

A Proposed Self-assessment Framework for Measuring and Benchmarking Organizational Performance

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Abstract

Recent interests in total quality management (TQM) and business excellence (BE) had been fuelled with a range of national and regional awards. These awards are being increasingly used by organisations as part of the business improvement process and strategic benchmarking. This paper reviews the concepts and approaches of performance measurement (PM) and discusses the integration of PM with the TQM and BE philosophies. A TQM-BE-PM framework with a set of self-assessment checklists was developed. In order to complement the literature base with empirical evidence, an industry survey was conducted and a trial implementation of the framework was carried out in a leading manufacturing firm in Hong Kong. The self-assessment performance data of the firm was evaluated and then benchmarked with the industry averages obtained from the survey. This paper presents the empirical findings and discusses the applicability of the framework in measuring and benchmarking organisational performance toward continual improvement.

Key words: Performance measurement, self-assessment, total quality management

1. Introduction

The success and continuity of an organisation depend on its performance. Performance measurement (PM) helps organisations identify operational problems

that can be solved by adjusting existing processes, and indicate more fundamental problems that require an adjustment to corporate strategies and business operations [1]. PM has a clear methodical focus and is composed of different types of performance

measures, though the terms *performance measurement* and *performance measures* are always interchangeable. It is linked to performance management through the setting of goals, standards and targets for improving an enterprise's performance [2,3]. Neely *et al.* [4] define performance measurement as the process of quantifying the efficiency and effectiveness of action. PM signals what is really important, provides ways to measure what is important, and fixes accountability for behaviour and results to improve performance [5]. It serves a wide range of purposes including monitoring internal systems, monitoring external performance, tracking the implementation of change, stimulating continuous improvement at system and personnel levels, and tracking the overall financial performance of an organisation (e.g., see [6,7]). There are various dimensions of PM, such as financial versus non-financial and qualitative versus quantitative [3,8]. Meanwhile, the concepts of PM fit well into total quality management (TQM) philosophy, embracing the principles of business excellence (BE) models. In this context, this paper reviews the concepts and approaches of PM and discusses the criteria that integrate the TQM and BE philosophies with performance measures. The development and evaluation of a TQM-BE-PM framework for self-assessment and benchmarking of organisational performance is presented.

2. Literature Review

2.1 Notion of Performance Measurement

Recent research (e.g., [9,10]) has identified the need for effective deployment of business objectives down through the organisation and the subsequent measurement of performance in critical areas as key elements of sustainable competitive advantage. According to Neely *et al.* [4], PM is a process of quantifying the efficiency and effectiveness of action that leads to performance. In the past, the focus of attention has been on measuring financial performance, such as sales turnover, profit, debt and return on investment. These financial measures do not match entirely with the competencies and skills required by companies for today's changing business environment [11]. It is not enough only to know the amount of gross profit or loss, but it is also necessary to explain the driving forces behind success or failure. Rather than to analyse these reasons from a historical perspective, it is really important to understand organisational excellence, which potentially leads to the success of a business in the future [12]. Accounting figures alone do not emphasise the elements that will lead to good or poor future financial results. Many other indicators of business performance (such as quality, customer satisfaction, innovation and market share) that can always reflect an organisation's economic condition and growth prospects

better than its reported earnings do [13]. Therefore, performance measures must go beyond the presentation of financial figures and serve as the driver for fostering performance not only in financial terms but also in non-financial aspects like quality, customer satisfaction, innovation and market share.

2.2 Performance Measurement Systems

Neely *et al.* [4] define a PM system as the set of metrics used to quantify both the efficiency and effectiveness of actions. Bititci *et al.* [14] argue that the PM system enables a closed-loop deployment of organisational strategies. The deployment provides a structured framework to allow the relevant information to feed back to the appropriate points to facilitate the decision and control processes. The last two decades have witnessed a revolution in performance measurement [15]. A number of systems, frameworks and tools have been advocated and promoted in both public and private

sector organisations. These include, for example,

- SMART - strategic measurement analysis and reporting technique [16];
- Performance measurement questionnaire [17];
- Performance measurement for world-class manufacturer [18];
- Balanced scorecard [1];
- Cambridge performance design process [4];
- Performance measure record sheet [19];
- Kanji's Business Scorecard [20,21];
- Integrated performance measurement systems reference model [22]
- Business excellence models [23,24]

Table 1 summarises those from a vast amount of literature on PM systems [4], which can be considered to be the main changes and trends in development that have been affected by or now concern these systems.

Table 1. Evolution of performance measurement systems

Traditional PM Systems	Innovative PM Systems
• Based on cost/efficiency	• Value-based
• Trade-off between performance	• Performance compatibility
• Profit-oriented	• Customer-oriented
• Short-term orientation	• Long-term orientation
• Prevalence of individual measures	• Prevalence of team measures
• Prevalence of functional measures	• Prevalence of transversal measures
• Comparison with standard	• Improvement monitoring
• Aim at evaluating	• Aim at evaluating and involving

Source: Based on Neely *et al.* [4]

From an administrative point of view, a performance measurement system needs to be designed, managed and evaluated periodically to ensure that it yield the desired business results [25]. The design of PM systems that are appropriate for modern manufacturing firms is a topic of increasing concern both to academics and practitioners. For instance, Neely *et al.* [4] suggest a framework for performance measurement system design. Bititci *et al.* [26] describe specifications for a framework for dynamics of a performance measurement system. Medori and Steeple [27] also suggest a framework for auditing a performance measurement system. According to Neely *et al.* [4], a PM system needs to have:

- 1) a set of procedures for collecting data;
- 2) timetables and protocols for distributing information about performance to users within and outside the organisation;
- 3) an organisational learning mechanism to identify what actions can be taken to further improve performance; and
- 4) a review process which ensures that the performance measurement system is regularly updated.

2.3 Concepts of Total Quality Management and Business Excellence

The concepts of TQM and BE have come to the fore in recent times, being adopted by organisations as the means of understanding and satisfying the needs and

expectations of their customers and taking costs out of their operations [28]. TQM is an integrated management philosophy and set of practices that emphasise among continuous improvement, meeting customers' requirements, reducing rework, long-range thinking, increased employee involvement and teamwork, process redesign, competitive benchmarking, team-based problem-solving, constant measurement of results, and closer relationships with suppliers [29,30]. It refers to a basic vision of what an organisation should look like and how it should be managed. This includes a stakeholder perspective, customer and people orientation and corporate responsibility [28,31]. TQM creates an organisational culture that fosters continuous improvements in everything by everyone at all times, and requires changes in organisational processes, strategic priorities, individual belief, attitudes and behaviours [28,32]. The shift from traditional management to TQM is revolutionary and the implementation of TQM involves a fundamental change in the way in which business is conducted [33]. Those changes include making customers a top priority, a relentless pursuit of continuous improvement of business processes, and managing the systems of the organisation through teamwork.

Meanwhile, the pursuit of excellence as a way of managing businesses for competitive advantage has been increasingly recognisable and has led, among others to the formation

of the European Foundation for Quality Management (EFQM) in 1988. The EFQM subsequently developed its business excellence model and used it as a framework for the award of the European Quality Award (EQA) and the associated national quality awards [23,34]. The EFQM model was largely based on the concept of TQM as both a holistic philosophy and an improvement on other TQM-based models, such as the Malcolm Baldrige National Quality Award (MBNQA). Recent developments of these national and regional quality awards serve as models of TQM and offer a continually changing blueprints and/or tools for self-assessment and benchmarking [36]. If used properly, these tools will help organisations evaluate their current level of performance, identify and prioritise areas for improvement, integrate improvement actions in their business plan and identify best practice [35]. The opportunity to carry out future assessments against these models also means that progress towards excellence can be measured and promotes continuous improvement. The TQM approach to performance measurement is consistent with business excellence initiatives under way in many companies: cross-functional integration, continuous improvement, customer-supplier partnerships and team rather than individual accountability. In addition, corporate efforts to decentralise decision-making through empowerment, improved efficiency and

competitiveness, increased cooperation and execution of strategy are consistent with the balanced scorecard framework of performance measures [21].

2.4 Evaluation Criteria of TQM-Business Excellence

Organisations operate in a dynamic marketplace and their success depends upon meeting the changing needs of stakeholders [6]. These stakeholders include the management, employees, customers, suppliers, shareholders and the community at large. The MBNQA and the EQA are at present two of the more widely used TQM-business excellence frameworks [23,24]. The former was first introduced in the USA in 1987 and has eleven core values and concepts; whereas the latter was introduced in Europe in 1991 and has eight fundamental concepts (see Table 2). Both awards consider the management and provision of resources, and emphasise the importance of innovation and learning. They have their own requirements that can be served as evaluation criteria for assessing a company's performance. Integrating TQM concepts with performance measures becomes an imperative in the pursuit of business excellence.

Both MBNQA and EQA adopt a result-oriented approach by balancing the needs of various stakeholder groups. They use a point scoring system, and are similar in the sense that both of them give

Table 2. The underpinning principles of two business excellence models

Core values of MBNQA	Fundamental concepts of EQA
<ul style="list-style-type: none"> • Customer driven • Visionary leadership • Organisational and personal learning • Management by fact • Value employees and partners • Agility • Public responsibility and citizenship • Managing for innovation • Focus on results and creating values • Focus on the future • System perspective 	<ul style="list-style-type: none"> • Customer focus • Partnership development and involvement • People development and involvement • Management by processes and facts • Continuous learning, innovation and improvement • Leadership and constancy of purpose • Public responsibility • Result orientation

Sources: Based on NIST [24] and EFQM [23]

maximum weight to the results [23,24]. According to the 2002 version of both awards, the Business Results criterion in the MBNQA is 450 points leading to a 45 percent out of 1,000 points (including customer-focused, financial and market, human resource, and organisational effectiveness). The Leadership criterion receives the second largest scores of 12 percent and the Information and Analysis criterion the third with 9 percent in the MBNQA. Other MBNQA criteria (including Strategic Planning, Customer and Market Focus, Human Resources Focus, and Processes Management) have the same scores of 8.5 percent for each. For the EQA, the Results criterion is 50 percent, including customer, people, society, and key performance. The Processes (i.e., 14%), Leadership (i.e., 10%), People (i.e., 9%), Partnership and Resources (i.e., 9%), and Policy and Strategy (i.e., 8%) criteria are

ranked second, third, fourth, fifth, and sixth with respect to their relative ratings. Both MBNQA and EQA propagate the TQM principles and stress the importance of measurement for identifying and monitoring improvement [23,24]. A comparison of the evaluation criteria of both awards is depicted in Table 3. They share a set of fundamental concepts and elements, including leadership and constancy, results orientation, management by processes, people development and involvement, and continuous improvement. Companies need to focus on long-term benefits from systematically implementing these concepts and elements, rather than simply trying to pass the point scoring system of both awards. Wang and Ahmed [37] argue that winning a business excellence award does not end a long journey, but affirms that the performance improvement progress is on the right track.

Table 3. A comparison of MBNQA and EQA criteria

MBNQA Criteria	Link	EQA Criteria
1.0 Leadership	—————	1.0 Leadership
2.0 Strategic Planning	—————	2.0 Policy and Strategy
3.0 Customer and Market Focus	—————	3.0 People
4.0 Information and Analysis	—————	4.0 Partnership and Resources
5.0 Human Resource Focus	—————	5.0 Processes
6.0 Process Management	—————	6.0 Customer Results
7.1 Customer-focused Results	—————	7.0 People Results
7.2 Financial and Market Results	—————	8.0 Society Results
7.3 Human Resources Results	—————	9.0 Key Performance Results
7.4 Organisational Effectiveness Results	—————	

Keys : - - - - - *similar*
 ————— *identical*

Source: Based on NIST [24] and EFQM [23]

2.5 The TQM-BE-PM Integration and Self-assessments

Recent research suggests that both TQM and PM can produce economic value to many firms [8,28]. One of the best indicators is the achievement or competitive advantage obtained from integrating TQM-BE concepts into performance measures. Lengyel [38] argues that the ultimate objective of the integration is to assist organisations in their quest for continuous improvement and better results. If efforts focus solely on conformity of current management systems and practices, there may be a separation between TQM, BE and PM reversing a trend toward the integration. The integration should align with corporate missions and strategies, and intertwine with the operation goals, management systems,

measurements and practices. It also mandates continuous self-assessment to identify relevant factors that help with organisational changes.

Self-assessment is a comprehensive, systematic and regular review of an organisation's activities that ultimately result in planned improvement actions [23]). This is the popular tool used to enhance overall business performance [39]. The assessment process helps organisations identify their strengths and shortcomings and best practices where they exist [4]. According to Hillman [40], the three main elements in self-assessment are *Model*, *Measurement* and *Management*. The objective of self-assessment is to identify and act on the areas of the improvement process that require additional effort, while recognising and maintaining that which is already going well. Karapetrovic

and Willborn [41] add that self-assessments are aimed at identifying strengths, weaknesses and opportunities for improvement. With the common direction and an increased consistency of purpose, self-assessments can provide organisations with opportunities to build greater unity in pursuit of initiatives that effect improvement [35,42]. They do not only generate the results and valuable inputs into the annual corporate planning cycle, but also encourage the integration of a range of quality initiatives and performance improvements that may have been separately pursued across the organisation [36,43].

3. Development of a Self-assessment Framework

Henderson [44] argues that organisations must establish their performance measurement systems with self-assessment

orientation. Adebajo [35] also adds that one key benefit of the use of the business excellence models is the opportunity for self-assessment and benchmarking. With respect to the core concepts of TQM and BE models, the authors had developed a self-assessment framework, as depicted in Figure 1. It adopted a close-loop PM paradigm and its skeleton was built upon the MBQNA criteria. The framework aims to provide a feasible means for organisations to help attain their performance goals. It stresses the integration of leadership and strategic planning and the objective measurement of business results through process management and information analysis with customer and market focus and the human resources focus. A brief description of the evaluation criteria for the framework is given in Table 4.

A set of 130-item self-assessment checklist was developed addressing the evaluation criteria of the framework. The checklist was subdivided into ten areas, namely

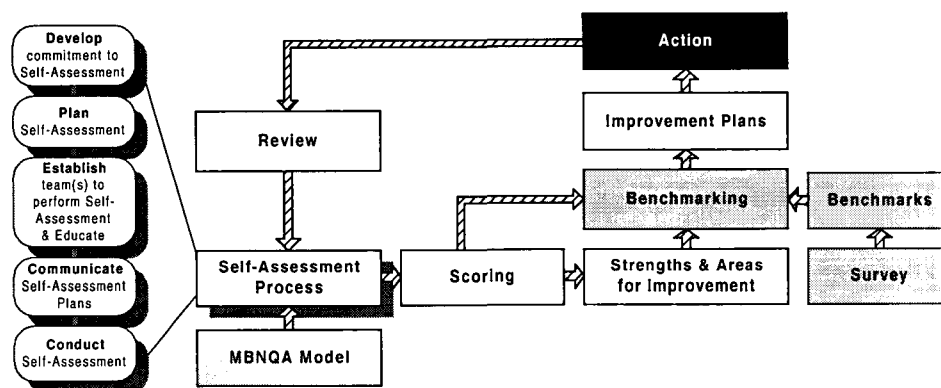


Figure 1. A TQM-BE-PM self-assessment framework

Table 4. A brief description of evaluation criteria

Evaluation Criteria	Focal areas and descriptions
1.0 Leadership	<i>How</i> organisations senior leaders address values and performance expectations, as well as a focus on customers and other stakeholders, empowerment, innovation, learning, and organisational directions. <i>How</i> organisation addresses its responsibilities to the public and supports its key communities.
2.0 Strategic Planning	<i>How</i> organisation develops strategic objectives, action plans, and related human resource plans. <i>How</i> plans are deployed and how performance is tracked.
3.0 Customer and Market Focus	<i>How</i> organisation determines requirements, expectations, and preferences of customers and markets. <i>How</i> organisation builds relationships with customers and determines their satisfaction.
4.0 Information and Analysis	<i>How</i> organisation analyses performance data and information.
5.0 Human Resource Focus	<i>How</i> organisation enables employees to develop and utilize their full potential, aligned with the organisations objectives. <i>How</i> to build and maintain a work environment and an employee support climate conducive to performance excellence, participation, and personal and organisational growth.
6.0 Process Management	<i>How</i> organisation manages key product and service design and delivery processes.
7.0 <i>Business Results</i>	<i>What</i> results achieved in key business areas and its performance levels relation relative to competitors.

Source: Based on NIST [24]

Leadership, Impact on Society, Policy and Strategy, Customer Satisfaction, Information and Analysis, Employee Involvement, People Management, Supplier Quality, Quality Assurance and Business Results. A schematic representation of the design for the self-assessment checklist is shown in Figure 2. A five-point Likert scale of rating was used ranging from 1, the least agreed, to 5 the most agreed. After calculating the mean score for each area, the performance of individual areas could be ranked, and the overall performance status of an organisation could be determined. Company-specific data

would also be obtained using open-end queries during the data collection process.

4. Empirical Findings from Industry

In order to examine empirically the applicability of the self-assessment checklist, the authors had used the checklist as an instrument and conducted an industry survey on organisational performance of Hong Kong manufacturers in 2001 [45]. Fifty-four

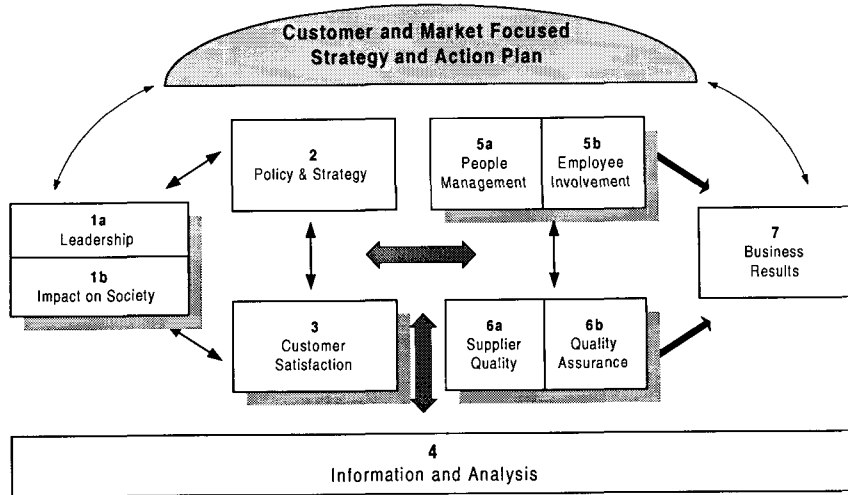


Figure 2. A schematic representation of self-assessment checklist design

manufacturing companies in metal sector were participated the survey. Results shown that the respondents could use the checklist to assess the performance status of their organisations with respect to ten self-assessment areas. The industry averages

in individual areas were obtained by incorporating their weighted scores from surveyed companies (see Table 5).

It was found that the weighted scores obtained ranged from 2.77 to 3.42 with a standard deviation from 0.50 to 0.73. The

Table 5. Summary of an industry survey findings on organisational performance

	Mean*	Std Dev.	Min.	Percentile of Mean Scores			
				25%	50%	75%	Max.
Leadership	3.42	0.50	2.50	3.11	3.33	3.67	4.78
Policy and Strategy	3.27	0.67	1.63	2.90	3.25	3.63	5.00
People Management	2.93	0.71	1.25	2.50	3.00	3.40	5.00
Employee Involvement	2.77	0.60	1.17	2.29	2.82	3.18	4.24
Information and Analysis	3.19	0.56	1.00	3.00	3.23	3.50	4.63
Supplier Quality	3.11	0.64	1.80	2.60	3.10	3.70	4.13
Quality Assurance	3.30	0.55	1.58	3.00	3.26	3.58	4.33
Customer Satisfaction	3.29	0.66	1.94	2.74	3.29	3.63	4.94
Impact on Society	2.93	0.73	1.29	2.42	3.13	3.38	4.50
Business Results	3.20	0.59	1.91	2.92	3.18	3.48	4.50

Remarks: *Weighted Mean scores (based on a 5-point Likert scale; 1 = least agreed and 5 = most agreed)

best-performed areas of companies in the sector were leadership (mean = 3.42), quality assurance (mean = 3.30) and customer satisfaction (mean = 3.29); whereas their least performed areas were employee involvement (mean = 2.77), people management (mean = 2.93) and impact on society (mean = 2.93). The results indicated that most companies in the sector claimed to have good leadership and stressed importance of quality assurance and customer satisfaction. Nevertheless, many of them were comparatively weak in achieving employee involvement, managing people and responding to the impact on society. The survey provided empirical evidences on the current performance status of companies in the studied sector. The industry averages could also be regarded as benchmarks that could help other companies to assess their organisational performance and determine their current positions in the sector.

5. A Trial Implementation of the Framework

During the period of September-December 2001, a trial implementation of the TQM-BE-PM self-assessment framework was carried out in a studied company, HS Limited. Established in 1985, HS was a manufacturer of metal parts with its headquarters located in Hong Kong. The company also owned its main production

lines in Mainland China. In recent years, the HS management had initiated several quality programmes and stressed people training. Facing with keen regional and global competition, the company has recognised the importance of building quality culture, identifying key quality attributes in operations and enhancing their quality services to customers [45]. There has been a pressing motive to define the performance needs and define improvement goals for the company.

The HS management supported the self-assessment initiative and committed to implement the framework and accompanied processes in the company. With the assistance from consultants, a series of in-house training workshops for both management and employees was conducted. These workshops addressed the principles and implementation of self-assessment exercises (such as data collection, scoring, improvement action plans, and reviewing progress) in the organisation. The training provided them with familiarisation of the self-assessment framework and processes, and enabled them to prepare for and agree on the issues (e.g., strengths and potential problems) of company's performance. The management formed a team with members and representatives from middle management and front-line personnel to plan and coordinate the pilot implementation within the organisation. The self-assessment checklist was adopted. At the end of trial

Table 6. Self-assessment and benchmarking of company's performance

	Company's Performance			Industry Average		
	Mean*	Std Dev.	Rank	Mean*	Std Dev.	Rank
Leadership	3.91	0.63	1	3.42	0.50	1
Policy and Strategy	3.59	0.57	4	3.27	0.67	4
People Management	2.96	0.79	10	2.93	0.71	8
Employee Involvement	2.97	0.89	9	2.77	0.60	10
Information and Analysis	3.61	0.63	3	3.19	0.56	6
Supplier Quality	3.30	0.73	7	3.11	0.64	7
Quality Assurance	3.32	0.76	6	3.30	0.55	2
Customer Satisfaction	3.38	0.67	5	3.29	0.66	3
Impact on Society	3.23	0.90	8	2.93	0.73	8
Business Results	3.74	0.75	2	3.20	0.59	5

Remarks: *Weighted Mean scores (based on a 5-point Likert scale; 1 = least agreed and 5 = most agreed)

implementation, a self-assessment exercise on the company's performance was conducted, and thirty-one completed checklists were collected and analysed. Table 6 shows a summary of self-assessment results for the company and a benchmarking of its performance with the industry averages.

HS company has performed better in the ten self-assessment areas when compared with the industry averages. The mean weight scores obtained ranged from 2.96 to 3.91 (i.e., 2.77 to 3.42 in industry averages). In particular, the company's mean weight scores of leadership (i.e., 3.91; rank 1), business results (i.e., 3.74; rank 2) and information and analysis (i.e., 3.61; rank 3) were considerably higher than that of the industry averages. Policy and strategy (i.e., mean = 3.59; rank 4) and customer satisfaction (i.e., mean = 3.38; rank 5) were both in the middle position in line with the industry

averages. However, as with the industry norm, the company was also comparatively weak in achieving employee involvement (i.e., mean = 2.96; rank 9), and managing people (i.e., mean = 2.97; rank 10). Evidence was shown that the company has to strengthen people training, encourage delegation/empowerment, and improve reward/recognition system.

Throughout the trial period, it was noticeable that top management commitment contributed to the adoption of self-assessment approach. Middle management and shopfloor personnel have actively participated in quality improvement processes. As a result, many suggestions on performance improvement were identified, and defects and non-conformances were reduced at various operation levels. Shared tasks and team activities were intensified, and employees' attitudes were changed towards continual

improvement. The self-assessment practices and benchmarking results have encouraged further initiatives for continual performance improvements in the organisation.

6. Discussions

There is constant pressure on management to improve organisational effectiveness. Different companies may have specific corporate mission, goals and objectives in line with their organisational resources and constraints [3]. However, the process of performance improvement may generally be facilitated by certain characteristics below:

- 1) Formulation of corporate strategies and policies with supporting performance measurement system.
- 2) Visible leadership and commitment of senior management and active empowerment of improvement initiatives that emerge from lower levels of the organisations.
- 3) Creation of a management structure that encourages integration between strategy formulation, performance measures and business operations.

In many circumstances, the tasks, objectives, direction and involvement, methodological emphasis and administrative context of the TQM/BE/PM integration could change with increased organisational maturity. For instance, while support from

top management is crucial to success, improvement initiatives often come from middle and lower parts of an organisation. Moreover, people training and education is an investment in the corporate commitment to the integration efforts of TQM/BE/PM that allow the corporate philosophy to be lived [3]. Integrating the TQM-business excellence concepts into performance measures incorporates all perspectives of organisational management and requires overall involvement and participation to achieve the company goal. Senior management should commit to the development and improvement of the PM system, and push the TQM/BE/PM practices downward throughout the organisation. Otherwise, this may result in fragmentation of efforts and slow response, reversing the intended purposes of integration. It is anticipated that flexible adaptation of the TQM/BE/PM self-assessment framework and its process can be of competitive advantages that benefit varied manufacturing enterprises of different nature and purposes.

7. Conclusion

The success and continuity of an organisation depend on its performance. Effective enterprise management depends on the effective measurement of performance and results. The pre-condition to improve, and ultimately to achieve business

excellence, is to develop and implement a system for performance measurement that can align with company's strategies and facilitate consistent organisational actions toward corporate goals [3]. Performance measurement is too important and too costly to get wrong. By knowing measuring the right things, an organisation can identify where to improve and how the limited resources can be more effectively used for performance improvement. Top management should lead the way, whereas middle management should facilitate the improvement process and front-line personnel should follow to attain corporate objectives. Otherwise, this may result in fragmentation of efforts, slow response and weak productivity growth in the organisations.

This paper reviews the concepts of performance measurement and discusses its link with TQM and business excellence. A TQM-BE-PM self-assessment framework, based on the criteria of MBNQA, was developed. Incorporated with the empirical evidence of the survey results and pilot implementation, it was found that organisations would identify its strengths and areas of improvements through the self-assessment process. The framework with the checklist would assist organisations to monitor performance, identify areas that are in need of attention, enhance motivation, improve communications, and strengthen accountability. The self-assessment results would help them target the measure of

progress, communicate planned changes and accelerate the improvements. Therefore, the framework could serve as a tool for planning, building and managing TQM/BE/PM capabilities, and could also facilitate the sharing of best practices and benchmarking performance among competitors and the "best-in-class" organisations. The results obtained constitute a solid foundation for comparing performance records, integrating key operations requirements, and stepping towards results-oriented performance improvement. This paper sheds some lights on performance measurement and improvement based on the integration of TQM, BE and PM that is a never-ending process in organisations. Such integration is a rich research area investigating the complexities inherent in the activities of individuals and groups in organisations.

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