CORPORATE GOVERNANCE & PERFORMANCE

SECTION 3

FINANCIAL MANAGEMENT: THE IMPACT OF PERFORMANCE INDICATORS ON THE ORGANIZATIONAL PROFITABILITY

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Abstract

This paper investigates the financial management performance involved in increasing the firms' profitability. It contributes to a single list of performance indicators which never existed in the literature empirically with reference to third world countries, like Pakistan. Stratified random sampling technique was used to select a sample of 200 manufacturing firms with process performance management system (PPMS) criteria to check the impact of performance indicators on the overall business performance index using ROE, ROA. The results of AHP analysis show that the "Supportive Culture" and "PPMS facilitate the competitive advantage" are the major facilitators for those organizations who have implemented the PPMS whereas firms without implementation of PPMS have major inhibitors as " Non supportive culture" and "Have another Performance System". And the Measuring financial performance, Quality performance, Delivery reliability performance, customer satisfaction performance and employees satisfaction lead to increase in the organizational Profitability. This study will be helpful to the top management of the organizations from manufacturing sector regarding the implementing decision of the PPMS. The organization can choose the best indicators used by firms in order to achieve the overall excellence.

Keywords: Profitability, ROA, ROE, ANOVA, Key Indicators, Critical Factors

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1 Introduction

Since the beginning of the 1990s, performance measurement has become a vital issue for academics and practitioners. The proficient literature has suggested that managers should design new performance measurement systems that include financial and non-financial measures (Gosselin, 2005). Usually firms use the performance management in order to keep an eye on their operations and objectives. A performance management system serves four purposes i,e. to measure, monitor, compare and manage the performance. There are many systems in practice by the firms for performance management. The traditional and modern systems are different in terms of the performance indicators and the point of focus. The traditional systems actually used the financial measures and focus the organizational performance in broader sense, whereas the modern systems use both types of performance indicators (financial and non-financial) as suggested by the researchers and they measure the organizational performance narrowly. The process performance management system (PPMS) is one of the modern systems for performance management. The PPMS uses both types of performance indicators and focus on process performance for managing the overall organizational performance.

The main purpose of this study is to affirm the steps involved in PPMS suggested by Oakland (2010) in the manufacturing sector in Pakistan. The other purpose of the study is to investigate either the profitability of the firms which are using the PPMS for performance management, is significantly different from the others firms which are not using the PPMS. The last purpose of the study is to know that what are most important inhibitors and facilitators regarding the implementation of PPMS. This study is the descriptive research, which has used the survey research method and some statistical techniques in order to find the purpose of the study. The section 2 discusses the literature review and section 3 deals with the research methodology. Sections 4 and 5 describe data analysis and conclusion respectively.

2 Literature review

The phenomenon performance measurement is used by the organizations in order to ensure that they are going on right direction, or achieving targets in terms of organizational goals and objectives. The performance measures are used to evaluate and control the overall business operations. They are also used to measure and compare the performance of different organizations in the industry, plants, departments, teams and individuals (Ghalayini and Noble, 1996; Neely et al, 2000; 2005). The business performance measurement is not an untapped topic. A large number of researches have been conducted by the researchers on this topic. According to Neely (2000), almost 3,615 researches on business performance measurement were published in three years 1994 to 1996, which means that for every five working hour one article on the issue was published. The overall organizational performance could be measured by using financial indicators, operational indicators or by using both. The financial indicators may include the sales growth, profitability and Earning per share, which are organization specific and if we consider the market then the market to book and stock market returns and its variants are taken as the financial indicators of the organization's overall financial performance. The second types of indicators are operational indicators which are also called the non-financial indicators of the organization's performance. They include the market share, new product introduction, quality of the products, marketing effectiveness, manufacturing value-added and other measures of technological efficiency (Venkatraman and Ramanujam 1986,De Toni and Tonchia 2001 and Browne et al 1997).

2.1 Performance management systems

Heckl and Moormann (2010) have identified the following systems for measurement of performance of the organizations.

- Balanced scorecard
- Self-assessment,
- Traditional controlling,
- Activity based costing
- Process performance measurement system.
- Work flow based monitoring and
- Statistical control system.

All above mentioned systems have different set of objectives and characteristics but also have some common set of elements with each other. Heckl and Moormann (2010) have differentiated these approaches on the basis of two dimensions; the first one is the focus and the second is scope as shown in figure 1 below.

Figure 1. Positioning of performance management systems

	Focus on … the entire business or an organisational unit	Focus on … a single business process
Performance in a broad sense (efficiency and effectiveness)	**Balanced Scorecard** **Self-Assessment**	**Process Performance Measurement Systems**
Performance in a narrow sense (primarily measuring efficiency)	**Traditional Controlling (e.g., Return on Investment, Economic Value Added)**	**Activity-based Costing** **Workflow-based Monitoring** **Statistical Process Control**

2.1.1 Balance scorecard

Kaplan and Norton (1992) have developed the balanced scorecard instrument to clarify and operationalize the organization vision with respect to four perspectives (financial, customer, internal process & learning and growth perspective). This system is developed in order to describe the overall business performance in terms of financial and non-financial indicators on continuous basis. This framework is

based upon four important aspects which include the financial, customer, internal process & learning and growth. This system can be used for three main purposes which are the reporting of strategic performance, linking the strategy with performance measures and to describe different perspectives in numerical terms. This system is very important as it focuses on strategic business units of the organizations. It focuses on the business process as far they are critical for achieving the business mission and goals (Kueng and Krahn 1999, Aitken and Brinkworth 2010).

2.1.2 Self Assessment

The origin of self -assessment system is found in Japan. In 1951 the Japan has introduced an award system for Quality driven organization. Following the Japan the USA also has introduced the award system named as Malcolm Baldridge National Quality Award (MBNQA) in 1988 in order to appreciate the Quality driven organizations. Afterward the organizations start to focus on self-assessment system in order to improve their product quality. Focus was the overall performance of the organizations but not the processes (Kueng and Krahn 1999). The managers of the organizations can measure the performance of the overall business on the basis of predefined criteria of the performance evaluation and framework. This system is called self-assessment system for performance measurement of the business organizations (Hakes 1996).. This system is developed and recommended by the quality management associations (e.g. European foundation of Quality Management, EFQM). By this system the organizations can measure and manage their overall performance on the regular basis to keep check either they are going to the right direction. This system provides number of benefits to organizations, like monitoring the organization's performance by keeping the checking on the strengths and weaknesses of the organizations. But this system measures the overall performance of the organizations but not the process or activity independently (Rolstadas 1998 and Heckl and Moormann 2010).

2.1.3 Traditional controlling

The traditional controlling also focuses on the whole business to control and manage the performance (Kueng 2000). Key indicators to assess the profitability, growth and risk factors are determined and then the senior management continuously observes these indicators. By this process the senior management becomes able to assess any problem in the business and takess any corrective measures (Heckl and moormann 2010).

2.1.4 Activity based costing

The activity based costing (ABC) was firstly introduced in mid-1980's by the computer aided manufacturing international with the framework of the cost management systems programs. This system came into the existence during the considerations of the modern manufacturing, logistics and IT changes and the process and cost structures of the organizations. These days the organizations don't consider the indirect cost and value added activities costs but they only used to consider the direct costs. The activity based costing system of performance management developed the concept of considering the all other indirect costs as well. The ABC system focuses on the very small unit of the business in order to measure the performance. But its major consideration is cost indicator (Kueng and Krahn 1999).

2.1.5 Process performance measurement system

This system focuses on the performance of the each and every single process of the business in order to assess, control and manage the performance of the overall business. Actually this system takes the process as the foundation of the overall business. So performance of the process is easily assessed and controlled as compare to overall business. In this approach with respect of vision and mission statement of the overall business the objectives of the single process are defined and then indicators for the process performance are determined in order to make complete grip over the process performance (Neely 2000).

2.1.6 Work flow based monitoring

The work flow based monitoring facilitates the top management by automatic and semi-automatic assessment of the process variations, coordination of the different process activities and communication between the workers of the processes. The different IT systems used automatically record the information of the different activities which may be very useful for the future planning and decision making (Heckl and Moormann 2010). The data gathered automatically provide many useful insights into the activity based costing, time related to completions of process and different workload on process workers. The traditional performance system focus on entire performance level of the organizations but the workflow system focuses on the process based performance (zur Muhlen 2004). The limitations of the work flow based monitoring may include the qualitative performance and performance data about activity or processes which are conducted manually and are very difficult to monitor and achieve. It is very difficult to assess this kind of data. The work flow monitoring system monitor the performance of the process during its

execution so the chance of mistake is minimized (Kueng and Krahn 1999).

2.1.7 Statistical control system

The statistical control system uses different statistical techniques in order to find any variations in the process (Juran and Gyrna, 1993). The main target of these techniques is to find maximum variation accurately as they can (Kueng and Krahn 1999). And then this data provided by the statistical control system is used to control the variation found in the processes. The main objective of this system is to achieve the stable processes, because the more stable process may lead toward more accurate prediction of the behaviour of the process, which at the end gives reliable predictions about the quality of the products (Heckl and Moormann 2010).

As a summary the balanced scorecard and self-assessment systems are related to same category, because of their common focuses on the performance of the whole organization, although they have different approaches. Statistical process control, activity based costing and workflow based monitoring are usually used for the measuring the performance of a single process and focuses only on efficiency aspect. Traditional controlling also considers the organization as a whole and focuses on the efficiency, whereas the process performance measurement system focuses on an individual business process, rather on the performance of the whole organization or an organizational unit.

2.2 The process performance management

2.2.1 What is a process?

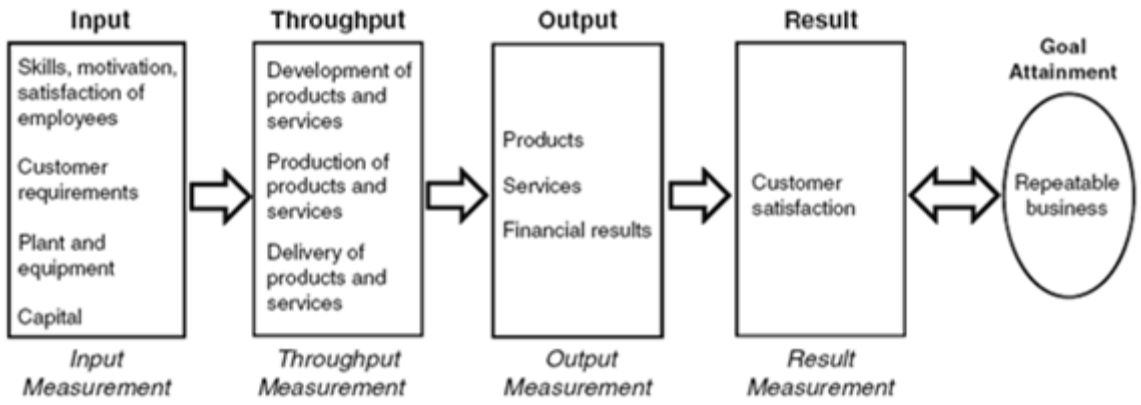
According to Zairi (1997) the process is an approach for converting inputs into outputs. It is the way in which all the resources of an organization are used in a reliable, repeatable and consistent way to achieve its goals (Palmberg 2009). Aitken and Stephen (2010) have defined the process as "A sequence of tasks undertaken by actors within a single community" Essentially; there are four key features to any process. A process has to have:

- Predictable and definable inputs;
- A linear, logical sequence or flow;
- A set of clearly definable tasks or activities;
- A predictable and desired outcome or result.

2.2.2 Framework for measuring process performance

The business process performance is not any-thing absolute due to the large number of available performance indicators, figures and measures. The performance of a same process can be different on the basis of performance measured by different measures and performance indicators. An organization's objectives and vision is used to provide the basis for determinations of measures of process performance. The performance measures should be aligned with the wishes and objectives of the organization as the entire organization should be aligned with the wishes and requirements of its stakeholders and clients. Moreover the process performance is a multi-dimensional concept and should not be measured on the single dimension like profitability. A very valuable frame work is given in the literature which gives a stronger process perspective. This distinguishes between the input, throughput and output and it advises the researchers to determine the performance indicators according to this classification. The input of the process may include the labor, machinery or plant, and other sources of capital (Scheer 2010). We can make decision about the customer's satisfaction by the quality and quantity of the input. During the throughput phase the operations are done on input to convert it into valuable output. An output may include some valuable goods and services. The organizations can measure their performance at any stage like at input level, throughput level, or results or output level. (Figure 2) (Heckl and Moormann 2010).

Figure 2. Stages of performance measurement in the process



As previously stated that the organizations can judge their performance at any stage of the process (e.g. input, output, throughput), so the performance indicators could be like input related, output related or throughput related.

2.2.3 Steps for PPMS

In his book the total organizational excellence the Oakland (2010) has identified the following steps in measuring and managing a organization performance which can be applied for business process performance management.

2.2.3.1 Defining the organization vision, mission, and goals and strategies

In the first step of the PPMS the organization's vision, mission, goals and strategies to achieve these goals are defined. Almost over a thousand of the books and articles about defining the organization's vision have appeared in the press but the technically vision is yet hypothetical phenomenon. The vision is something which could not be directly observable and apparently carries meanings beyond any single and simple description (Larwood 1995; Hui and Chuan 2002). The organization vision, mission, goals and strategies are very important to define because they set the direction for the organization (Oakland and Gadd, 2002). The first step in the PPMS is to define the organization's vision, mission, goals and strategies. The vision and missions are broad terms which carry the futuristic desires of the organization's top management (Zairi and Sinclair 1995). But the organizational goals are rather short-term objectives of the organizations which are derived directly from the mission statement of the organization and are stated in terms of physical values. And this mission rather than the organization's objectives drives the organization's strategy (Leong and Ward, 1990; Kaplan 2001 and Kellen 2003).

2.2.3.2 Business process documentation

This is the second step in the PPMS in which the organizations points out all the processes involved in the overall business of the organization and then draw diagrams of these processes on the paper (Zairi and Sinclair 1995). First of all the management define their processes and the boundaries of the processes and then they document all the processes. Without the proper documentation of the process there are often conflicting views about the process that what the process exactly is? The main benefit of the process documentation is that it includes the systematic descriptions of the process which brings agreement among all team members and managers that what constitute a process (Elzinga et al, 1995).

2.2.3.3 Defining the Critical Success Factors (CSFs)

The third step of the PPMS is defining the critical success factors (CSFs). These CSFs are defined on the basis of organization's vision, mission, goals and strategy. The CSFs can be defined as the important factors which organization must accomplish in order to achieve the mission of the organization (Oakland 2001). Basic rule behind choosing the CSFs is that they should be necessary and sufficient to achieve the overall organization mission (Zairi and Sinclair 1995; Oakland 2001).

2.2.3.4 Defining the core processes

In this fourth step of PPMS the organizations define their core processes on the basis of their critical success factors. Actually the core processes of the organizations are the most important processes to achieve the mission of the organizations. The core processes and the CSFs of the organization should be linked together (Zairi 1997; Oakland 2001).

2.2.3.5 Defining the Key performance Indicators (KPIs)

The most important step of the PPMS is the defining of the key performance indicators of the organization. There are two categories of performance indicators; the qualitative and quantitative. We can divide the performance indicators as the internal and external performance indicators also. The Costs / financial, Quality, Time, Delivery reliability, Flexibility are largely accepted indicators of organizational performance (White 1996 and Koufteros and Doll, 1998, Cyrus et al 2013). But several authors have defined other indicators as well on the basis of their case study researches. Sinclair and Zairi (1995) have found the customer satisfaction, quality, delivery, employee factors, productivity, financial performance, safety and environment / social performance as the indicators of business performance used by many organizations. Parmenter (2009) has identified the customer's satisfaction, employees' satisfaction, environment/community, financial, internal process performance and learning and growth as the performance measurement perspectives. The performance indicators must be based upon the competitive strategy of the organization (Sinclair and Zairi 1995).

2.2.3.6 Benchmarking

The improvements can only be done if the benchmarking is done for performance of any process, activity, task or overall organization (Parmenter 2009). If the improvements have been made then these improved results could be the new standards for that particular process, activity, task or overall organization. The benchmarks could be the previous

performance the company or performance of the competitors company (Sinclair and Zairi 1995).

2.2.3.7 Process Analysis

This is the overall seventh step of the PPMS but it is the start of second phase of PPMS. The evaluation of the performance starts from this step. In this step the organizations evaluate the performance of the each and every process and compare it with standards or benchmarks (Oakland 2002; Heckl and Moormann 2010 and Skrinjar et al, 2010).

2.2.3.8 Identifying the skill needed

This is the very next step after the process evaluation stage. During this stage the skill needed to improve the overall performance of the organizations are identified. This step is not always done but when there are some technological changes occurred in the market or when company has adopted these changes then this step become important to perform. During identifying the skill needed to performance various task the HR department of the organizations come into action in order to identify the proper skills needed provide to the employees of the organization (Oakland 2001; 2010).

2.2.3.9 Providing the skill needed

After identifying the list of skill needed the HR department of the organizations provide the necessary skills to respective employees, who lack these necessary skills. In this process a necessary training and education about the overall organizational mission, vision, goals and strategies are provided to employees (Oakland 2001; Neely 2005).

2.2.3.10 Managing the Process

On the basis of the processes performance data the process managers try to manage the performance of their processes. The process managers firstly clearly understand the results of the process performance data and then make positive and effective decisions about the improvements in the process performance (R. Skrinjar 2010). At first the performance of the processes is measured and compared with the benchmarks or standards and any improvements are suggested for the processes. By this the performance of the processes can be increased which contributes towards the overall performance of the organization (Oakland 2001).

2.2.3.11 Process improvements

This is the important step of the second phase of the PPMS in which the organizations start improvements in the processes by rearranging the process activities. The flow charts are drawn in this stage and different performance indicators are redefined by the managers. The improvement programs are started and the skills and knowledge of the employees is fully utilized. A proposed framework of continuous improvements by Oakland (2001) is that the managers should start by defining the problem, review the information, investigate the problem, verify the solutions, and execute the change (Oakland 2002).

2.2.3.12 Feedback generation

Feedback is the primary source of continuous improvement and the employees remain motivated and work with full commitment from this feedback. Managers try to provide the feedback of the performance against organizational goals, new opportunities, performance against internal standards and external standards to their subordinates (Oakland 2001).

2.2.3.13 Assigning the responsible person

When there is not any responsible person for any activity then who will take the responsibility of that particular activity. In this step the responsibility of process performance is delivered to any manager, who keeps the check on the outcome of his assigned process (Scheer 2010 and R. Skrinjar 2010). The management then asks for any undesirable outcome of the process directly to the responsible person. The responsible person is then has an authority to make any decision regarding the process. The other benefit of the assigning the responsible person is that the rewards and incentives could be delivered to right person (Oakland 2002).

2.2.3.14 Upgrading the strategies and organizational goals

This is the last step of PPMS where the whole cycle is complete. In this step the feedback is used to update the organizational strategies, objectives and goals by the budgetary control team within the organization. The whole process is revised on continuous basis in order to manage the overall organizational performance. This is also an important step and if this step is not performed then the whole process is useless. The feedback should be used to update the benchmarks and strategic planning (Oakland 2001).

3 The methodology and model

This study explores the dimensions of organizational performance in terms of performance indicators; defines indices of overall performance indicators and its dimensions; establishment of the relationship of performance indicators to Pakistani manufacturing sector's companies from four different industries which have applied the PPMS. The research questions identified for this study are stated as:

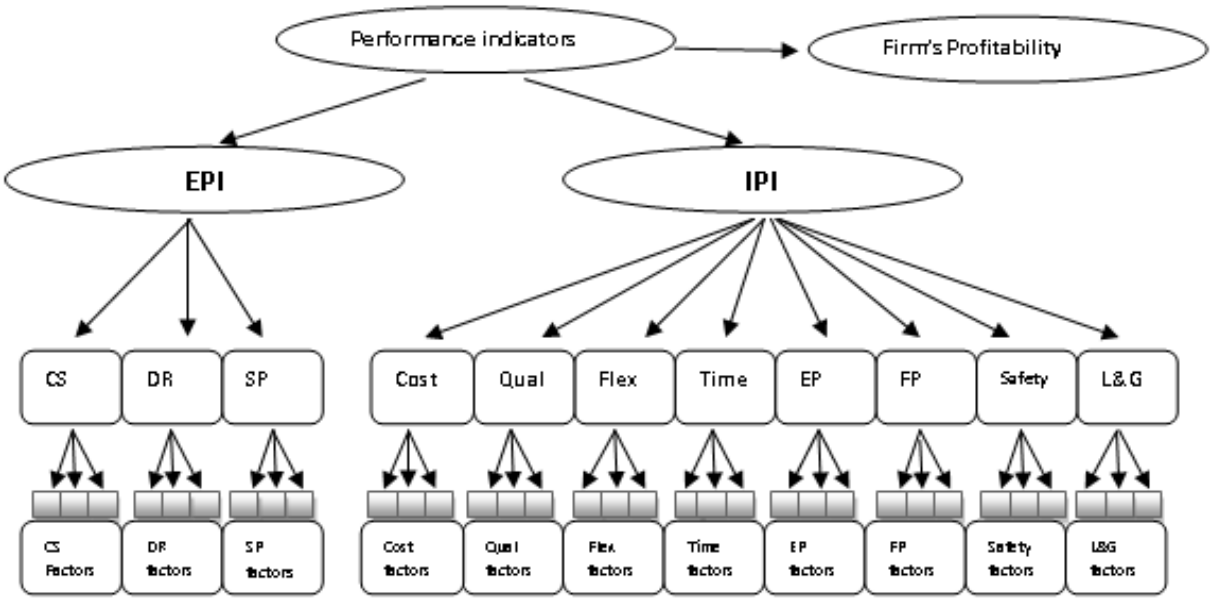
1. Whether the organizations in Pakistan are following these steps as suggested in literature?
2. Is there any difference between the firms who have applied the PPMS and who have not applied PPMS in terms of profitability?
3. What are facilitators and inhibitors behind the implementation decision of PPMS?
4. What is the effect of each performance indicator on the profitability of the firms?

This study is descriptive which involves the practices and different performance indicators from the organizations using the PPMS in order to manage their performance in a better way. This will help the other organizations in the same industry to follow the best practices organizations or set them as benchmark. The selection of the variables and indicators is the result of in-depth survey of the literature.

3.1 Research model

This study is about process performance management and the most of its part is related to key performance indicators selection process and the effect of performance indicators on the profitability of the organizations. The numbers of items in each performance indicator are developed in the qualitative part of the study where as the ultimate number of performance indicators are the result of factor analysis. The overall study has followed the framework presented in (figure 3, which is due to Bhatti et al. (2014)).

Figure 3. The framework of the study (from Bhatti et al (2014))



3.2 Sample and population

The target population of this study is the manufacturing sector of the Pakistan. In order to have a full extent of the whole population, we have selected four most important sub sectors from the Manufacturing sector (automobiles, electronics, sports and textiles). The data is collected from the top level management of the 200 manufacturing companies in Pakistan through a structured questionnaire out of which a stratified sample of 100 companies implemented the PPMS.

3.3 Data collection tools and techniques

This study is based upon the primary and secondary data. For this purpose the primary data is gathered through a structured questionnaire to be filled by top management of the selected manufacturing organizations of Pakistan. And In order to get the secondary data regarding the profitability of the organizations the annual reports of the organizations are analysed. The sources of the secondary data are the websites of the organizations, databases of the organizations and the website of the KSE. For the purpose of data analysis the statistical package SPSS 17 (statistical package for social science) and MS-Excel are used. We applied statistical techniques like, descriptive Statistics, Factors Analysis, AHP and Multivariate Regression Analysis

4 The findings

4.1 Descriptive statistics

We have used steps of process performance management suggested by Oakland (2001). In order to conduct our analysis to check whether the manufacturing organizations in Pakistan are also using these steps for performance management. So for this purpose we include a question that whether the organizations are applying these steps for performance

management. In our research instrument there were five options available in front of each step. The options include the 1= Never(0%), 2= Occasionally (1-30%), 3=Frequently(31-60%), 4=Most Times(61-99%), 5=Always(100%). From total 200 organizations visited, there were only 100 organizations from different industries of manufacturing sectors which are using the PPMS for their performance management. The descriptive statistics of the responses of the respondents is given in table (1).

Table 1. The descriptive statistic for the PPMS steps

No	PPMS	S.D	Mean
A)	**Strategic process planning**		
1	Define the organization vision, mission, and goals and strategies.	0.810	4.71
2	Business process documentation	0.832	4.61
3	The critical success factors are defined based on the organization's vision, mission, goals and strategies.	0.685	4.61
4	The core processes are defined on the basis of critical success factors.	0.836	4.57
5	The Key performance indicators (KPI) are defined for the processes.	0.962	4.54
6	Develop or identify the benchmarks and standard for the process performance.	0.460	4.71
B)	**Process evaluation**		
1	Process Analysis and Compare the performance with the benchmarks or standards.	0.826	4.64
2	Skills needed to perform the tasks in the major processes are defined.	1.056	4.68
3	Skills training for tasks required to design and manage major processes are provided.	0.826	4.64
4	Process managers use performance data to manage their processes.	0.772	4.82
5	Process improvement programs are in place to identify and improve problems and defects.	1.071	4.54
6	Feedback is generated and given it to employees.	1.654	4.07
7	The responsible person is assigned for the performance of the particular process.	1.654	4.07
8	Feedback is used to improve and develop the strategies to achieve the organization goals.	0.819	4.68

The results related to the questions for defining the vision, mission and goals and documentation of the business processes show that the most of the organizations using PPMS always follow these steps (mean=4.71, mean=4.61 respectively). The third step is related to "the critical success factors are defined based on the organization's vision, mission, goals and strategies". The results related to this question show that the most of the organizations using PPMS always follow this step (mean=4.61). Then in the next step of PPMS the organizations defined their core processes on the basis of previously defined CSFs. The most of the respondents from organizations which are using the PPMS are in point of view that they always follow this step (mean = 4.57). The step 5 of the PPMS is about defining the Key performance indicators (KPIs), which is very important step in the whole process. In this step the organizations define their key performance indicators on the basis of their competitive strategy and core processes. Each and every core process has different performance indicators. The respondent's responses show that the most of the organizations using PPMS are following this step (mean = 4.54). Then in the next step the organizations identify the benchmarks and standard for the process performance. These benchmarks can be processes within the organization and can be processes of competitors' organizations. The descriptive statistics according to this step shows that most of the organizations always follow this step (mean = 4.71). The first six steps of the PPMS are related to Strategic process planning phase. And the next eight steps are all related to second phase of PPMS which is Process Evaluation phase. The next step which is the first step of second phase of PPMS is about process analysis and comparing the performance with standard and benchmarks. The results related to this step (mean = 4.64) show that the most of the organizations always follow this step. The second step of process evaluation is about the identification of skill needed to perform tasks in the major process. The mean value of the responses related to this process is 4.68, which reveals that the most of the organizations using PPMS always follow this step. The next and third step of the second phase of PPMS is to provide the skill training to employees needed to perform the tasks related to design and manage the major processes. The results about this step reveals that the most of the organizations in Pakistan which are using the PPMS to manage their performance are following this step (mean = 4.64). The other steps involved in the second phase are; process managers use the performance data to manage their performance (mean = 4.82), process improvement programs are in place to identify and improve problems and defects (mean = 4.54), feedback is generated and given it to employees

(mean = 4.07), the responsible person is assigned for the performance of the particular process (mean = 4.07) and feedback is used to improve and develop the strategies to achieve the organization goals(mean = 4.68). The results show that the organizations in Pakistan, which are using the PPMS, are following these steps "always" or "most of times".

4.2 Analysis of variance (ANOVA)

Analysis of variance is conducted on the profitability variables to see difference between the firms which are using the PPMS and others which are not using the PPMS. This is also the second objective of the study. The results of the ANOVA are given in table 2.

Table 2. ANOVA for the profitability of the firms

		Sum of Squares	df	Mean Square	F	Sig.
Sales Growth	Between groups	214.436	1	214.436	.424	.517
	Within groups	41517.477	198	506.311		
	Total	41731.913	199			
Income Growth	Between groups	476.210	1	476.210	.440	.509
	Within groups	88750.957	198	1082.329		
	Total	89227.167	199			
ROA	Between groups	.034	1	.034	1.972	.164
	Within groups	1.433	198	.017		
	Total	1.467	199			
ROE	Between groups	4.416	1	4.416	2.730	.102
	Within groups	132.680	198	1.618		
	Total	137.096	199			

The results in the table 2 show that there is no significant difference between the firms who are implementing PPMS and those who are not applying PPMS with respect to profitability. The reason behind the same profitability is that the firms who have not applied the PPMS are using another performance management system for the management of their performance. The other reason behind the same profitability is that the firms selected for this study are the best performers in their respective industries; therefore they have not any significant differences with respect to profitability. Again the ANOVA is conducted on the Indices of performance Indicators to see difference between the choices of firms of manufacturing sector which are using the PPMS and which are not using the PPMS. The results of the ANOVA are given in (Zahid, 2012). The results of ANOVA on the basis of PPMS implementation show that there is significant difference between firms' choice of performance indicators. Both the firms which have applied the PPMS and which have not have significant differences with respect to financial, time, flexibility, delivery reliability, safety and employees satisfaction indicators of the performance.

4.3 AHP (Analytical hierarchy process)

In order to achieve the third purpose of the study that which are the important inhibitors and facilitators behind the implementation of PPMS, we have applied the AHP (analytical hierarchy process). AHP is a multi-criteria decision making (MCDM) method. MCDM is a well-known class of decision making that was firstly come into to action by the Wind and Saaty (1980). The AHP actually converts respondents' preferences into ratio-scale weights that are pooled into linear additive weights for the alternatives. These resultant weights are used to rank the alternatives and thus assist the decision maker in making a strategic decision (Forman and Gass 2001). The major distinction of AHP is that it structures any complex and multi-dimensional problem hierarchically. By applying the AHP a matrix of pair-wise comparison of the elements can be constructed where the entries indicate the strength with which one element dominates another with respect to a given criteria. This scaling formulation is translated into largest Eigen-value problem which results in a unique vector of weights for each level of the hierarchy (always with respect to the criteria in the next level) which in turn results in a single composite vector of weights for the entire hierarchy. This vector measures the relative priority of all entities at the lowest level that enables the accomplishment of the highest objective of the hierarchy. These relative priority weights can provide guidelines for the allocation of resources among the entities at the lower levels of the hierarchy. These defined hierarchy levels can be helpful for the determining the number of key strategic decisions of the organizations (Wind and Saaty 1980). A detailed analysis of the data was conducted in order to prioritize the possible reasons behind the

organizational decision about implementing the PPMS. The global weights are listed in Table 3. The factors of facilitator are divided into three Tiers based on the global weights. The first Tier is composed of critical factors. "The supportive culture" and "PPMS facilitate the competitive advantage" lie in this tier I. The business organization who intends to implement PPMS is required to make the ground for the supportive culture and ambition for getting the competitive advantage. There are four factors which belong to tier II (Supporting factors). These factors are "Want to involve people in measurement" "Top management commitment" "PPMS is an efficient system" "Clear understanding of the process". The management should enhance these factors to support the critical factors. Whereas in Tier-III items are "stakeholders' pressure" and "have only single option available".

Table 3. Global priority weight for facilitators

No	Facilitators	Weights
1	Supportive culture	0.22226
2	PPMS facilitate the competitive advantage	0.18456
3	Want to involve people in measurement	0.14062
4	Top management commitment	0.13857
5	PPMS is an efficient system	0.13069
6	Clear understanding of the process	0.1239
7	Stakeholder's pressure	0.04348
8	Have only single option available	0.01592

In this study there were 200 organizations visited, out of these 200, there were 100 such organizations which are not using the PPMM for managing their performance. So for the sake of the analysis there was a question of possible reasons behind not implementing the PPMM for organizational performance management. A detailed analysis of the data is conducted in order to prioritize the possible reasons behind the organizational decision about not implementing the PPMS. According to the global priority weights obtained through the AHP (Table 4), we observe that two factors namely "Have another performance system" and "not supportive culture" lie in Tier-I. This result indicates that the management of an organization not implementing PPMS should analyse the benefit of PPMS along with the existing system, and make the effort to make the supportive culture for PPMS and the least important reason is the performance measurement is the waste of time (weight=0.015).

Table 4. Global priority weights for Inhibitors

No	Inhibitors	Weights
1	Have another performance management system	0.2591
2	Not supportive culture	0.2179
3	Time / resource constraints	0.1342
4	Existence of inherited system("inertia")	0.1134
5	Lack of Top Management commitment	0.0913
6	Lack of process understanding	0.0790
7	Lack of clear mission / vision	0.0661
8	Performance measurement is waste of time	0.0387

4.4 Regression analysis

The calculation of the performance indicators indices is given in the (Zahid, 2012). The multivariate regression analysis is performed in order to check the impact of performance indicators indices on the profitability of the firms. The results of the multivariate regression are given in the table 5. The results indicate that the Financial Index has a positive significant impact over the organizations ROE (p value = 0.08). The Quality has a positive significant impact over the ROE (p value = 0.026) followed by the ROA (p value = 0.029) and sales growth (p value = 0.057). The Delivery Reliability has also a significant impact over the ROE (p value = 0.056). The Customer Satisfaction has a significant impact over the ROE (p value = 0.040). The employees' satisfaction has a significant impact on the ROE (p value = 0.056) and lastly the learning and growth index has a significant impact over the ROE (p value = 0.045). Measuring the financial performance, Quality performance, Delivery reliability performance, customer satisfaction performance and employees satisfaction lead to increase in the organizational return on equity (ROE), and the measuring the quality performance leads toward the improvements in the sales growth and Return on Assets (ROA) of the organizations.

Table 5. Regression coefficients for performance Indicators

Source	Dependent Variables	df	Mean Square	F	Sig.
Cost	Sales Growth	1	64.246	.128	.722
	Income Growth	1	755.176	.761	.386
	ROA	1	.001	.092	.763
	ROE	1	3.453	2.422	.124
Financial	Sales Growth	1	5.244	.010	.919
	Income Growth	1	911.255	.918	.341
	ROA	1	.001	.155	.695
	ROE	1	4.361	3.059	.085
Quality	Sales Growth	1	1887.949	3.753	.057
	Income Growth	1	517.646	.522	.473
	ROA	1	.047	4.951	.029
	ROE	1	7.362	5.164	.026
Time	Sales Growth	1	137.944	.274	.602
	Income Growth	1	728.303	.734	.395
	ROA	1	.006	.604	.440
	ROE	1	2.079	1.458	.231
Flexibility	Sales Growth	1	53.512	.106	.745
	Income Growth	1	8.512	.009	.926
	ROA	1	.001	.083	.774
	ROE	1	.827	.580	.449
Delivery Reliability	Sales Growth	1	291.168	.579	.449
	Income Growth	1	63.783	.064	.801
	ROA	1	.001	.146	.704
	ROE	1	5.371	3.767	.056
Safety	Sales Growth	1	98.778	.196	.659
	Income Growth	1	469.843	.473	.494
	ROA	1	.005	.554	.459
	ROE	1	1.935	1.357	.248
Customer Satisfaction	Sales Growth	1	606.422	1.205	.276
	Income Growth	1	676.445	.681	.412
	ROA	1	.022	2.366	.128
	ROE	1	6.237	4.375	.040
Employees Satisfaction	Sales Growth	1	305.118	.607	.439
	Income Growth	1	169.624	.171	.681
	ROA	1	.001	.117	.734
	ROE	1	5.363	3.762	.056
Social	Sales Growth	1	91.392	.182	.671
	Income Growth	1	5.092	.005	.943
	ROA	1	.015	1.548	.218
	ROE	1	.456	.320	.574
Learning & Growth	Sales Growth	1	41.010	.082	.776
	Income Growth	1	.120	.000	.991
	ROA	1	.005	.537	.466
	ROE	1	5.915	4.149	.045

5 Summary and conclusions

The phenomenon performance measurement is used by the organizations in order to ensure that they are going on right direction and achieving their preset targets in terms of organizational goals and objectives. For this purpose the performance measures are used to evaluate and control the overall business operations. They are also used to measure and compare the performance of different organizations both within the organization and outside of the organization. The performance can be compared within the departments, sub departments, teams and individual processes (Ghalayini and Noble 1996). This study is an attempt to know that whether the manufacturing organizations of Pakistan are following all steps for PPMS as suggested by Oakland (2001). What are the potential inhibitors and facilitators regarding the implementing and not implementing the PPMS and what is impact of each performance indicator on the profitability of the organizations.

On the basis of the results and data analysis we can conclude that the manufacturing organizations in Pakistan are following all steps involved in process performance management system as suggested by the researchers. The most important facilitators behind implementing the PPMS are supportive culture and the "PPMS facilitate the competitive advantage" and the least important facilitator is stakeholder's pressure on the firms to implement the PPMS, which means that the there is no pressure from any stakeholder on the company to implement the PPMS. The most important inhibitors behind not implementing the PPMS are that the firms have another performance management system and not supportive culture in the organization. And least important inhibitor is "performance management is the wastage of time", which means that organizations which have not applied the PPMS, do not consider that the "performance management as wastage of time" is the important inhibitor behind not implementing the PPMS. And the companies which have not applied the PPMS have another performance management system or they do not have supportive culture for implementing the PPMS.

The results of regression show that the Measuring the financial performance, Quality performance, Delivery reliability performance, customer satisfaction performance and employees satisfaction lead to increase in the organizational return on equity (ROE), and measuring the quality performance also leads toward the improvements in the sales growth and Return on Assets (ROA) of the organizations. In order to simplify our results we can say that by measuring the overall organizational performance has a significant impact over the profitability of the organizations significantly. The results of ANOVA show that the companies who have applied the PPMS and who have not applied the PPMS have the same profitability. There is not any significant difference between the selected industries regarding the using of performance indicators except the textile and automobiles regarding the use of learning & growth performance indicator.

From these results we conclude that KPI performance measurement importance could also be expressed by next statement: KPI tells you where performance has been in the past, where it is now, and perhaps more useful, where performance is likely to be in the future" (Smith, 2001).

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