

Measuring Business Performance: Comparison of Financial, Non Financial and Qualitative Indicators

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Abstract

Purpose: To review research contributions to performance measurement systems.

Design/methodology/approach: Critical review of the literature using the systems developed by previous contributors: performance measurement systems; financial measures v/s nonfinancial measures; quantification of qualitative performance indicators; and generalization v/s specification in performance measurement system.

Findings: The absence of unified performance measurement systems means that the existing literature is capturing a wide range of financial measures and qualitative specifications. As a result, performance measurement system appears scattered rather than summative. New measurement systems are needed for correct measurement of performance comprising both financial variables with nonfinancial variables and also inclusion of qualitative perspective is inevitable.

Research limitations/implications: Similar researches have suggested performance measurement systems must always be tailored according to requirement of assessment entity. Empirical work must explain the measurement of performance explicitly.

Originality/value: This paper synthesizes the existing literature in the area of performance measurement systems that has been critical for the performance evaluator in terms of advice given to strategic manager, business owners and policy makers.

Keywords: Performance Measurement Systems, Financial Performance, Non-Financial Performance,

Paper type: Literature review

1. Introduction:

Lord Kelvin once said:

“When you can measure what you are speaking about, and express it in numbers, you will know something about it [otherwise] your knowledge is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in thought advanced to the stage of science” (cited in Fisher, 1990).

This paper reviews existing literature on performance measurement systems. Performance measurement and productivity has gained a lot of interest now a day among researchers and practitioners. We have made great progress in setting performance management systems (PMS), in which portfolios of measures to balance the traditional view of the unique focus on profitability. Bitichi (1994) suggests that an important objective of the PMS is to promote proactive management instead of reactive. However, in spite of the significant progress of performance measurement in recent years, many companies are still dependent on traditional financial performance benchmarks (Tangen, 2003). This suggests that all the problems of the performance measurement are not yet solved. Of course, Measurement of profitability in "traditional way" is wrong because many business strategies consist of the ability to sacrifice current profits for long-term benefits (Ross et al., 1993).

1.1 Problems of Traditional Performance Measurement Systems

Many researchers have identified problems with traditional approach of measuring performance using only financial figures (Maskell, 1991; Ghalyaini et al., 1997; Jagdev et al., 1997):

- Financial figures are dealt only with cost components and they quantify performance only in monetary terms but there are many non monetarily aspects of quantification such as Quality, customer service and lead-time reduction
- Financial Reports are prepared monthly normally so reflects the decisions made one or two month ago; and
- Financial measures have readymade inflexible formats used homogenously for all departments, thus does not account for the uniqueness and specialization of a specific department.

In addition to above identified problems in performance measurement systems following are some more specific problems with respect to a company if it is using only financial performance measures. (Maskell, 1991; Hill, 1995; Crawford and Cox, 1990, Kaplan and Cooper, 1998; Bitichi, 1994)

- Excess use of Return on Investment (ROI) as Financial measure to assess performance may distort strategic objectives
- As financial performance measures also consist on cost efficiency criteria and optimum utilization of assets may result in pressure on managers which ultimately result only in short-run results and long-term improvements will be sacrificed.
- Modern Management techniques which allows autonomous decision making to shop-floor operators cannot be explicated by traditional financial measures
- Financial measures also do not portray penalitification for overproduction and also unable to identify the quality cost.

1.2 Performance Measurement

Neely et al. (1995) explained performance measurements as a quantification process, where performance is correlated with actions converted in numbers. They also claim that performance is nothing but the efficiency and effectiveness of work done, so we adopted following definitions in this paper:

- Measuring performance is defined as a process of quantification for efficiency and effectiveness of work done;
- Performance measure is defined as a method used to convert the efficiency and effectiveness of work done into numbers; and
- PMS is defined as group of methods used to convert the efficiency and effectiveness of work done.

1.3 Features of Performance Measurement Systems

A Performance Measurement System must:

- **Support for Strategic Planning:** Company's Strategic planning must aligned with its PMS. If not, then PMS can support actions that have the opposite of those involved in the strategy (Tangen, 2002a). In addition, it is important to remember that planning often change over time and when planning changes, some performance indicators must change also. Therefore, it is a need in flexibility of PMS, which portray a mechanism to ensure that PMS is at all times consistent with the goals of the business.
- **With Proper Balance.** This is very important that performance is not only the financial perspective. An PMS should agree to represent the success of a business should be in composition of different performance measures covering all important aspects of business. PMS in turn must find a balance between the different performance measures. Unfortunately, this "balance" includes a variety depends on the individual case, as the term "balance" is not possible to give a precise definition. However, the PMS must have short and long-term actions, different variety of inputs (eg , cost, quality, delivery , flexibility and reliability) , multiple perspectives (eg , customers , shareholders , competitors, internal and innovation perspectives should be focused properly) and different levels of the organization (eg local and global performance).
- **Protect against the background - optimization.** PMS must have a significant impact on the behavior of employees. If evaluated inaccurately then it can lead to inaccurate measurements and dysfunctional or unexpected behavior (Fry, 1995). In other words, the employees who want to improve their performance measurement always take Decisions contrary to the wishes of the administration. For example, an improvement in one area, resulting in a reduction of the overall performance of the other leads to deterioration is not uncommon. Skinner (1986), called that situation a "productivity paradox", which is the results of non behavior - functional in poor performance measures. Probably it is very common by organization to ensure that

employee behavior is consistent with the objectives of the company, they normally establish a clear link all the way down the head of the company, the more appropriate PMS.

- **Performance measures should be limited:** Jackson (2000) claimed for suitable results, it is necessary that indicators of measurements should be limited as higher the number of measurement, more time required for analysis. Furthermore, if more time is consumed in collection of data but that collected data has not been used in analysis so wastage of resources occurs. That's the reason that it is necessary to have clear mind from the beginning that what detail is necessary to collect for the useful analysis, thus result in cost efficiency of data collect over its benefit (Bernolak, 1997). Moreover, high number of performance indicators will also result in overloaded information risk, but how to ascertain which indicator in important and which one is not is very difficult, so priority must be given in removing "traditional" performance measures that are not commonly usable in today's environment.
- **Approachability:** Out of many objectives of a Good Performance Measurement System, one important is to provide right information, at tight time, to the correct person. So the important thing to design for a good PMS is that information is easily approachable usefully presented and understood easily by users.
- **Comprehensive Specifications:** A good PMS must have well-defined purpose and will be portrayed in such a comprehensive way that contains all the detailed information i.e. who will use information, how data will be collected, how many time it will be collected and what will be possible responses on collected information. Moreover, another important necessity is to identify target for every indicative measure and length of time within which the completion of target occurs.

1.4 Types of Performance Measurement Systems:

Toni and Tonchia (2001) described main models of PMS in such a way that they must be fall under one of the following five typologies:

- PMSs following strict hierarchy must be characterized by non-cost and cost based performance at different level of Hierarchy in such a way that their aggregation finally becomes economically financial.
- PMSs categorized as balanced scorecard, where individual units for performance measures showing diversified perspectives (customers, financial etc) should be treated independently.
- PMSs terms as *frustum*, is basically mixture of base line measures into summative indicators but they do not incorporate non-cost performance indicator in to financial performance measures.
- PMSs must be able to identify internal and external performance separately.
- PMS may be in relation to the value chain.

2. Famous Performance Measurement Systems

Following are some well-known approaches of PMS where they also identify the limitations dependency on solely financial indicators.

2.1 Activity based Costing System

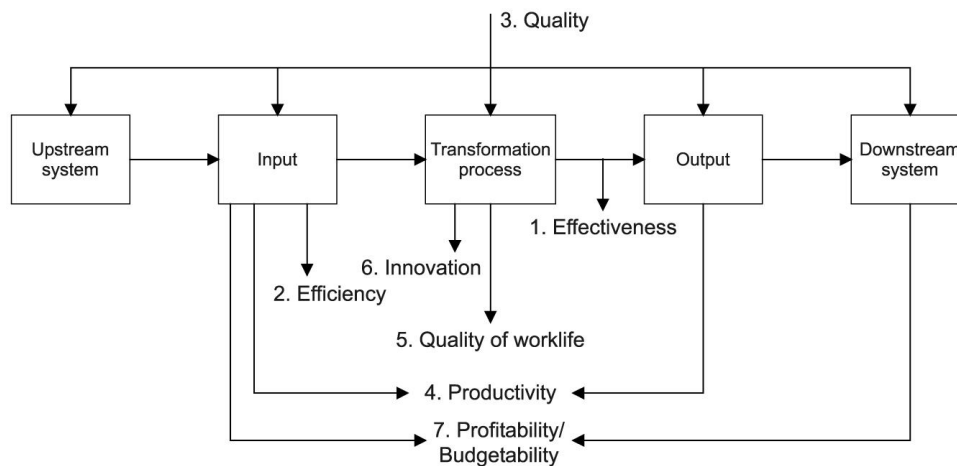
With reference to assessment of performance, when we benchmark cost as basis of performance, the most commonly used approach is Activity based Costing (ABC), which was developed by Kaplan and Johnson (1987) as an option to address some basic flaws of traditional costing system. In ABC system, with correlate activities which result in cost with product costing and to identify the product costing instead of generalized allocation of cost (Hill, 1995). In ABC costing we observe the indirect cost of a company and discover that which type of activities are causing that specific indirect cost and such activities in ABC are called "Cost Drivers" so these cost drivers are used to charge overheads to specific manufacturing products. And this is the reason that ABC System results in more explained identification of cost instead of traditional costing system.

Even for pricing of product, decision making with respect to production and even reducing overhead cost, ABC system has practical significance. But there are some researched who are against that claim due to no proof of accurate cost of products (Neely et al. 1997). Last but not the least, A good Costing System cannot solve all the problem only with financial measures, there are other measures which must be considered to assess manufacturing performance (White, 1996) and that's the reason many researchers are in favor of developing more complex system which incorporates both financial and nonfinancial measures.

2.2 Sink and Tuttle Model

Sink and Tuttle, (1989) model is the classical approach towards performance Measurement System, which claims that the performance of an organization is a structure of complex interrelationships among seven performance criterions, which are discussed in detail below:

1. **Effectiveness:** means doing the right thing at the right time and with right quality, effectiveness is usually a ratio of actual output to the expected output or in other words it is a process that indicates the degree to which the work output conforms to the requirements.
2. **Efficiency:** it means that ‘doing things right’, it is a ratio of resources expected to be consumed to resources actually consumed. A process attributes indicating the degree to which the process produces the required output at minimum resource cost.
3. **Quality:** The degree to which a product or service meets customer requirements and expectations. It is a very subjective concept and the definition for quality differs for all individuals, to make this concept measurable it is done with six checkpoints.
4. **Productivity:** it is simply the ratio of output to input, the value added by a process is divided by the value of resources used.
5. **Quality of work life:** it is a contribution to system which performs well and encourages it to keep the level of performance up and hold it from diminishing.
6. **Innovation:** a key element which helps in sustaining and improving the existing level of performance.
7. **Profitability:** the ultimate goal of any organization is to increase profitability which using the minimum possible resources.



Source: Sink and Tuttle (1989)

Although a lot of things have changed in the industry, since the first introduction of this model, these seven performance standards are still important. But a number of important limitations are there in the model, for example, it ignores the importance of flexibility, which has been increased in the present scenario to a greater extent. The model also ignores the customer perspective, which now a days is an important concept for identifying the organizations performance level. In addition to the work done by Sink and Tuttle, the researches of TOPP project, researchers from Norwegian manufacturing industry, has proposed integration of three more dimensions of performance measurement, these are as follows:

1. Efficiency
2. Effectiveness
3. Adaptability

The first two dimensions are same as Sink Tuttle Model (1989), the third dimension discusses about the adaptability of changing external environment by the organization, that is how efficient is the organization in adapting and internalizing the changes taking place in the external environment.

2.3 Balance Scorecard

It is argued by Kaplan and Norton (1992) that the BSC reduces the overloaded information by scoping the numbers of different measures used. BSC forces the top management to concentrate on the handful of measures which are very significant. In addition, using of different prospects also shield against sub optimization. BSC forces top management to view each and every aspect of measures and assess if there is any improvement in any of these areas has been achieved at the cost of other.

Ghalayini et al. (1997) identifies the most crucial weakness of this approach. The balanced scorecard is mainly designed for the senior management to view overall performance. This approach is neither intended nor applicable to factory operations level. In addition to this, it is also argued that BSC is a tool which basically

control and monitor rather than improve. Moreover, it is also argued that BSC, though, a valuable framework which suggest important areas where performance measures can be beneficial, it gives the very small guidance on its usage. It does not appropriately identifies, introduces, and uses to manage business. It is also concluded that BSC does not take into account of competition viewpoint at all (Neely et al 2000).

2.4 Performance Pyramid

The requirement of a PMS is that there is always a need to link between performance measures at every hierarchical level of an organization because every function and department must struggle to achieve a common goal. Performance pyramid is one of the examples on how this links can be achieved. This is known as the SMART system which is suggested by Cross and Lynch (1992).

The objective of Performance pyramid is linking between a firm's strategy with its operations. It is done by objectives translation from top down and performing measurements form the bottom up. There are four levels of objectives of PMS which address the firm's external effectiveness and its internal efficiency. The development of a firm's performance pyramid begins with defining a corporate vision then it is translated into business unit objective at individual level. Profitability and cash flows are set as short term targets whereas growth and market position are set as long term targets. The gap between upper level and routine levels is bridged by business operating system. Finally the four key performance measures including cycle time, delivery, quality and waste are used at departmental level on a regular basis.

The strength of the performance pyramid suggest by Ghalyaini et al. (1997) is that it an attempt to combine firm's objectives with operational performance indicators but this approach has not any provision of such mechanism which can identify key performance indicators. It does not also clearly connect the continuous improvement concept.

2.5 Performance Prism

Performance prism is believed to be one of the latest developed conceptual framework. This framework suggest that there are five distinct which organize a PMS however they are linked prospects of performance (Neely et al., 2001). They include

- (1) Satisfaction of stakeholder. It means there is a need to who are the shareholder, what their wants and need are.
- (2) Strategies What strategies are required to meet the stakeholders' wants and needs?
- (3) Process. In order to permit firms strategies to be delivered, what process must put in place?
- (4) Capabilities. It is combination of personnel, practices, the technology firm used and the structure firm possessed. They all together make the execution possible of the firm's business process
- (5) Contribution of stakeholders. To maintain and develop the capabilities, what is need and wanted from these stakeholders?

There is a very vast and comprehensive view of performance prism. It views of different stakeholders such as employees, investors, suppliers, regulators, customers as compare to other frameworks. It is argued by Neely et al (2001) that there is an incorrect yet common belief that strategy derives performance measures. There is a need of consideration what stakeholders want and need. After that there should be a formulation of strategy (Neely et al., 2001). Hence, it is quite clear that no strategy can be formed before identifying the stakeholder want and need.

What makes this framework strengthen is that it asks what firm's strategy is first, then the process of choosing measures is begun. By doing this, the framework assures that there is a strong base for the performance measure. This approach also bring into account of new stakeholder whom the firm usually ignore while forming performance measures.

No doubt, this approach moves beyond the traditional measurement, it does not very clearly highlight how to realize these performance measures. Many beneficial tools have been published by Neely and his co workers. They should also create a connection between such tools and performance prism. In addition to the weakness discussed, there is also need to give consideration on existing PMS which firms might have in place (Medori and Steeple, 2000).

2.6 *Theory of constraints*

Theory of Constraints is concept developed by Goldratt (1990), which was identified for limiting the performance measurement tools, which were causing information overflow (Jackson, 2000). The idea behind theory of constraint or limiting the number of performance measures was just to focus on what needs to be improved rather than overhauling the entire organizational processes. Theory of constraints only focuses on production planning and scheduling methods, and is also involved in performance measurement.

A constraint within a system is defined as anything which limits the system from achieving the highest level of performance according to its purpose. However, with the help of Theory of Constraint it is simplified, and the performance measurement system is now defined as the system which considers only relevant information for the evaluation of organization performance, rather than working with overflow of information which carries all relevant and irrelevant information and is time consuming (Moore and Scheinkopf, 1998). Theory of constraint offers a systematic and focused approach that most organizations apply for continuous improvement and ongoing success. Goldratt (1990) defines 'five steps of focusing', these are as follows;

1. Identify the constraints
2. Decide how to exploit the constraints
3. Subordinate everything else to the above decisions
4. Elevate the constraints and
5. When a constraint is broken, go back to step (1)

Theory of Constraint employees three global performance measures that is used to evaluating a business structural and organizational abilities to achieve its ultimate objective, maximize wealth of its owners, these measures are Profitability, return on investments and the cash flows of the business. The major advantage of using theory of constraint approach is that it focuses on the relevant information only (Tangen, 2002b). The other advantage of using TOC methodology is that the performance measures are easy and accessible and easy to comprehend; however the Theory of Constraint is at its early stage now and cannot complete the entire PMS. Studies argue that although TOC is simple and easy but it could not be used as a complete PMS. We can say that the TOC will simplify reality a little too far, considering the TOC provided that the voltage in the system is always readable, this is not necessarily true.

2.7 *Medori and Steeple's framework*

The framework developed by Medori and Steeple (2000) is an integrated framework which is most suited for auditing and enhancing the PMS. The approach given by Medori and Steeple (2000), consist of six detailed stages; the first stage is the company success factors, it defines the company's manufacturing strategy and the related success factors. The second stage is to prepare a performance measurement grid in which the primary task is to match the strategic requirements of the company with the previous stage. Next stage is selection of measures that decides the suitable measures must be selected out of a range of measures; the most effective measures are selected so that the PMS is done accurately. The next stage is the most important of all after measures are selected then the existing PMS is audited to identify which measures must be selected and worked upon and the remaining are eliminated. The fifth stage is the implementation of measures, these measures are defined by eight major elements including; title, objective, benchmark, equation, frequency, data source, responsibility and improvement (Tangen, 2004). The last stage is the periodic maintenance that a 360 degree feedback is implemented and periodically the company's PMS is revised and improved further.

Various frameworks had been given by researchers, but the framework of Medori and Steeple (2000), is simple and can be used by practitioners in practice. Major advantage of this framework is that it can be used for dual a purpose that is to design a PMS and to enhance the existing PMS. The six stages of this framework gives a complete outlook on how to identify measures and till the implementation and then further room for improvement is also available. It is a continuous PMS which can be enhanced and improved with the passage of time and incorporates the dynamic nature of industries and the changes taking place in external environment. Some limitation of this framework are also there which mainly identified in stage 2, where a performance measurement grid is created in order to give the PMS its basic design.

3. **Conclusions**

Performance measurement usually contains three different disciplines; Economics, Management and Accounting and also is a complex issue. Suitable performance measures, designing criteria and a number of factors must be

taken into account for the selection of PMS for any particular organization. The selection of a suitable measurement process with a number of factors, including are (Tang, 2002a)

- Objective measurement;
- The level of detail required;
- Availability of time for measurement
- The current default data available and
- Cost incurred for measurement

This study shows that new PMS have solved some of the drawbacks of the traditional way of measuring performance. For instance, the performance pyramid and Balanced Scorecard are two extraordinary examples of strategic focused PMS. Moreover, these modern systems are all trying address the problem by limiting the number of measures so that information overload and guard against sub optimization problems gets minimized. However, the paper also highlighted that each PMS has other several drawbacks.

In general, different approaches and frameworks have a clear academic weightage and are healthy in "philosophical perspective" - they even can indicate how a company designs its unique PMS, but they rarely help the practical implementation of the concrete measures at operational level. The practitioner of performance measurement system still has to implement the framework into practical action. He / she is free to decide how each performance measure must be specified, how many times to be measured, and at what level of depth. Thus, these new frameworks are showing what to measure, but provide little guidance when the question of how to measure arrive.

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