Kaplan and Norton (2004c) state that a strategy map is a visual representations of the strategy showing the integration of the four perspective around the objectives and formation of the strategy. They (2004d) also indicate that “the strategy map framework enables human, information, and organization capital to be represented as assets that eventually get converted into cash, the ultimate liquid asset, through higher sales and spending.”

Kaplan and Norton (2004d) informs that the strategy map is based on five principles.

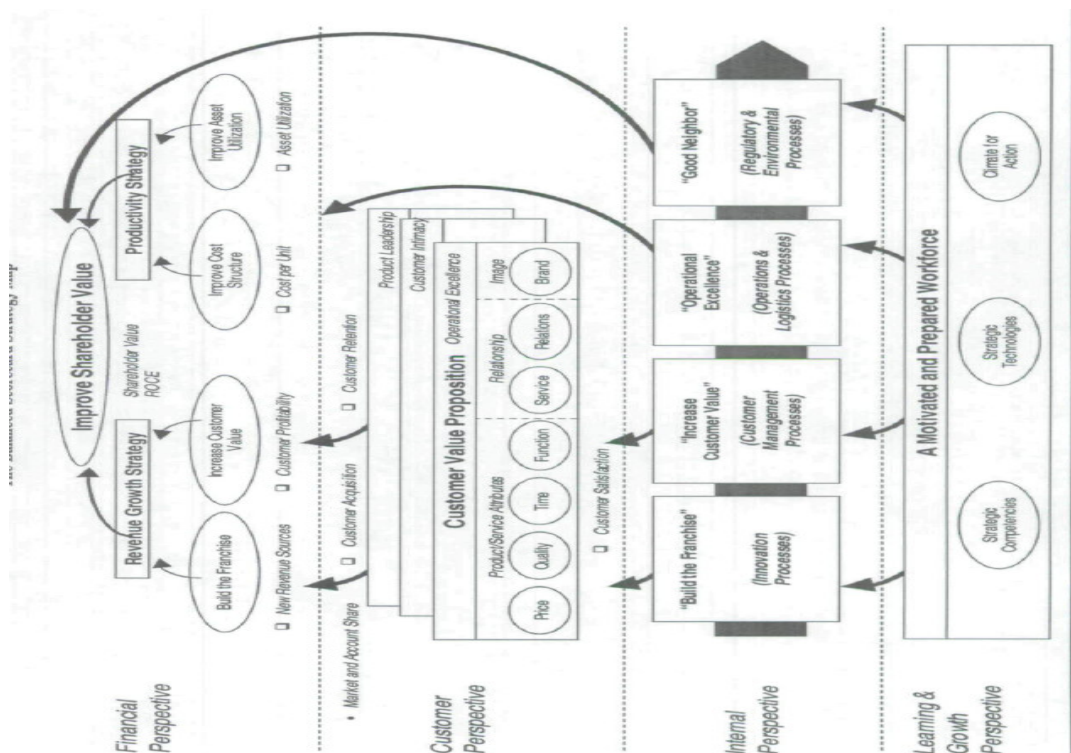
- 1) Strategy balances contradictory forces
- 2) Strategy is based on a differentiated customer value propositions
- 3) Value is created through internal business processes
- 4) Strategy consists of simultaneous, complementary themes
- 5) Strategic alignment determines the value of intangible assets

Intangible assets are defined as human capital, strategic competencies that are the skills, talent and knowledge to perform activities; information capital, strategic information that is composed of the company’s databases, information systems, networks, and technology infrastructure; and organizational capital that consists culture, leadership and alignment. The value creation from intangible assets should be done considering the principles that value creation is indirect, improvements affect financial outcomes through cause-and-effect links; value is contextual that means the dependence on alignment to the strategy; value is potential as intangible

assets have potential value and assets are bundled so that intangible assets alignment to strategy and assets would lead to maximum value (Kaplan and Norton, 2004b, 2004c).

Kaplan and Norton (2004d) informs the necessity of strategy mapping to benefit from intangible assets. Thus, strategy maps are seen as communicators between the intangible assets and strategy implementation in the Balanced Scorecard. According the authors, “strategic alignment is the dominant principle in creating value from intangible assets” and integration is required to support the enhancement of all the organizations’ intangible assets”. Alignment and integration of intangible assets is built on three consecutive processes that are describing intangible assets which are patents, copyrights, workforce knowledge, leadership, information systems, and work processes; aligning and integrating intangible assets by providing strategic job families, strategic IT portfolio and organization change agenda; and measuring intangible assets.

Figure 26: Strategy Map of Mobil Oil



Source: Kaplan & Norton (2001b) , p. 92

A strategy map is a logical and comprehensive architecture for describing strategy and composed of following elements (Kaplan & Norton, 2001b):

- Objectives for growth and productivity to enhance shareholder value.
- Market and account share, acquisition and retention for the targeted customers where profitable growth will occur.
- Value propositions that would lead customers to do more higher-margin business with the company.
- Innovation and excellence in products, services and processes that deliver the value proposition to targeted customer segments, promote operational improvements and meet community expectations and regulatory requirements.
- Investments required in people and systems to generate and sustain growth

3.5. The characteristics of elements used in the Balanced Scorecard

Kaplan and Norton imply on a responsible member for the implementation of Balanced Scorecard as a leader or project champion and name it as the architect. According to Kaplan and Norton(1996a: 299-300), “an architect guides the process, oversees the scheduling of meetings and interviews, ensures that adequate information are available to the project team, and in general, serves to keep the process the process on track and on schedule. The architect, over the course of facilitating the construction of the initial scorecard, must manage both a cognitive, analytic process – translating soft, general statements about strategy and intent into explicit, measurable objectives- and an interpersonal, even emotional process of team building and conflict resolution.” The architect can be the vice president of strategic planning or business development, vice president of quality management and vice president of finance or divisional controller.

Meyer (2002:101-104) states that finding the right measures depends on the following principles:

- 1) Choose the initial measures.
- 2) Consider tradeoffs between generic and specific measures
- 3) Validate measures by testing the business model.

- 4) Anticipate that measures will change.

Niven (2005:42-43) advises to determine from what level of people should work in the Balanced Scorecard team and prefers to select members from higher levels of employees as they obtain the needed knowledge, experience and credibility and have ability to interact with senior management team. He adds also that lower-level managers would be insufficient in decision-making process, not being able to make trade-offs and decide in critical times. Furthermore, conflict is essential in the teams providing the pros and cons that support the validity of the decisions positively (Niven 2005:45). Another issue that has to be considered is the Balanced Scorecard Champion which is leader of the project.

Niven (2005: 47) positions the Balanced Scorecard as a long term management system, regarding to its transformation from “entering life as a measurement system” to “emerging into a strategic management system, and forever standing resolute as a powerful communication tool”.

Niven (2005: 47) points out the meetings of the Balanced Scorecard team. In the agenda of the Balanced Scorecard program achievements of each business unit or group in use of the Balanced Scorecard; lessons learned; challenges to future development, and any mitigating factors, key priorities in the months ahead, specific success stories to be shared widely among the employee population should be considered.

The communication to the employees can be provided by W5 questions. Why would refer to the objectives and goals for the communication plan, who means the employees, what means the plan and its remarkable points, when is the frequency of the communication and where defines which items to be used for communication (Niven 2005: 53-54).

Niven (2005: 96-98) insists on the necessity of a measure data dictionary. Firstly, he articulates the features of the measures so that measures can be easily identified and recognized:

- Perspective
- Measure number/name
- Owner
- Strategy
- Objective
- Description

Furthermore, Niven (2005: 98-99) states the measure characteristics as lag/lead indicator, frequency, unit type and polarity, determines if the measure's high levels or low levels means high performance. In addition to characteristics, there exist calculations and data specifications named as formula, data source, data quality and data collector. Data dictionary ends up with performance information that is composed of baseline (current information), targets and initiatives.

The sources of the information for a Balanced Scorecard are divided into as internal sources; executive team, employees, baseline and trend data, and external sources; stakeholders (including suppliers and customers), consumer reports and benchmarking (Niven, 2005:112-113).

The effects of the initiatives on the strategy can change when a Balanced Scorecard program is employed inside the organization. Then, it is useful to revise the initiatives with the four-step process (Niven, 2005:117-118):

- 1) Develop an inventory of current initiatives
- 2) Map initiatives to your strategic objectives
- 3) Eliminate non-strategic initiatives and propose missing initiatives
- 4) Prioritize strategic initiatives

Kaplan and Norton (1996a: 294-295) indicate that active participation and sponsorship of the senior executives is a necessity for Balanced Scorecard implementation.

Starting to build a scorecard program, one of the necessities of a success is gaining consensus and supporting among senior management why the scorecard is being developed. Identifying and agreeing on the objectives will help to guide the construction of objectives and measures for the scorecard, gain commitment among the project participants and clarify the framework for the implementation and management processes that must follow the construction of the initial scorecard.

Continuum is defined in explaining the links in the leading and lagging indicator links. As far as four perspectives in Balanced Scorecard are linked and feed each other, a leading indicator of a perspective's measure would be a lagging indicator of another perspective's measure and vice versa (Epstein & Manzoni, 1998).

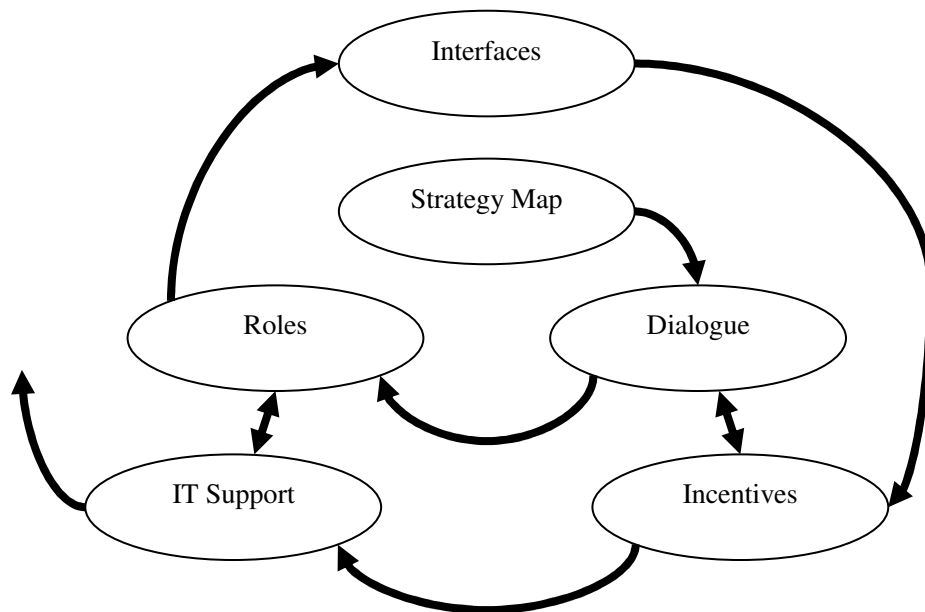
3.6. Putting the Balanced Scorecard into action

Roest (1997) from KMPG Consulting Group indicates that there are ten golden rules to be followed when implementing Balanced Scorecard:

1. There are no standard solutions: all businesses differ
2. Top management support is essential
3. Strategy is the starting point
4. Determine a limited and balanced number of objectives and measures.
5. No in-depth analysis up front, but refine and learn by doing.
6. Take a bottom-up and top-down approach
7. It is not a system issue, but system are an issue
8. Consider delivery system at the start
9. Consider the effect of performance indicators on behavior
10. Not all measures can be quantified

Olve *et al.* (2003) indicate that in order to make scorecard actionable, six issues connected to each other sequentially. Figure 27 shows the relationship of these issues in building a Balanced Scorecard program.

Figure 27: Six issues for Scorecard implementation



Source: Olve *et al.* (2003), p.2

- 1) Strategy maps: It refers to a graphical tool for involving employees at different organizational levels to look through the organization holistically. Strategy maps help executives to visualize strategy and translating into drivers and outcomes.
- 2) Dialogues: Communication is essential in building a Balanced Scorecard program and focuses on discussing the strategy map, validating the conjectured links, setting targets together, analyzing results and using outcome metrics to spur actions.
- 3) Roles: The choices for role assignments would be crucial as roles in a Balanced Scorecard program reflect the thoughts for the project.
- 4) Interfaces: The scorecards have to be linked to each other by decreasing the number of differences in measures or operations when they become connected to the scorecard meaningfully.

5) Incentives: The necessary guideline contains financial and non-financial incentives the employees are to be motivated to commit in the implementing Balanced Scorecard.

6) IT solutions: IT solutions support Balanced Scorecard program in creating strategy maps, backtracking from the local scorecard to corporate scorecards, target setting and monitoring and managing strategic activities.

The research on Balanced Scorecard implies the necessity of IT support in applications. An automated Scorecard increase the effectiveness of the implementation of the projects and the execution of scorecards as a whole. Niven (2002: 267) asserts that properties of an automated Scorecard system in Table 17:

Table 17: Properties of an automated scorecard

Properties of an automated Scorecard	
Flexible for other performance initiatives	Compatible for various unit types
Comfortable in user interface	Acceptable in timing
Enabling high numbers of measures to be tracked	Weighting relatively in measures
Considering strategies, objectives, measures, targets and initiatives	Allowing a number of comparatives
Usable in various locations	easing in understanding in the status of measures
Having descriptions and definitions	Showing dual polarity
Permitting assignment of owners	Cascading scorecards
Personalizing preferences and displaying easily menus and help screens	Viewing the details of performance

Source: Niven, P. R. (2002), p. 267

An automated scorecard is required to be integrated with software; thereby capable software should be selected by senior management. Marr and Neely (2003) indicates that three reasons ;data integration data analysis and storing, and

communication and collaboration is vital for balanced scorecard software. Their research on 80 companies, also interviewing with senior members from consulting firms and software company managers shows that Balanced Scorecard evaluation requires ten selection criteria to be examined. These are company/product attributes, scalability needs, flexibility needs, features and functions, communication needs, technical needs, user interface analysis needs, service requirements and future developments. However, selection in software for Balanced Scorecard is still a question for organizations. Marr and Neely (2003) inform that Microsoft Excel is the most used software to support Balanced Scorecard despite a number of software firms offer their own solutions that is employed within Balanced Scorecard applications. Besides, Lawson, Stratton and Hatch (2004) indicates that 70% of the organizations that have employed Balanced Scorecard use software applications distributed as 31% off-the-shelf software, 43% developed in-house software and rest of the organizations use both types of software.

Lawson, Stratton and Hatch (2004) add that software usage has the advantages of freeing up the time and encourage organizations for change activities. In addition to this, software packages should be selected from scorecarding software packages which displays effectively in terms of security, focusing and dependence on mission and vision of the company, allowing also flexibility to the scorecard automation.

The success of IT usage in companies depends on the commitment and culture more than technology itself even if the capability of IT infrastructure is well enough to support business activities. Besides, IT and business alignment is to be one of the major problems that would be overcome by integrating IT planning with business planning, maintaining effective communication channels, developing strong relationships between IT and business, and institutionalizing the culture of alignment (Huang and Hu, 2007). Huang and Hu (2007) indicate that in their case study in BISCO, that Balanced Scorecard helps to the IT-business alignment by 1) pouring top-down scorecard construction approach where updates and fine tunes in planning process is repeated throughout the organization, 2) using communication

tools and personal meetings via departments and individuals, 3) progressing relationship efforts directed to customers and employees with specific features 4) implementing development processes reflecting alignment culture.

Assiri, Zairi and Eid (2006) indicate that BSC implementation would be successful if a road map supported by success factors is drawn related with Balanced Scorecard. Their research that includes survey results from 103 companies from 25 countries employed Balanced Scorecard considers 27 critical success factors in the implementation road map. These 27 critical factors are divided into three; dominant, main and supporting factors perceived according to the different importance levels. Assiri, Zairi and Eid (2006) state the issues to be followed for all critical factors to construct a checklist for a successful implementation.

On the other hand, Albright *et al.* (2007) points out that one of the problems that management team face against is the successful implementation of the scorecard and offers 5 elements for the success of the Scorecard. These are fairness, communication that refers to understanding organizational goals and how individuals contribute to reaching these goals.

Kaplan and Norton (1996a: 300-308) indicate that building the program is oriented on a typical 4-step process that includes:

- 1) Define the measurement architecture
- 2) Build Consensus and Strategic Objectives
- 3) Select and Design Measures
- 4) Build the Implementation Plan

These processes are achieved by a number of tasks aligned to each processes.

- 1) Define the measurement architecture

Task 1-Select the appropriate organizational unit (300-301)

The selection of appropriate organizational unit depends on value chain and strategy use. In other words, an organizational unit that is built upon activities on its value

chain and has a strategy to accomplish is available for building a Balanced Scorecard.

Task 2- Identify SBU/Corporate linkages (302)

The architect needs to learn financial objectives for the SBU, overriding co-operate themes and linkages to other SBUs to complete the whole picture about SBU.

2) Build Consensus and Strategic Objectives

Task 3-Conduct first round of interviews (302-303)

A material that contains the vision of strategy of SBU aligned to its industry specifications and competitive environment would be handled to executives. Afterwards, the introduction of Balanced Scorecard is intended to play role while reviewing the material with executives so that the translation of strategy into objectives and measures could be maintained when the intersection of Balanced Scorecard and inputs of the document about the SBU is going to be clarified.

Task 4-Synthesis session (303-304)

The outcomes of the interview stand as objectives and measures and the aim of synthesis session are to list and rank these items according to see if the perspectives are linked in cause-and-effect relationship.

Task 5- Executive Workshop: First round (304-305)

The architect and top management team members are supposed to reach a consensus. The consensus would make the future performance assumptions predictable. Hence a bunch of proposed objectives and their rankings are determined due to the interviews and discussions. The most important objectives are selected with respect to each perspective and potential measures are defined. 4 to 6 people are assigned to subgroups that are responsible for each perspective to implement further processes of the scorecard.

3) Select and design measures

Task 6: Subgroup meetings (306-307)

The purpose of the meetings is to generate the outputs for each perspective; a list of objectives for the perspective, accompanied by a detailed description of each objective, a description of the measures for each objective, an illustration of how each measure can be quantified and displayed; and a graphic model of how the

measures are linked within the perspective and to measures or objectives in other measures.

Task 7-Executive workshop: Second round (307)

With the participation of senior management team, their direct subordinates and a larger number of middle managers, the outputs generated by subgroups should be presented so that the scorecard implementation plan could be finalized and communication of scorecard intentions and contents could be maintained. The last comments should include the ideas about targets that are proposed to be achieved.

4) Build the implementation plan

Task 8-Develop the implementation plan (308)

The implementation plan is realized by formalizing the stretch targets and adding the details that “how the measures are to be linked to database and information systems, communicating the Balanced Scorecard throughout the organization and encouraging and facilitating the development of second-level metrics for decentralized units.”

Task 9- Executive workshop: Third round (308)

Reaching a final consensus in the third round and validating the stretch targets, the workshop would provide a set of action programs, a communication plan and developed information system supports the scorecard.

Task 10-Finalize the Implementation plan (308)

A management agenda should be aligned to the implementation plan and management information systems should embed into the Balanced Scorecard program.

According to Kaplan and Norton (1996a: 309) 16 weeks is needed to fulfill a Balanced Scorecard program.

Niven (2002: 40) states that BSC is not effective if it perceived as a one time “now we have a Balanced scorecard” event. Besides, clear objectives will satisfy the implementation of the Balanced Scorecard project and aid Balanced Scorecard to use the linkages with the management processes of budgeting compensation and management reporting.

The seven criteria for choosing the appropriate organizational unit to begin a Balanced Scorecard program are (2002: 43); strategy, sponsorship, support of participants, data, resources, scope and need. Niven (2002: 46) gathers all of the criteria giving an overall point out of 10 points. Determining the weights of the criteria will suffice a calculation where an overall situation of a business unit is provided so that a comparison among the candidate business unit would be available choosing the appropriate organizational unit to implement a Balanced Scorecard program. Despite the weights of the criteria change according to the unit's environment, strategy and sponsorship are supposed to have more weights.

Niven (2002: 48-49) points out the techniques about how to convince senior managers to employ a BSC program in their organization. These are finding managers that appreciate in adding value to performance measurement and management, emphasizing on successful examples and good results, showing the results of surveys in which the sponsorship of senior executives is especially included, warning about the existing system is not sufficient with the reasons, having the executive team absorbing the BSC capabilities and terminology, and persuading external consultants to shape the presentation to the senior managers.

The executive team should be preferred to have at most 7 people and consists of people with complementary skills, common purpose and performance goals, and a common approach.

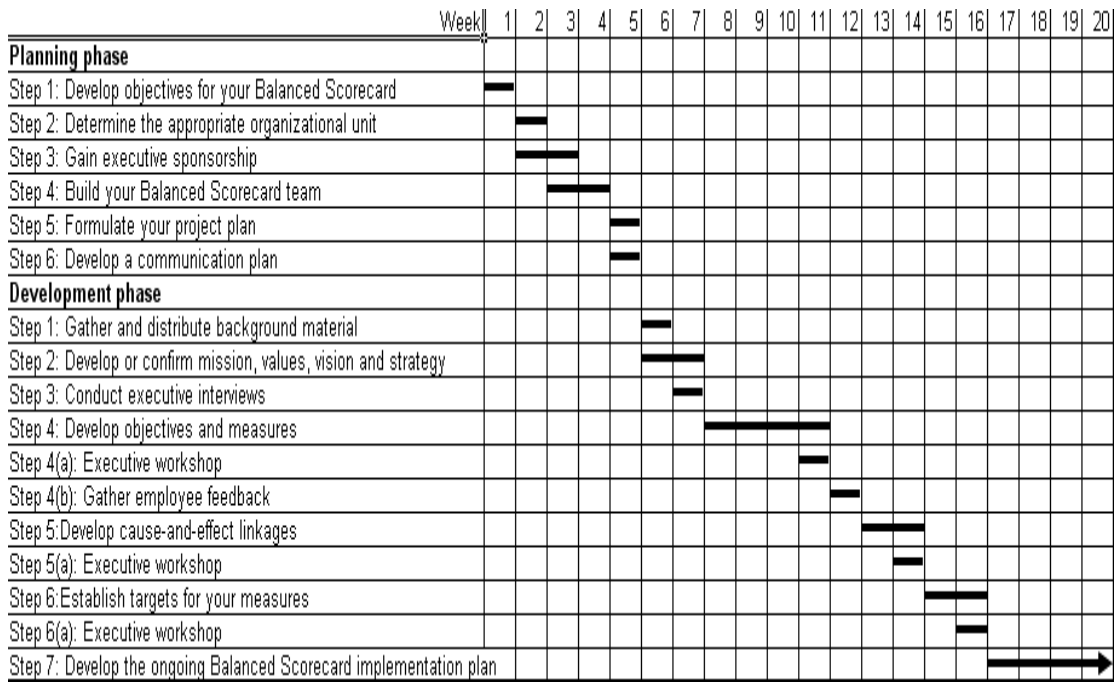
Niven (2002: 66) expresses the development and planning phase with a project timeline. Table 18 is composed of the set of the steps required to complete a Balanced Scorecard program.

Table 18: Balanced Scorecard team composition

Role	Responsibilities
Executive Sponsor	• Assume ownership for the Balanced Scorecard project • Provides background information to the team on strategy and methodology • Maintains communication with senior management • Commit resources to the team • Provides support and enthusiasm for the Balanced Scorecard throughout the organization
Balanced Scorecard champion	• Coordinates meetings; plans, tracks, reports and team results to all audiences • Provides throughout leadership on the Balanced Scorecard methodology to the team • Ensures that all relevant background is available to the team • Provides feedback to the executive sponsor and senior management • Facilitates the development of an effective team through coaching and support
Team members	• Provide expert knowledge of business unit or functional operations • Inform and influence their respective senior executives • Act as Balanced Scorecard ambassadors within their unit or department • Act in the best interests of the business as a whole
Organizational change expert	• Increases awareness of organizational change issues • Investigates change-related issues affecting the Balanced Scorecard project • Works with the team to produce solutions mitigating change-related risks

Source: Niven, P. R. (2002), p. 66

Figure 28: Balanced Scorecard project timeline



Source: Niven, P. R. (2002), p. 64

According to the Niven (2002:66), a Balanced Scorecard program should be supported with an effective communication plan that includes the following objectives:

- Build the awareness of The Balanced Scorecard at all levels of the organization
- Provide education on key Balanced Scorecard concept to all audiences
- Generate the engagement and commitment of key stakeholders in the project
- Encourage participation in the progress
- Generate enthusiasm for the Balanced Scorecard
- Ensure that team results are disseminated rapidly and effectively

The elements of the communication plan would be purpose/message, audience, frequency, delivery vehicle and communicator (Niven, 2002: 68).

On the other hand, Papalenzandris *et al.* (2005) build up a methodological framework for Balanced Scorecard implementation integrated with other management initiatives Project Management, Change Management, Risk Management, Quality Assurance and Information Technology as supporting

activities to project phases. Their research sets up a six phase implementation plan that can be summarized in Table 19:

Table 19: Balanced Scorecard implementation plan

Phases	Steps
1. Prepare for the plan	Plan and initiate the project Gain commitment Assess change readiness Establish QA mechanisms Select the project team Establish communication plan.
2. Understand the vision and strategy	Assess external and internal environment Develop a contingency plan Clarify the organization's vision and mission Identify the strategic directions Develop a change management plan.
3. Identify the Strategic Priorities	Identify strategic objectives Design Strategy Map Present findings to stakeholders and gain approval
4. Select performance measures	Gather, rank and select performance measures Establish way of measurement Appoint a performance measurement owner Identify gaps between existing and desired business processes and Information Technology infrastructure
5. Operationalize the project	Set stretch targets Determine measurement frequency Develop strategic initiatives Establish budget Redesign/Fine-tune performance management processes
6. Implement and Rollout the System	Select and Customize the information technology solution Roll-out the project Prepare periodic re-evaluation plan Plan other BSC related projects Transfer knowledge

Source: Adapted from Papalexandris *et al.* (2005), p. 214–227

Papalexandris *et al.* (2005) add that this Balanced Scorecard implementation phase results in better performance management, reduced resistance to change and enhanced team cooperation, respect of time and budget constraints and employee buy-in and transfer of knowledge.

Ahn (2001) introduces an implementation plan for Balanced Scorecard in ABB Industrie AG within Printing Facilities business unit. The six-step implementation plan consists of the following phases:

- 1) Project organization
- 2) Identifying strategic goals
- 3) Modeling chains of cause-effect
- 4) Defining measures for quantifying achievement of goals
- 5) Selecting milestones and targets for the measures
- 6) Developing strategic programs for achieving goals

CHAPTER 4: METHODOLOGY AND DATA ANALYSIS

Balanced Scorecard seeks to maximize shareholder wealth by looking at the performance through different perspectives. Among these, financial performance of a firm becomes interdependent with the shareholders' behavior towards the company. Therefore, financial performance of a firm can be easily translated into an understandable manner that is likely to be examined through some benchmarks for which financial ratio analysis is used. Return on equity (ROE) and return on assets (ROA) are the most common financial ratios evaluating financial performance. On the other hand, customers' perception towards the company can be measured by sales growth, therefore sales growth which can be accepted as a customer perspective measure. In addition to sales growth, cost of goods sold per sales exemplifies the effectiveness of business processes. Therefore, cost of goods sold per sales is included in the analysis. The common point of these four ratios mentioned above is that all of them can be calculated from financial table of a company. The financial table of a company can be retrieved from a data source that is Istanbul Stock Exchange which discloses the financial tables of companies listed in the stock exchange. As a result in this research, these four ratios are going to be considered in the analysis phase to test if Balanced Scorecard improves performance among the companies listed in Istanbul Stock Exchange.

The empirical evidence about the success of Balanced Scorecard is an important question about Balanced Scorecard applications. Although the research including Istanbul Stock Exchange data in literature vary, it generally focuses on implementation papers, road maps and case studies. The literature on Balanced Scorecard that has been statistically derived from several data types as survey results, thereby financial data and hypothesis testing for statistical proof cover a little portion of the overall literature.

The literature on Balanced Scorecard on Turkish companies is very limited. Coskun's study (2006) considers Balanced Scorecard usage and perceptions against Balanced Scorecard applications in ISO-500 (Istanbul Chambers of Industry)

industrial firms of Turkey. The results derived from t-test computations between companies who have employed Balanced Scorecard and who do not use Balanced Scorecard include crucial implications. Managers from companies who use Balanced Scorecard are more satisfied with profitability, taking social responsibilities, employee satisfaction, improvement in employee competencies, market value, market share, capacity utilization, debt performance (from 60 measures from 4 perspectives of Balanced Scorecard) that managers from companies that do not use Balanced Scorecard). Besides, the research finds that 20 of the 107 responses in the ISO-500 industrial firms of Turkey have employed Balanced Scorecard and 17 of them are planning to employ it. There does not appear any research on the Balanced Scorecard except for the presentations informed in Chapter 3 for Turkish companies.

Balanced Scorecard usage in Turkey is not known exactly since any study except for Coskun (2006) includes a usage concentration for Balanced Scorecard. Coskun's study (2006) indicates that 18.7% of the companies that are placed in the biggest 500 industrial companies use Balanced Scorecard according to the survey results with 21.3% response rate (107 out of 501 companies). However, 39.7% of the respondents informed that they had insufficient information which means that an important portion of the respondents was not familiar with Balanced Scorecard. Balanced Scorecard user companies are expected to exceed 50 in Turkey including for-profit and not-for-profit companies.

4.1. Data collection

Istanbul Stock Exchange (ISE) Market Indices vary according to the national markets, investment trusts, second national markets and new economy companies market. Also, watch list companies market and other markets that will be traded off the Exchange under the ISE's Board of Directors' decision. According to the ISE data, the distribution of companies according to the markets and the codes of the sectorized identities are given in the Table 20.

The data collection phase includes an e-mail questionnaire sent to companies that listed in Istanbul Stock Exchange companies. Sekaran (1992, p. 251-257) asserts that mail questionnaires can be reached in a wide geographic area and let respondents more time to respond at convenience. However response rate is low because of unwillingness of respondents to complete the questionnaire and respondents may not find questions clarified. Besides, it could also cause biased answers since the perception of respondents against the questions may differ.

A questionnaire was prepared for the responses of the companies about their Balanced Scorecard usage. It consisted of 7 questions asking first whether they use Balanced Scorecard or not (see Appendix). Due to the answers, the respondents were directed to answer a column that differs as users (4 questions in the left column) and non-users (2 questions in the right column) which means that each respondent should answer a minimum of 3 questions and a maximum of 5 questions. 5 out of 7 questions were taken from Coskun's study (2006, p. 94-97) with little changes that exist in the reason of using Balanced Scorecard which aimed that respondents could be familiar with the questions and provided ease in answering.

Table 20: Distribution of ISE companies' in terms of sectors

CODES	Company Number	
XU100	100	ISE NATIONAL-100
XU050	50	ISE NATIONAL-50
XU030	30	ISE NATIONAL-30
XUTUM	258	ISE NATIONAL - ALL SHARES
XUSIN	157	ISE NATIONAL – INDUSTRIALS
XGIDA	23	FOOD, BEVERAGE
XTEKS	27	TEXTILE, LEATHER
XKAGT	16	WOOD, PAPER, PRINTING
XKMYA	23	CHEMICAL, PETROLEUM, PLASTIC
XTAST	25	NON-METAL MINERAL PRODUCTS
XMANA	13	BASIC METAL
XMESY	26	METAL PRODUCTS, MACHINERY
XUHIZ	32	ISE NATIONAL – SERVICES
XELKT	4	ELECTRICITY
XULAS	4	TRANSPORTATION
XTRZM	5	TOURISM
XCRT	10	WHOLESALE AND RETAIL TRADE
XILTM	1	TELECOMMUNICATIONS
XSPOR	4	SPORTS
XUMAL	59	ISE NATIONAL – FINANCIALS
XBANK	15	BANKS
XSGRT	7	INSURANCE
XFINK	8	LEASING, FACTORING
XHOLD	18	HOLDING AND INVESTMENT
XGMYO	11	REAL ESTATE INVEST.TRUSTS
XUTEK	10	ISE NATIONAL TECHNOLOGY
XBLSM	9	INFORMATION TECHNOLOGY
XSVNM	1	DEFENSE
XYORT	31	ISE INVESTMENT TRUSTS
XIKIU	15	ISE SECOND NATIONAL
XYEKO	3	ISE NEW ECONOMY

Source: Istanbul Stock Exchange, <http://www.imkb.gov.tr/veri/endeks.zip> (15 June 2007)

Out of 258 companies in the national market; 59 financials, 31 investments, 15 second national and 3 new economy companies are excluded from the total set of companies. Also 4 sports companies also removed from the sample which makes it 195 companies to send the questionnaire; 157 industrial, 28 services and 10 technology companies. After 195 questionnaires were sent to these companies, 40 responses were retrieved (3 faxes and 37 e-mails) from these companies. 3 of the respondents indicated that they were unable to give such information. 22 of the 37

respondents answered the questionnaire reflecting that they have employed Balanced Scorecard. However, 2 of the 22 questionnaires are not usable and removed from the sample which makes the usage rate of Balanced Scorecard usage 10% (20 companies) out of 195 companies that the questionnaire has been sent(one company is at the project phase and counted on non-user). 56% usage rate due to the questionnaires sent back is consistent with Rigby's (2003, 2005) and Silk's (1998) findings, but contradicts with Coskun (2006) which reflects a usage rate of 21.3 %. Nevertheless, the findings in our study shows that most of the respondents have heard about Balanced Scorecard informing that Balanced Scorecard is going to be used in short/long term which means the companies which are familiar with Balanced Scorecard applications and find it worthy to be considered. The high portion (39.7%) that exists in Coskun's study (2006) referring to the companies that have insufficient information about Balanced Scorecard lies as the main difference causing such a contradiction in usage rates.

Table 21: Distribution of Balanced Scorecard users according to Istanbul Stock Exchange industry index

Industries/ Services	Istanbul Stock Exchange code	Number of companies
<i>FOOD, BEVERAGE</i>	XGIDA	4
<i>CHEMICAL, PETROLEUM, PLASTIC</i>	XKMYA	4
<i>NON-METAL MINERAL PRODUCTS</i>	XTAST	4
<i>METAL PRODUCTS, MACHINERY</i>	XMESY	5
<i>TEXTILE, LEATHER</i>	XTEKS	1
<i>TRADE</i>	XUTİC	1
<i>BASIC METAL</i>	XMANA	1

Answers to the questionnaire indicate that 20 companies employed Balanced Scorecard and remaining 15 companies do not use. These 20 companies are divided into 7 industries leading with 5 companies in metal products-machinery group.

18 of the Balanced Scorecard users also exist in ISO 500 index (Istanbul Chambers of Industry biggest 500 industrial companies) and 2 are out of this index.

Table 22: Answers to Balanced Scorecard usage

Are you using Balanced Scorecard in your company?	
We use in all units in our company	16
We use in some units in our company	4
No, we do not use	14
We employed but give up using	1

16 companies apply at least one of the Balanced Scorecard perspectives while 5 of them prefer additional perspectives. The questionnaire also asked respondents to specify these perspectives. Three of the companies execute one additional perspective that is reported as Employee Perspective, Employees and Competencies perspective and Corporate Learning. Two remaining companies use the same two perspectives; Employee and, Corporate Skills and Technology.

Table 23 Perspectives used in Balanced Scorecard users

Perspectives used in Balanced Scorecard users	
Financial	17
Customer	17
Internal Business Processes	16
Learning and Growth	18
Other	5

The reasons for employing Balanced Scorecard differ, but remarkably companies prefer Balanced Scorecard usage for its effectiveness with another system. The specified systems that are desired to be answered are interesting since 3 of the answers become “performance management systems” and 2 others say “strategic management” which is the main structure of Balanced Scorecard itself. On the other hand other answer consists of “senior management decisions”, “360 feedback and compensation systems” and “process management”.

Table 24: Reason for start using Balanced Scorecard

Reasons	Frequency
We were not satisfied with the previous system	2
We chose it because of being a new system	4
We chose it because of being a new fashion	2
Our consultants recommended	2
Employees recommended	1
Shareholder recommended	1
We chose it because it works effectively with another system	11
No answer	1

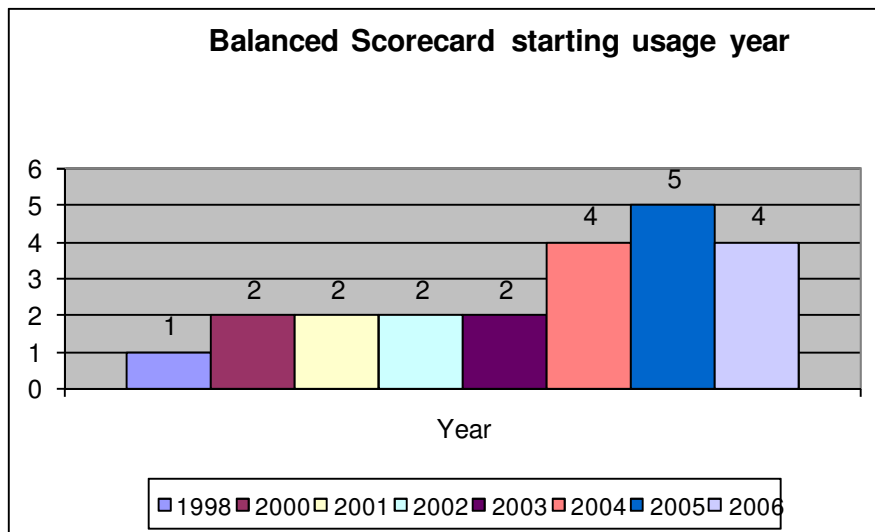
75% of Balanced Scorecard user companies incur a computer program. 9 of them use a developed-in house program and 6 of them prefer a off-the shelf programs. Only two of the off-the shelf program users specify the program they used which is SAP.

Table 25: Computer programming in Balanced Scorecard application in Balanced Scorecard users

Computer programming in Balanced Scorecard applications	
Developed-in house	9
Off-the shelf	6
None of them	5

The Balanced Scorecard usage experience in companies varies from 1 year to 10 years. The question that asks the respondents from which year they have been using Balanced Scorecard has different answers.

Figure 29: Balanced Scorecard starting usage year



Most of 15 companies that answered the questionnaire indicating they are not using Balanced Scorecard plan to use this system in future. 2 of them have plans to start a Balanced Scorecard project in short term and 9 of them have plans in long term. 3 companies have no intention to use Balanced Scorecard and there is one unanswered company as a remaining. 13 of these companies have been using a performance system that has been developed internally, one has employed Management by Objectives (MBO) and one has no performance management system.

4.2. Data analysis

In addition to 20 companies that use Balanced Scorecard (BSC), 15 companies that sent back questionnaires not using Balanced Scorecard and 20 further companies that constitute in Istanbul Stock Exchange with the similar organizational size and industry codes. Therefore, the research consists of 55 companies' data obtained from financial tables on ISE (Istanbul Stock Exchange) web site.

The analysis considers four financial ratios as sales growth, cost of good sold per sales, return on assets and return on equity. Sales growth is also be assessed as a customer perspective measure and cost of goods sold per sales as an internal business process perspective measure quantified within a public data. Data has been obtained

from Istanbul Stock Exchange (ISO) web site⁶ from 2002 when IFRS has been started to be used to 2007 (considered semi-year data). According to data obtained, six years' trend for those four ratios has been prepared with calculating means for the three groups:

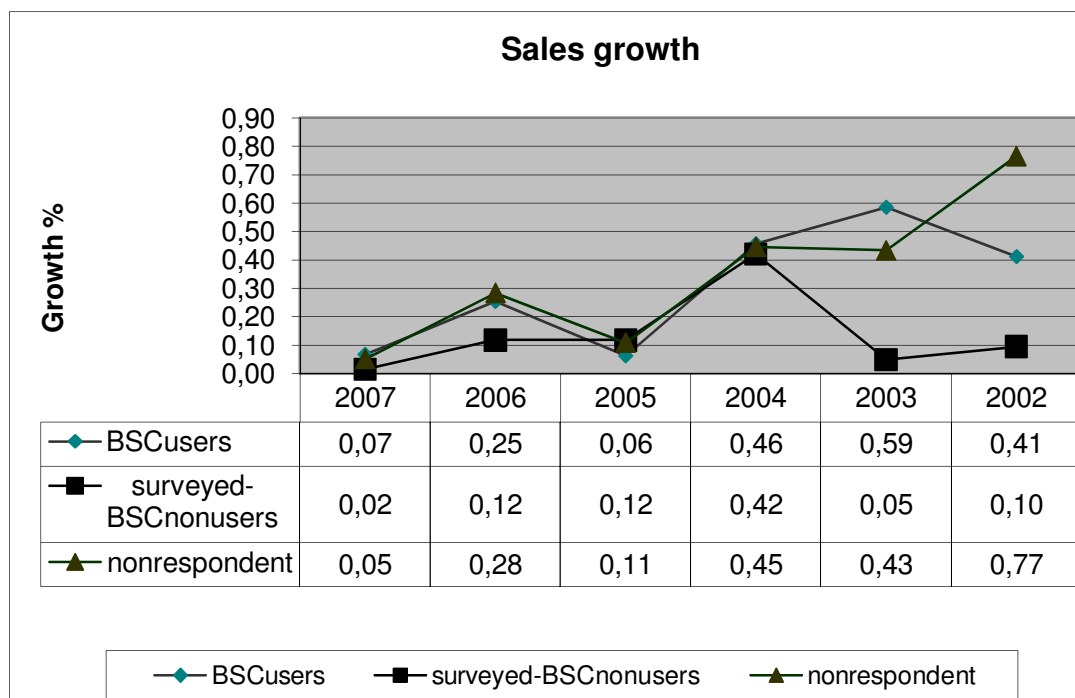
- 1) Balanced Scorecard users
- 2) Surveyed companies not using Balanced Scorecard
- 3) Non-respondent companies

Data is analyzed by SPSS Statistical Package 12.0 version and MS Excel PhStat.

4.2.1. Trend of ratios for groups of companies

The six years ratios have been taken averages and the graphics are drawn in MS Excel. Balanced Scorecard user companies are considered according to the year they have started using Balanced Scorecard. Hence, the averages for user companies are calculated by excluding the companies that have not employed Balanced Scorecard in that year.

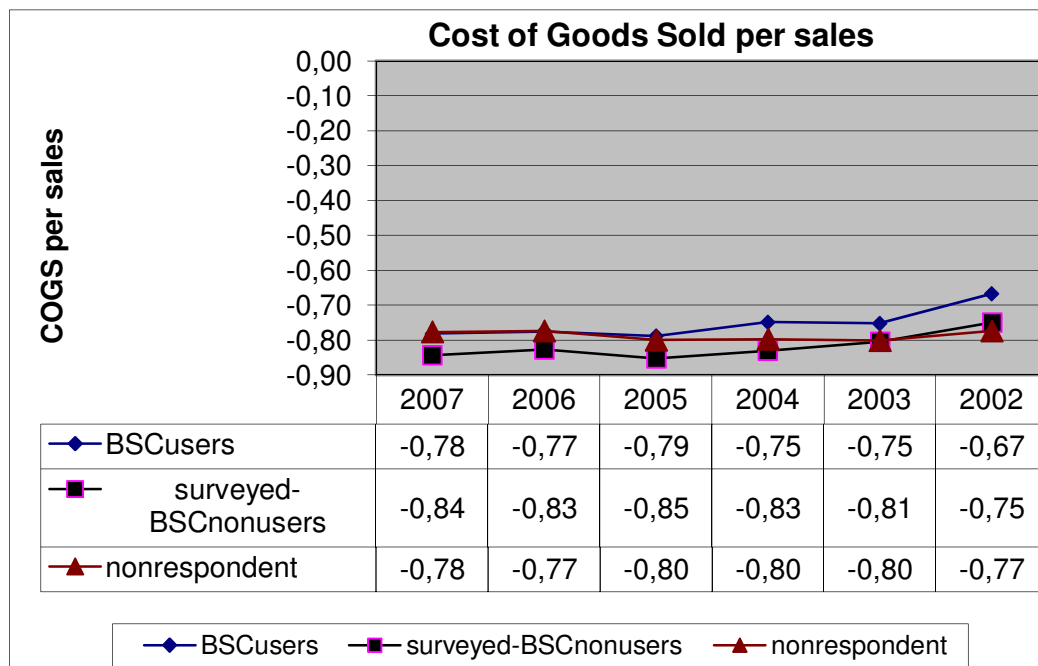
Figure 30: Sales growth average trends in three groups



⁶ See <http://www.imkb.gov.tr/bilanco/mtablodonem.htm>

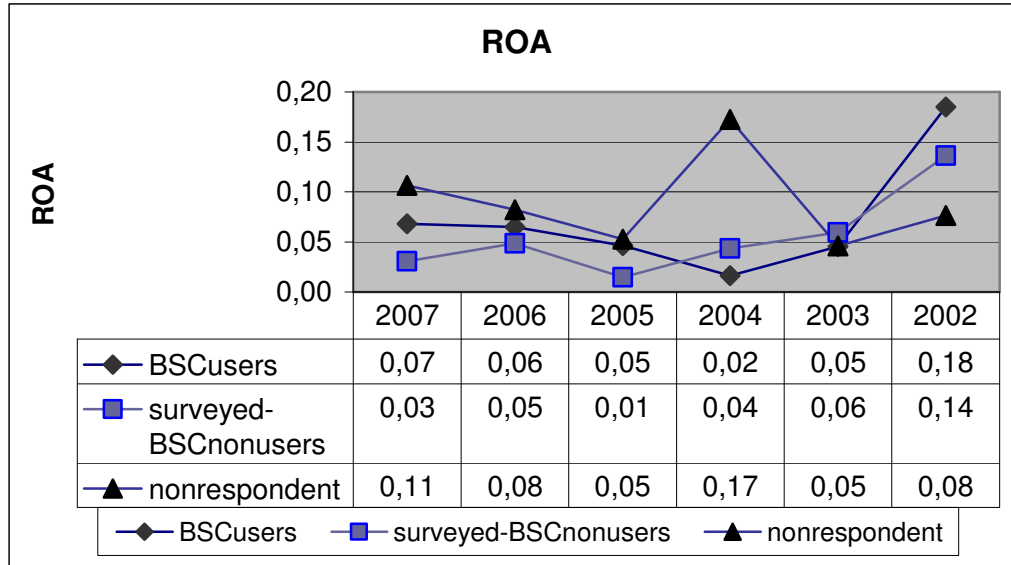
Sales growth year averages reveal volatility during 2002-2004 years when Turkish economy has been recovering itself from a local economic crisis. In 2005, Balanced Scorecard users have decreased their sales growth enormously. However, these companies show better trend than other groups of companies and by 2007, best sales growth performance is shown by Balanced Scorecard user companies. Besides, the loss in non-respondent group companies is very high in the last two years. On the other hand, the volatility is believed to be caused from economic trends in Turkey and world. The important fact is all group of companies have decreased their sales growth under .10 in 2007.

Figure 31: Cost of goods sold per sales average trends in three groups



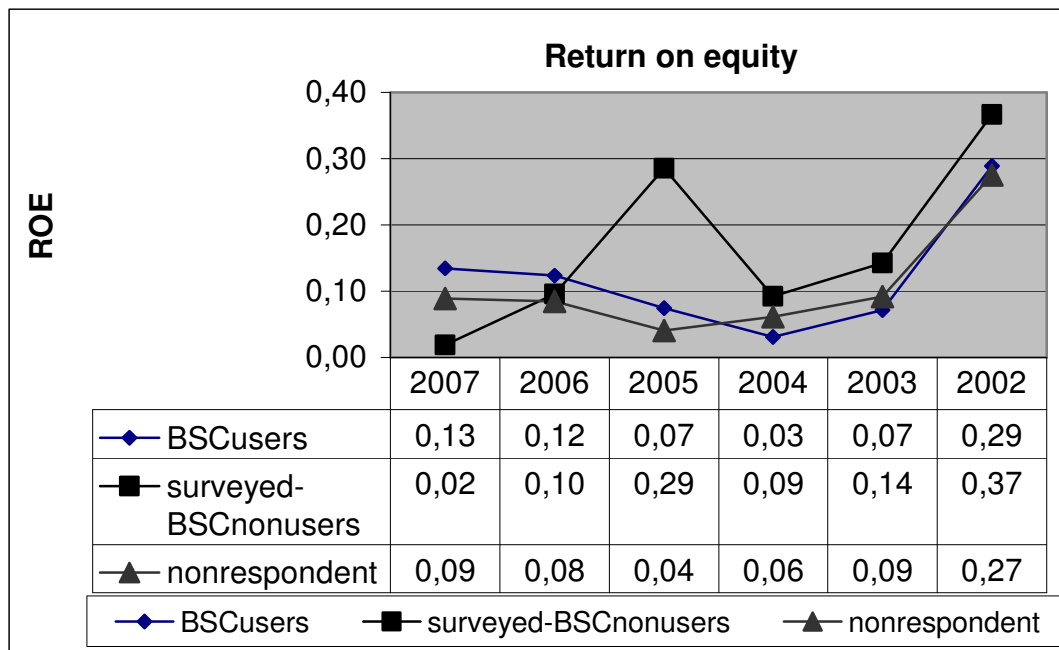
Balanced Scorecard companies and non-respondent control group companies perform approximately the same while non-user companies have lower averages. It is noteworthy to indicate that cost of goods sold per sales statistics in Balanced Scorecard companies were much better than other groups from 2002-2004, but recently Balanced Scorecard employing companies have decreased this ratio due to the probable investment which affects indirect costs crucially.

Figure 32: Return on assets averages trends in three groups



Analyzing return on assets averages, Balanced Scorecard user companies could be accepted better than non-Balanced Scorecard users. However, performances of non-respondent companies have had best return on equity after a deep decrease in 2005. However, averages in the last four years reflect a 250% change in Balanced Scorecard user companies, a -25% in non-user companies and -35% in non-respondent control group companies. The majority of the companies (%60) in the total Balanced Scorecard user companies have employed it in 2004 or after 2004.

Figure 33: Return on equity averages trends in three groups



Return on equity statistics shows that Balanced Scorecard non-user companies have a negative trend, but Balanced Scorecard users have reached a consistent positive growth in return on equity. Non-respondent companies have been getting lower returns on equity compared to Balanced Scorecard users for two years. In the last four years, Balanced Scorecard user companies have achieved 333% return on equity while non-respondent companies had 50% and non-Balanced Scorecard users had – 78%. However, the accounting standards used in 2002-2004 and 2005-2007 are different which can mislead the results including 2004 ratios to 2005-2007 trends. Hence, data including 2002-2004 year ratios should also be analyzed in another evaluation.

4.2.2. Test of normality and ANOVA test

The tests for further analysis require knowing if data fits with any statistical distribution which allows a parametric test. Otherwise, analysis should consist of non-parametric tests because of deviation from a statistical distribution that normal distribution is generally used for.

Data is generated from Istanbul Stock Exchange financial tables page within one-year financial statistics. The study aims to be as accurate as possible in gathering data. Therefore, financial data from Istanbul Stock Exchange data allows it to reach such an aim. Since, the accounting standarts have changed for Istanbul Stock Exchange companies, last three years' ratios would be considered in this research. Three years financial tables are relevant and equivalent being used in the research analysis phase.

The data retrieved from ISE (Istanbul Stock Exchange) is used for calculations for 4 ratios; sales growth, cost of goods sold per sales, return on assets and return on equity. 55 companies' ratios are placed in SPSS and normality tests are applied for three years(2007,2006,2005) data. One-sample Kolmogorov-Smirnov test indicates that ROE-2007 and ROE-2005 deviate from normal distribution and other ratios are normally distributed. Table 4-5 shows the significance level and Kolomogorov-Smirnov Z statistics for each ratio.

Table 26: Kolmogorov-Smirnov one-sample test results for each variable

Ratio(variable)	P –value	Z statistics
Sales growth(2007)	.955	.513
Sales growth(2006)	.292	.980
Sales growth(2005)	.148	1.141
Cost of goods sold per sales(2007)	.790	.651
Cost of goods sold per sales(2006)	.995	.415
Cost of goods sold per sales(2005)	.983	.462
Return on assets(2007)	.915	.557
Return on assets(2006)	.817	.634
Return on assets(2005)	.710	.701
Return on equity(2007)	.043*	1.386
Return on equity(2006)	.392	.901
Return on equity(2005)	.000*	2.687

*p<0.05

Most of the test results reveal a normal distribution except for return on equity 2007 and return on equity 2005. Therefore, parametric tests are available to evaluate the other ratios for the study.

ANOVA test is the suitable test for finding out if any of the ratios for any years differ for the three groups. The thesis in ANOVA test is as follows.

$$H_0 : i_{j1} = i_{j2} = i_{j3}$$

H_1 : not all i_j s are equal where $i = \{\text{sales growth, cost of goods sold per sales, return on assets, return on equity}\}$ and $j = \{2007, 2006, 2005\}$

while 1,2 and 3 refer to groups as BSC user, non-user and non-respondent. For example, $i = \text{sales growth}$, $j = 2006$ will make the hypothesis.

$$H_0 : \text{sales growth}_{(2006)1} = \text{sales growth}_{(2006)2} = \text{sales growth}_{(2006)3}$$

$$H_1 : \text{not all sales growth}_{(\text{year})\text{group}} \text{ s are equal.}$$

According to ANOVA results, only ROA (2007) ($p = .035$, $F = 3.584$) is statistically significant which means that one of the group differs from another in Return on assets 2007 statistics. Other groups are statistically indifferent that reveals no better performance in ratios.

4.2.3. T test between user and non-user companies, and difference statistics for ratios within groups

In addition to ANOVA test, a test is achieved including Balanced Scorecard user companies and Balanced Scorecard non-user companies applying the usage year effect excluding the companies to the years they have started using Balanced Scorecard. For instance, a company that have started using Balanced Scorecard in 2006 will be removed from t test made on 2006 ratios. The procedure select cases is used in SPSS to filter the companies removing non-respondent companies and an independent sample t-test is completed. Year effect is also provided by select case procedure filtering the companies that have not started using Balanced Scorecard.

Table 27: p-values in independent samples t test for ratio analysis due to years

Ratios	2007			
	user	Nonuser		
	mean	Mean	t statistics	p-value
sales growth	0.06721	0.015333	-0.79415	.218
cost of goods sold per sales	-0.78151	-0.8432	-2.039	.025**
return on assets	0.068185	0.030573	-1.46849	.077*
return on equity	0.134575	0.01862	-1.52129	.072*
	2006			
	user	Nonuser		
	mean	Mean	t statistics	p-value
sales growth	0.253638	0.117507	-1.6516	.057*
cost of goods sold per sales	-0.77443	-0.82617	-1.49587	.073*
return on assets	0.064825	0.047467	-0.88756	.192
return on equity	0.123144	0.095293	-0.55999	.291
	2005			
	user	Nonuser		
	mean	Mean	t statistics	p-value
sales growth	0.0619	-0.00371	-1.28526	.106
cost of goods sold per sales	-0.78811	-0.85151	-1.5703	.066*
return on assets	0.046482	0.015227	-1.20782	.120
return on equity	0.074064	0.285167	0.81788	.214

*p<0.05, **p<0.1

The rest results are provided by dividing the p-values into 2 in SPSS results. (*) is used for statistical significance(p-value< .05) whereas (**) is used for (0.05<p-value<0.1) marginal significance. The results show that Balanced Scorecard user companies perform better in cost of goods sold per sales, return on assets and return on equity in 2007, sales growth and cost of goods sold in 2006 and cost of goods sold per sales in 2005. It is also obvious that sales growth p-value is closely deviating the marginally significance just greater than 0.1. Balanced Scorecard companies have been getting superior in ratios recent years versus non-Balanced Scorecard users because of increasing number of ratios that is statistically greater number than the previous year's ratios.

Another test is applied to see if any ratio for a following year performs better than the present year for Balanced Scorecard users one-sample t test in PHStat tool in MS Excel. The following hypothesis are constructed for the these tests. The analysis of hypothesis is provided by selecting 0 as the null hypothesis and significance 0.05 while choosing a lower-tail test within T test for the mean, sigma unknown. Tests are

completed for three groups; BSC users, non-users and non-respondents to questionnaire. Since some companies start using Balanced Scorecard in different years, for analyzing 2007-2006 comparison, 4 companies that started using Balanced Scorecard in 2006 are omitted making a string of data including 16 difference statistics. This procedure is repeated for 2006-2005 and further 5 companies are also omitted maintaining 11 difference statistics. There is not such a procedure for other groups, thereby non-users' ratios are analyzed by 15 and non-responders by 20 difference statistics.

$$H_0 : \text{Sales growth}_{(t,g)} - \text{Sales growth}_{(t-1,g)} \geq 0$$

$$H_0 : \text{Cost of goods sold}_{(t,g)} - \text{Cost of goods sold}_{(t-1,g)} \geq 0$$

$$H_0 : \text{Return on assets}_{(t,g)} - \text{Return on assets}_{(t-1,g)} \geq 0$$

$$H_0 : \text{Return on equity}_{(t,g)} - \text{Return on equity}_{(t-1,g)} \geq 0$$

*t refers to year and g refers to the group of company

The analysis results show that only sales growth in 2007 for Balanced Scorecard is worse than sales growth in 2006 with a 0.023 p-value which indicates a lower performance in Balanced Scorecard user companies. On the other hand, p-value higher than 0.95 informs about which ratios perform better than the compared one. Upper-tail test would be conducted, the $(1 - p)$ -value would be the significance value. A p-value higher than .95 will be significant because of having a p-value smaller than 0.05. The null hypothesis would be rejected and the ratio difference occurs statistically. According to this, return on assets (2006) and sales growth(2007) performs better than return on assets (2006) and sales growth (2005) consecutively by having a p-value greater than 0.95. Besides, difference in cost of good sold per sales 2007-2006 and return on equity 2006-2005 difference is marginally significant having a p-value between 0.9 and 0.95 having 0.059 and 0.088 p-values.

Table 28: Lower-tail t test results for Balanced Scorecard user companies

Ratios	Difference mean	t statistics	p-value	(1-p)-values
difference roe(2006-2005)	0.066	0.839	0.912	0.088**
difference roe(2007-2006)	0.028	1.455	0.793	0.207
difference roa(2006-2005)	0.027	1.820	0.951	0.049*
difference roa(2007-2006)	0.008	0.574	0.713	0.287
difference cogs(2006-2005)	0.021	1.708	0.941	0.059**
difference cogs(2007-2006)	-0.001	-0.067	0.474	0.526
difference sales growth(2006-2005)	0.208	2.413	0.982	0.018*
difference sales growth(2007-2006)	-0.171	-2.171	0.023*	0.977

*p<0.05,**p<0.1

Second group companies(Balanced Scorecard non-users) reflect a similar results with first group. Sales growth(2007-2006) (p-value: 0.037) and return on equity (2007-2006) (p-value: 0.043) shows a statistical significance meaning that sales growth and return on equity for 2007 is statistically worse than 2006. Furthermore, as made for first group, ratio differences with p-values greater than 0.95 would make it reject the following null hypothesis in the designed hypothesis conducted with an upper-tail test:

Return on assets (2006), cost of goods sold (2006) and sales growth (2006) is statistically greater than the ratios in 2005.

Table 29: Lower-tail t test results for Balanced Scorecard non-user companies

Ratios	Difference mean	t statistics	p-value	(1-p) value
Difference roe(2006-2005)	-0.190	-0.681	0.254	0.746
Difference roe(2007-2006)	-0.077	-1.850	0.043*	0.957
Difference roa(2006-2005)	0.032	2.124	0.974	0.026*
Difference roa(2007-2006)	-0.017	-0.993	0.169	0.831
Difference cogs(2006-2005)	0.025	2.209	0.978	0.022*
Difference cogs(2007-2006)	-0.017	-1.057	0.154	0.846
Difference sales growth(2006-2005)	0.121	3.444	0.998	0.002*
Difference sales growth(2007-2006)	-0.102	-1.928	0.037*	0.963

*p<0.05,**p<0.1

Finally, the analysis has been completed with third group non-respondent companies. The p-value smaller than 0.05 lies in sales growth (2007-2006) comparison that has a meaning sales growth 2007 performs worse than sales growth 2006. Furthermore, p-values greater than 0.95 shows the ratios better than the previous ones. Return on equity(2006), return on assets(2006), cost of goods sold(2006), sales growth(2006) and return on assets (2007) performs better than the previous years ratios.

Table 30: Lower-tail t test results for non-respondent companies

Ratios	Difference mean	t statistics	p-value	(1-p) value
difference roe(2006-2005)	0.044	2.136	0.977	0.023*
difference roe(2007-2006)	0.005	0.087	0.534	0.467
difference roa(2006-2005)	0.030	2.653	0.992	0.008*
difference roa(2007-2006)	0.024	1.866	0.961	0.039*
difference cogs(2006-2005)	0.027	3.285	0.998	0.002*
difference cogs(2007-2006)	-0.003	-0.298	0.384	0.612
difference sales growth(2006-2005)	0.175	2.480	0.989	0.011*
difference sales growth(2007-2006)	-0.233	-4.041	0.000*	1.000

*p<0.05,**p<0.1

The results point out the significant increase in ratios for non-respondent companies which have been selected assuming that these companies do not use Balanced Scorecard. Besides, sales growth and return on assets for all group of companies in 2007 have increased compared to 2006 ratios. In addition to these, sales growth (2007) statistics is lower than sales growth (2006). Besides, the only ratio that have improved itself in 2007 is return on assets for non-respondent firms. The only significant difference in ANOVA test in return on assets in 2007 explains third group has the best ratio among the three groups.

The data is also analyzed to investigate industrial effects, but any of the tests shows difference for Balanced Scorecard using and not using. However, low numbers in each group makes it impossible to conduct a statistical analysis for that case. Nevertheless, an ANOVA test and is done for industries. Sales growth (2005)

($F=2.851$, $p=0.015$) and cost of goods sold per sales statistics for 2005($F=2.087$, $p=0.064$)-2006($F=2.158$, $p=0.055$)-2007($F=2.35$, $p=0.38$) differ statistically due to the industry. Other ratios show no significant difference due to industrial categorization.

4.3. Results of data analysis

Briefly, Balanced Scorecard usage improves performance in some areas versus non-Balanced Scorecard users. The tests provide statistical evidence that Balanced Scorecard usage is beneficial for companies in especially cost of goods sold per sales which is gauged as significant for the three years' analysis. Nonetheless, Balanced Scorecard employment also results in better sales growth and return on assets. On the other hand, the control group selected from non-respondent companies does not differ from Balanced Scorecard user companies. However, for return on assets and return on equity, user companies accomplish better than non-respondent companies in the last year trends in terms of development in difference. Despite the difference is not statistically proven because of small set of data, next years' ratio differences are likely to be different that can be studied in a further research. The results show that for three years' ratios excluding sales growth, Balanced Scorecard user companies present a satisfactory performance trend compared to other groups of companies.

The economical trends are seen to affect the overall performance of ratios. Three groups of companies exhibit similar characteristics in three years ratios where 2006 is better than 2007 statistically. Nevertheless, the unusual decrease in the first half of 2007 can be explained by a local election which directly exerts on consumer behavior thereby this fall can be acceptable. Although six years performance can not be compared because of changing accounting standards, local and global economic trends are related with ratios for all groups of companies. Sales growth averages are remarkably affected by the changing economical environment. Also, the analysis for industries is not available and feasible as most of the industry group has few companies. As expected cost of goods sold per sales and sales growth are the

parameters that can divide the companies into groups being statistically significant to have different means due to industries.

DISCUSSION, IMPLICATIONS AND CONCLUSION

The recent years have witnessed the evolution of performance measurement and management systems due to the changing business environment and needs to evaluate performance in complex organizations. Balanced Scorecard, one of the systems for performance management is the focus of the research and its features examined throughly in Chapter 2 and 3. Practitioners and researchers claim that Balanced Scorecard improves overall performance, but lack of strong statistical evidence because of few number of emprical studies on the topic weakens the claim. Additonally up to date used questionnaires which may provide biased opinions of users. Hence, this study aims to test the claims of Balanced Scorecard's improvement using sales growth, cost of goods sold per sales, return on assets and return on equity taken from financial reports and are free of bias. Also, sales growth is assessed as a Customer perspective measure that shows whether the efforts on this perspective changes consumer behavior resulting in better sales growth. Besides, cost of goods sold per sales is considered as Internal Business Process perspective measure that focuses the internal effectiveness of managers handling business processes. Moreover, return on assets and return on equity can be used to see the reflection of these improvement on financial performance directly.

Three groups of companies are compared in the study; Balanced Scorecard users, Balanced Scorecard non-users and non-respondents.

According to the findings, user companies are superior in cost of goods sold per sales (2005); sales growth and cost of goods sold per sales (2006) and cost of goods sold per sales, return on assets and return on equity (2007) compared to non-user companies. Especially, the improvement in cost of good sold per sales can be explained with the developed management of internal processes. The managers that are responsible for internal processes executes the daily operations and integrates interdependent processes effectively. The result between Balanced Scorecard user and non-user companies can be interpreted as Balanced Scorecard's improvement in user companies reflects in a difference in the ratios increasingly within years. The

difference is also consistent with non-user companies' future plans of using Balanced Scorecard meaning that Balanced Scorecard non-user companies are convinced with the benefits of Balanced Scorecard. The improvement in Balanced Scorecard, therefore, is easily seen in quickly calculated ratios.

On the other hand, ANOVA analysis finds only a significant difference in 2007 return on assets which non-respondent companies are better from other companies. As a reason for insignificant improvement, Balanced Scorecard user firms may not benefit from Balanced Scorecard in financial terms yet. The reflection of improvement can take more time than estimated for financial performance. The economical and industrial changes may be another reason for any improvement since organization size of the companies would prevent the potential benefits of this kind of changes in a short time period. It is important to repeat that most of the companies has a 2-3 years experience in Balanced Scorecard. The non-respondent firms are assumed not to use Balanced Scorecard, which indicates a possibility that some of these firms are Balanced Scorecard user companies. This possibility also misleads the results found in statistical tests.

The study has several limitations. First of all, 35 responses out of 195 for a research where the unit of analysis is organization is insufficient to make a powerful statistical analysis. Furthermore, companies exist in different industries determined by Istanbul Stock Exchange are too few to compare other companies in the same industry, thereby that a kind of comparison is removed from the study. Also, the companies selected for control group may be selected with a bias and the assumption that all of them do not use Balanced Scorecard make some discrepancies if some of them have employed Balanced Scorecard. Fifth, there may be doubts over the ratios used in the study explaining in overall performance. However, it is not available to find another public data for companies to compare any measure statistically. Therefore, the ratios used in the study are acceptable in analyzing a number of companies. Moreover, financial ratios may not interpret overall performance since other perspectives could have improved and produced better results which may not have been reflected in financial perspective.

This research presents some implications to be used in managerial area and literature. First of all, Balanced Scorecard aids organizations in translating their strategies, vision and mission into an understandable manner. Secondly, two-way communication is provided by Balanced Scorecard applications which would result in less discrepancies and deficiencies. Furthermore, a forward-looking and dynamic management of business is ensured by continuously organized regular meetings and cause-and-effect chains which will clarify the relationships between resources, business activities and external environment. However, linking Balanced Scorecard to compensation is the side of the system since previous studies show a negative significance in linking results to compensation and Balanced Scorecard application. On the other hand, Balanced Scorecard is criticized to give weight to internal activities and external environment such as suppliers, political trends and competitors are not considered sufficiently. Additional perspectives or expanding the contents of current perspectives could be a good solution to close the gaps in Balanced Scorecard applications. One of the findings in this study is that Turkish companies use Employee Perspective, Employees and Competencies Perspective, Corporate Learning and Corporate Skills and Technology in addition to the traditional four perspectives. Also, using benchmarking and other management initiatives along with Balanced Scorecard will lessen the complexity of management and enables organization to monitor itself holistically. Another concern for Balanced Scorecard is the implementation phases of project and wrong execution of Balanced Scorecard system. This would undermine the success of Balanced Scorecard and waste the limited resources aligned to Balanced Scorecard. High costs and needed time for Balanced Scorecard project also discourage organization embedding this system into their activities.

Further research in the area can be done by using a longer time horizon and comparing different economic environment and industries. Also, towards the belief that organizations with greater resources tend to employ superior Balanced Scorecard, its applicability in small and medium enterprises is a good area of investigation. The elements in Balanced Scorecard implementation and supporting

management initiatives' impact on Balanced Scorecard success is a potential research area that is to be neatly studied. Moreover, the industry effect could be analyzed by researchers in order to see if Balanced Scorecard applications achievement in different industries is significant.

As a conclusion, this study investigates the impact of Balanced Scorecard on financial performance of companies in Istanbul Stock Exchange by using sales growth, cost of goods sold per sales, return on assets and return on equity. According to the findings, Balanced Scorecard improves performance indicated in the comparison between Balanced Scorecard user companies and non-user companies. Also, Balanced Scorecard provides improvement in return on assets and return on equity analyzed with a four years' trend in difference. This preliminary study encourages other researchers to expand the data range, differentiate the study examining industry effects and compare non-financial and financial perspectives by a statistical analysis.

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APPENDIX

Appendix 1

Balanced Scorecard applications for-profit organizations

Industry Companies	Health
Mobil North America marketing and defining(Kaplan & Norton, 2001)	Bridgeport Hospital(Gumbus et al., 2002)
Eczacıbaşı Vitra (Arpaç, 2000)	Mayo Clinic(Curtright et al., 2000)
Siemens(Genç, 2004)	Brilliant Hospital(Berger, 2004)
Er-Bakır(Pakdoğan,2004)	Tourism
Philips Electronics(Gumbus& Lyons, 2002)	White Lodging Services(Denton& Bruce,2000)
Nike(Lohman et al. ,2004)	Hilton hotels(Huckestein&Duboff,1999)
DuPont Canada(Ford,2000)	Education
LMN Automative(Ho & Mckay, 2002)	DXL University(Lawrance & Sharma,2002)
Futura Industries(Gumbus & Johnson, 2003)	University of Southern California(O'neil & Bensimon, 1999)
MC-Bauchaine MüllerGbmh(Letza,1996)	University of California at San Diego(ASHE,2002)
General Electirc Lighting Business(Davis,1996)	IT technologies
Rexam Custom Europe(butler et al. ,1997)	MDIS(Tate,2000)
Danisco Finland(Utunen,2003)	Other Companies in service industries
ABB Industrie(Ahn,2001)	British Airways(Olve et al, 1999)
Trade	Mass Transit Railway Corporation(Chan et al., 2002)
Store 24(Kaplan & Norton, 2001a)	United Parcel Services(Kaplan & Norton, 2001a)
Handleman(Kaplan & Norton,2004)	University and Regional Library Münster(Willis, 2004)
Service	Bavarian State Library, München(Willis, 2004)
Finance	University Library Munich(Willis, 2004)
Metro Bank(Kaplan & Norton, 1996a)	University of Virginia Library(Willis, 2004)
Garanti Bank(Yavuz, 2000)	Holloway Consulting Services(Moore et al., 2001)
The Commerce Bank(Brewer et al.,2005)	Ericsson Business Consulting(Lövingsson et al., 2001)
Ourtown Community Bank(Frigo et al.,2000)	AT & T Canada(Kaplan & Norton,2001a)
Venture Barcorp(Frigo et al.,2001)	British Telecom(Olve et al., 1999)
Lyods TBS Group(Ward, 2005)	Fannie Mae(Kaplan & Norton, 2001a)
Tri-cities community bank(Albright et al., 2001)	
ABC Bank(Ko & Lee,2000)	

Appendix 2

Balanced Scorecard applications not-for-profit organizations

Ontario Physical and Health Education Association(Markham, 2002)	U.S Coast Guard(Brown,2000)
Worksource Enterprises(Carter, 1999)	Constabulary(Wisniewski & Dickson,2001)
United Way of Southeastern New England(Kaplan,2001)	Swedish Police Service(Elefalk,2001)
New Profit Inc.(Kaplan,2001)	Swedish Law Enforcement(Carmona & Gronlund, 2003)
Illinois Transportation(Lang,2004)	Royal Canadian Mounted Police(Kaplan & Norton,2004)
Midstate Transportation(Brown,2000)	U.S. Army(Kaplan & Norton,2004)
U.S State Auditor's Office(Kerr,2003)	AFSAC(Walton et al., 2004)
U.K Small Business Service(Irwin, 2002)	U.S Air Force(Europe)(Lorenz et al.,2001)
Australian Bureau of Statistics(Dickinson&Tam, 2004)	U.K. Ministry of Defence(Kaplan & Norton, 2004)
National Property Board of Sweden(Wilson et al., 2003)	U.S. Ministry of Defence(Kaplan & Norton,2001)
Canada Public Works and Government Services(Wilson et al., 2003)	Charlotte City(Kaplan & Norton,2001)
Brisith Columbia Buildings Corporation(Wilson et al., 2003)	Melbourne City(Brackertz & Kenley,2002)
Norwegian Directorate of Public Construction and Property(Wilson et al., 2003)	Victoria City(Kloot & Martin, 2000)
Dutch Water Boards(Admiraal & Helden, 2003)	Lavrik Municipality(Askim,2004)
Bradford health Authority(Radnor&Lovell,2003)	
National Reconnaissance Office(Chesley,1999)	

Appendix 3

Questionnaire sent to companies

Dear authoritative,

I invite you to fulfill the questionnaire about my graduation thesis in Dokuz Eylul University Master of Business Administration program. The questionnaire is for measuring the concentration of using Balanced Scorecard as performance management systems in Istanbul Stock Exchange companies. The answers given will be hidden and absolutely could not be captured by anyone. We thank you for cooperation in answering the questionnaire. After fulfilling the questionnaire, please sent a fax to (232) xxxxxxxx'e or an e-mail to "xxxxxxxxxxxx@xxxx.xxxx" or "xxxxxxxxxxxx@xxxx.xxxx".

Ozgur Baris Hazir

Specify company name and your title _____

If you select a) or b) in the question below, use left column for further questions; if you select c) or d) in the question below, use the right column and use the boxes next to questions for your answers.

Are you using Balanced Scorecard in your company?

- a) We use in all units in our company
b) We use in some units in our company
(Specify.....)

- c) No, we do not use
d) We employed but give up using

1) From which year have you been using Balanced Scorecard? 2) What is the reason of start using Balanced Scorecard?(can select more than one) ☐ We were not satisfied with the previous system. ☐ We chose it because of being a new system. ☐ We chose it because of being a new fashion. ☐ Our consultants recommended. ☐ Employees recommended. ☐ Shareholder recommended. ☐ We chose it because it works effectively with another system (Please also specify these systems) 3) Mark the perspectives you use in your Balanced Scorecard. ☐ Financial ☐ Internal Business ☐ Customer ☐ Learning and Growth ☐ Other (Please specify.)..... 4) Are you using computer programming in your Balanced Scorecard? ☐ Yes, a developed-in house program. ☐ Yes, an off-the-shell program ☐ No.	1) Do you plan using Balanced Scorecard in the future? ☐ Yes, in a short time period ☐ Yes, in a long time period ☐ No comment because of our insufficient information about it. ☐ No, we do not plan to use it as we do not think it would be beneficial. 2) Which performance measurement and/or management system do you use? ☐ We use a system we improved ourselves ☐ We use a system recommended by the consultants (Please specify.....)
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