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MASTER'S THESIS

THE USE OF INTEGRATED PERFORMANCE MANAGEMENT SYSTEMS IN THE REPUBLIC OF NORTH MACEDONIA

Ljubljana, October, 2020 SANJA POPOVIC COSIC

AUTHORSHIP STATEMENT

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INTRODUCTION

Performance measurement systems (hereinafter: PMS) have gone through significant changes in their development, mainly because of their inability to provide information along different dimensions of performance which will guide companies toward future growth and success. Traditional accounting-based systems were backward looking, relying on aggregate measures and caused dysfunctional behavior among managers to deliver short term results only. The rise of new innovative PMS in the mid-90's provided ways to overcome the identified problems associated with traditional systems. The newly developed systems were perceived as multidimensional systems providing a balanced view on performance and gradually evolved as strategy implementation tools by encompassing techniques that aligned the measurement systems to the strategy of the organization. Such systems are also known as integrated performance management systems (hereinafter: IPMS).

The most familiar example of IPMS is the Balanced Scorecard (hereinafter: BSC), which was originally conceived as a diagnostic tool that provided managers with a comprehensive assessment of organizational performance along different dimensions (Kaplan & Norton, 1992). It provided a tool for managers to measure and monitor the performance from four different perspectives: financial, customer, business processes, and learning and growth. After that, the BSC evolved as a strategy implementation tool (Kaplan & Norton, 1996) dueto its ability as a framework to translate strategy into operational measures. Kaplan and Norton (1996) emphasized four management processes to ensure that performance indicators are aligned to strategy that would enhance strategy effectiveness in organizations. These were: translating the vision, communicating and linking, business planning, and feedback and learning. The introduction of strategy maps which were causal models of relationships between leading (internal) measures and lagging (external) measures, was the advancement in BSC (Kaplan & Norton, 2000).

The fundamental principle of innovative PMS, such as the BSC is that the strategy of the organization is tightly linked to the measurement system, as performance needs to be evaluated against its organizational objectives and critical factors. Strategy maps illustrate perceived cause-and-effect principles between measures, and a measurement system should replicate the cause-and-effect principles of the strategy. For these systems to be effective in driving organizational performance, a measurement of outcomes (lagging indicators) and means to outcome i.e. strategies (leading indicators) is required.

Many researchers have studied the extent to which these systems improve the performance by dividing companies into users and non-users (Ittner&Larcker, 2003; Braam&Nijssen, 2004; De Gauser, Mooraj&Oyon, 2009; Bedford, Brown, Malmi&Sivibalan, 2008).These researchers have also assessed how variations of PMS affect performance in an organization, with normative assertions claiming that the more the system is aligned to the

strategy of the organization the greater the benefit is. In many cases, the research has concluded that the implementation of PMS positively affects performance and can improve results over the long term (Braam&Nijssen, 2004; De Gauser et al., 2009; Bedford et al., 2008; Speckbacher, Bischof & Pfeiffer, 2003).

However, the research on the impact of PMS is inconsistent in its findings, as there are numerous cases where their usage has not provided sufficient positive effects on organizational performance. Also, practice and research have found that implementing the system is challenging and time consuming. Managers have experienced difficulties with strategy formulations and without coming to clear terms about company's strategy it is not possible to build a BSC on the basis of it. Studies of measurement system implementation suggest that it usually takes between 18 and 24 months (Bourne et al., 2000). This leads to another important question, which is how to design measurement systems that would be sufficiently flexible to cope with the changes in the market and organizational context.

Practice shows that PMS vary among each other based on the extent to which important features are incorporated in the system. Evidence has shown that companies claim to use BSC and their design varies substantially from what was initially proposed by its proponents (Malmi, 2001; Ittner & Larcker, 2003). These two studies conclude that common to all BSC types is the inclusion of both financial and non-financial measures grouped around four different perspectives. All other types of BSC frameworks vary concerning the extent to which different features are incorporated in the framework, such as the inclusion of cause-and-effect relationships between perspectives of performance and the linkage between incentives and performance targets.

Concerning the evolutionary development of the BSC, organizations can develop different kind of measurement systems, with various technical designs and types of use. Speckbacher et al. (2003) and Malmi (2001) have provided a descriptive analysis of companies using different designs of BSC. The categorization of the BSC in Speckbaher et al. (2003) analysis of the BSC usage in German speaking countries is based on the evolutionary stages of the development of the framework, which coincides with the subsequent stages in the BSC implementation process.

Andy Neely (2005) uses a citation/co-citation analysis to explore the developments in the field of PMS. The author has performed this study by analyzing the frequency of citations of individual pieces of work. The citation analysis shows that the pattern of citation in this field is rather sporadic, with only ten works which are cited more than 30 times, highlighting the dominance of Kaplan and Norton and the BSC. The ten most frequently cited authors were cited 514 times between 1991 (the first time of citation for any of them) and 1995. Kaplan's dominance of these rankings is emphasized by the fact that 56.8 percent of these 514 citations are to his work with David Norton on the BSC. Another finding of this study is the diversity of authors writing in this field with respect to their disciplinary backgrounds. The diversity of authors' professional backgrounds as well as the

large number of rarely cited works is indicative of widely distributed and somewhat undeveloped academic study (Neely, 2005). Another important question, which the author explores, is whether there is a central theme which prevails in most of the writings in this field, due to the different disciplinary backgrounds of the authors.

To answer this question, Neely (2005), performs a co-citation analysis which shows patterns for the most influential works and the frequency with which two connected articles were co-cited. The resultant network shows a central group of authors who focus on performance measurement-relating their work on manufacturing and business strategy and other sets of authors whose work is rather independent. This analysis highlights that the main concern of the central group researchers (given the relative dense network at the center) is to ensure that PMS relate to organizational strategies. Therefore, Neely (2005) argues that despite of different disciplinary backgrounds of authors, there are integrated set of themes that individual authors are exploring, showing consensus on the core of performance management discourse. The author concludes that the link of strategy to PMS is the core of the research in this field.

• The Purpose and Aim of the Thesis

The usage of IPMS, the extent of its use, and its relevance on the organizational performance has been of central issue in many countries. The purpose of this thesis is to study the extent to which IPMS are used in medium and large size companies in the Republic of North Macedonia. The level and the scope of IPMS usage in these companies are examined mainly by determining the extent to which necessary features and management processes are incorporated in companies' PMS. PMS which exhibit greater comprehensiveness (diversity of measures) and are integrated to strategy will contribute to a greater extent to the achievement of organizational outcomes (e.g. strategy articulation and strategy development, strategy implementation, learning and feedback, integrated planning, etc) and thereby will contribute to improving performance in Macedonian companies.

In the theoretical part of the thesis, a framework for the categorization of different types of PMS based on their complexity and usage purpose was developed. The purpose for which the PMS are designed for and used is a very important determinant in assessing the impact these systems have on organizational performance. The purpose of PMS should be determined and explicitly defined whether they are solely operational or strategic (Micheli & Manzoni, 2010; Ittner et al., 2001). These authors believe that the benefits of the usage of PMS depend on its intended role. Building on Speckbaher et al. (2003), first, several categories of IPMS will be defined and then the framework will be used to examine theoretically and empirically the differences in benefits achieved by using IPMS among different categories of users. In order to examine the usage and the scope of IPMS usage in the Republic of North Macedonia, the following research questions are proposed:

Research Question 1: To what extent do large and medium-size companies use IPMS?

Additionally, there will be an analysis to examine whether different usage categories (designs of IPMS) affect the benefits and the organizational outcomes generated by IPMS usage. In that sense, differences in mangers' perceptions of the level of achievement of benefits from the IPMS usage among different usage categories will be explored. Therefore, the following research questions are proposed:

Research Question2: How are variations in the design of IPMS related to the achievement of organizational purposes?

Research Question 3: How are variations in the design of IPMS related to the achievement of benefits from its use?

- ## Research Method

The research method was based on a quantitative cross-sectional study. The quantitative data in this study was gathered with an online survey questionnaire distributed to a representative sample of large and medium size companies in the Republic of North Macedonia. More specifically, the survey questionnaire collected data about the usage of IPMS, the purpose for its use and expected benefits. To gain a deeper understanding of the topic, the respondents were also personally addressed through direct interviewing. Statistical data analysis was used to tabulate (trends and variations) in IPMS practices in companies in the Republic of North Macedonia.

After the introduction, in chapter one there is a discussion about the different purposes of using PMS. In chapter two, there is a discussion about the usage of PMS for operational control. In chapter three the development and the use of IPMS for strategy implementation is elaborated. In chapter four the BSC, its theoretical framework and its essential management processes are discussed. In chapter five, there is an elaboration about the different benefits that the IPMS generate for their users and organizations. In chapter six, the research method used is presented and in chapter seven, the analyses obtained from the findings are given.

1 USAGE PURPOSES OF PERFORMANCE MEAUSERMENT SYSTEMS (PMS)

In this chapter, first the different purposes of PMS usage, differentiated mostly with regard to their intended role in the organization will be elaborated. Second, the PMS within the broader context of usage will be discussed and third there will be a discussion about the changes in disclosure of accounting practices due to the usage of innovative PMS.

1.1 Distinction between Different Usage Purposes of PMS

The purpose, for which PMS was designed, is a very important determinant, especially for studying the benefits and the outcomes. The outcomes of the usage of the system are, among others, the impact on organizational performance, the impact on decisions made based on information from these systems, the successfulness of strategy implementation process, etc. Acknowledging the purpose of the PMS in the organization should be made explicitly. Micheli and Manzoni (2010) assert that a clear definition for purposes of PMS benefits the organization and that definition of its roles are fundamental factors in determining its success and impact on companies' performance. It should be explicitly decided whether the measurement system is strategic or solely operational (Micheli& Manzoni, 2010).

The PMS usage is influenced by the way the organization intends to use its system, particularly the BSC. Another way to categorize the usage purpose of PMS, particularly the usage of BSC is whether it is used for organizational purposes or individual purposes (Wierrsma, 2009). Communicating of strategy, organizational alignment and implementing of strategy are organizational purposes. Although in this thesis, the analysis of the BSC usage is based on organizational purposes, employees and mangers use the BSC to improve their work-related tasks. Individual manager's use of BSC in execution of his/her task is an individual purpose. Managers use BSC to help them assess whether their decisions (or organizational unit's decisions) are aligned with company's strategy. Also, individual managers use BSC to increase their task efficiency by tracking actual performance versus desired.

The evolutionary stages in the use and development of the PMS, reaffirms the fact that the purpose of PMS usage in the early development stages was for the purpose of better performance review due to richer data. The BSC was initially devised to navigate the managers through different dimension of performance, which allowed managers to track performance more efficiently. In the later developmental stages, the BSC purpose was to assist the development and achievement of organizational strategy. The Speckbaher et al., (2003) typology developed a taxonomy of three different types of strategic usages of BSC (BSC I, BSC II, BSC III). Type BSC I combines financial and non-financial measures which are derived from the business strategy, type BSC II operationalizes strategy through cause-and-effect relations and type BSC III, which is the most developed, steers organizational members towards achieving a strategy by setting targets and initiatives, and linking targets to incentives. Namely, this distinction between PMS between the early phase which review performance, and the the later phase which are strategic is synonymous with the measurement practice by which measures are first measured and afterwards managed.

The PMS usage defines whether it is a decision support system or a control system (Malmi& Brown, 2008). The authors assert that the purpose of the PMS in organizations is based on the distinction between their role in rational decision-making and rational control. The distinction between these accounting systems in the organization is whether they are used to provide information for decision support or whether they are used to direct employee behavior and attitude. Malmi and Brown (2008) assert that accounting systems, which deploy mechanisms to monitor subordinate managers' goal congruence and behavior, are justified to be used for control purposes. This is the role of PMS in supporting management control in the organization, by measuring the organization's progress toward specific quantified non-financial and financial goals and allowing reactive courses to be taken if certain deviations occur. However if managers employ these systems to support their own decision making activities or the systems are used to help their subordinates make better decisions, then these systems are designed for solely decision support purposes.

The terms performance measurement systems and management control are synonymous in most of the literature. The early literature in this topic has been categorized under the heading of management control. Chenhall (2003) takes into account the historical developments in this field and defines management accounting (hereinafter: MA) as "collection of practices such as budgeting or product costing". Management accounting systems (hereinafter: MAS) which is the "systematic use of MA to achieve some goal" and management control systems (hereinafter: MCS) which is "a broader term that encompasses MAS and also includes other controls such as personnel and clan controls". Therefore, PMS are part of MCS. PMS are formally, systematically developed MCS, and many authors have studied the usage and effectiveness of PMS in management control theory and practice.

The definition of MCS refers to the practices intended to gain congruence between organization's strategic and other goals and employee's goals and activities. Because of the distinction in the roles of MAS in decision-making process and control, Malmi and Brown (2008) argue that in the context of decision making accounting might be studied separately than in the context of control. As in the control context, managers are ultimately interested in achieving desired outcome and making sure not desired actions are avoided.

The definition about MCS being devices and systems mangers use to ensure that the behaviours and decisions of their employees are consistent with the organization's objectives implies that these systems operate under the cybernetic principle. Cybernetic models include one or more correcting feedback loops that are dependent on comparisons of actual and expected (desired) results. More complex cybernetic models include feed forward loops that involve predictions of outcomes before final measurements are taken. There are five characteristics of cybernetic control (Green & Welsh, 1988):

- First, measures which will enable the quantification of an activity.
- Second, standards of performance or targets that should be met.
- Third, a feedback process which should enable comparison of the outcome of the activity with the target.
- Fourth, variance analysis, which arises from the feedback.
- Fifth, the ability to modify the behavior or the activity.

Malmi and Brown (2008) have developed a typology of MCS, based on the distinction between decision support and control usage. This is a MCS typology, which consists of five different systems which are clearly used for control purposes. These are: planning, cybernetics controls, reward and compensation, administrative controls and cultural controls.

Any system such as budgeting or company scorecard can be categorized as MCS. The BSC is a result (outcome) control system. To capture the broad concept of management control, different MCS working together in organizations, would be emphasized. Outcome control systems such as the BSC are used for performance measurement in cases where goals are non-ambiguous, outputs are known and feedback is used to improve goal attainment. Besides the outcome control, two other types of controls are known in theory and practice - the action control (rules and procedures) and the social control (clan, personnel). However, the majority of these systems are recognized as systems aiming at fulfilling one particular purpose in the organization. Budgets and planning beside projecting overall financial targets are primarily beneficial in resource planning and allocation. Reward and compensation as a control system is used to align employee behaviour with organizational goals and has a predominantly motivational purpose. They are standalone systems and subsequently are treated as such. In implementing such systems, management address one particular issue and are not concerned with the cohesion of strategic goals of the organization (Mooraj, Oyon& Hostettler, 1999).

Another distinction of performance measurement usage purpose is based on whether they are used for diagnostic purposes or interactive purposes (Simmons, 2000). It is acknowledged that PMS are used for both diagnostic control and interactive control. Simmons (2000) posits that control of a business strategy is achieved by integrating four levers of control. The levers of control in Simmons framework are: beliefs systems, boundary systems, diagnostic systems, and interactive control system. Belief systems are used to communicate and reinforce core values related to strategy and the boundary system puts restraints on undesirable actions. Belief and boundary systems are both intended to motivate employees in achieving organizational goals; however these two systems create dynamic tension in such a way that the belief system creates a positive force and the boundary system a negative force. The diagnostic system of the Simmons levers of control framework refers to the usage of critical success factors (measures) which are measured and monitored. And, finally the interactive usage of control refers to discussions about the

critical success factors and their reassessment in light of the environmental context. The diagnostic and the interactive use of control are on the two opposites of the control continuum, with the diagnostic control enabling managers to benchmark against targets and the interactive control enabling managers to adapt and re-axime the organizational strategy.

1.2 Performance Measurement Systems within the Broader Context of Use

Management accounting and particularly MCS do not operate in isolation; instead they operate in complex organizational and environmental settings. The design and functioning of MCS is influenced by contingency factors, both environmental and organizational, which requires managers and theorists to evaluate the effective use of MCS in the wider context. This is done in order for the organization to adopt to the environment and for mangers to adopt their management practices, including PMS, to changes in the contextual factors, in order to attain enhanced performance (Chenhall, 2003).

Contingency theory states that there is not a universally accepted MCS that is beneficial for every organization. Among different contingency factors that influence the usage and design of the MCS are the environment (risk and uncertainty), technology, structure, size etc. These are considered as contextual variables, which have a potential implication over the effective design of MCS (Chenhall, 2003). This implies that studying the role of MCS within contemporary environmental setting is necessary to ensure that the control systems are reliable and relevant (Chenhall, 2003).

In the following section, it is explained how environmental uncertainty affects the design of MCS. For example, in times of greater uncertainty, performance evaluation is characterized by more subjective evaluation style and budgets are used in an interactive way. It is recognized that in high uncertainty, budgets and explanation on detected variances are needed but also participation and coordination between managers and subordinates is overriding (Chenhall, 2003). This is because budgets lack flexibility and exclude important external information. For the purpose of this thesis, it is important to analyze how uncertainty, which is known in literature as an external contextual factor, affects the design of PMS. To ensure that organization's PMS reflect the current circumstances associated with greater uncertainty, PMS deploy more qualitative based measures, which are based on customer/employee surveys and expectations.

Similarly, depending on the technology and work processes, the management deploys specific set of controls. Organizations producing highly specialized and differentiated products are likely to employ unit/ batch technology. The processes involved in unit/batch production are not certain and are tested to great amount and many exceptions are likely to occur. It is expected that these types of technology require controls to encourage flexible

responses to customers and suppliers and high level of communication with employees. The traditional, mechanistic control, which relies on tight budgets and financial control, is not suitable within these processes. Organizations that produce standard, undifferentiated products employing more automated processes are characterized with well-known outcomes and processes with few exceptions. Output of processes are more certain and measurable. This type of technology requires standardized, administrative controls such as traditional financial and cost controls.

Most organizations use complex and a wide range of MCS, and most emphasis was placed on formal control systems such as budgets. However, there is wide taxonomy of control varieties ranging from mechanistic to organic (Ouchi, 1979; Broewnell& Merchant, 1999). It is important to address how specific elements of MCS relate to the broader use of control (Chanhell, 2003). Mechanistic control relies on formal rule, standardized procedures and principles. They include budget constrained performance evaluation style, high reliance on accounting controls, operating procedures, action controls, diagnostic control etc. Organic systems are more subtle, interactive and involve fewer rules and are richer in data. Organic types of control are clan controls, social controls, personnel controls, budget slack, interactive strategic controls, etc. It is clear that organizations rely on combinations of control mechanisms and that these taxonomies are useful to emphasize that these types of controls interact with each other or relate to each other.

1.3 Shift towards Intangible-Based Performance Measurement Systems

The inabilities of the traditional cost approach method to emphasize the importance of intangible assets in the creation of wealth and value led to the changes in the field of performance management. Beside the BSC, other performance management systems that brought new developments in this shift were the Economic Value Added (hereinafter: EVA) and the Intellectual Capital (hereinafter: IC) method. Although these two methods encourage future growth, they contrast greatly (Mouritsen, 1998). EVA is said to produce greater overall productivity and competiveness for the organization, because it helps to enhance shareholder value creation. On the premise that shareholders value of a company only adds value to its shareholders when equity returns exceed equity cost, EVA as a performance measure evaluates "the 'residual income' left over from the company's operating profits after the cost of capital has been subtracted" (Stern, 1994). Therefore, EVA is said to be superior to the traditional accounting profits because it takes into consideration the risk of capital in the company and the riskiness of the operations (Lehn &Makhinija, 1996). The overriding objective of the EVA model to increase the shareholder value has led to changes in the management practices of the organization using the EVA method. EVA as a management control system uses 'radical delegation' where the company is reorganized in business units to allow the 'empowerment' of the managers of business units to produce and implement projects with a positive EVA, because that is what generates wealth (Mouritsen, 1998).

On the contrary, the IC model's proponents argue that the company's specific routines, knowledge and competences are generators of future wealth and long-term growth. This model is based on the resource–based theory where strategies are developed utilizing human, structural, and relational capital. Rather than 'increasing the assets derived from existing assets or finding ways to release capital from activities that earn substandard returns' the IC model uses competence development and organizational knowledge in the creation of wealth. While the employee empowerment is at stake in the EVA model, the IC model encourages employees' creativity. The IC model mobilizes all types of intellectual capital (intangible assets) associated with company's human capital (employee morale and creativity, knowledge, etc), structural capital (strategy and culture, processes, etc) and relational capital (customer relations, customer loyalty, brand values, etc). Another disadvantage of the EVA based performance management compared to the IC model is that EVA ignores a strategy or it does not specify the theory of how companies create value. The importance of both the employee empowerment and the development of a strategy based on intangibles and competences have made the IC model superior to the EVA model.

The shift towards the intangible-based performance systems led to debate concerning the changes of disclosure practices related to intangibles (Lev, 2001; Skinner, 2008). Practitioners and scientists in favour of reforms claim that the deficiencies of the current accounting system inhibited companies that rely on intangible assets to obtain capital on the free market. They argue that many economically valuable intangibles are not recognized in the balance sheet and that investors undervalue companies that rely heavily on knowledge and capabilities. As contrary to these claims, there is also supporting evidence that markets perform efficiently in financing all types of economic activity including innovative knowledge-based companies (Skinner, 2008).

The large discrepancies between the 'book' and 'market' value of many public companies, especially in the knowledge-based ones, provide additional evidence of the uselessness of accounting statements. The failure to recognize the value of intangibles in financial reporting has evoked many proposals for reporting information on intangibles, such as the Meritum Guidelines and Lev's Proposal (Lev, 2001). These proposals are hardly substitutes for the existing financial reports, indeed they are supplementary frameworks which provide information on intangibles and do not propose that 'intangibles' disclosure should be mandated (Skinner, 2008). The disclosure of 'intangibles' is not mandated mostly because intangible assets are company specific and cannot be standardized.

Innovative measurement systems based on intangible assets, such as the BSC, have many positive benefits for the organization, such as (1) focusing attention (2) improving the management of intangible assets (3) creating resource based theories (4) translating strategy into action (5) weighing possible courses of action, etc (Ittner, 2008). There are generally three approaches to evaluate the importance a particular company places on intangible asset measures. One approach is to evaluate the diversity of measures a

company uses under the assumption that greater measurement diversity ensures that important driving forces of performance are not ignored. Another approach is the assessment of weight placed on traditional financial measures relative to non-financial measures relying on the premise that over depending on financial measures leads the company to undermine investments in strategic assets, which provide long-term success. The third approach assess whether there is a fit between the company's competitive strategy and choice of its intangible measures under the assumption that the same set of intangibles is not equally beneficial in every setting e.g., the choice of measures is contingent above all on the business strategy.

In the following chapter, there will be a discussion about the development of the non-financial measures that derived from the operational theory and practice and are relevant to their specific area of expertise but nonetheless they are incorporated in innovative PMS.

2 MEASUREMENT SYSTEMS FOR OPERATIONAL PERFORMANCE

According to Kaplan and Norton (1996), PMS were first established to enable a comprehensive view of the organizational cross-functional operations (performance measurement from four perspectives). The implementation of such PMS enabled better diagnostic control due to a holistic view of the organizational situation and better understanding of its operational activities.

In line with this notion was the development of operations management theory, which provided benefits and direction for improvement of the traditional PMS. An integral point behind this benefit was the shift from measuring cost variances against budgets and aggregated financial metrics to controlling the causes of costs that aroused from the operations of the organization (Chenhall&Langefield-Smith, 2007). The measurement of causes of costs required identification of the drivers of costs, which could be captured with operation, based measures. The operation-based measures were non-financial and customer based measures. Such measurement enabled diagnostic control by reacting in real time to fix the problems and to eliminate the observed performance deviation.

The development and deployment of measures across different functional areas of the organization has contributed to a great extent to the area of performance measurement. The demands from managers to assess the efficiency and effectiveness in specific areas such as operations, marketing, and human resources resulted in efforts from those areas to develop performance measures (Chenhall&Langefield-Smith, 2007). It means that insights from non-accounting areas helped to address the development and deployment of performance measures and their broader role in the organization. These measures are non-financial rather than financial, internal rather than external, and subjective rather than objective. The

proliferation of these approaches to develop non-financial measures contributed to improvement of the overall operational efficiencies of the businesses.

Chenhall and Langefield-Smith (2007) provide a review and research that address the choice and design of performance measures across a range of different functional areas, such as production, marketing, and human resources. Although these measures are of a greater relevance to their specific areas of operation as they provide direction for improvement, nevertheless accounting managers also made serious considerations to include these non-financial measures in their planning and controlling activities. I will try to elaborate how different non-financial measures were deployed in the operational theory and practice and today they are widely used starting from common key performance indicator (hereinafter:KPI) dashboards to contemporary balanced PMS, such as the BSC.

The adoption of novel practices in manufacturing such as the total quality management (hereinafter: TQM), just in time (hereinafter: JIT) system, flexible management system (hereinafter: FMS) and lean management caused performance systems to evolve in order to support these novel approaches in production. Also, the efficient design of production processes required more effective control of processes. The JIT is a manufacturing practice based on the philosophy that production or delivery of goods too early or too late is wasteful (Monden, 1996). It is a method based on reducing times within production systems as well as times for responses from suppliers and to customers. Consequently, the adoption of JIT led to changes in performance systems to encompass non-financial measures to asses reductions in cycle time, reductions in inventory, reductions in cash cycle conversion, delivery lead times, relations with suppliers, the proximity of suppliers, etc.

Companies, which incorporated quality control programs in their operational processes, gained superior performance. Such is the implementation of TQM. TQM emphasizes the inclusion of many dimensions of quality control measures grouped in three areas: (1) those focusing on customer satisfaction, (2) those focusing on continuous improvements and (3) those that treat organizations as total systems. It is acknowledged that the soft elements of TQM are grouped in group (1) and include customer satisfaction, employee commitment, training etc. Hard elements such as zero-defect, quality planning, benchmarking and continuous improvement are placed in group (2) and group (3). Studies have examined the impact of different dimensions of quality of TQM on organizational performance. Rahman & Bullock (2004) empirically showed that the soft dimensions of TQM positively affect organizational performance and in addition to their direct effect on performance, soft TQM dimensions have an indirect effect on performance through its effects on hard TQM elements. With the usage of TQM, the emphasis shifted away from “conformance to specification” and towards customer focus. As a result, the usage of customer opinion surveys and market research became much more widespread. The measurement practice shifted away from costs related measures to more flexible, non-financial measures, which empowered employees and enhanced customer and supplier relations.

It is also acknowledged that performance measurement stemmed from assessing the quality of the services companies provide. Companies compete based on the efficiency and the effectiveness of the services they provide. Neely (1995) identifies the efficiency and the effectiveness of an action as the two fundamental dimensions of performance, and also highlights that there can be internal as well as external reasons for pursuing specific course of action. Effectiveness refers to the extent to which customer requirements are met, while efficiency is a measure of how economically the firm's resources are utilized when providing a given level of customer satisfaction (Neely, 1995). Such an example, which the author proposes is product reliability, which is a quality related dimension of performance. In terms of effectiveness, achieving a higher level of product reliability leads to a greater customer satisfaction. In terms of efficiency, it reduces the costs incurred in the business through decreased field failure and warranty claims.

Performance measurement in the marketing discipline includes measurement of specific aspects, such as customer satisfaction and brand equity and measuring the effectiveness of marketing activity (Clark & Amber, 2001; Chenhall&Langefield-Smith, 2007). The measurement of the effectiveness of marketing activity is important and challenging because of (1) the general restraint on budget expenditure on marketing activities (2) measures of marketing performance unlike the measures of operational efficiency are customers based and competition based which are external and uncontrollable (3) the sheer difficulty in measuring customer value or the quality of customer relationship (Clark, 2007).

The effectiveness of marketing activity in theory and practice is measured by the impact these activities have on intermediate outcomes and final performance outcomes. It is argued that measuring marketing effectiveness is more important than measuring marketing efficiency (Clark & Amber, 2001). Final performance outcomes of marketing activity are sales and profitability. They are external outcomes by which the effectiveness of marketing activity is judged. Perceived price and product availability are useful measures of intermediate performance. Perceived price can be measured relative to value received and relative to competitors. In terms of product availability, organizations want to assess the degree to which their product is accessible to the target customers at the right location and the right time. Measures here include penetration of target distribution channels, shelf space, stock outs and delivery time.

Marketing measures have a distinctive role in the design and usage of PMS due to their relation to accounting measures. It is widely acknowledged that customer satisfaction and customer perceptions on quality and service, which are qualitative and non-tangible measures, are in direct relation to more tangible outcomes such as revenues and market share. Even more, developing strong marketing assets such as a brand asset and loyal customer base is important because of the assumption of their positive impact on the financial and market value of the firm. It is argued that organizations with strong brand asset and customer asset perform financially better over a long period. Simon and Sullivan

(1993) define brand equity as the incremental cash flows that accrue to branded product over and above the cash flows that would result from the sale of unbranded product.

When taking into account marketing measures, it is considered that customer loyalty rather than customer satisfaction is the real driver of market share (Sasser & Reiched, 1990). Proponents of customer loyalty observe that it is not whether customers that are satisfied that affect cash flows, but it is whether customers remain over lifetime which enhances future cash flows.

A loyal customer base is an important marketing asset in a company. Studies have investigated the determinants of customer loyalty, such as customer satisfaction which is based on customer perceptions of quality and service. According to Kaplan and Norton (1992) evaluations or survey on customer perceptions allows the identification of some performance measures from customer perspective: "It forces the company to view its performance through customer eyes". Not knowing what customers expect or specifying standards that do not reflect customer perceptions of quality leads to gap between customer expectation and quality service. Contrary, providing attributes that customers value the most may flow through customer satisfaction and retention. Customer satisfaction is an established measure considered in the customer perspective of BSC (Kaplan&Norton, 1996).

Evaluating marketing effectiveness is important to the organizational operational processes because of the linkage of the customer to other aspects of the value chain as well (Chenhall&Langefield-Smith, 2007). Marketing research is linked to the value chain by determining which processes and actions throughout the organization bring excellent customer performance. If customer expectation of on-time delivery is determined as an important aspect of customer satisfaction, then internal processes such as order processing, customer scheduling and order fulfilment have to be continuously monitored and improved. Kaplan and Norton (1996) claim that managers need to focus on those critical internal operations that enable them to satisfy customer need. The internal business processes measures for the BSC stem from the business processes that have the greatest impact on customer satisfaction.

Customer loyalty index is widely used as a measure in BSC. Studies show that product value attributes (brand image, product quality and post sale service quality) directly and differentially impact on the level of customer loyalty and selling prices (Ittner&Larcker, 1998a, Banker et al., 2000).

Non-financial measures that have been proposed in operational performance measurement include measures such as quality, delivery, inventory, material scrap, etc. Measurement systems using a combination of non-financial and financial measures can rather be seen as a tool for operations management (Chenhall&Langefield-Smith, 2007) or a "KPI scorecard". The non-financial measures that come from the attempts of operational

managers to increase the efficiency of their areas of management have contributed to the design and usage of KPI scorecards or KPI dashboards.

The usage of PMS to support operational performance and are not for strategic purposes, can be seen as ‘performance monitoring' systems and as a form of diagnostic control. This type of diagnostic control can be related to Kaplan and Norton’s initial use of BSC, which was described in their earlier works as an automobiles dashboard. To further clarify the definition and the role of systems being named as "KPI scorecard" it can be recall that causal relations among drivers of performance have been incorporated to some of these systems (Chenhall&Langefield-Smith, 1997). Kaplan and Norton (2001) acknowledge that systems, which are missing the cause and effect relationship between different dimensions of performance are are still called BSC, but are not used for strategy implementation. This kind of measurement system is "KPI scorecard".

In the following chapter, the advancements in the development of PMS and their evolution into systems for strategy implementation is going to be discussed.

3 PERFORMANCE MEASUREMENT SYSTEMS (PMS) FOR STRATEGY IMPLEMENTATION

The evolution of PMS in the period of the mid-1990’s was marked by the development of more complex frameworks which provided a balanced set of measures that explicitly linked those measures to the strategy. These systems are referred to as strategic performance measurement systems (hereinafter: SPMS). There are many frameworks/systems developed and are used as SPMS such as *The Performance Prism* (Neely et al., 2002), *Integrated Performance Measurement System* (Bitici et al., 1997) and *BSC* (Kaplan & Norton 1992, 1996, 2001), with the BSC as the most prominent. More recent and holistic approaches are the Ferreira and Otley (2009) framework, which combines performance measurement with other controls, and Broadbent and Laughlin (2009) holistic conceptual model.

Many researchers have studied the effects of SPMS on companies’ performance (Mooraj et al., 1999, Ittner et al., 2003, Braam&Nijseen, 2004). Proponents of strategic performance measurement advocate that the use of multidimensional set of financial and non-financial measures that are linked to strategy and are represented in causal relationships between financial outcomes and drivers of performance contribute positively toward strategy implementation and overall firm performance.
Most studies on the effectiveness of SPMS assess whether actually using such systems facilitate strategy implementation. It has been argued that by implementing strategies successfully, companies achieve objectives and hence performance is improved.

Ittner et al. (2003) identifies the following three approaches to the formation of SPMS (1) *greater measurement diversity (2) improved alignment with firm strategy and value drivers and (3) the usage of performance measurement alignment techniques such as the BSC, economic value measures, and causal business modeling.* These three approaches are perceived as useful for the implementation of effective SPMS. Furthermore, the model emphasizes that the greater the level of alignment of value drivers and strategies with the measurement system the more useful the model is in implementing strategy and improving overall firm performance. The authors assess the implications of these three performance measurement approaches to performance, specifically to (1) managers' self-perceived measurement satisfaction and (2) actual financial outcomes (accounting and stock market performance).

Greater measurement diversity allows a diverse mix of non-financial measures to supplement traditional financial measures and to overcome the dysfunctional behavior caused by their short-terminism in nature (Fisher, 1995; Brancato, 1990). The traditional financial measures lack ability to provide improvements in important strategic areas; they do not relate to the root cause of problems and are inadequate to quantify the intangible assets. Non-financial measures are strategic, drivers of performance and allow strategic goals to be monitored and controlled. Broader set of measures also keeps managers from sub-optimizing by allowing different key measures to be analyzed simultaneously.

The second approach emphasizes that SPMS are more closely linked to organization's specific strategy and its value drivers. Following this characteristic, performance is enhanced by narrowing the "measurement gap" between organization's priorities and measurement practices (Ittner et al., 2003), by measuring performance against strategic objectives. A key issue in managing the links between strategy and performance is identifying the strategic factors or 'value drivers' that lead to strategic success (Ittner&Larcker, 2001). These are non-financial as well as financial drivers, which are accompanied with critical measures. Another important element in the alignment process is to tie activities such as decision making, target setting and manager’s evaluation to value drivers. This way SPMS are expected to communicate which actions are required to implement the chosen strategy and to motivate and direct managers toward achieving strategic goals.

The third approach is the use of measurement alignment techniques. Ittner et al. (2003) identifies three measurement alignment techniques: balanced scorecard, economic value measurement and causal business models.

The balanced scorecard is an alignment technique, which allows measures of strategic value drivers to be linked to the outcomes. This consists of determining value drivers of future performance, their alignment with strategic outcomes and subsequently their measurement and control.

The economic value based alignment method uses residual income measures such as EVA or cash flow related measures as a 'cornerstone of total management system' that focuses on the creation of shareholder wealth. In value based management (hereinafter:VBM) objectives are stated in measures such as EVA or cash flow measures, because they track changes in shareholder wealth better than traditional accounting measures. Furthermore, EVA is used in capital budgeting, goal setting and compensation purposes. Any financial or investment decision which increases EVA is considered favourable. Any objective, which aims at increasing EVA, should be pursued.

Ittner et al. (2003) study further categorizes the companies based on the type of strategy they were identified to be following. The three strategies used were innovate, sustain and flexible. The study also identified ten value drivers, which were expected to guide companies toward long-term future success, with regard to the chosen strategy. These were important performance categories such as short-term financial performance (e.g. annual income, return on assets, cost reduction), customer relations (e.g., market share, customer satisfaction), operational performance (productivity, cycle time), employees relation (employee satisfaction, retention, capabilities and training), product and service innovation (e.g. innovation lead time, new product development success) and environmental performance (e.g., environmental protection and mitigation activities, environmental compliance).As it can be seen, appropriate measures have been set for each value driver category. These measures are short-term goals which are measured, monitored and controlled in order to assess whether the chosen strategies are being implemented and strategically important factors are pursued.

In Ittner et al. (2003) study, the relative performance criteria (customers relations, employee relations, product and service quality, innovation, community and environment, suppliers relations etc) which were determined as key value drivers companies choose to guide them to future success, were not always synonymous with companies strategies. This was exhibited by the relative small correlations between strategy constructs and individual value drivers. For example, companies attempting to implement innovative strategy were emphasizing more suppliers' relations than product innovation. Measuring company's overall strategy without determining the right set of value drivers to guide company to future success led to inconsistent findings and an unreal representation of strategic attributes (Ittner et al., 2003).

Ittner et al. (2003) study showed that greater measurement diversity which was characterized by using a wider set of non-financial measures along with financial measures for performance evaluation and decision making, regardless of company's strategy yielded superior performance in both financial outcomes (accounting and market values) and greater measurement satisfaction from manager's point of view. This supports the claim that greater measurement diversity, especially the non-financial measurement focus in organizations positively effects managers' self-perception on measurement success. However, there was little positive association found between the most important attribute

of the SPMS, which is the link to the strategy, with accounting measures (ROA and sales growth), which is contrasting result to the normative assertion that with grater alignment with the strategy of the organization, the SPMS contribute positively to economic performance. The authors argued that a potential explanation for these contrasting results is that the performance implications of PMS are more probably to be captured in forward looking stock market measures than in short term, historic types of accounting measures.

Furthermore, the measurement alignment techniques were positively associated with the managers' perception of measurement satisfaction, but exhibited little or no association with economic performance (Ittner et al., 2003).

In a similar study of the performance effects of using BSC in Dutch companies (Braam&Nijseen, 2004), the results were contrary to those in the previous case. In the study conducted by Braam and Nijseen (2004), the authors posited that the BSC will not automatically improve company performance, but the manner of its usage influences its effectiveness. In this study, two types of BSC were identified: a comprehensive performance measurement system, which contained both financial and non-financial measures and a strategy-focused BSC in which strategy was linked to the performance system. This typology is very similar to the typology exhibited in the analysis of Ittner et al. (2003) study and the typology used in Speckbacher et al. (2003) study of analysis of performance measurement effects in German speaking countries. Therefore, it is argued that in these studies, either though contradictory results were obtained, two different roles of performance measurement systems are distinguished: the comprehensive measurement role and the strategy implementation role (De Geuser, Mooraj&Oyon, 2009). The Ittner et al. (2003) study showed a positive relation between comprehensive (diverse) performance measurement and organizational performance, but only a little support for the effect of the strategic role. In the study of Dutch experience, BSC generated better performance results when strategy was linked to the measurement system.

In Braam and Nijseen (2004) analysis, the measurement system based solely on a diversified set of measures didn't contribute positively on improving of the company performance measured in financial results. Even though there was a slight increase in measurement satisfaction in the beginning, the overall effect of 'measurement diversity' on economic performance was negative. The authors pointed out that in the beginning poor performance effectiveness might not show because the increase in 'measurement diversity' or 'measurement efficiency' suggests improvements. Braam and Nijseen (2004) argued that PMS based solely on comprehensive set of measures without a clear link to the strategy were designed as 'dashboards'. Managers tended to approach these systems mechanistically focusing on details and searching for valid measures but they lose sight of strategic direction. However, the use of BSC with a strong link to strategy improved the bottom line performance in their analysis of the effects of BSC on organizational performance.

Kaplan and Norton (1996, 2001) argue that the use of BSC should help put strategy into operation. Many analyses on the other hand, contribute to the fact that BSC needs a well-defined strategy to have a positive effect on company's performance (Atkinson, 2006).

For strategies to be viable, they have to be verified and tested in light of the circumstances and the changes in the environmental settings. Therefore, the strategic role of BSC will be feasible only if performance indicators are carefully identified to be key drivers and gradually adapted to specific market conditions, as the conditions evolve. Therefore the strategy–BSC relation must replicate and follow the change in the strategy–environment relation. As the strategy evolves and adapts to its environment and market, the performance measurement system must redefine and follow the changes in the strategy. This way the strategy–BSC role is an iterative learning process. If this process works well the use of BSC will complement the company's strategy and make it more effective resulting in improved performance (Ittner et al., 1997, Braam&Nijseen, 2004).

Braam and Nijseen (2004) make the following suggestions that will contribute to the effectiveness of BSC's strategic role in improving a company's performance:

- The usage of interdisciplinary project teams to implement the performance systems, which consists of representatives from different functional areas.
- Introducing simple measures at the beginning. The measures, which are considered as key for organizational strategy, should be emphasized initially.
- Unique measures that better reflect the specific market and strategic conditions should be introduced subsequently. This way a more tailored measurement system is built gradually.
- A proactive stance is critical. Top management should be aware of the dynamic environment of the organization affecting the fit between its strategy and the BSC. Changing market and organizational settings require varying the set of indictors used and re-balancing BSC.

4 BALANCED SCORECARD (BSC)-THEORETICAL FRAMEWORK

Studying the BSC as a theoretical framework of performance management is relevant to my thesis because of the following:

- Gives a foundation for developing a framework for categorization of IPMS based on the stages of its development and level of complexity (Speckbacher et al., 2003).
- The theoretical analysis of the framework allows the management processes necessary for deployment of such systems to be analysed.
- The framework shows how important management processes such as planning, feedback and learning and communication are enhanced through the use of BSC.

- It provides further insights into the ways these systems are used to facilitate strategy implementation and improve organizational performance.

BSC was initially invented by Kaplan and Norton (1992) as a tool to enable managers to view the performance in several areas simultaneously. They used the analogy of an airplane navigator's task, which requires information about many aspects of the flight. These measures should represent the critical measures of the organization and should be carefully selected. The authors argue that attempts to add new measures every time an opportunity exists are unnecessary, because measurement overload is ineffective. They support this by claiming "few companies suffer from having too few measures".

4.1 BSC Perspectives

The measures in BSC are grouped in four perspectives: customer perspective, internal business perspective, learning and growth perspective, and financial perspective.

4.1.1 Customer perspective

Customer measures in the scorecard reflect organization's general mission statement on customer service. Customers concerns are usually about delivery time, quality, performance and service, and cost. To develop a scoreboard, companies must first articulate goals on time, quality, performance and service and then translate these goals into specific measures. The combination of various performances attributes which are derived from customer perception of product quality and service defines the customer value preposition.

4.1.2 Internal business perspective

Excellent customer performance derives from internal processes, actions and decisions, which are carried in the organization. Measures from this perspective are derived from the internal processes that have the greatest impact on the customer satisfaction. Determining the processes, which deliver desired organizational outcomes, is a key activity when designing measures from this perspective. Kaplan and Norton (1992) emphasize that factors affecting cycle time, quality, post service and process productivity should be measured and monitored.

4.1.3 Innovation and learning perspective

As measures from customer and internal processes are derived from customers' perception on products and services, innovation and learning measures are derived from the prerequisite of the company to continually innovate, improve and learn. Kaplan and Norton (1992) argue that learning and growth is looking forward for new opportunities.

Companies should launch new products, continually add value for customers and improve operating efficiencies in order to increase revenues.

The learning and growth perspective focuses on employees' skills, capabilities and required technology, in order to align them to customer and financial goals. The measures or the quantified objectives in the BSC's learning and growth perspective will identify the gaps between the required and existing skills and capabilities. Using it, the BSC will identify the strategic initiatives needed for these gaps to be closed, such as staff development initiatives and technology development plans.

4.1.4 Financial perspective

The financial perspective mainly represents the shareholders view ona company's success. It represents the long-term objectives of the company such as shareholder value, growth and profitability. However, Kaplan and Norton (1992) contend that well designed financial performance perspective is important because it can indicate whether the company has been capitalizing on improvement in efficiencies in operating processes. It can indicate whether the company's strategy and its implementation result in improved bottom line performance. The failure to convert improvements in the other perspectives measured in the scorecard into improved profit sends a signal to managers to rethink their strategy. Either a competitive strategy or key success factors are incorrect or a cause and effect relationships does not hold. Kaplan and Norton (1992) acknowledge that the challenge in designing the perspectives is to see whether improvements in cycle times, delivery and new product launching will lead to higher margins, bigger market share or reduced operating expenses.

4.2 Management Processes of the BSC

The BSC as a framework provides four management processes, which used separately or in combination allows companies to translate strategy into operational terms. These are: translating the vision, communication and linking, business planning and feedback and learning.

4.2.1 Translating the vision

The first phase 'translating the vision' helps managers to build a consensus about the company's mission and vision. Vision is a part of the process in which the long-range direction of the company is set. The mission statement aims to identify the requirements to attract and maintain shareholders, employees and customers and to do so in ways that are socially acceptable (Chenhall, 2003). The mission states the purpose of the company's existence. Mission and vision pursue clear manifestations of the companies' intentions and where companies are headed, insofar as they are communicated and acted upon. Kaplan

and Norton (1996) ascertain that vision and strategy statements must be expressed as integrated set of objectives and measures, which describe long-term drivers of success. Lofty statements of strategies have unclear meanings to employees unless they are described in operational terms, which will illustrate how everyday actions and decisions affect companies' strategies. It is observed that when senior managers formulate and anticipate the key driver factors and their critical measurements, it helps them clarify the strategies to a greater extent.

When clarifying strategies, managers usually specify the new markets companies want to expand to, products mix, revenues from new products, technological, and employee competencies, etc. For example, a company may have a vision of becoming a world market leader and regards the growth of revenue from new products to be a key measure of success, or a company might want to be a cost leader and pursue cost efficiency strategy by transferring its production to off shore countries.

4.2.2 Linking and communicating

Kaplan and Norton (1996) underline that to align employees' individual performance with the strategy, three activities are required: communication, setting goals and linking rewards to performance measures.

One of the primary roles of the BSC is that it acts as a communication vehicle. By disseminating the strategy and its objectives from top to bottom, middle managers learn about the key driver factors and companies' objectives that are to be followed for the company to succeed. Business units are then required to translate theirlong-termbusiness strategies, using the company's scorecard as a template. Business units set their own targets to achieve their company's goals, and inform upper management that business units have set their plans to achieve long-term strategies.

Employees and teams are required to assess which of their own goals are consistent with business units' and corporate objectives and to set priorities and objectives of their particular operations. Individuals develop their own scorecard and decide on initiatives and measures for their specific tasks. By cascading down the scorecard all individual objectives are linked to the company's scorecard. It is argued that unless the lower level hierarchical activities are explicitly linked to the BSC measures, the benefits of the BSC that depend on lower level activities are unlikely to be observed. The progressive cascading of the BSC measures down the hierarchy is more likely to produce activities at lower levels at the organization that are congruent with higher-level objectives.

To further close down the gap between corporate goals and daily operations, Kaplan and Norton (1996) have linked scorecard measures to compensation plans. Linking monetary and non-monetary incentives to the individual employee's goals aligns the efforts of individuals to the achievement of strategy. In this way the BSC forces employees to

consider the relationships between their intensions and desired outcomes. It also gives employees a feeling of autonomy and sense of accountability for their tasks.

Developing the BSC by involving middle managers and employees to participate and formulate their specific business units and individuals scorecards has several advantages. Broad participation allows information on internal objectives to be shared vertically and across the boundaries of the company; broad participation builds stronger commitment for achieving goals; broad participation allows managers from all level to understand their priorities and to set initiatives.

4.2.3 Business planning

According to Kaplan and Norton (1996), the next process of the BSC framework which is business-planning narrows down the gap between strategic planning and budgeting. When these two organizational units work independently, the strategic planning sets the strategic direction of the company and the budgeting unit projects revenues and expenses. This practice yields a little relation between the financial numbers that the budget generates and the targets in the strategic plan.

In the planning phase, scorecard users are expected to set targets for long-range objectives from all four perspectives. Along with targets, scorecard users should set a comprehensive list of initiatives for the measures. Kaplan and Norton (1996) argue that linking rewards to performance measures is not enough, targets should be set. Necessary resources should be allocated for achieving the targets, and short-term objectives or milestones are needed to mark the progress of the measures along the strategic path.

In an integrated planning and budgeting, budgets are needed for provision of resources to perform the list of BSC initiatives. Kaplan and Norton (1996) point out that by establishing milestones, budgets are expanding the traditional role by incorporating strategic as well as financial goals. They state that in an integrated planning and budgeting, planners project short-term financial goals, but also introduce short term targets for measures in customer, internal-business process, and learning and growth perspectives.

4.2.4 Feedback and learning

The BSC supplies the essential strategic feedback system. The previous management processes of the BSC framework, which were described earlier, facilitate strategy implementation. When combined these three processes form a single-loop learning process which is important if the objectives remain constant and any deviation or alteration from the planned path is seen as defect, which should be overcome. The single-loop feedback system does not require re-examination of the strategy or verifying the assumptions on which strategy is based.

However, Kaplan and Norton (1996) point out that strategies although valid when they arelaunched, lose their validity as business conditions change. Business strategy is also viewed as a set of hypotheses about cause-and-effect relationships. Most cause and effect relationships on which company's scorecard is built on are not based on deterministic relations that were verified in time series data where one indicator statistically was causally related to another. Instead, Kaplan and Norton (2001) argue that cause-and-effect relations are strategic hypotheses, i.e. presumptions about how company's critical objectives influence each other. Thus, it is only through the implementation and continuous use of the BSC, that it can be determined if these relationships really exist and are significant enough to represent the strategy hypotheses. If, however, the anticipated correlations between the performance measures are not found over time it should be an indicator to managers that the theory underlying the strategy is false and the scorecard should be revised to reflect this.

As such, the BSC supplies the essential double loop system. It enables to identify the root cause of BSC failure: strategic failure or failure in strategy implementation. A strategic feedback should be able to test, validate and modify the cause-and-effect hypotheses. Cause and effect relationships are developed in order to clearly determine value drivers that drive organizational performance, and it is argued that this process also facilitates re-examining the strategy. These strategic drivers are usually non-financial and are related to core competencies and strategic internal processes that the organization must attain in order to be competitive. It is through the identification and subsequent measurement of the strategic drivers and their linkage to projected outcomes, which allows managers to effectively develop strategy maps as causal models of key performance indicators. Measures are derived from the cause-and-effect principle, which reflects the strategy causal model. From these assertions, it is apparent that strategy maps reveal the causal relations by which specific improvements in i.e. fast cycle time, enhanced employee capabilities create desired customer or financial outcomes.

Theoretically at least, the feedback control system embedded in this model allows for managers to be able to detect and correct the underlying sources of negative variations in key performance drivers that ultimately lead to long term organizational performance result.

By identifying the strategic drivers and mapping those in causal models of relations, managers and employees benefit from gaining consensus on which activities and initiatives are required to drive future performance. These models give managers and employees a clear sight of how their job is linked to overall company's objectives. Kaplan & Norton (1996) claim that by establishing short-term goals and milestones, within the business planning process, managers are forecasting the relationship between changes in performance drivers and related changes in their specific goals. For example, in a company they investigated, managers estimated how great the effect of improvement in training employees to sell multiple financial products is to customer outcomes such as

customer retention. Another company tried to validate the hypothesized cause-and-effect relationships in the balanced scorecard by measuring the strength of the linkages between performance measures. Validating the hypothesized cause-and-effect links takes time, testing and experimenting. Especially, in large organizations a prolonged time is needed to collect sufficient data to justify and validate the causation between balanced scorecard measures. Accordingly, it is assured that the practice of anticipating assumptions of cause-and-effect relationships between measures from different perspectives is an improvement over the previous management practice of making subjective decisions and making decisions based on operational short-term measures (Kaplan & Norton, 1996).

4.3 Strategy Mapping

Strategy maps are used to provide a visual presentation of how to transform various intangible assets into desired outcomes. They provide a visual presentation of an organization's critical objectives and their assumed inter relationships. It is widely recognized practice that most BSC implementation projects build a map of strategic objectives first and only afterwards select metrics for each objective, which means organizations must first describe what is it that they are attempting to achieve with their strategies.

Building a strategy map almost always starts with a financial strategy which would include a high-level objective for a sustained shareholder value creation and supporting sub-objectives for achieving revenue growth and productivity strategy. The revenue growth and productivity strategy are two basic levers for the organization's financial strategy. KaplanandNorton (2001) point out that each of them has two elements. Revenue growth can be achieved through the extension of business to new customers, markets and products and through expanded sales to existing customers with cross selling of multiple products and services. The productivity strategy aims at providing ways to do things economically and has two elements: cost structure improvement and higher asset utilization.

It is widely recognized that a productivity strategy yields results faster than growth strategy, which does not imply that organizations should forgo their growth strategy when designing its strategy map, because one of the greatest BSC contribution is the opportunity to enhance its financial performance through revenue growth not just through reduction of costs or improved asset utilization. Most companies in the new competitive world utilize both, the growth and productivity strategy, but excel at on while maintain a threshold at the other.

After a strategy to increase shareholder value has been defined in an organization, Kaplan and Norton (2001) argue that an organization has to express objectives for its customer value proposition. The value proposition, the unique mix of quality, price, functionality, relationship and service and company image is what differentiates the organization from

others and what the organization intends to do better for its targeted customers. Organizations can choose from three differentiators for their customer value proposition by determining which one is most suitable for their targeted customers while maintaining threshold standards at the other two. Accordingly, the value proposition is chosen among the three differentiating generic strategic concepts of operational excellence, customer intimacy, and product leadership.

- Operational excellence can be used as a customer value proposition, if an organization is able to distinguish itself from competitors with operational issues. For example, organizations, which can compete at competitive prices, shorter, lead times, low defect level, speedy delivery.

- An organization's value proposition can be customer intimacy, if an organization focuses on customer relationships. Customer intimacy requires that an organization sets superior service and maintains high level of quality relationships with customer, and extends exceptional service and it is devoted to find the most complete and suitable solutions for individual customers.

- A product leadership strategy requires that an organization pursue functionality, features and performance of their products and services.

5 PERFORMANCE MEASUREMENT BENEFITS

This part of the thesis attempts to underline key areas where PMS are expected to generate benefits for their users and organization. This is done through integrating knowledge on consequences of their usage and by reviewing the existing empirical evidence on this topic. The evidence reviewed from empirical analysis supports the claim that the extent to which PMS are beneficial to their organization is directly related to the way the system is designed, developed and used, and how well it fits within the organizational context (Franco-Santos, Lucianetti&Bourne, 2012; Otley, 1999). Although most of the literature in this topic as well as my contribution in this thesis is concerned mainly with the configuration of various types of PMS that exist in literature and practice, nevertheless studying the factors which contribute positively as well as adversely to the implications and benefits of PMS is also beneficial.

In empirical findings, which explicate the realization of promised benefits, there is contradiction on whether to measure benefits and performance achievements in terms of financial performance such as financial results (stock returns, share growth etc) or on perceived, self-reported benefits by users of PMS. Advocates of using self-reported, subjective measures proclaim that these measures are adequate since some benefits cannot be captured with objective measures, as in case of the effects of PMS on people's behaviour in terms of job satisfaction, motivation, perceptions of self-efficacy etc. This is

similar to the beneficial role of using non-financial measures in evaluating and improving company's performance as opposed to financial measures based on the premise that analyzing financial data will not lead to finding the root causes of process failure (e.g. customer relationships fault or operational deficiency). The Speckbaher et al. (2003) typology used in my explanatory analysis is considered a very useful tool for understanding the effects of PMS, since different levels of usage sophistication within each type of BSC bear different levels of benefits. Therefore, in the analytical part of my theses in the chapter which follows, the performance improvements and benefits from the PMS usage were analyzed by studying managers' self-reported views and experiences. Managers were asked to assess the importance of various benefits associated with the usage of these systems, which exist in the literature. The categorization of PMS users' categories that was made with the developed framework was based on the usage practices that the respondents have reported. The opinions in the surveys reflect the respondents' perceptions on achieved benefits and usage practices, and are not necessarily theoretically based facts.

The literature on contemporary PMS covers extensively the area of benefits of implementing and using these systems (Chenhall, 2005; Franco-Santos et al., 2012). The normative literature attempts to distinguish between the various benefits beginning with the benefit of improved diagnostic control and efficient decision-making (Chenhall & Langefiel-Smith, 2007), improved strategic alignment and strategic outcomes (Chenhall, 2005), and moving into communication (Malina & Selto, 2001) and strategic learning (Brisbe & Otley, 2004).

In addition, authors study the moderating effect that positive consequences of the usage and implementing of contemporary measurements systems, such as organizational alignment and learning have on organizational strategic outcomes (Chenhall, 2005). On an overall level, the empirical data support the claim that contemporary PMS play a key role in strategy formulation and implementation, communication and learning. More specifically, contemporary PMS facilitate strategy implementation by focusing employee's actions on strategic goals and improve communication processes by providing relevant information on how people act and think. The iterative and participative process of the development and use of contemporary PMS empowers employees and facilitates learning. Furthermore, interactive use of PMS enables managers to cope with strategic endeavours through continuous dialogue, which also enables strategic learning and product innovation.

Franco-Santos et al. (2012) categorize the consequences of PMS in a framework, which comprises of three categories: people's behaviour, organizational capabilities, and performance consequences. The category that encompasses people's behavior refers to specific actions or reactions that these systems have on employees (e.g., motivation, participitation) and underlying cognitive mechanisms on people (e.g., perceptions of fairness, judgement biases). The category of organizational capabilities refers to consequences associated with strategy processes, activities, or competencies which enable

the organization to excel (e.g., strategic alignment, organizational learning). The third category, the performance category encompasses the different effects that performance measurement systems have on performance (perceived or self-reported performance and performance based on financial or hard data) at organizational level, team level and individual level. This framework, which is based on comprehensive review of empirical data exploiting this topic, also refers to specific mechanisms (e.g. cognitive and motivational mechanism) by which PMS are presumed to affect people's behavior, organizational capabilities and performance. Underlying the different mechanisms that generate specific consequences and benefits from the usage of these systems is important for determining ways to maximize the effectiveness of the usage of measurement systems.

For the purpose of this study distinctive areas where PMS can be expected to have positive benefits for the organization are elaborated. These are (1) motivation and cooperation (2) communication, (3) learning and innovation.

5.1 Motivation and Cooperation

Research on motivational effects of PMS is contradictory in the sense that in general, these systems improve motivation of people towards the achievement of organizational goals but the degree of motivation generated is influenced by the degree of employees' participation in the process of implementation of the PMS system (Decoene&Bruggeman, 2006; Malina&Selto, 2001). Many studies confirm the belief that the use of PMS is positively associated with managers and employees motivation when the implementation process is participative and iterative. The "comprehensiveness" characteristic of the contemporary PMS, which is achieved by the provision of performance measures in four distinct perspectives, does not affect significantly the motivational effect as much of the process of developing and use of these measures. This is particularly true when PMS, such as the BSC are used for reward and compensation, where at least some portion of a manager's payment is contingent upon accomplishing measures from the BSC. In such cases, the use of BSC will have a positive effect on people motivation only if the BSC is developed with the participation of middle level employees.

The problem that arises from the usage of many intangible-based PMS, such as the BSC is managers' perception of subjectivity and uncertainty (Ittner et al., 2003). This is due to the large number of non-financial measures, which are used for performance review and pay purposes and the difficulty, which arises from assessing non-financial measures. This causes high uncertainty with mangers' perceptions of fairness and validity of the system. Managers' perceptions of unfairness and biases towards non-financial based PMS can be mitigated by using well-defined and specified measures and using a high degree of technical validity of the system.

Decoene and Bruggeman (2006) assert that the usage of compensation based BSC can even have negative effect on motivation, unless the performance measures used are strategically aligned, controllable, accurate and technically valid.

Strategic alignment is defined in terms of clear links between the manufacturing process (at the functional level) and the business strategy (at the corporate level). Clear links between strategy and manufacturing processes encompasses decomposing of high-level strategic measures into local operational measures (Kaplan & Norton, 1996). For example, a high level financial measure such as return-on-investment or economic value added can be translated into operational measures such as operating expenses or in days sales in accounts receivables, which can be further down decompose into measures that capture customer relationship intimacy or lower defect rates. This process of braking down high-level strategic measures into lower level operational measures is also called "the cascading process".

The characteristic of performance measures which refers to controllability positively influences motivation of employees and managers in achieving organizational goals. A performance measure is under control if the manager can control the probability distribution of the performance measure through his actions (Decoene&Bruggeman, 2006). Through the strategic alignment of manufacturing process with business strategy, the BSC in organizations is able to define controllable performance measures. The cascading process in the development and use of the BSC customizes the BSC to subunits. This process is the underlying premise upon which the operational theory is connected to the management control theory. Operational measures can direct employees behavior in congruence with organizational goals unlike financial measures which are aggregate measures and distant to follow. Through strategic alignment, individuals are able to see the link between what they do and organizational long-term goals (objectives) which enhances employee's intrinsic motivation. When the BSC exhibits strong and valid cause-and effect relationships between financial and operational measures, its use increases the mangers perceptions of self-efficacy and goal attractiveness (Webb, 2004).

According to goal theory (Locke & Latham, 1990), individual motivation and individual performance are improved if an individual clearly knows what is aiming at and what is expected to achieve. Research on goal theory is concentrated on individual level of analysis, while the level of analysis in this thesis is the organization. However, in the performance measurement literature, goal theory propositions are used for justifying the importance of using "technically valid" performance measures. The main argument is that clear and accurate performance measures and benchmarks in PMS reduce the ambiguity of job requirements. This implies that the usage of PMS affect the extent to which people are aware of their role requirements. The information characteristic of contemporary PMS reflected through clear linkages between strategic outcomes and operational measures decreases employee's perceptions of role conflicts (inability of employee to fulfil job

expectations due to incompatible demands).This means that PMS have a positive effect on employee's job clarity only when the measures are specific and direct.

Managers' cognitive limitations also undermine the effectiveness of the performance review. The performance review follows the measurement and consequences of the performance review impact the managers' ability to improve their strategic decision-making. Lipe and Salterio (2000) assert that the use of BSC is impaired by managers' cognitive limitations and that those limitations will have negative effects on managers' judgement and decision-making in the performance review process. Namely, the more specific, unique measures are disregarded from the review process at the expense of more common, aggregate measures causing negative judgement effect. Since the BSC is costly to develop and implement, the net benefits will depend on extent to which decision-making is improved and therefore unique measures should not be underweighted in *ex post* performance review. Accordingly, if the unique measures are not underweighted in the *ex post* evaluations these measures will likely be included in the *ex ante* performance analysis (Lipe & Salterio, 2000).

As within the scope of benefits that PMS provide and affect people's behaviour, many researchers have focused on the effect on cooperation, coordination, and participation, not only within the organization (among individuals or teams) but also beyond the organization (e.g. among suppliers and buyers). Evidence suggests that PMS facilitate cooperation and socialization in supply relationships (Mahama, 2006). PMS help ensure that information is distributed among participants of the supply chain, which enables decision making on operational activities, problem solving and learning to occur. Also, the usage of PMS enhances communication in buyer-supplier relationships, which improves socialization.

There are number of studies identifying the PMS impact on relationships, especially among employees in and among different divisions. The information that these systems provide efficiently aims to improve employees' cooperation and coordination on common goals instead of competing against each other. In sum, evidence suggests that PMS are useful tools for enhancing cooperation and coordination among individuals within the organization and outside the organization with its partners.

5.2 Communication

Kaplan and Norton (1996) contend that the BSC is not just a performance evaluation method, but it is a strategic planning method and an effective communication tool. The BSC clearly defines links between organizational outcomes and their drivers of performance. It also articulates how strategies should be operationalized. As such, PMS such as the BSC not only embody organizational knowledge and strategy, but also it effectively contributes to the communication of the strategy and knowledge. It is also suggested that PMS improve communication of the specific actions that are required for

strategies to be achieved, by connecting goals and objectives, information system and performance evaluation.

As communication barriers are seen as major cause of strategy implementation failure, many researchers have investigated the necessary characteristics of PMS if it is to constitute itself as an effective communication tool. The organizational communication literature identifies a complex set of characteristics that affect the quality of effectiveness of communication in organizations. As such, Malina and Selto (2001) identify several attributes that PMS should posses in order to act as an effective communication tool: valid measures (trustworthy, reliable and understandable), support of organizational culture (existing or changing) and knowledge sharing (including dialogue and participation). The authors also assess whether the BSC's communication attributes generate organizational outcomes by creating goal alignment and positive motivation.

First, the authors argue that BSC provides clear and understandable messages to its users and organization by describing the strategy and its interconnections, through "common language". Second, the BSC supports organizational culture by reinforcing shared goals, values and beliefs. This way BSC encourages behavior consistent with organizational goals. In addition, the third enabler, knowledge sharing in communication is seen to contribute greatly to organizational learning. Through the participative process of strategy development, tacit knowledge of individuals is refined and new knowledge of individuals is integrated. The BSC converts objective and tacit knowledge of managers into metrics, which is cascaded down to lower level. Therefore, the communication system encourages sharing of individuals' experiences and collects them in common experiences. Based on the arguments of Malina and Selto (2001) the ex ante expectation is that the BSC effectively communicates strategy in a vivid and meaningful manner, which is expected to yield positive organizational outcomes. However, through their study little evidence was found of the effectiveness of the BSC as a communication tool mainly because of hierarchical nature of the BSC usage favoring top-down communication. The hierarchical nature of BSC gives top management a privilege of determining the strategy of the company thereby assuming that the strategy developed is the 'right one". It assumes that the determination of measures and their cascading downwards to lower units is assured by top management. Top-down communication and non-participative approach have negative consequences on employees' perceptions of fairness and creates distrust. It is believed that the involvement of managers from all levels of the organizational hierarchy in the design of BSC is necessary for the BSC and associated strategies to be translated into effective action and desired outcomes.

Together with inaccurate measures and inappropriate benchmarks used for evaluation, these attributes have negative impact on the BSC's effectiveness as a management control and a communication tool (Malina & Selto, 2001).

5.3 Learning and Product Innovation

Properly designed PMS and its effective usage in organizations enhances strategic learning and organizational learning**.** Chenhall (2005) explains how coherent PMS can deliver positive strategic outcomes, through the mediating effect of organizational learning. The information characteristic in PMS is the key dimension, which enables organizations to learn and provides basis for knowledge management (Chenhall, 2005).

As such, the information characteristic of PMS can contribute to each of the four elements of organizational learning: information acquisition, interpretation, distribution and organizational memory (Huber, 1991). Developing diverse measures across different performance dimensions provides formal mechanisms to collect information that can be used to develop organizational learning. The process of developing a scorecard requires evaluating knowledge and skills embedded in processes, which are engine to success. By uniformly framing the information in a special system such as BSC, the information gathered becomes purposeful to users and can be interpreted meaningfully. Formal accounting and control systems such as the BSC are important systems for distribution of information about strategies and performance. Without formal deliberate channelling of information, organizations would operate inefficiently. And finally, recording of events and information in formal documents and systems is necessary to develop organizational memory.

PMS have a potential for enabling learning in the process of strategy development. Strategy development is a process, which involves cognitive and interactive exercise about the organization's existing processes and capabilities. The BSC literature even suggests that is the process of establishing the measures that yields the benefit of learning, rather than the measurement system itself (Otley, 1999). The benefit of strategic learning is also evident through the interactive usage of performance and control systems.

Otley (1999) distinguishes between feedback loops (single loop learning) and feed forward loops (double loop learning). The feedback loop in control theory is recognized to compare actual achievements against projected target levels, and the feed forward loops are recognized as need to predict corrective action in light of circumstances. Simmons (1991) differentiates between simple feedback, which is connected to diagnostic control and double loop, which is connected to interactive use of control. The implication is, therefore that the existence of an effective diagnostic process to diagnose the deviations from target levels is a key enabler for the existence of interactive use (discussions and open-dialogue).

Many studies have been investigating the relationships between the formal use of MCS at top management level and product innovation from an organizational point of view. Product innovation refers to the development and launching of new product, which are specific in some aspect related to existing products. The results of this relationship are

inconclusive and even contradicting ranging from studies that show that the use of formal MCS by top managers is not relevant for successful innovativeness, to evidence which suggest that formal MCS coexist with product innovation (Ezzamel, 1990; Khandwall, 1973).

One reason for the assumption of negative correlation between formal MCS and innovativeness in organizations is that formal MCS is viewed as a deterrent from creativity. MCS are inadequate means to cope with greater degree of environmental uncertainty (Albernethy&Stoelwinder, 1991, Miles & Snow, 1978). Other stream of studies which investigate the coexistence between control mechanisms and product innovation, claim that in the context of control mechanisms, different management control practices exists (formal MCS and informal MCS) which have different effect on product innovation (Otley, 1999). As explained earlier in this thesis formal control systems as opposed to informal, are formalized, purposefully designed systems, which aim the organization in the achievement of organizational goals. Under this stream of studies, it is believed that informal MCS (clan control, social control etc) and other similar managerial processes and practices encourage innovation, while formal MCS hinder innovation.

Relevant to this part of the thesis, where I examine the benefits of the use of PMS is the stream of studies, which affirm that, formal MCS "provide a priority agenda and a stimulating forum for the generation and implementation of creative ideas including product developments ideas" (Bisbe& Otley, 2004). In this direction, Simmons (1991) posits that innovative organizations use extensively formal MCS, especially the interactive style of formal MCS. In interactive control, managers interact intensively with data and management. In interactive control, top management and lower level management are encouraged to question and raise assumptions, subsequently leading them to new opportunities to face market uncertainties as well as technological obstacles. When managers are open to discussions and challenges about market and technological opportunities new ideas emerge. This is how the interactive control, which is part of the formal MCS, inputs successful innovations and subsequently successful product innovation.

6 RESEARCH METHOD

6.1 Research Design

The research presented in this study is based on a quantitative cross sectional study, implemented from April to June in 2019. For the purpose of this study, a special questionnaire was developed with an aim to assess the extent to which companies from the Republic of North Macedonia use IPMS. More specifically, the questionnaire attempted to explore the BSC spread and usage, its purposes of use, and expected benefits and challenges that users of performance measurements systems have. The study questionnaire

was applied electronically as well as personally addressed through direct interviewing.A special framework was also developed to categorize companies according to the extent to which companies use IPMS based on the level of its sophistication in light of relevant literature. The cover letter of the questionnaire offered the guarantee of anonymity.

The survey research method has been used extensively over years in management accounting research. In comparison to field research, the survey method, which is same to all respondents, can be a source of highly standardized and controllable results. These characteristics of the survey method allow companies to be categorized based on the type of PMS which have been implemented in their companies and to provide evidence on differences between managers' perceived benefits.

Even though the survey research method attempts to gain large scale of generalized data, it has received criticism with a central concern being the reliability of the data obtained (Young, 1996). In order to obtain a larger scale of quality data with the survey research method, it is important the way surveys are constructed and administrated (Van der Stede et al., 2005). In management accounting research, surveys are most commonly used for theory testing, but for the purpose of this thesis, the survey design method is used to gain descriptive statistics of the scope of use of IPMS in companies in the Republic of North Macedonia. Therefore, the descriptive survey analysis in this study was used to tabulate (trends and variances) in PMS across companies in Republic of North Macedonia.

The survey method as a research method has been criticized because it contains a beforehand-decided format, which cannot be modified based on new interesting information or corrected if some important aspects are found to be left out with the initial mail out (Van der Stede et al., 2005). Therefore, the survey research method suffers from low level of discoverability related to the inefficiency of making additional analysis due to discoveries made during the data collection. The quantified survey data obtained through the survey provides a snapshot analysis of the situation at a certain time, without the ability to analyze how variables have changed over longer period of time or to assess how PMS practices in companies across the Republic of North Macedonia have changed (Gable, 1994).

6.2 Data Collection

This part explains the process of data collection, and the relevance of population definition, sample size and response bias on process of data collection. This part also presents how data was collected with the survey and how the developed framework was applied to the survey data, after which the process of survey analysis took place.

Population definition and sample selection are critical elements in a survey design method, because they determine whether the valid inferences can be drawn from the sample (Van

der Stede et al., 2005). The extent to which valid inferences can be obtained also depends on the response rate and response bias. Whether the research sample size constitutes a representative sample of the survey population also plays a pivotal role in the success of the survey research method.

The survey sample in this study was randomly selected from the Register of companies of Republic of North Macedonia, which Iconsidered to be representative of the population sample in terms of size and industry. Large and medium companies from the Republic of North Macedonia were the representative sample of population, since the usage and adoption of IPMS is positively associated with the size of the company (Hoques& James, 2000). Concerning the size and performance systems, Chenhall (2003) proposes that large companies are associated with more diversified operations, greater amount of information and specializations of functions, which make them prone to sophisticated and purposefully, designed management controls.

The survey was mailed out to 130 members of the population sample in the period from April to June 2019. It was a four-page questionnaire, which was fully structured, with pre-coded responses. From this, a total of 50 surveys were returned, representing a total response of 38 %. Taking into account the weakness of the survey research method, in particular the inability to change or correct the survey questionnaire in light of new information, much iteration between different versions of the survey was made prior the official mail-out. In that sense, the survey was tested among experts and managers in order to make sure that the questions are understandable and the format appropriate.

Personal interviewing was also conducted with the respondents that voluntarily shared contact information. Directly interviewing the respondents led to more involvement and commitment by the respondent. Direct interviewing also allowed for clarifying any questions respondents had about the questionnaire items.To get a higher response rate especially from the most resistant respondents a follow-up mail was administrated after two weeks of the initial mail out.

6.3 Survey Questionnaire

A framework was especially developed to categorize the survey respondents in usage categories. The first category ‘Operational group’ is consisted of respondents, which utilize performance measures only to monitor operations through KPIs and keep track of operations. The threshold for the next group ‘Strategic 1’ was steeper, because of the transition to ‘specific framework for strategic measurement’. The groups Strategic 1, Strategic 2 and Strategic 3 correspond with BSC 1, BSC 2, and BSC 3 respectively from Speckbacher et al.’s (2003) typology.

As a distinction to Speckbacher et al. (2003) study, the determinant for categories to apply in the 'specific framework for strategic performance measurement' was determined differently in this study. Speckbacher et al. (2003) as well as other researchers in this field categorize the respondents into BSC-users and non-users based on a simple yes/no response, or asses the extent of use of BSC with a scale from 'not at all' to 'extensive use'. With this kind of analysis, little attention is paid on the usage of particular features (such as use of cause and effect relationships, setting targets, etc) which characterizes the sophistication of BSC usage. Kaplan and Norton (1996, 2001) claim that the idea of the fully developed BSC goes far beyond the use of non-financial and financial measures. To distinguish between different level of complexity of the BSC usage, questions such as 'Do you use cause and effect relations' and 'Do you set targets and actions plans to measures' and 'Do you link incentives to measures' were applied in this survey questionnaire. Contrary to this method, in a Bedford et al. (2008) study of performance impacts of BSC on Australian companies, respondents were asked to assess the extent of usage of the 'compensation link to non-financial measures' on a seven point Likert scale anchored from 'strongly agree' to 'strongly disagree'.

In this study, the usage of a 'specific strategic performance measurement systems' was determined by an explicit question in the survey, where the respondents were asked to choose between two statements which best describes the nature of their PMS. The statements were the following:

- We use KPIs to measure and monitor our performance which provides us with information about finance and operations to enable us to stay in track with what is happening in our business and to provide us with data to support managerial decision making.

- In addition to the operational KPIs, we have also separated a set of strategic measures (e.g. strategic performance scorecard) which have been derived from strategic objectives and allow us to meet strategic goals. This is the most strategic performance measurement system in our organization, and it is used to steer, measure and communicate business strategy.

Table 1.shows the framework which was designed in order to categorize the survey respondents in four consecutive categories according to their reported usage practices.The survey questionnaire had three sections each with different number of items. The first section is consisted of three items related to type of the sector where the organization belongs, the number of employees, and usage category of the respondent companies. The second section deals with the usage of performance measures/ key performance indicators– KPIs from the four different perspectives.

Table 1.Framework for Categorizing the Survey Respondents into Usage Categories

Usage category	**Category description**	**Surveyrequirements/ threshold**
Operational 1	PMS includes financial and non-financial KPIs	Reports usage of non-financial as well as financial KPIs
Strategic 1-BSC I	A multi balanced specific framework for strategic performance measurement system	-Reports measures from all four perspectives -Reports using a specific framework for strategic use
Strategic 2-BSC II	PMS that describes strategy by using cause and effect relations	-Reports using cause and effect
Strategic 3-BSC III	Strategic PM that implements strategy through setting targets and linking measures	-Reports setting targets for measures -Reports linking measures to monetary and non m. incentives

This section has four blocks of questions each with statements with possibility for multiple selections. The third section deals with the opinions of the respondents about outcomes and benefits through four blocks each with different number of statements. The possible answers in this section are measured with two types of the five-point Likert scale as: a) strongly agree, agree, neutral, disagree and strongly disagree: and b) not at all important, not important, neutral, important and extremely important. Higher scores correspond to higher importance/agreement.

7 FINDINGS

Data was statistically analyzed in SPSS software package, version 22.0 for Windows (SPSS, Chicago, IL, USA). The qualitative series were processed by determining the coefficient of relations, proportions, and rates, and were shown as absolute and relative numbers. Quantitative series were analyzed with measures of central tendency (average, median), as well as with dispersion measures (standard deviation, standard error and Difference test for proportions). The Mann-Whitney U test and Kruskal-Wallis H test were used to compare differences between two/ more independent groups not normally distributed. Pearson Chi square test and Yates correction were used to determine the association between certain attributive dichotomies. A two-sided analysis with a significance level of $p \leq 0.05$ was used to determine the statistical significance.

7.1 Internal Consistency of the Study Questionnaire

The internal consistency of answers in each of the sections covered in the study questionnaire was measured with Cronbach's alpha, and it is presented in the reliability statistics table (Table 2). From this analysis we excluded the section which covered the background information. For the section "Performance measures/ key performance indicators–KPIs", is consisted of four blocs with total of 53 statements, calculated Cronbach's alpha was consequently 0.713 vs. 0.853 vs. 0.768 vs. 0.707 (Table 2). For the section "Opinions", which consist of four blocks with a total of 28 statements, the calculated Cronbach's alpha was consequently 0.822 vs. 0.679 vs. 0.711 vs. 0.698 (Table 2). The results for both sections indicated a high level of internal consistency of received answers.

7.2 Sample Distribution by Sector/Industry

The first section is consisted of three items, covering the background information related to type of the sector where the organization belongs, the number of employees and usage category of the respondent companies.

Table 2. Reliability Statistics – Actual values of Cronbach's Alpha by Sections

Sections		Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of items	
performance measures / KPIs	[1]KPI - 1	0.713	0.746	16	Total 53
	[2]KPI - 2	0.853	0.786	16	
	[3]KPI - 3	0.768	0.791	10	
	[4]KPI - 4	0.707	0.721	11	
opinions	Purpose for use [5]PMS	0.822	0.845	6	Total 28
	[6]PMC for BS	0.679	0.681	9	
	[7]Benefits gained	0.711	0.723	9	
	[8]Agreement/disagreement	0.698	0.702	4	

[1]KPI-1= financial perspective
[2]KPI-2= customer perspective
[3]KPI-3= internal business perspective
[4]KPI-4= learning/growth perspective
[5]PMS = Company 's performance measurement system
[6]PMC for BS=performance measurement categories considered as most important for business strategy
[7]most important benefits gained from design and implementation of an integrated performance managementsystem
[8]agreement/disagreement on statements for integrated performance management concept

Table 3. Sample Structure by Sector/Industry of the Organization

	Sector/industry where the organization belong	N	%
1	Banking /finance/insurance	6	12
2	Energy and utilities	/	/
3	Construction	10	20
4	Manufacturing	16	32
5	Retail & Distribution	5	10
6	Health	1	2
7	Education	1	2
8	Telecommunication	2	4
9	Transportation	3	6
10	Tourism	/	/
11	Other	6	12
TOTAL:		50	100

7.3 Sample Distribution by Number of Employees

Related to the number of employees in the organization, the respondents were asked to select one of five possible answers (Table 4 and Figure1).

Table 4.Sample Structure by Size of Organization

	Groups - number of employees	N	%
1	Less than 50 employees	1	2
2	50-99 employees	10	20
3	100-250 employees	30	60
4	250-500 employees	6	12
5	Over 500 employees	3	6
6	Total	50	100

Most of the companies involved in the survey 30 (60%) have between 100–250 employees, followed by 10 (20%) which have between 50–99 employees and 6 (12%) which have between 250–500 employees. About 3 (6%) of the organizations involved in the survey have over 500 employees, and only one organizationn has less than 50 employees. Additionally, our analysis showed that the average number of employees in sample companies is between 100-250 with minimum less than 50 employees and maximum over

500 employees. About 50% of responding companies have between 100–250 employees (Table 4).

7.4 Sample Distribution by PMS Usage

All 50 companies involved in the survey were categorized with the chosen framework into four groups as: a) Operational; b) Strategic 1; c) Strategic 2 and d) Strategic 3. Descriptive analysis of the sample companies by different usage categories is presented in Table 5 and Figure 1.

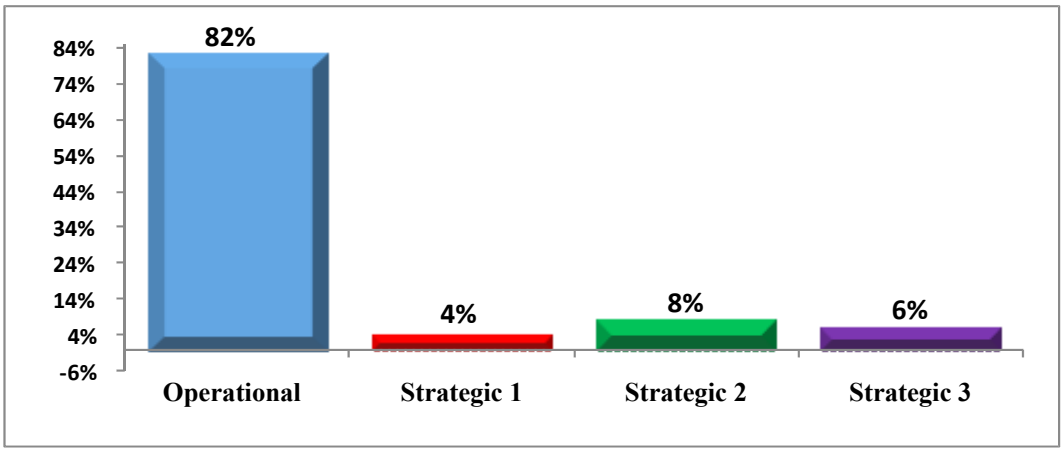
Most of the responding companies 41 (82%) were categorized as "Operational". Two firms (4%) were categorized into "Strategic 1" group, four (8%) companies were categorized into "Strategic 2" group and three (6%) of the companies were categorized into "Strategic 3" group. Companies belonging to the Strategic 1, Strategic 2 and Strategic 3 represent 18% of the surveyed companies (Table 5 and Figure 1).

Table 5.Sample Structure by Different PMS Usage Categories

Usage categories		Respondents
Operational	**N**	41
	%	82
Strategic 1	**N**	2
	%	4
Strategic 2	**N**	4
	%	8
Strategic 3	**N**	3
	%	6
Total	**N**	50
	%	100

The largest category was therefore Operational category, which consists of 41 survey respondents, who combine both financial and non-financial KPIs in their performance review. The biggest threshold for them to proceed to any of the strategic categories was that they did not report a usage of a 'specific framework for strategic performance measurement', which means they did not derive their measures from the organizational strategy.

Figure 1. Descriptive Analysis of the Sample by Different Usage Categories



Nine (18%) survey respondents reported to use a 'specific framework for strategic performance measurement'. Furthermore 7 (12%) in addition to that have reported to use 'cause-and-effect relations' which was threshold for "strategic 2". Formally, there were three more companies that reported to use cause-and-effect, but did not separate the measures in a strategic framework, so they were automatically placed in the operational group. Three (6%) of the survey respondents in addition to 'specific strategic framework' and 'cause and effect' claim to set targets for measures, and link incentives to financial and non-financial measures.

7.5 Analysis of Key Performance Measurement Indicators–KPIs

This section deals with the usage of key performance measures/KPIs, which allows the organizations to measure and monitor performance from different perspectives.This section had four blocks of questions, each block representing one of the four performance perspectives with statements/measures with possibility for multiple selections. There were also the options for respondents to add other performance measures not mentioned on the list, which none of them used. The list of performance measures contained within each of the four performance dimensions was carefully selected from management accounting literature and practice. Six (12%) of survey respondents reported "I do not use any KPIs" from the internal business perspective" and seven (14%) of survey respondents reported "I do not use any KPIs" from the learning and growth perspective. On the other hand, all survey respondents reported to use performance measures from the financial perspective and customer perspective.

Most used financial performance measures (*KPIs)*–from the list of 16 different statements, the respondents were asked to select the most used measures from financial perspective (Table 6 and Figure 2).

Five most selected performance measures were “net profit”, “revenues from sales growth”, “gross profit margin”, “current ratio” and “assets turnover ratio” which were selected by 40 (80%) vs. 36 (72%) vs. 27 (54%) vs. 23 (46%) vs. 22 (44%) respondents respectively. The percentage differences between the two most selected performance measures (“net profit” and “revenues from sales growth”) was statistically not significant for $p \leq 0.05$ (Difference test: Difference 8% [(-8.76–22.23) CI 95%]; Chi-square=0.868; df=1, p=0.3514).

Significant percentage differences for $p \leq 0.05$ were found between “net profit” and all other following performance measures starting from “gross profit margin” (Difference test: Difference 26% [(7.57–42.18) CI 95%]; Chi-square=7.567; df=1, p=0.0059) as well as “revenues from sales growth” and all other following performance measures starting from “current ratio” (Difference test: Difference 26% [(6.72–42.75) CI 95%]; Chi-square=6.916; df=1, p=0.0085).This analysis indicates that “net profit” and “revenues from sales growth” are used more frequently than all other listed measures.

Table 6. Descriptive Analysis of the Most Used Financial Performance Indicators

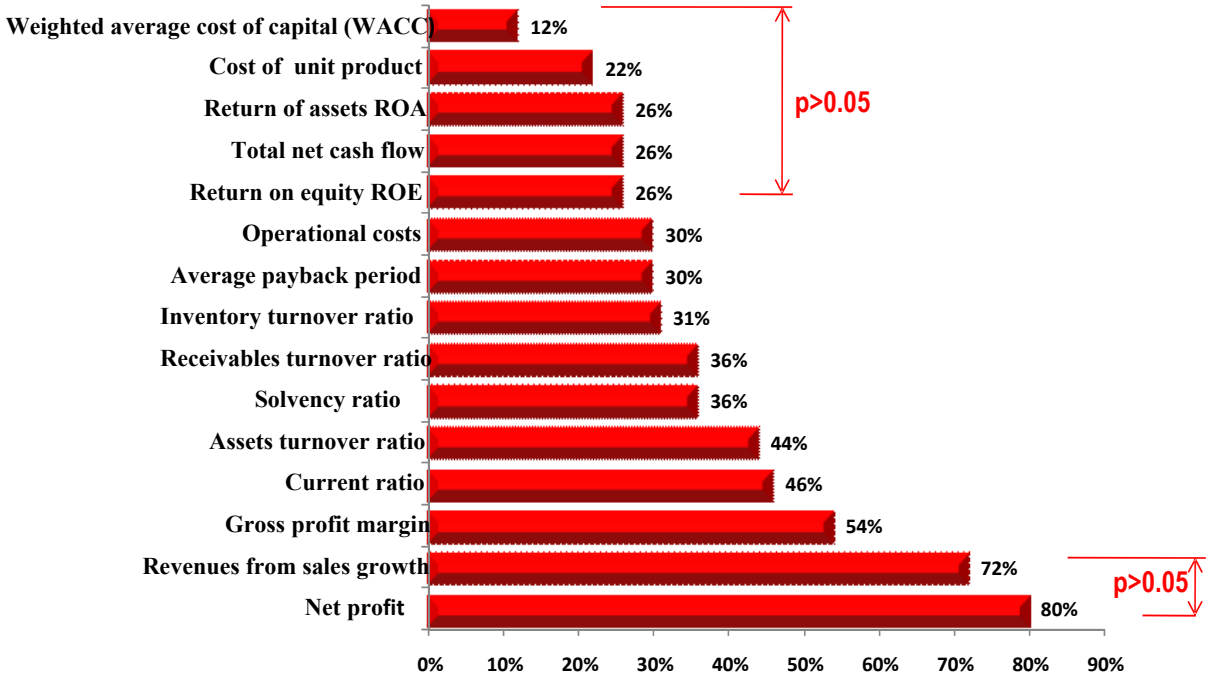
Financial performance - KPIs company perspective		Responses in descending order	
		N	%
1	Netprofit	40	80
2	Revenues from sales growth	36	72
3	Gross profit margin	27	54
4	Current ratio	23	46
5	Assets turnover ratio	22	44
6	Solvency ratio	18	36
7	Receivables turnover ratio	18	36
8	Inventory turnover ratio	16	31
9	Average payback period	15	30
10	Operational costs	15	30
11	Return on equity ROE	13	26
12	Total net cash flow	13	26
13	Return on assets ROA	13	26
14	Costofunit product	11	22
15	Weighted average cost of capital (WACC)	6	12
16	I do not use any	0	0
Note: Total Sample = 50			

Least selected from the respondents were “cost of unit product”– 11 (22%) and “weighted average cost of capital” (WACC)–6 (12%) followed by “return on assets–ROA”, “total net cash flow”, and “return on equity–ROE” which were equally presented with 13 (26%). The

analysis, for p≤0.05, did not find significant percentage differences between the last five selected performance measures (Difference test: Difference 14% [(-1.55–28.98) CI 95%]; Chi-square=3.152; df=1, p=0.0758). No respondents reported that they "do not use any" performance measures from the financial perspective.

Most used performances measures from the customer perspective–the respondents were asked to select the most used performance KPIs according to customer perspective from the list with 16 different items (Table 7 and Figure 3). Five most selected performance measures from the customer perspective were "customer satisfaction", "market share", "delivery time", "product quality" and "number of customer complaints" which were selected by 37 (74%) vs. 32 (64%) vs. 28 (56%) vs. 28 (56%) vs. 27 (54%) respondents respectively. The percentage differences between the two most selected performance measures ("customer satisfaction" and "market share") was statistically not significant for p≤0.05 (Difference test: Difference 8% [(-8.01–27.17) CI 95%]; Chi-square=1.157; df=1, p=0.2821).

Figure 2.Descriptive Analysis of the most Used Financial Performance Measures



Significant percentage differences, for p≤0.05, were found between "customer satisfaction" and all other following performance measures starting from "number of customer contacts" (Difference test: Difference 20% [(1.19–36.96) CI 95%]; Chi-square=4.297; df=1, p=0.0382) as well as between "market share" and all other following performance measures starting from "customer acquisition ratio" (Difference test: Difference 10% [(-9.96–28.66) CI 95%]; Chi-square=0.930; df=1, p=0.03348). This analysis indicates that

"customer satisfaction" and "market share" are on average more frequently used than other measures.

Least selected from the respondents were "customer churn rate" and "customer loyalty index", both 6 (12%) followed by "number of new customer contacts" 3 (6%). Our analysis, for $p \leq 0.05$, did not find significant percentage differences between the last three selected performance measures (Difference test: Difference 6% [(-6.43–19.69) CI 95%]; Chi-square=1.019; df=1, p=0.3127). No respondents reported that they "do not use any" performance measures from the customer perspective (Table 7, Figure 3).

Table 7. Descriptive Analysis of the Most Used KPIs from the Customer Perspective

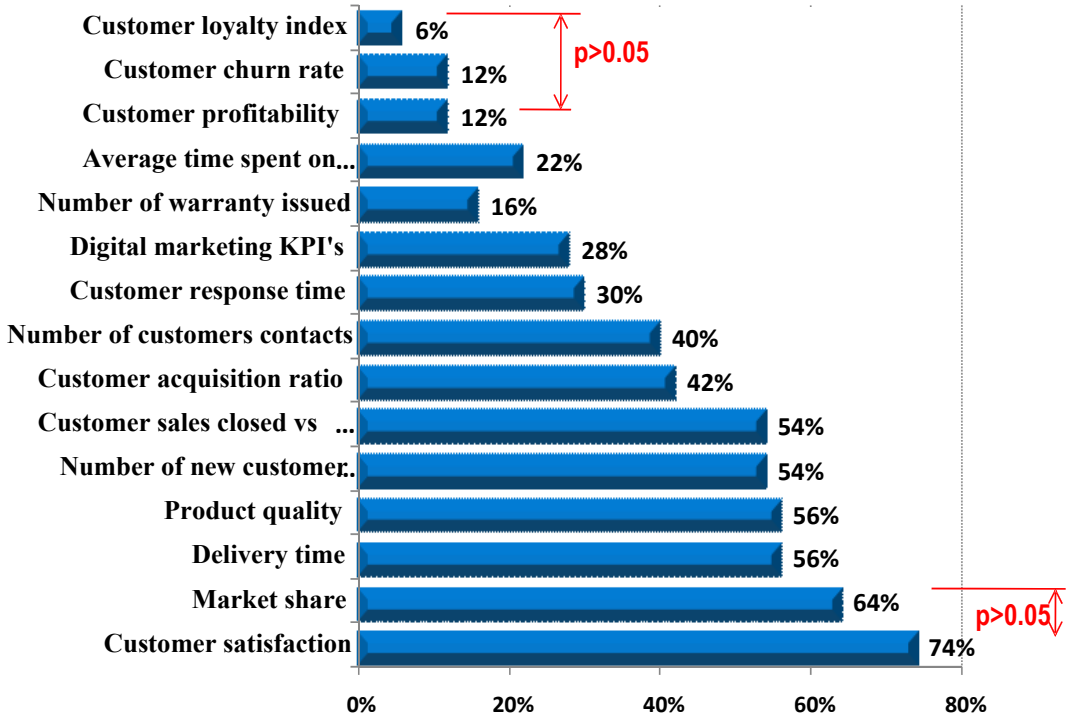
Performance measures - KPIs customer perspective		Responses in descending order	
		N	%
1	Customer satisfaction	37	74
2	Market share	32	64
3	Delivery time	28	56
4	Product quality	28	56
5	Number of new customer complaints	27	54
6	Customer sales closed vs customer sales contract	27	54
7	Customer acquisition ratio	21	42
8	Number of customers contacts	20	40
9	Customer response time	15	30
10	Digital marketing KPIs[1]	14	28
11	Number of warranty issued	8	16
12	Average time spent on customer relation	11	22
13	Customer profitability	6	12
14	Customer churn rate	6	12
15	Customer loyalty index	3	6
16	I do not use any	0	0
Note: Total Sample = 50			

[1]number of site visits, followers, click through rate etc

Most used performances measures from internal business perspective–in this part, the respondents were asked to select the most used performance measures from internal business perspective. Ten statements were proposed with the possibility to add extra performance not mentioned on the list, which none of the respondents used (Table 8 and Figure 4).The first five most selected performance measures from internal business perspective were "post sale quality", "time to complete an order", "number of suppliers ", "average purchase time", and "amount of material scrap produced" which were selected

by 30 (60%) vs. 24 (48%) vs. 23 (46%) vs. 22 (44%) vs. 21 (42%) respondents respectively.

Figure 3.Descriptive Analysis of the Most Used Performance Measures from the Customer Perspective



The percentage differences between the two most selected performance measures ("post sale quality" and "time to complete an order") was statistically not significant for $p \leq 0.05$ (Difference test: Difference 12% [(-8.21–30.79) CI 95%]; Chi-square=1.307; df=1, p=0.2530).

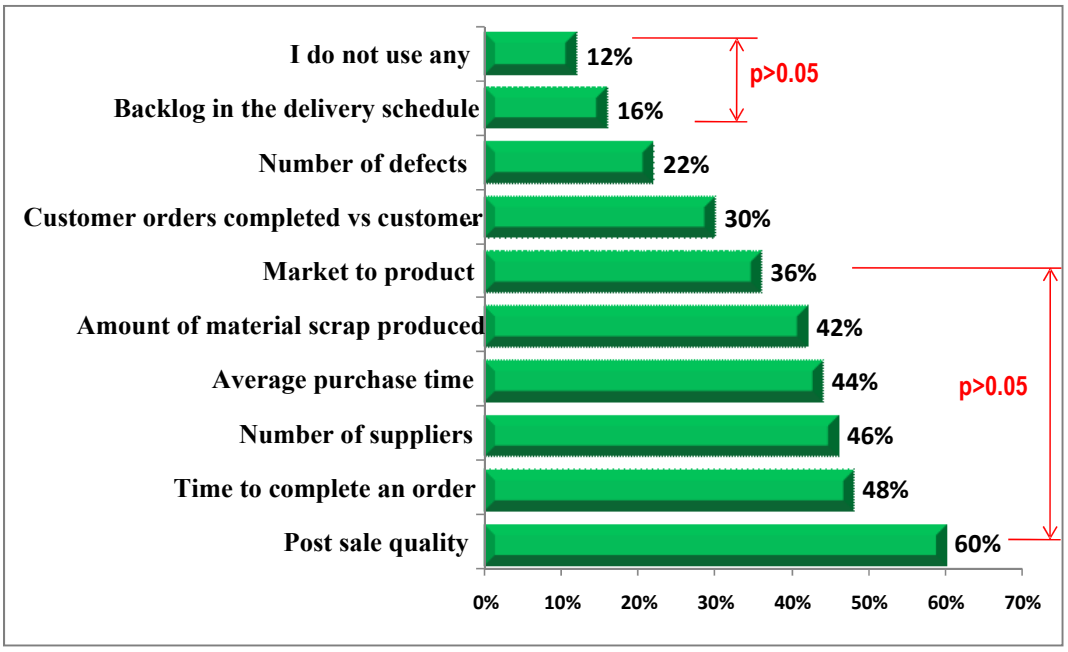
Significant percentage differences, for $p \leq 0.05$, were found between "post sale quality" and all other following performance measures starting from "market to product" (Difference test: Difference 24% [(4.42–41.15) CI 95%]; Chi-square=5.712; df=1, p=0.0169) as well as "time to complete an order" and all other following performance measures starting from "number of defects" (Difference test: Difference 26% [(7.30–42.35) CI 95%]; Chi-square=7.354; df=1, p=0.0067).

The performance measures "backlog in the delivery schedule" and "number of defects" were the least selected each from 8 (16%) vs. 11 (22%) respondents respectively. For $p \leq 0.05$, there was not found significant percentage differences between the last two selected performance measures (Difference test: Difference 6% [(-9.56–21.29) CI 95%]; Chi-square=0.579; df=1, p=0.4467). It was found that 6 (12%) of the respondents reported that they "do not use any" performance measures from internal business perspective (Table 8 and Figure 4).

Table 8. Descriptive Analysis of the Most Used KPIs from Internal Business Perspective

Performance measures - KPIs internal business perspective		Responses in descending order	
		N	%
1	Post sale quality	30	60
2	Time to complete an order	24	48
3	Number of suppliers	23	46
4	Average purchase time	22	44
5	Amount of material scrap produced	21	42
6	Market to product	18	36
7	Customer orders completed vs customer order received	15	30
8	Numberofdefects	11	22
9	Backlog in the delivery schedule	8	16
10	I do not use any	6	12
Note: Total Sample = 50			

Figure 4. Descriptive Analysis of the Most Used Performance Measures from Internal Business Perspective



Most used performances measures from the learning and growth perspective–the respondents were given the list of 11 statements to identify the most commonly used performance measures from the learning and growth perspective (Table 9 and Figure 5).The first five most selected performance measures related to the learning and growth

perspective were “employee productivity”, “employee turnover”, “hours of training per employee “, “per capita annual cost of training”, and “number of workers injuries” which were selected by 25 (50%) vs. 26 (48%) vs. 22 (44%) vs. 20 (40%) vs. 28 (36%) respondents, respectively. The percentage differences between the two most selected performance measures (“employee productivity” and “employee turnover”) were statistically not significant for $p \leq 0.05$ (Difference test: Difference 12% [(-16.98–20.78) CI 95%]; Chi-square=0.040; df=1; p=0.8422).

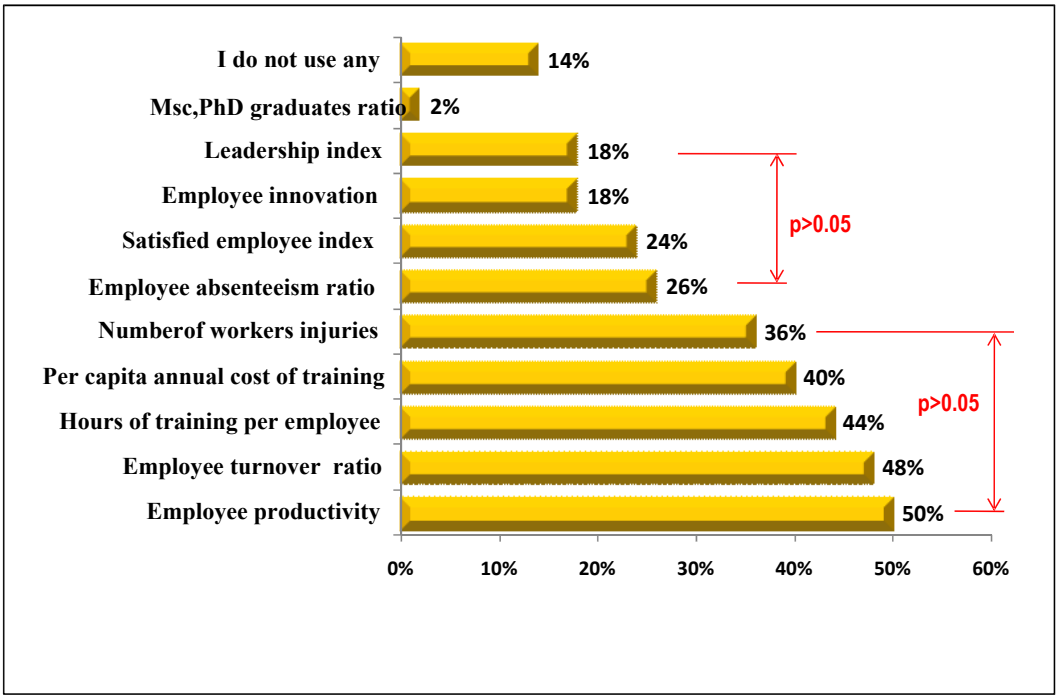
Significant percentage differences, for $p \leq 0.05$, were found between “employee productivity” /“employee turnover” and all other following performance measures starting from “employee absenteeism ratio” (Difference test: Difference 24% [(4.97–41.76) CI 95%]; Chi-square=6.051; df=1; p=0.0139) as well as from “employee turnover” (Difference test: Difference 22% [(3.08–38.87) CI 95%]; Chi-square=5.139; df=1, p=0.0234).

The least selected performance measures were “employee innovation” and “leadership index”, both represented with 9 (18%) respondents, followed by “satisfied employee index” presented with 12 (24%) respondents. Only 1 (2%) of the respondents reported the use of “MSc/PhDgraduates ratio” as a performance measure from the learning growth perspective. We also found that 7 (14%) of the respondents reported that they “do not use any” performance measures from learning/growth perspective in their organizations.

Table 9. Analysis of the Most Used Performance Measures from Learning and Growth Perspective

Performance measures - KPIs learning/growth perspective		Responses in descending order	
		N	%
1	Employee productivity	25	50
2	Employee turnover ratio	26	48
3	Hours of training per employee	22	44
4	Per capita annual cost of training	20	40
5	Number of workers injuries	18	36
6	Employee absenteeism ratio	13	26
7	Satisfied employee index	12	24
8	Employee innovation	9	18
9	Leadership index	9	18
10	Msc,PhD graduates ratio	1	2
11	I do not use any	7	14
Note: Total Sample = 50			

Figure 5. Analysis of the Most Used Performance Measures from Learning and Growth Perspective



7.6 Analysis of the Purpose of Using PMS

In order to study the outcomes of the PMS used in the survey organizations, the questionnaire included a list of six design purposes. Design purpose is defined as the purpose for which companies design their PMS. The findings are used to assess how variations of the design of IPMS affect the achievement of the organizational purposes. Respondents were asked to rank the importance of the listed design purposes on a five-point Likert scale as: not at all important, not important, neutral, important and extremely important. Higher scores were corresponding to higher perceived importance by survey respondents.

This part of the analysis includes summary of average scores on purpose of using PMS by usage categories and average scores by all respondents in total (Table 10, Figure 6). The descriptive data suggests that average scores of total rankings differ from average scores of rankings by usage categories. The analysis shows that "reviewing financial performance" received the highest total average score for being overall the most important purpose for which PMS were designed. "Reviewing financial performance" received the highest average ranking by the dominant survey group, which is the Operational group. However, the average group scores (strategic1, strategic 2, and strategic 3) show that respondents in these strategic groups rank "driving organization's strategy" as being the most important purpose for which PMS are used. Respondents from Strategic 1, Strategic 2 and Strategic 3 group use a particular type of BSC, respectfully BSC I, BSC II, BSC III. This analysis goes in line with Kaplan and Norton (1996) claims that BSC was designed to overcome the

limitations of traditional financial performance and to act as a strategic performance measurement and management system.

"Managing customer and supplier relations" received second highest average score by total rankings. "Reducing waste and non-value activities" has received the lowest average score by respondents by both strategic groups (strategic 1, strategic 2, and strategic 3) and by respondents in operational group.

"Supporting planning and decision making and "controlling organization's processes" received higher average scores by strategic groups compared to the Operational group. This implies that survey respondents which use some type of BSC find their PMS to be more beneficial in achieving the above stated outcomes in comparison with the respondents from the operational group.

Significant difference analysis among groups average scores (operational, strategic 1, strategic 2, and strategic 3) is performed. Most important design purposes for the use and implementation of PMS among strategic groups are "driving organization's strategy" "supporting planning and decision making" and "controlling business processes".

The results show that there are statistically significant differences in answers scores between Operational group and Strategic 2 and Operational and Strategic 3 with regard to "driving organization's strategy". The significantly higher scores for Strategic 2 compared to Operational imply that cause and effect relationships between measures developed in companies from Strategic 2 group (Type BSC II) contributes significantly to driving the business strategy. Implementing the causal relationships among measures across perspectives allows drivers of performance to be identified, measured and monitored. Without developing cause-and-effect relationships between measures, managers monitor and manage measures, which they believe are important, but they do not necessarily match the 'real' drivers of business strategy. Consistent with the importance of 'causal business models' are the studies which show that providing causal models to employees can reduce the over-emphasis on short term financial measures in performance evaluation. Although the beneficial effect of explicit causal models on driving the business strategy is evident in research and practice, only 7 (14%) of the survey organizations in our study reported the use of causal relationships among measures.

For the category "driving organization's strategy", there was a significant difference in answer scores between Operational group and Strategic 3 (Type BSC III) group with higher average score rankings in favour of Strategic 3 group. This is because Strategic 3 group respondents implemented links between incentives and BSC measures, which additionally allows steering the organizational members towards achieving strategic goals. Even though, tying incentives to financial and non-financial measures contributes positively to organizational outcomes, only 3 (6%) of survey respondents claim to link

measures to BSC in addition to deriving their measures from strategy and applying cause-and-effect.

"Controlling business processes" refers to the ability of the organization to monitor what is achieved against what is planned. Only when the business processes are measured against what is projected they can be improved. With regard to "controlling business processes", average scores are in ascending order in favour of the more sophisticated level of usage of BSC. Even though, the average responses for "controlling business processes" are in favour of the strategic types of groups who have reported to use some kind of BSC, the analysis does not show a significant difference of answer scores between any of the strategic groups relative to the operational group. "Controlling business processes" has received above average rankings by respondents from the Operational group too, implying that these companies focus on control and diagnosis of deviances without applying "framework for strategic performance measurement".

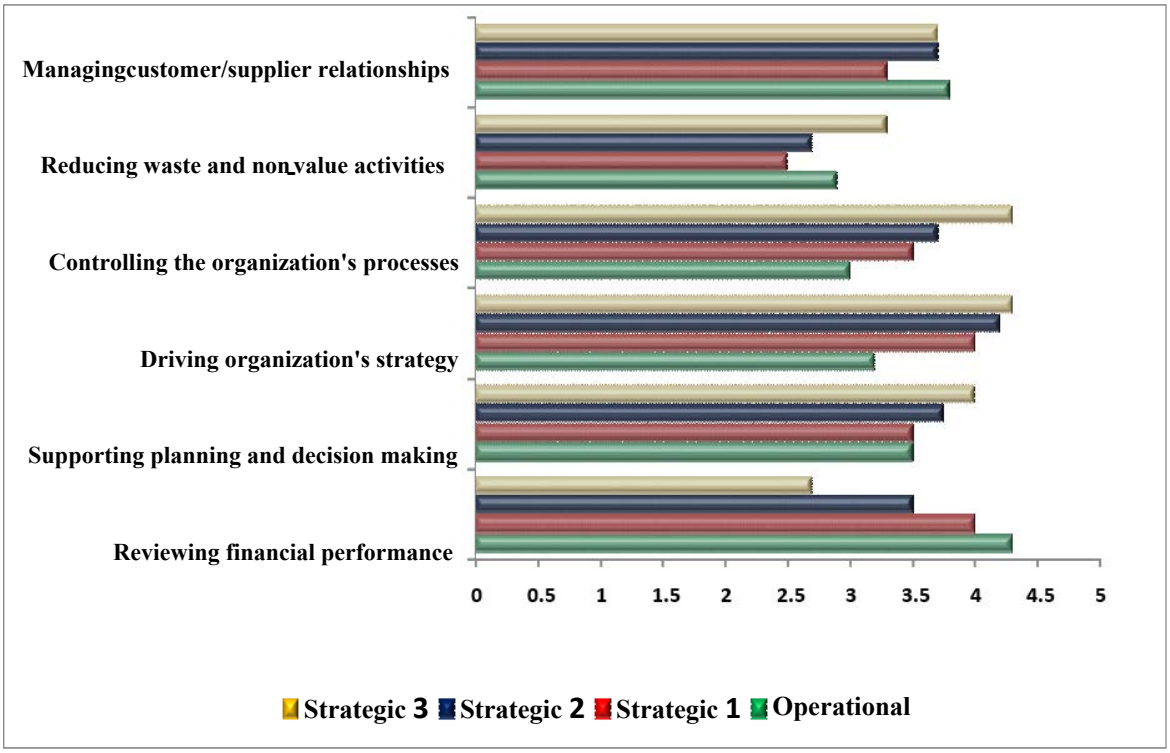
Besides control, the BSC is used as a planning device. In an integrated planning and budgeting, targets for BSC measures are set and resources are allocated to perform the list of BSC initiatives. In the analysis, the greater the level of integration of the BSC measures (setting targets and action plans for measures) the higher rankings the performance systems are receiving in terms of capability of the system to successfully perform the planning process. The analysis shows that average scores for "supporting planning and decision making" are higher for strategic groups compared to Operational group. The Operational average group score is above average also, indicating that all respondents acknowledge the purpose of achieving better planning when planning to establish a performance system.

Table 10. Average Scores on Purpose of Using PMS by Usage Categories

Purposes of company's performance measurement system		Average score by usage categories				
		Operational	Strategic 1	Strategic 2	Strategic 3	Total
1	Reviewing financial performance	4.3	4.0	3.5	2.7	4.1
2	Supporting planning and decision making	3.5	3.5	3.75	4.0	3.5
3	Driving organization's strategy	3.2	4.0	4.2	4.3	3.4
4	Controlling the organization's processes	3.3	3.5	3.5	3.7	3.3
5	Reducing waste and non-value activities	2.9	2.5	2.7	3.3	2.9
6	Managingcustomer/supplier relationships	3.8	3.5	3.7	3.7	3.8
Note: Total Sample = 50						

Below in this section we elaborate the detailed analysis for each of the six statements related to the purposes for use of companies' PMS by usage categories.

Figure 6. Summary Statements of Average Scores on Purpose for Use of PMS by Usage Categories



Reviewing financial performance–The mean answer score for this statement in the whole sample was 4.1±0.7 with min/max score of 2/5 and 50% respondents with score lower than 4 for median IQR=4 (4–5) (Table 11 and Figure 7). The analysis by usage categories showed that the highest average answer score had Operational group 4.3±0.6 with min/max score of 3/5 and 50% respondents with score lower than 4 for median IQR=4 (4–5). The lowest average answer score related to this statement belonged to Strategic 3 group 2.7±0.6 with min/max score of 2/3 and 50% respondents with score lower than 3 for median IQR=3 (2-3).

Table 11.Analysis of Answers Scores on "Reviewing Financial Performance" by Usage Categories

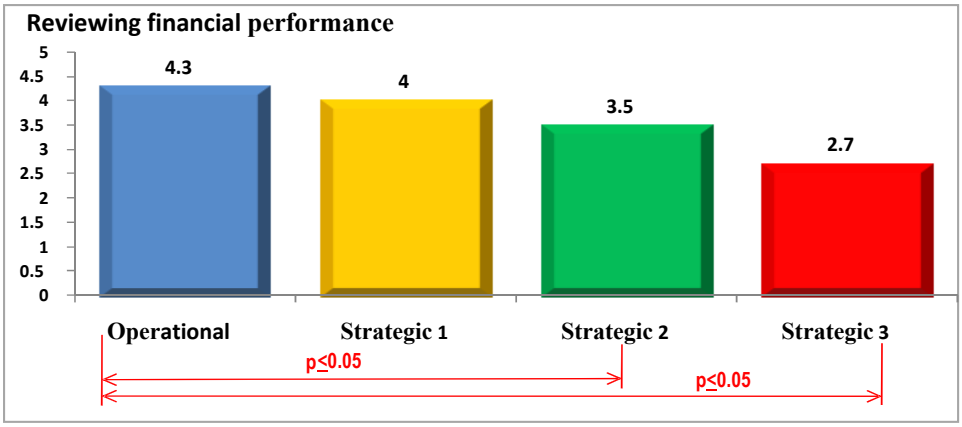
Reviewing financial performance	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	4.3	0.6	3	5	4	4.0	5
Strategic 1	4.0	0.0	4	4	4	4.0	4
Strategic 2	3.5	0.6	3	4	3	3.5	4
Strategic 3	2.7	0.6	2	3	2	3.0	3
Total	4.1	0.7	2	5	4	4.0	5
Kruskal-Wallis H test: Chi-square (3)=12.942; p=0.005*						*significant for p<0.05	

The analysis showed significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=12.942; p=0.005) (Table 12 and Figure 7). According the Post Hoc analysis, this significance was due to the significant differences between Operational compared to Strategic 2 group (Mann-Whitney U Test: Z=-2.159; p=0.031) and Operational compared to Strategic 3 group (Mann-Whitney U Test: Z=-2.919; p=0.004) in favour of significantly higher answer score (higher importance) in Operational group. Between the other groups the differences in answer score related to the importance on statement *"reviewing financial performance"* were not significant for p≤0.05 (Table 12).

Table 12. Post Hoc Analysis of Answer Scores among Usage Categories on "Reviewing Financial Performance"

Mann-Whitney U Test	Op[1]/St1[2]	Op[1]/St2[3]	Op[1]/St3[4]	St1[2]/St2[3]	St1[2]/St3[4]	St2[3]/St3[4]
Mann-Whitney U	29.000	33.000	4.000	2.000	.000	2.000
Z	(.776)	(2.159)	(2.919)	(1.118)	(1.826)	(1.578)
Asymp. Sig. (2-tailed)	0.438	0.031*	0.004*	0.264	0.068	0.115
*significant for p≤0.05 [1]OP-Operational [2]Strategic 1 [3]Strategic 2 [4]Strategic 3						

Figure 7.Analysis of Average Answer Score on "Reviewing Financial Performance" by Usage Categories



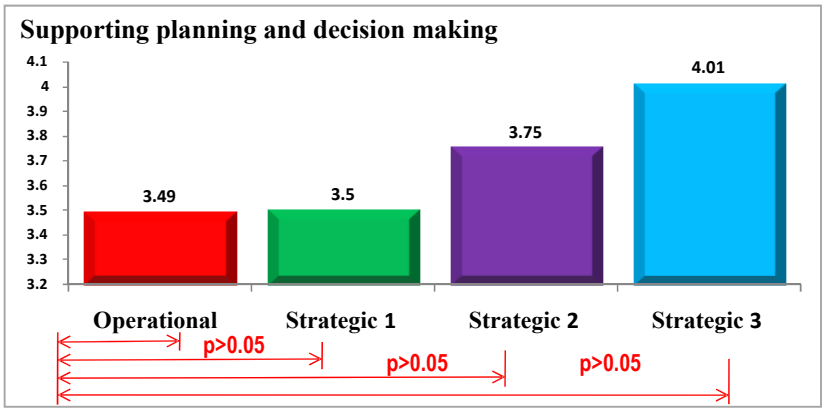
Supporting planning and decision-making–under this statement the respondents got to assess the extent to which they use their PMS to determine actions plans and to allocate resources (Table 13 and Figure 8). The mean answer score for this statement in the whole samplewas 3.5±0.5 with min/max score of 3/4 and 50% respondents with score lower than 4 for median IQR=4 (3–4) (Table 13). Analysis by usage categories showed that the highest average answer score had Strategic 3 group 4.0±0.0 with min/max score of 4/4 and median IQR=4 (4–5). The lowest average answer score related to this statement belonged to operational group 3.4±0.5 with min/max score of 3/4 and 50% respondents with score

lower than 3 for median IQR=3 (3–4). Analysis showed no significant differences in answer scores between the four usage categories (Kruskal-Wallis H test: Chi-square (3)=3.654; p=0.301) (Table 13 and Figure 8).

Table13. Analysis of Answers Scores on "Supporting Planning and Decision Making" by Usage Categories

Supporting planning and decision making	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.49	0.5	3	4	3	3.0	4
Strategic 1	3.50	0.7	3	4	3	3.5	4
Strategic 2	3.75	0.5	3	4	3.5	4.0	4
Strategic 3	4.01	0.0	4	4	4	4.0	4
Total	3.5	0.5	3	4	3	4.0	4
Kruskal-Wallis H test: Chi-square (3)=3.654; p=0.301					*significant for p≤0.05		

Figure 8.Analysis of Average Answer Score on "Supporting Planning and Decision Making" by Usage Categories



Driving organization's strategy–The mean answer score in the whole sample was 3.4±0.8 with min/max score of 2/5 and 50% respondents with score lower than 3 for median IQR=3 (3–4) (Table 14 and Figure 9). Analysis by usage categories showed that the highest average answer score had Strategic 3 group 4.3±0.6 with min/max score of 4/5 and 50% respondents with score lower than 4 for median IQR=4 (4–5). The lowest average answer score related to this statement belonedged to Operational group 3.2±0.7 with min/max score of 2/4 and 50% respondents with score lower than 3 for median IQR=3 (3–4). Analysis show a significant differences in answer scores between the four usage categories (Kruskal-Wallis H test: Chi-square (3)=12.065; p=0.007) (Table 14).

Table 14. Analysis of Answers Scores on "Driving Organization's Strategy" by Usage Categories

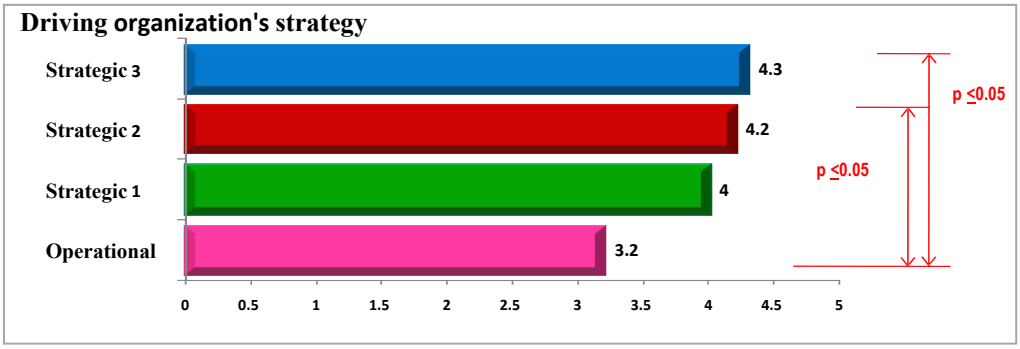
Driving organization's strategy	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.2	0.7	2	4	3	3	4
Strategic 1	4.0	1.4	3	5	3	4	5
Strategic 2	4.2	0.5	4	5	4	4	4.5
Strategic 3	4.3	0.6	4	5	4	4	5
Total	3.4	0.8	2	5	3	3	4
Kruskal-Wallis H test: Chi-square (3)=12.065; p=0.007*					*significant for p≤0.05		

According to the Post Hoc analysis, this significance was due to the significant differences between Operational compared to Strategic 2 group (Mann-Whitney U Test: Z=-2.631; p=0.009) and Operational compared to Strategic 3 group (Mann-Whitney U Test: Z=-2.393; p=0.017) in favuor of significantly lower answer score (lower importance) in Operational group. Among other usage categories the differences in answer score related to the importance on statement "driving organization's strategy" were not significant for p≤0.05 (Table 15 and Figure 9).

Table 15. Post Hoc Analysis of Answer Scores among Usage Categories on "Driving organization's strategy"

Mann-Whitney U Test	Op[1]/St1[2]	Op[1]/St2[3]	Op[1]/St3[4]	St1[2]/St2[3]	St1[2]/St3[4]	St2[3]/St3[4]
Mann-Whitney U	24.000	21.000	14.000	3.500	2.500	5.500
Z	(1.066)	(2.631)	(2.393)	(.250)	(.304)	(.224)
Asymp. Sig. (2-tailed)	0.286	0.009*	0.017*	0.803	0.761	0.823
*significant for p≤0.05 [1]OP-Operational [2]Strategic 1 [3]Strategic 2 [4]Strategic 3						

Figure 9. Analysis of Average Answer Score on "Driving organization's strategy" by Usage Categories

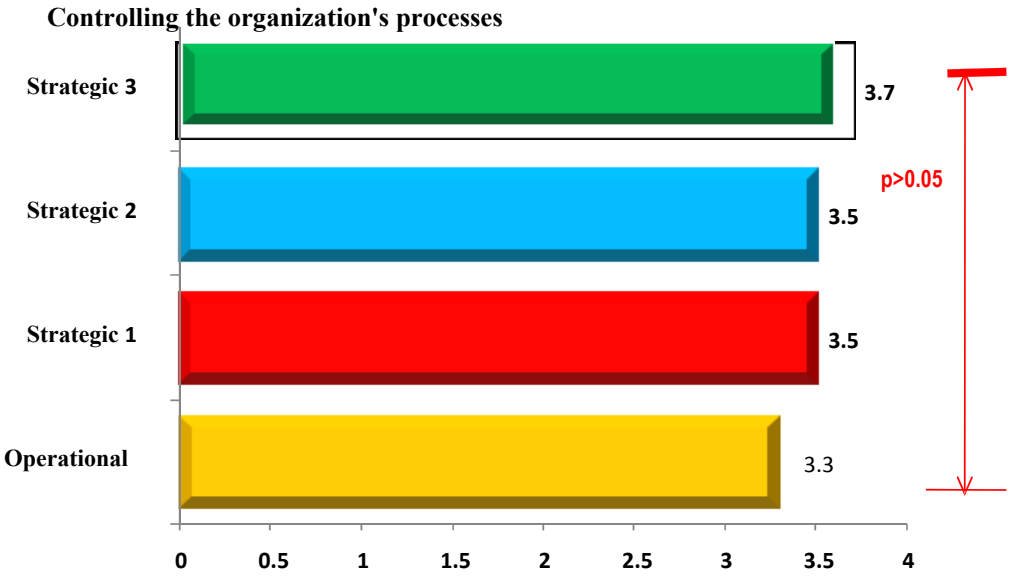


Controlling the organization's processes–explanation given to respondents related to this usage was for managers to assess whether they control what is achieved versus what was projected in their processes (Table 16). The mean answer score for the statement **"**controlling the organization's processes" for the whole sample was 3.3±0.7 with min/max score of 2/5 and 50% respondents with score lower than 3 for median IQR=3 (3–4) (Table 16). Analysis by usage categories show that the highest average answer score had Strategic 3 group 3.7±0.5 with min/max score of 3/5 and 50% respondents with score lower than 3.6 for median IQR=3.6 (3–4.5). The lowest average score related to this statement belonged toOperational group 3.3±0.7 with min/max score of 2/4 and 50% respondents with score lower than 3 for median IQR=3 (3–4).Analysis showed no significant differences between average answer scores among usage categories at $p \leq 0.05$.

Table 16. Analysis of Answers Scores on "Controlling the Organization's Processes" by Usage Categories

Controlling the organization's processes	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.3	0.7	2	4	3	3.0	4
Strategic 1	3.5	0.7	3	4	3	3.5	4
Strategic 2	3.5	0.6	3	4	3	3.5	4
Strategic 3	3.7	0.5	3	5	3	3.6	4.5
Total	3.3	0.7	2	5	3	3.0	4
Kruskal-Wallis H test: Chi-square (3)=7.840; p=0.431						*significant for $p \leq 0.05$	

Figure10. Analysis of Average Answer Score on "Controlling the Organization's Processes" by Usage Categories



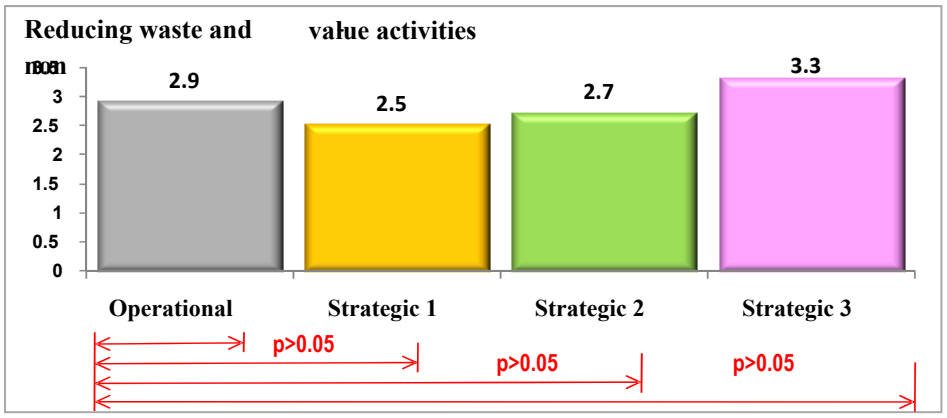
Reducing waste and non-value activities–Explanation given to respondents related to the "Reducing waste and non-value activities" statement was for managers to assess whether the use of PMS has helped them to reduce non-value activities in managing operations, capital and technology (Table 17).

Table 17.Analysis of Answer Scores on "Reducing Waste and Non-value activities" by Usage Categories

Reducing waste and non-value activities	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	2.9	0.8	2	4	2	3.0	4
Strategic 1	2.5	0.7	2	3	2	2.5	3
Strategic 2	2.7	0.9	2	4	2	2.5	3.5
Strategic 3	3.3	0.6	3	4	3	3.0	4
Total	2.9	0.8	2	4	2	3.0	4
Kruskal-Wallis H test: Chi-square (3)=1.572; p=0.666					*significant for p≤0.05		

Related to the whole sample, the mean answer score for the statement **"**Reducing waste and non-value activities**"** was 2.9±0.8 with min/max score of 2/4 and 50% respondents with score lower than 3 for median IQR=3 (2–4) (Table 17). Analysis by usage categories showed that the highest average answer score for this statement had Strategic 3 group 3.3±0,6 with min/max score of 3/4 and 50% respondents with score lower than 3 for median IQR=3 (3–4). The lowest average answer score had Strategic 1 group and was 2.5±0.7 with min/max score of 2/3 and 50% respondents with score lower than 2.5 for median IQR=2.5 (2-3). Analysis, for p≤0.05, showed no significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=1.572; p=0.666) (Table 17). The analysis of the average answer score of the statement "Reducing waste and non-value activities" is presented in Figure 11.

Figure 11. Analysis of Average Answer Score on "Reducing Waste and Non-value Activities" by Usage Categories

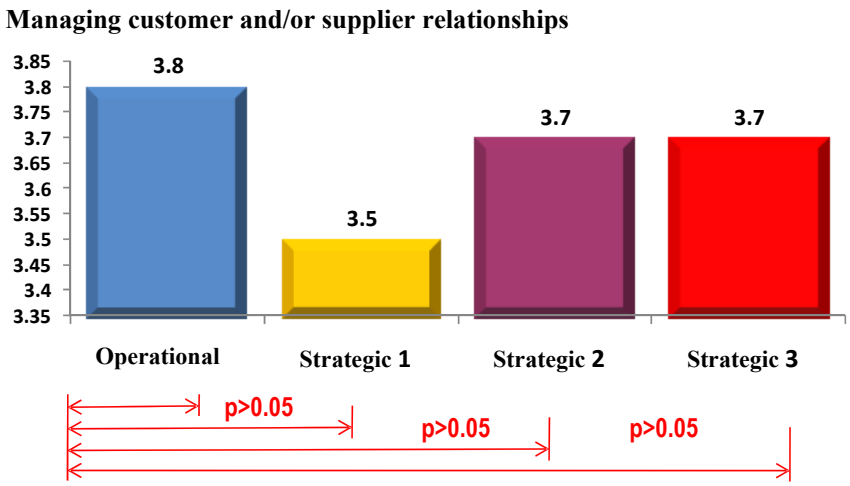


Managing customer and/or supplier relationships–the mean answer score related to this statement in the whole sample was 3.8±0.7 with min/max score of 2/5 and 50% respondents with score lower than 4 for median IQR=4 (4–4) (Table 18 and Figure 12). Analysis by usage categories showed that the highest average answer score for this statement had Operational group 3.8+0.8 with min/max score of 2/5 and 50% respondents with score lower than 4 for median IQR=4 (3–4). The lowest average answer score had Strategic 1 group and was 3.5+0.2 with min/max score of 3/4 and 50% respondents with score lower than 3.5 for median IQR=4 (3.5–4). Our analysis, for $p \leq 0.05$, did not show significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=1.767; p=0.622). The analysis of the average answer score of the statement "Managing customer and/or supplier relationships" is presented in Table 18 and Figure 12.

Table 18. Analysis of Average Answers Scores on "Managing Customer and/or Supplier Relationships" by Usage Categories

Managing customer and/or supplier relationships	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.8	0.8	2	5	3	4	4
Strategic 1	3.5	0.2	3	4	3.5	3.5	4
Strategic 2	3.7	0.5	3	4	3.5	4	4
Strategic 3	3.7	0.6	3	4	3.5	4	4
Total	3.8	0.7	2	5	4	4	4
Kruskal-Wallis H test: Chi-square (3)=1.767; p=0.622					*significant for $p \leq 0.05$		

Figure 12. Analysis of Average Answers Scores on "Managing Customer and/or Supplier Relationships" by Usage Categories



7.7 Analysis of Performance Measurement Categories

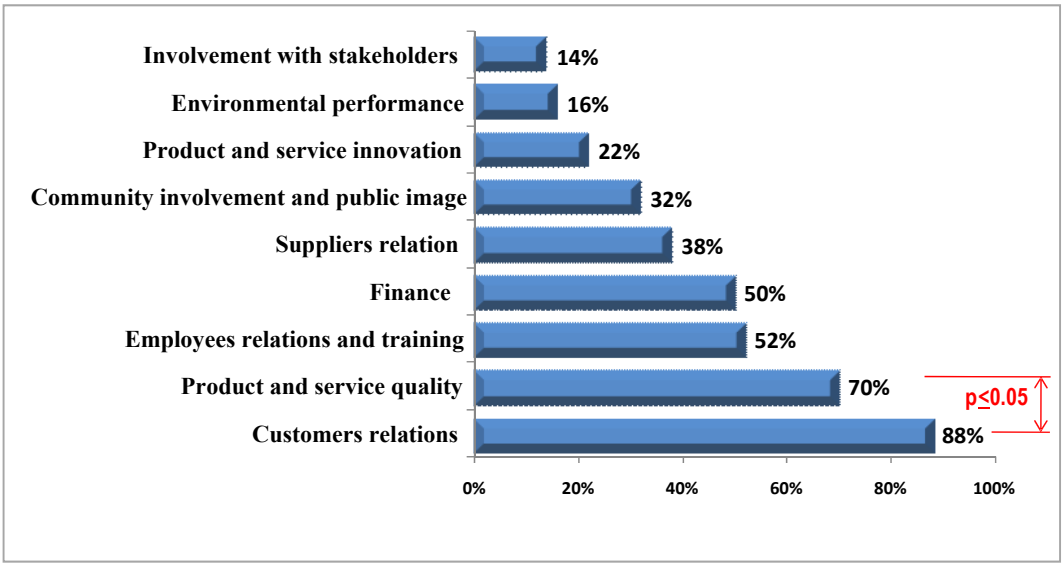
The respondents were given the list of 9 items to identify the performance measurement categories they consider were the most important for their business strategy (Table 19 and Figure 13). The first five most selected performance were "customers relations", "product and service quality", "employees relations and training", "finance" and "suppliers relation" which were selected by 44 (80%) vs. 35 (70%) vs. 26 (52%) vs. 25 (50%) vs. 19 (38%) respondents respectively. The percentage differences between the two most selected performance categories ("customers relations" and "product and service quality") was statistically significant for $p \leq 0.05$ (Difference test: Difference 18% [(1.93–33.16) CI 95%]; Chi-square=4.834; df=1; p=0.0279) in favour of significantly more frequent selection of "customers relations" as a performance measurement category important for business strategy comparing with all other listed statements.

The least selected performance measurement categories were "involvement with stakeholders", "environmental performance" and "product and service innovation", presented with 7 (14%) vs. 8 (16%) vs. 11 (22%) respondents, respectively. Our analysis, for $p \leq 0.05$, did not find significant percentage differences between statements 7/9 and 7/8 (Table 17) for consequently (Difference test: Difference 8% [(-7.29–23.01) CI 95%]; Chi-square=1.073; df=1, p=0.3002) vs. (Difference test: Difference 6% [(-9.56–21.29) CI 95%]; Chi-square=0.579; df=1, p=0.4467).

Table 19. Analysis of the Most Important Performance Measurement Categories for Business Strategy

Performance measurement categories most important for business strategy		Responses in descending order	
		N	%
1	Customers relations	44	88
2	Product and service quality	35	70
3	Employees relations and training	26	52
4	Finance	25	50
5	Suppliers relation	19	38
6	Community involvement and public image	16	32
7	Product and service innovation	11	22
8	Environmental performance	8	16%
9	Involvement with stakeholders	7	14
Note: Total Sample = 50			

Figure 13. Analysis of the Most Important Performance Measurement Categories for Business Strategy



7.8 Analysis of Benefits from the Usage of PMS

Related to the benefits gained from the design of IPMS, respondents evaluated nine statements. For rating the importance of each of them, a five-point Likert scale was determined as: not at all important, not important, neutral, important and extremely important. Higher scores were corresponding to higher importance (Table 20 and Figure 14).

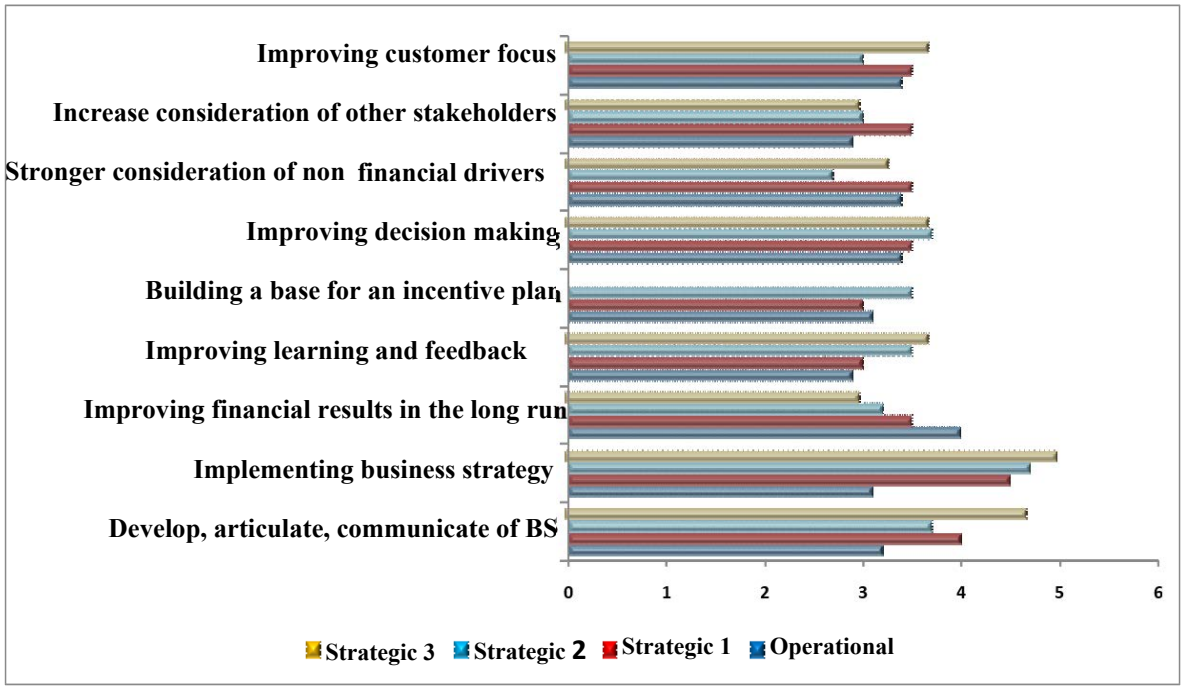
From the nine benefits in the survey, three benefits got fewer points than others: "increase consideration of other stakeholders", "improving learning and feedback" and "building a base for incentives". The analysis of average scores of ratings clearly showed that "improving financial results in long run" got overall highest average score. Operational group, which is the most dominant group, puts most emphasis on the financial performance as top benefit gained from the usage of PMS. The strategic groups (strategic 1-BSC I, strategic 2-BSC II, strategic 3-BSC III) rank "develop, articulate and communicate business strategy" and "implementing business strategy" with highest average scores. Noticeably, the respondents from the strategic groups perceive that these are most important benefits gained from the usage of PMS.

Strategic groups report higher average scores on all listed benefits, except for the category "improving financial results in the long run" indicating a greater support for this category from the operational group respondents. The analysis reveal that respondents that claimed to use some kind of integrated PMS, such as the BSC have experienced much greater benefits especially in areas such as strategy articulation, formation and implementation than the respondents grouped in the Operational group.

Table 20. Summary Average Scores on "Benefits Gained from Design and Implementation of an Integrated PMS"

Benefits gained from the design and implementation of an integrated PMS		Average score by usage categories				
		Operational	Strategic 1	Strategic 2	Strategic 3	Total
1	Develop, articulate ,communicate of BS	32	4.0	3.7	4.7	3.4
2	Implementing business strategy	3.1	4.5	4.7	5.0	3.4
3	Improving financial results in the long run	3.9	3.5	3.2	3.0	3.7
4	Improving learning and feedback	2.9	3.0	3.5	3.7	3.1
5	Building a base for an incentive plan	3.1	3.0	3.5	3.7	3.2
6	Improving decision making	3.4	3.5	3.7	3.7	3.5
7	Stronger consideration of non-financial drivers	3.4	3.5	2.7	3.3	3.4
8	Increase consideration of other stakeholders	2.9	3.5	3.0	3.0	2.9
9	Improving customer focus	3.4	3.5	3.0	3.7	3.4
Note: Total Sample = 50						

Figure 14. Analysis of Answer Score on "Benefits Gained from Design and Implementation of an Integrated PMS"



Developing, articulating and communicating of business strategy–The min/ max Likert scale score for this statement was 1 through 5 for answers from "not at all important" trough "extremely important" (Table 21 and Figure 15). The mean answer score for this statement in the whole sample was 3.4±0.9 with min/max score of 2/5 and 50%

respondents with score lower than 3 for median IQR=3 (3–4) (Table 19). Analysis by usage categories showed that the highest average answer score had Strategic 3 group 4.7±0.6 with min/max score of 4/5 and 50% respondents with score lower than 5 for median IQR=5 (4–5). The lowest average answer score related to this statement belonged to Operational group 3.2±0.9 with min/max score of 2/5 and 50% respondents with score lower than 3 for median IQR=3 (3–4).

Table 21. Analysis of Answers Scores on "Developing, Articulating and Communicating of Business Strategy" by Usage Categories

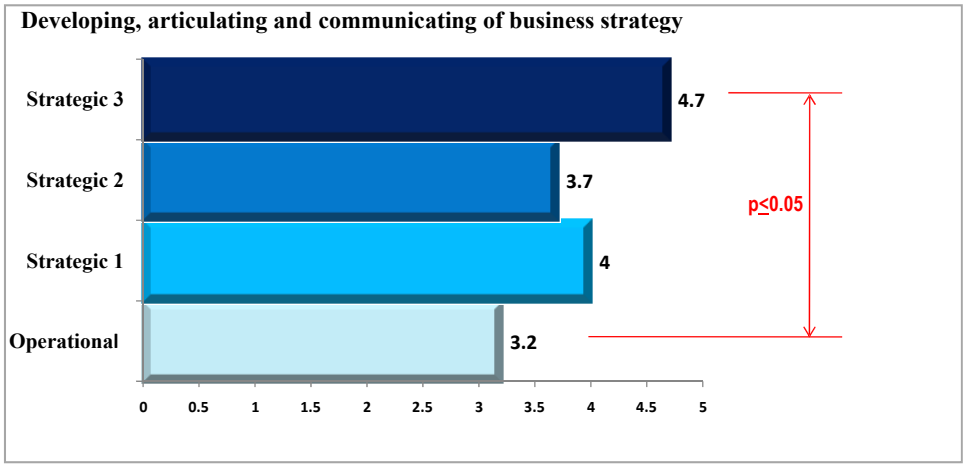
Reviewing financial performance	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.2	0.9	2	5	3	3	4
Strategic 1	4.0	0.0	4	4	4	4	4
Strategic 2	3.7	0.5	3	4	3.5	4	4
Strategic 3	4.7	0.6	4	5	4	5	5
Total	3.4	0.9	2	5	3	3	4
Kruskal-Wallis H test: Chi-square (3)=8.569; p=0.036*					*significant for p≤0.05		

The analysis showed significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=8.569; p=0.036) (Table 21 and Figure 15). According to the Post Hoc analysis, this significance was due to the significant differences between Operational compared to Strategic 3 group (Mann-Whitney U Test: Z=-2.392; p=0.017) in favour of significantly higher answer score (higher importance) in Strategic 3 group. Between the other groups the differences in answer score related to the importance on statement "Developing, articulating and communicating of business strategy" were not significant for p≤0.05 (Table 22).

Table 22. Post Hoc Answer Scores Analysis of "Developing, Articulating and Communicating of Business Strategy" by Usage Categories

Mann-Whitney U Test	Op[1]/St1[2]	Op[1]/St2[3]	Op[1]/St3[4]	St1[2]/St2[3]	St1[2]/St3[4]	St2[3]/St3[4]
Mann-Whitney U	19.000	52.500	12.500	3.000	1.000	1.500
Z	(1.340)	(1.245)	(2.392)	(.707)	(1.333)	(1.775)
Asymp. Sig. (2-tailed)	0.180	0.213	0.017*	0.480	0.182	0.076
*significant for p≤0,05 [1]OP-Operational [2]Strategic 1 [3]Strategic 2 [4]Strategic 3						

Figure 15. Answers Scores Analysis of "Developing, Articulating and Communicating of Business Strategy"



Implementing business strategy–The mean answer score for the whole sample was 3.4±1.1 with min/max score of 2/5 and 50% respondents with score lower than 3.5 for median IQR=3.5 (2–4) (Table 23 and Figure 16). Analysis by usage categories showed that the highest average answer score (highest importance) noted Strategic 3 group 5.0±0.0 with min/max score of 5/5 with median IQR=5 (5–5).

Table 23. Answer Scores Analysis of "Implementing Business Strategy" by Usage Categories

Implementing business strategy	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.1	1.0	2	5	2.0	3.0	4.0
Strategic 1	4.5	0.7	4	5	4.0	4.5	5.0
Strategic 2	4.7	0.5	4	5	4.5	5.0	5.0
Strategic 3	5.0	0.0	5	5	5.0	5.0	5.0
Total	3.4	1.1	2	5	2.0	3.5	4.0
Kruskal-Wallis H test: Chi-square (3)=15,684; p=0,001*					*significant for p≤0.05		

The lowest average answer score related to this statement belonged to Operational group 3.1±1.0 with min/max score of 2/5 and 50% respondents with score lower than 3 for median IQR=3 (2–4). The analysis showed a significant differences in the answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=15.684; p=0.001) (Table 24). According the Post Hoc analysis, this significance was due to the significant differences between Operational compared to Strategic 2 group (Mann-Whitney U Test: Z=-2.733; p=0.006) and Operational compared to Strategic 3 group (Mann-Whitney U Test: Z=-2.682; p=0.007) in favour of significantly higher answer score (higher importance) in Strategic 2 group and Strategic 3 group, respectively. Between the other usage categories the differences in answer scores related to the importance on statement

"Implementing business strategy" were not significant for p≤0.05 (Table 24 and Figure 16).

Table 24. Post Hoc Answer Scores Analysis of "Implementing Business Strategy" by Usage Categories

Mann-Whitney U Test	Op[1]/St1[2]	Op[1]/St2[3]	Op[1]/St3[4]	St1[2]/St2[3]	St1[2]/St3[4]	St2[3]/St3[4]
Mann-Whitney U	12.000	16.000	6.000	3.000	1.500	4.500
Z	(1.744)	(2.733)	(2.682)	(.559)	(1.225)	(.866)
Asymp. Sig. (2-tailed)	0.081	0.006*	0.007*	0.576	0.221	0.386
*significant for p≤0.05 [1]OP-Operational [2]Strategic 1 [3]Strategic 2 [4]Strategic 3						

Figure 16. Post Hoc Answer Scores Analysis on "Implementing Business Strategy" by Usage Categories

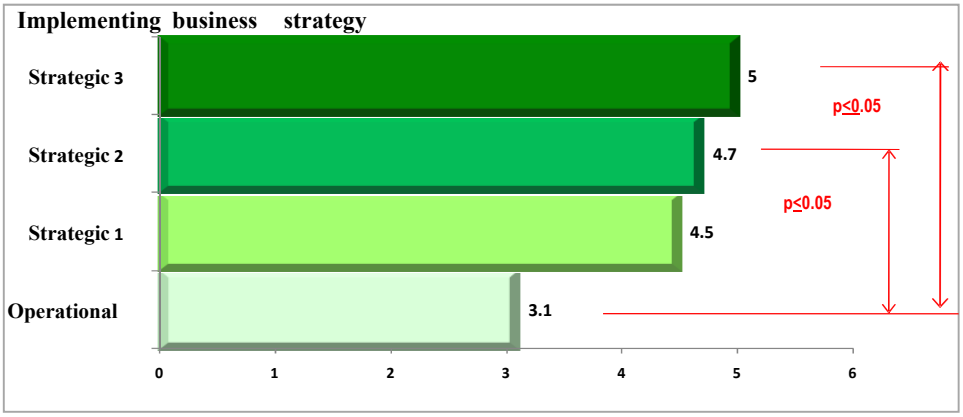


Table 25. Answers Scores Analysis of "Improving Financial Results in the Long Run" by Usage Categories

Improving financial results in the long run	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.9	0.8	3	5	3.0	4.0	5.0
Strategic 1	3.5	0.7	3	4	3.0	3.5	4.0
Strategic 2	3.2	0.5	3	4	3.0	3.0	3.5
Strategic 3	3.0	0.0	3	3	3.0	3.0	3.0
Total	3.7	0.8	3	5	3.0	4.0	4.0
Kruskal-Wallis H test: Chi-square (3)=8.085; p=0.044*				*significant for p≤0.05			

Improving financial results in the long run–The mean answer score for the whole sample was 3.7±0.8 with min/max score of 3/5 and 50% respondents with score lower than 4 for median IQR=4 (3–4) (Table 25 and Figure 17). Analysis by usage categories showed that the highest average answer score (highest importance) noted Operational group 3.9±0.8

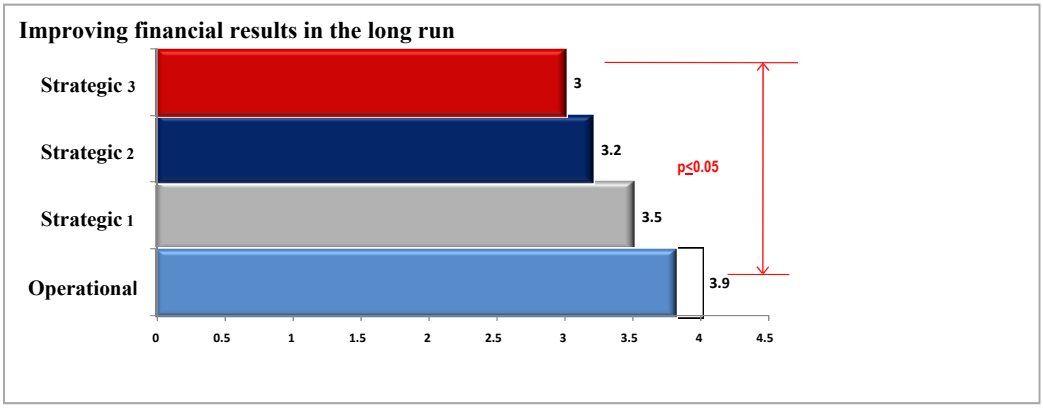
with min/max score of 3/5 with median IQR=4 (3–5). The lowest average answer score related to this statement belonged to Strategic 3 group 3.0±0.0 with min/max score of 3/5. Analyses showed significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=8.085; p=0.044) (Table 25).

According to the Post Hoc analysis, this significance was due to the significant differences between Operational compared to Strategic 3 group (Mann-Whitney U Test: Z=-2.156; p=0.031) in favour of significantly lower answer score (lower importance) in Strategic 3 group. Between the other usage categories the differences in answer score related to the importance on this statement were not significant for p≤0.05 (Table 26 and Figure 17).

Table 26. Post Hoc Answer Scores Analysis on "Improving Financial Results in the Long Run" by Usage Categories

Mann-Whitney U Test	Op[1]/St1[2]	Op[1]/St2[3]	Op[1]/St3[4]	St1[2]/St2[3]	St1[2]/St3[4]	St2[3]/St3[4]
Mann-Whitney U	26.500	38.500	18.000	3.000	1.500	4.500
Z	(.893)	(1.849)	(2.156)	(.559)	(1.225)	(.866)
Asymp. Sig. (2-tailed)	0.372	0.064	0.031*	0.576	0.221	0.386
*significant for p≤0,05	[1]OP-Operational	[2]Strategic 1	[3]Strategic 2	[4]Strategic 3		

Figure 17. Post Hoc Answer Scores Analysis of "Improving Financial Results in the Long Run" by Usage Categories



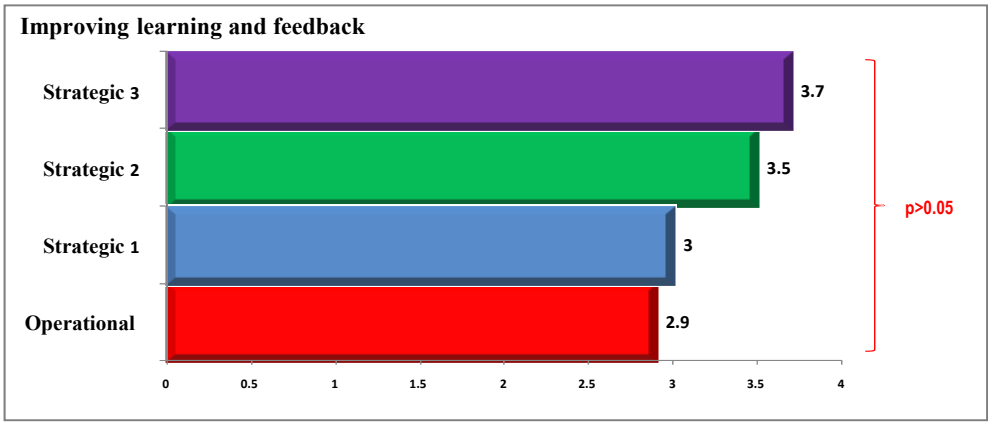
Improving learning and feedback–the mean answer score for the whole samplewas 3.1±0.8 with min/max score of 2/5 and 50% respondents with score lower than 3 for median IQR=3 (2–4) (Table 27 and Figure 18).

Table 27. Answers Scores Analysis of "Improving Learning and Feedback" by Usage Categories

Improving learning and feedback	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	2.9	0.8	2	5	2	3.0	4
Strategic 1	3.0	1.4	2	4	2	3.0	4
Strategic 2	3.5	0.6	3	4	3	3.5	4
Strategic 3	3.7	0.6	3	4	3	4.0	4
Total	3.1	0.8	2	5	2	3.0	4
Kruskal-Wallis H test: Chi-square (3)=3.579; p=0.311				*significant for p≤0.05			

Analysis by usage categories showed that the highest average answer score (highest importance) noted Strategic 3 group 3.7±0.6 with min/max score of 3/4 with median IQR=4 (3–4). The lowest average answer score related to this statement belonged to Operational group 2.9±0.8 with min/max score of 2/5. There was no significant differences in the answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=3.457; p=0.311) (Table 27).

Figure 18. Post Hoc Answer Scores Analysis of "Improving Learning and Feedback" by Usage Categories



Building a base for an incentive plan–the mean answer score for the whole sample was 3.21±0.8 with min/max score of 2/5 and 50% respondents with score lower than 3 for median IQR=3 (3–4) (Table 28 and Figure 19). Analysis by usage categories showed that the highest average answer score (highest importance) noted Strategic 3 group 3.7±0.6 with min/max score of 3/4 with median IQR=4 (3–4). The lowest average answer score related to this statement belonged to Operational group 3.1±0.9 with min/max score of 2/5. Analysis did not show significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=2.733; p=0.435) (Table 28).

Table 28. Answers Scores Analysis of "Building a Base for an Incentive Plan" by Usage Categories

Building a base for an incentive plan	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.1	0.9	2	5	3	3.0	4
Strategic 1	3.0	0.0	3	3	3	3.0	3
Strategic 2	3.5	0.6	3	4	3	3.5	4
Strategic 3	3.7	0.6	3	4	3	4.0	4
Total	3.2	0.8	2	5	3	3.0	4
Kruskal-Wallis H test: Chi-square (3)=2.733; p=0.435				*significant for p≤0.05			

Figure 19. Post Hoc Answer Scores Analysis of "Building a Base for an Incentive Plan" by Usage Categories

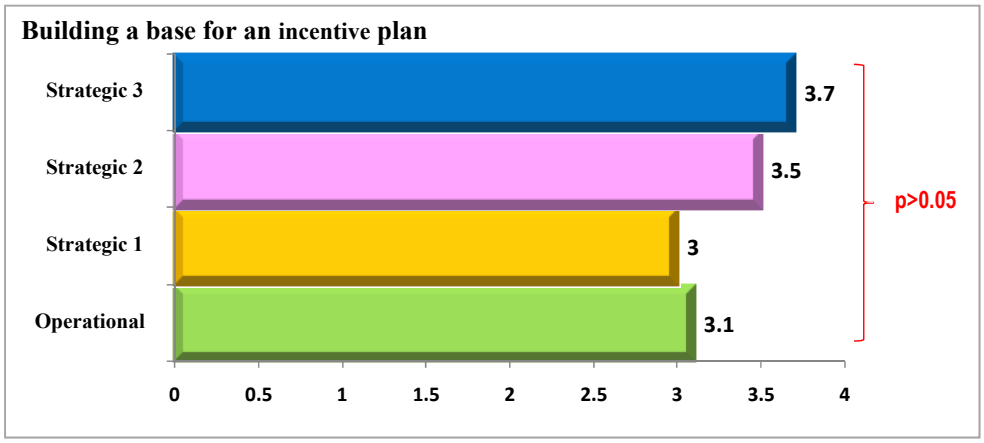


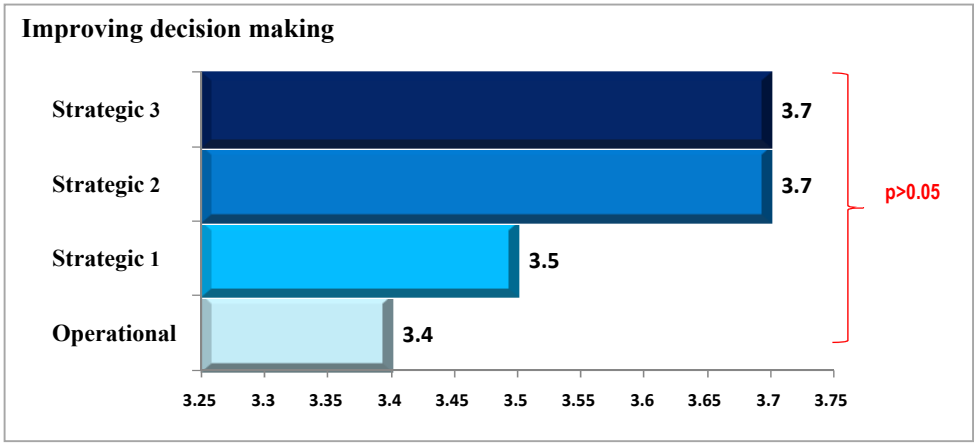
Table 29. Answers Scores Analysis of "Improving Decision-Making" by Usage Categories

Improving decision making	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.4	0.8	2	5	3.0	3.0	4.0
Strategic 1	3.5	0.7	3	4	3.0	3.5	4.0
Strategic 2	3.7	0.5	3	4	3.5	4.0	4.0
Strategic 3	3.7	0.6	3	4	3.0	4.0	4.0
Total	3.5	0.8	2	5	3.0	3.5	4.0
Kruskal-Wallis H test: Chi-square (3)=1.176; p=0.759				*significant for p≤0.05			

Improving decision making–related to this statement the mean answer score for the whole sample was 3.5±0.8 with min/max score of 2/5 and 50% respondents with score lower than 3.5 for median IQR=3.5 (3–4) (Table 29 and Figure 20). Analysis by usage categories showed that the highest average answer score (highest importance) noted Strategic 3 group 3.7±0,6 with min/max score of 3/4 with median IQR=4 (3–4). The lowest average answer

score related to this statement belonged to Operational group 3.4±0.8 with min/max score of 2/5. Analysis did not show significant differences in answer scores amongthe four usage categories (Kruskal-Wallis H test: Chi-square (3)=1.176; p=0.759) (Table 29).

Figure 20. Post Hoc Answer Scores Analysis of "Improving Decision Making" by Usage Categories



Stronger consideration of non-financial drivers of performance–analysis found that the mean answer score for the whole sample was 3.4±0.8 with min/max score of 2/5 and 50% respondents with score lower than 3.4 for median IQR=3.5 (3–4) (Table 30and Figure 21).

Table 30. Answers Scores Analysis of "Stronger Consideration of Non-financial Drivers of Performance" by Usage Categories

Consideration of non-financial drivers of performance	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.4	0.8	2	5	3.0	3.0	4.0
Strategic 1	3.5	0.7	3	4	3.0	3.5	4.0
Strategic 2	2.7	0.5	2	3	2.5	3.0	3.0
Strategic 3	3.3	0.6	3	4	3.0	3.0	4.0
Total	3.4	0.8	2	5	3.0	3.0	4.0
Kruskal-Wallis H test: Chi-square (3)=2.840; p=0.417					*significant for p≤0.05		

Analysis by usage categories showed that the highest average answer score (highest importance) noted Strategic 1 group 3.5±0.7 with min/max score of 3/4 with median IQR=3.5(3–4). The lowest average answer score related to this statement belonged to Strategic 2 group 2.7±0.5 with min/max score of 2/3. There was no significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=2.840; p=0.417) (Table 30).

Figure 21. Post Hoc Answer Scores Analysis of "Stronger Consideration of Non-finacial Drivers" by Usage Categories

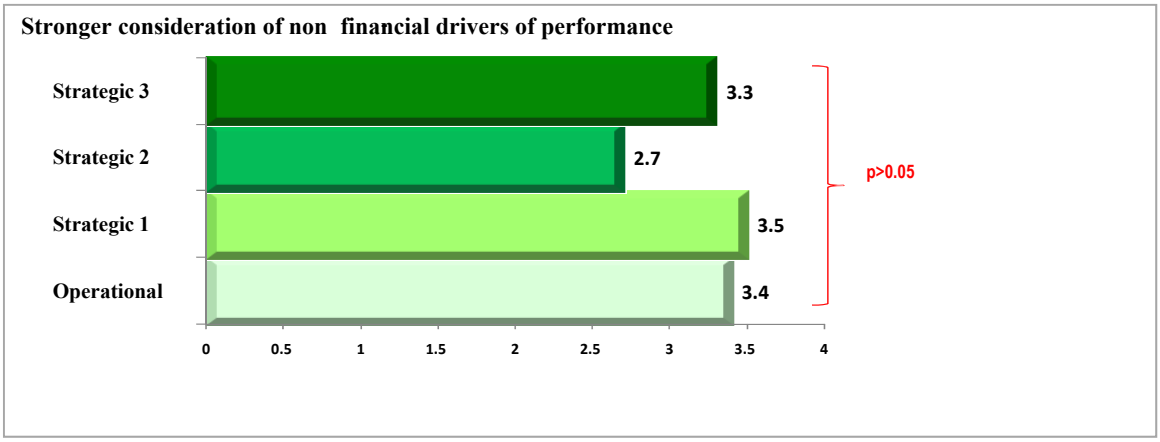
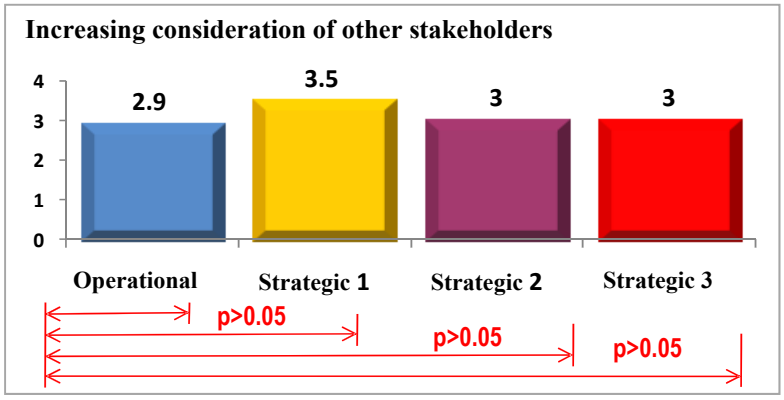


Table 31. Answers Scores Analysis of "Increasing Consideration of Other Stakeholders" by Usage Categories

Increasing consideration of stakeholders	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	2.9	0.9	1	5	3	3.0	3
Strategic 1	3.5	0.7	3	4	3	3.5	4
Strategic 2	3.0	0.0	3	3	3	3.0	3
Strategic 3	3.0	0.0	3	3	3	3.0	3
Total	2.9	0.9	1	5	3	3.0	3
Kruskal-Wallis H test: Chi-square (3)=1.441; p=0.696					*significant for p≤0.05		

Figure 22. Post Hoc Answer Scores Analysis of "Increasing Consideration of Other Stakeholders" by Usage Categories



Increasing consideration of others stakeholders–sample analysis of the statement "Increasing consideration of other stakeholders" found that the mean answer score was

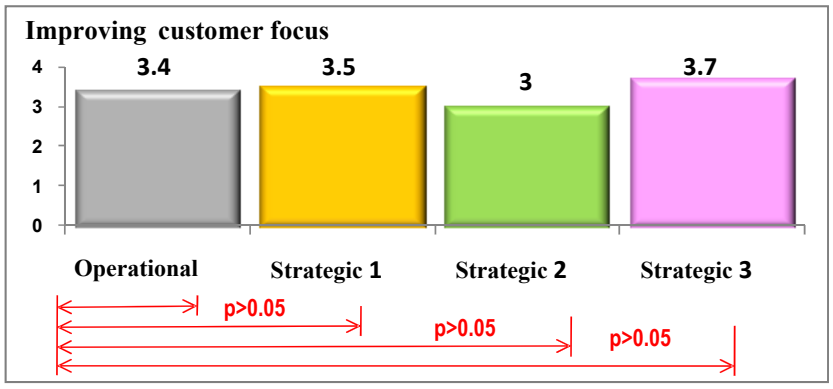
2.9±0.9 with min/max score of 1/5 and 50% respondents with score lower than 3 for median IQR=3 (3–3) (Table 31and Figure 22). The highest average answer score (highest importance) noted Strategic 1 group 3.5±0.7 with min/max score of 3/4 with median IQR=3.5 (3–4). The lowest average answer score related to this statement belonged to Operational group 2.9±0.9 with min/max score of 1/5. Analysis did not show significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=1.441; p=0.696) (Table 31).

Improving customer focus–Sample mean answer score was 3.4±0.8 with min/max score of 2/5 and 50% respondents with score lower than 3 for median IQR=3 (3–4) (Table 32 and Figure 23). The highest average answer score (highest importance) noted Strategic 3 group 3.7±0.6 with min/max score of 3/4 with median IQR=4 (3–4). The lowest average answer score related to this statement belonged to Strategic 2 group 3.0±0.0 with min/max score of 3. The analysis did not show significant differences in answer scores among the four usage categories (Kruskal-Wallis H test: Chi-square (3)=1.625; p=0.654) (Table 32).

Table 32. Answers Scores Analysis of "Improving Customer Focus" by Usage Categories

Improving customer focus	Mean	Std. Deviation	Min.	Max.	Percentiles		
					25th	Median	75th
Operational	3.4	0.9	2	5	3	3.0	4
Strategic 1	3.5	0.7	3	4	3	3.5	4
Strategic 2	3.0	0.0	3	3	3	3.0	3
Strategic 3	3.7	0.6	3	4	3	4.0	4
Total	3.4	0.8	2	5	3	3.0	4
Kruskal-Wallis H test: Chi-square (3)=1.625; p=0.654					*significant for p≤0.05		

Figure 23. Post Hoc Answer Scores Analysis of "Improving Customer Focus" by Usage Categories



7.9 Analysis of Managers' Opinions about PMS

Related to the agreement/disagreement on performance management concepts, respondents evaluated four statements. For rating the agreement with each of them, we used a five-point Likert scale as: strongly agree, agree, neutral, disagree and strongly disagree. Higher scores correspond to higher agreement (Table 33).

The analysis showed that respondents from strategic groups compared to the respondents from the operational group, agreed to a greater extent with positive statements such as: "improvements in PMS are necessary and investing in resources in it provides long term benefits" and "working with integrated performance measurement framework improves decision making, which enables better future performance". In contrary, respondents from operational group compared to respondents from strategic groups, agreed to a greater extent with more negative statements: "implementing PMS hardly brings any benefits for the organization" and "PMS cannot be implemented, because the required data and resources (knowledge, time, people etc) are not available".

Table 33: Analysis of Opinions among Usage Group

Agreement disagreement on performance management concepts		Average score by usage categories				
		Operational	**Strategic 1**	**Strategi 2**	**Strategi 3**	**Total**
1	**Improvements in the existing PMS are necessary and investing resources in it provides long term benefits**	2.9	3.5	3.7	3.7	3.0
2	**Working with integrated performance meanagement framework improves decision making, which guides better future performance**	3.5	4.0	3.7	4.3	3.6
3	**Implementing PMS hardly brings any benefits for the organization**	2.6	1.5	2.0	1.5	2.4
4	**PMS cannot be implemented, because the required data and resources (knowledge, time, people, etc) are not available**	3.8	2.5	2.5	2.7	3.6
Note: Total Sample = 50						

CONCLUSION

This study was designed in order to determine the level of IPMS usage in large and medium size companies in the Republic of North Macedonia as well as to determine whether different designs of IPMS result in varying levels of benefits and organizational outcomes for its users.

The distribution of survey respondents according to the proposed framework indicates a division in the usage categories where 82% were included in "Operational", 4% in

"Strategic 1", 8 % in "Strategic 2" and 6% in "Strategic 3". Therefore, the Operational group consisted of the majority of survey respondents. Only 18 % of survey respondents have passed the crucial threshold, which called for a clear link between performance measures and strategy, for the respondents to proceed into specific types of 'strategic performance measurements systems' corresponding to types BSC I, BSC II, BSC III. Namely, 4% of survey companies were categorized in 'strategic 1-BSC I', 8% in 'strategic 2-BSC II' and 6% in 'strategic 3-BSC III'. Although, the use of IPMS, particularly the BSC gained much acceptance among practitioners and academics in the world, this study reveals the extent of its adoption and use is very limited in the country. This is due to the underdeveloped managerial and management practices and the failure of organizations to incorporate some of the essential features of the IPMS, such as strategy links, cause and effect relations and linking incentives to BSC measures, which would result in the implementation of systems that are 'true BSC'.

The findings indicate that all the companies use performance measures from the financial and the customer perspective. Only 6 (12%) of survey respondents reported 'I do not use any KPIs from the internal business perspective and 7 (14%) reported 'I do not use any KPIs from the learning and growth perspective'. This is a very encouraging finding, indicating that companies in the country use performance measures along different performance dimensions.

When presented with different design purposes for which the PMS were designed and used in the organization, it was found that respondents from the Operational group ranked "reviewing financial performance" as most important purpose for designing their measurement system. However, the support for the other design purposes changed quite clearly among the strategic users. The analysis revealed that strategic users determine "driving organization's strategy" to be detrimental to the purpose of implementing IPMS. The results show that there is statistically significant difference between Strategic 2 group compared to Operational and Strategic 3 group compared to Operational in favour of significantly higher answer scores (higher importance) for strategic groups with regard to the importance of "driving organizations' strategy" as the main usage purpose.

Further analysis of differences in usage purposes between categories indicated that both "supporting planning and decision-making" and "controlling organization's processes" received higher average scores by strategic groups compared to operational. These findings are in line with normative claims that assert that organizations use more developed designs of PMS to overcome the limitations of the traditional financial focus on performance and thereby increase the effectiveness of their PMS in strategy implementation and improved planning and control.

When the respondents were presented with a list of organizational benefits, to assess the importance of achieving different benefits from the usage of PMS, it was determined that "improving financial results in the long-run" received overall highest rank. This is because

the dominant group in our survey, the Operational group representing 82 % of the total number of respondents, put most emphasis on improving financial results as the top benefit gained from the use of measurement systems. The support on the other benefits changed quite clearly among the strategic users, who assessed that "implementing business strategy" and "developing, articulating and communicating strategy" are the most important benefits achieved from the usage of their PMS. In overall, users from the strategic groups compared to users from the operational group reported higher rate of achievement of all other benefits, including "improving learning and feedback" and "building a base for incentive plan". This indicates that the strategic group users due to the strategy link in their performance system and the implementation of causal relationships between the perspectives and within the perspectives ripped more benefits than the operational group users. This study provides statistical analysis to show that the more advanced designs of IPMS, which exhibit the distinguished features of a fully developed BSC, yield greater overall effectiveness for their companies.

However, the users from the Operational group placed above average scores on "developing, articulating and communicating of strategy","implementing organization's strategy" and "improving feedback and learning", which indicates that even though the majority of companies do not use BSC, they are not underestimating the importance of these benefits to the organizational performance and success.

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APPENDICES

LIST OF APPENDICES

Appendix A: Abstract in Slovenian Language

POVZETEK

Sistemi za celovito obvladovanje uspešnosti (ang. Integrated Performance Measurement Systems, v nadaljnjem besedilu IPMS) so pridobili velik pomen v literaturi in praksi na področju računovodstva zaradi njihove pozitivne povezave z izboljšano organizacijsko uspešnostjo. V Republiki Severni Makedoniji je uporaba IPMS v srednjih in velikih podjetjih razmeroma nezrela zaradi relativno nerazvite managerske prakse v državi.

Študija empirično preučuje uporabo sistemov za merjenje uspešnosti (ang. Performance Measurement Systems, v nadaljnjem besedilu PMS) in njihov obseg uporabe v srednjih in velikih podjetjih v Republiki Severni Makedoniji. Da bi preučili, v kolikšni meri makedonska podjetja uporabljajo PMS, smo opredelili štiri osnovne tipe uporabe PMS glede na kompleksnost uporabe PMS in njihovo predvideno vlogo v organizaciji. Tipologija se začne z najpreprostejšo obliko PMS, to je operativni tip, kjer se kazalniki uspešnosti (finančni in nefinančni) uporabljajo za operativne in diagnostične namene, vendar niso nujno izpeljani iz strategije podjetja. Na podlagi študije Speckbacher et al. (2003) tipologija nadalje vzpostavlja še tri vrste strateških uporabnikov uravnoteženega sistema kazalnikov (ang. Balanced Scorecard, v nadaljnjem besedilu BSC), od prvotne oblike BSC kot večdimenzionalnega okvira za strateško merjenje uspešnosti, ki združuje finančne in nefinančne kazalnike, do naprednih oblik uporabe kot celovitega sistema za obvladovanje uspešnosti, ki opisuje strategijo kot vzročno-posledično povezavo in je povezan s sistemi nagrajevanja.Razviti tipološki okvir nam služi tudi za empirično preučevanje razlik v organizacijskih rezultatih in koristih zaradi različnega tipa uporabe PMS. Omogoča nam, da preučimo, ali različni modeli in tipi uporabe PMS vodijo do različnih rezultatov.

Preden preidemo na praktični del, v študiji analiziramo značilnosti tako PMS, ki se uporabljajo za operativni nadzor, kot tudi inovativnih PMS, ki se uporabljajo za spremljanje uresničevanja strategije. „Sistemi za merjenje uspešnosti“, kot je BSC, vključujejo potrebne značilnosti za izboljšanje strateške uporabe PMS. PMS, ki so v celoti usklajeni s strategijo organizacije, kot je BSC, se imenujejo tudi IPMS. Temeljno načelo inovativnega PMS, kot je BSC, je, da je strategija organizacije tesno povezana z sistemom merjenja uspešnosti, saj je treba uspešnost oceniti glede na organizacijske strateške cilje in kritične dejavnike.

V študiji ocenjujemo uporabo IPMS tako, da preučimo obseg, v katerem se v anketiranih organizacijah izvajajo pomembne značilnosti BSC, kot so raznolikost kazalnikov uspešnosti na štirih vidikih uspešnosti (finančni vidik, vidik kupcev, vidik poslovnih procesov, vidik učenja in rast), vzročno-posledične povezave in povezava kazalnikov uspešnosti s sistemom nagrajevanja in vzpodbud. Ugotavljamo, da je uporaba IPMS v Republiki Severni Makedoniji razmeroma nizka, kar pomeni, da le majhen del makedonskih podjetij uporablja IPMS. Študija pa razkriva, da anketiranci, ki uporabljajo celovito zasnovane IPMS, ki so usklajeni z organizacijo, poročajo o izboljšanih rezultatih (uresničevanje in oblikovanje strategije, izboljšan nadzor procesov, izboljšano načrtovanje in učenje itd.).

Appendix B: List of Abbreviations

BSC	Balanced Scorecard
EVA	Economic Value Added
FMS	Flexible Management Systems
IC	Intelectual Capital
IPMS	Integrated Performance Management Systems
JIT	Just in Time
KPI	Key Performance Indicator
MA	Management Accounting
MAC	Management Accounting Systems
MCS	Management Control Systems
PMS	Performance Measurement Systems
SPMS	Strategic Performance Measuremrent System
TQM	Total Quality Management
VBM	Value Based Managemet