An Empirical Study of Critical Success Factors of the Balanced Scorecard (BSC) implementation

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Introduction

During the last decade, a number of frameworks that help in designing and implementing performance measurement systems have been identified in the literature. Balanced Scorecard (BSC) is an important one of these frameworks. However, BSC implementation is not without challenges. It has been discussed that many of implementing organisations failed to achieve desired results. So far, however, empirical research is scarce. This study is therefore an exploratory investigation into the BSC implementation based on a holistic view. Through a detailed analysis of the literature, this research identifies four stages (Planning, Designing, Implementing and sustaining) which include 22 CSFs for the effective implementation of the BSC. Using a global survey of 103 firms in 25 countries that have already implemented or are in the process of implementing BSC, the CSFs are then empirically tested and validated.

Research Problem

Measuring organisational success and implementing effective strategies for future success represent continuous challenges for managers, researchers and consultants. Whilst financial measures are clearly important, new frameworks have emerged in recent years that take into account a broader range of measures. These frameworks aim to respond to the criticisms levelled at financial measures, namely that they are one-dimensional and that they are inherently backward-looking in that they record a "history of a firm" (Chakravarthy, 1986; Evans, 2005). The frameworks have increasingly purported to represent not merely a way of measuring the success of an organisation but go further in that they offer managers a 'road-map' by which they can manage. In particular, they focus on the way in which a strategic vision can be realised, i.e. on strategic implementation.

However, a recent trend in evaluation is the increasing emphasis on the intangible, qualitative and non-financial sides of the

companies. Although financial earnings are still an important indicator of valuation, more and more empirical evidence suggests that the returns-earnings relation has declined over decades (Brown *et al.*, 1999; Wang, 2005). Recognising relevance lost in the performance measures of the traditional management, Kaplan and Norton (1992, 1996a, b) developed the theory of the Balanced Scorecard (BSC) as an approach to integrating financial and non-financial measures into management in the hyper-competitive environment.

BSC approach has gained wide acceptance, particularly in the United States. A survey of its members by the American Institute of Public Accountants and Maisel (2001) revealed that 43% were utilising the technique. This is due perhaps not only to its intrinsic value to businesses, but also because the concept has been aggressively marketed. For more than a decade now, diverse organisations around the world (manufacturing and service, private sector and public sector, for profit and not-for-profit) have used that BSC to achieve performance breakthroughs through focused and effective strategy execution (Kaplan, 2005).

While many cases of successful BSC implementation have been reported, there are also numerous instances of failure. For example, Hackett found that only 17% of all typical companies had developed mature BSC that relies on a mix of financial and operational metrics. Most companies had significant difficulty in taking BSC from concept to reality. Similarly, Hackett (2004) found that, overall; nearly one-thirds of typical companies had some type of unsuccessful BSC programmes.

However, BSC is a new phenomenon within the management systems and thus implementation methodologies are still developing with experience. Consequently, there has not yet been a common comprehensive or holistic approach to BSC implementation. Nevertheless, little attention is paid to different critical supporting factors such as organisational culture, strategy, management commitment, which may considered to be critical for the successful implementation of a BSC. One problem in reaching consensus on the factors that support the

process of managing through BSC is the broad range of approaches that different authors use. For example, some authors focus on specific features that occur during the design phase of the system, whereas others focus on key issues of the implementation phase. Very few authors focus on the overall use of measurement systems (Franco and Bourne, 2003). Therefore, and due to the complex and integrated nature of BSC, the investments involved (especially time), and the relatively high implementation failure rates, this research attempts to fill this gap by investigating the critical success factors of BSC implementation from those organisations which have already implemented it, and learn from their practice.

Research objectives

The purpose of this paper is to identify a comprehensive set of potential determinants influencing the successful adoption of BSC. The specific objectives of the paper can be summarised as follows:

1. To identify factors considered to be critical for the effective implementation of BSC and develop scales for measuring these critical success factors.
2. To empirically validate the scales.

3- To test the relationships between CSFs and the success of BSC implementation .

Literature Review

BSC presents a tool for translating an organisation's mission (embodied in its strategy) into more tangible measurable goals, actions and performance measures. The technique is documented by Kaplan (1994; 1995; 1996; 2005) and was derived following the realisation that no single performance indicator could fully capture the complexity of an organisation's performance (Epstein and Manzoni, 1998). However, the BSC approach, which can be applied at different levels (total organisation, strategic business unit, individual operational units, or even to individuals), involves identifying key components of operations, setting goals for them, and finding ways to measure progress towards their achievement (Evans, 2005; Sandkuhl *et al.*, 2003). Moreover, traditional financial measures, viewed as lagging indicators of performance, are

balanced with non-financial measures, which are lead indicators and serve to drive future performance. The measures are not to be viewed merely as a collection of various metrics (Kaplan and Norton, 2001a), but instead they are selected to show cause and effect in the implementation of the company's mission and organisational strategy.

CSFs can be defined as "areas where things must go right for the business to flourish" (Guynes and Vanecek, 1996). Oakland (1995) viewed them as those critical areas which the organisation must accomplish to achieve the mission by examination and categorisation of the impacts. In terms of BSC, they can be viewed as those activities and practices that should be addressed in order to ensure its successful implementation. These practices would either need to be nurtured if they already existed or be developed if they were still not in place.

Based on the literature, BSC has become one of the critical driving forces for business success. Doran *et al.*, (2002); Franco and Bourne (2003), Radnor and Lovell (2003), Hackett (2004), Brewer *et al.*, 2005, Dilla and Steinbart (2005) and Papalexandris *et al.* (2005) conducted in-depth studies to understand those factors that are needed to enhance BSC implementation. They conclude that organisations need to understand how to identify the critical factors that affect the implementation process and address them effectively to ensure that the promised benefits can be realised and failures can be avoided.

As mentioned earlier, one problem in reaching consensus on the factors that support the process of managing through measures is the broad range of approaches that different authors use. For example, some authors focus on specific aspects that occur during the design phase of the system, whereas others focus on key issues of the implementation phase. Very few authors focus on the overall use of measurement systems. Another problem for recognising actual factors is the lack of empirical studies on performance measurement and BSC literature (Franco and Bourne, 2003). Therefore, the need for a more systematic and deliberate study on the critical success factors (CSFs) for

implementing BSC is crucial. Ignorance and oversight of the necessary important factors will likely hinder an organisation's effort to realise its full benefit.

In fact the literature review undertaken revealed a lack of research with regard to some critical factors of BSC implementation (E.g. *stimulate culture*, *executive and manager sponsorship*), and this could be due to the fact that these factors are related to any new project, not particularly to BSC system implementation only. Therefore, this paper proposes a holistic framework for BSC system implementation based on an extensive review of the factors and essential elements that contribute to success of BSC project implementation.

A broad range of factors that can influence the success of BSC implementation has been mentioned in the literature. For example, Epstein and Wisner (2001) and Akkermans and Van Oorschot (2005) noted that *Executives' and senior managers' support* and commitment play the most important and crucial role in BSC implementation projects if the appropriate *training* is provided. Similarly, a number of authors have indicated the *culture factor* as a crucial one that may assist organisations to fulfil their BSC (Vaivio and Jarvenpaa, 2002; Self, 2004; Vokurka, 2004; Akkermans and Van Oorschot, 2005; Brewer *et al.*, 2005; Evans, 2005; Kaplan and Norton, 2005; Wu, 2005). Brewer *et al.* (2004), Neely *et al.* (2004), Phillips (2004) and Karathanos and Karathanos (2005) agreed that correct planning for training sessions, *Executive sponsorship, Creating a Team* and *Developing performance objectives and measures* are important to BSC implementation.

Central to this literature is considerable discussion on the importance of the *human dimension*, that is, *employee involvement* as an enabler, not the driver of BSC implementation (Akkermans and Van Oorschot, 2005). Al-Mashari and Zairi (2000) also added the *organizational culture* factor to the effective implementation of the BSC. Nielsen and Sorensen (2004) showed the importance of the *performance objective* as necessary to fulfil obligations in BSC implementation. *Measures for financial perspective* (Gumbus and Wilson, 2004; Chand *et*

al., 2005; Dilla and Steinbart, 2005), *Measures for customer perspective* (Zelman *et al.*, 2003; Brewer *et al.*, 2004; Van der Meer and Vosselman, 2004; Neely *et al.*, 2005; Wang, 2005), *Measures for Internal Process Perspective* (Sandkuhl *et al.*, 2003), and *Measures for Learning and Growth Perspective* (Gumbus and Wilson, 2004) have been also considered as critical factors for the BSC implementation. Finally, *Benchmarking and Target stretching* are critical factors for CRM successful implementation (Goldberg, 2004).

BSC Critical Success Factors

This section deal with defining CSFs identified from the literature and generating manifestation of these CSFs. CSFs are latent variables which means they can not be measured directly. For example, stimulating culture is a CSF that can not be measured directly. However, rewarding positive contributions and remove negativism from the agenda can be one of the manifestations of stimulating culture for effective implementation of the BSC.

1- Planning factors

The organisation has to have a rational reason for choosing BSC, even if implementation of BSC does not immediately change the organisation. Niven (2002) states that "for positive change to occur, the Scorecard must be embedded in [the organisation's] management systems, becoming the cornerstone for management analysis, support, and decision making". The organisation has to determine exactly why it implementing BSC to support transition from a measurement tool to a management system. The organisation should be clear that BSC is not a one-time project. BSC is a continuous project that has to be reviewed frequently according to the organisation circumstances. Determining the objectives when developing the BSC will secure its implementation and support its sustainability. However, the following factors have been found to play a critical role at the planning phase.

Stimulating Culture

A Number of authors have indicated the culture factor as a crucial one that may assist organisations to fulfil their BSC (Vaivio and Jarvenpaa, 2002; Self, 2004; Vokurka, 2004; Akkermans and Van Oorschot, 2005; Brewer *et al.*, 2005; Evans, 2005; Kaplan and Norton, 2005; Wu, 2005). Sureshchandar *et al.* (2001) state that tangibles such as size, number of employees, return on expenditures (ROE), return on investments (ROI), stock price, and so on, are vital characteristics of an organisation's business performance. What is equally (or even more) significant is to think about organisations more in terms of intangibles such as organisational culture. Consequently, A Number of authors have indicated the culture factor as a crucial one that may assist organisations to fulfil their BSC (Self, 2004; Vokurka, 2004; Akkermans and Van Oorschot, 2005; Brewer *et al.*, 2005; Evans, 2005).

Deming (1986) believed that culture is often underestimated and frequently overlooked. Management must reward positive contributions and remove negativism from the agenda. Antony *et al.* (2002) believe that an open culture significantly enhances communication from top to bottom, from bottom to top and across departments, with information shared by all staff. "The ability of the organisation to accept and encourage change is almost always determined by the culture within which a workforce operates" (Irani *et al.*1997).

Therefore, culture is a crucial element to be prepared before implementing any new system in organisation. All organisation levels have to be prepared prior to introducing the BSC, starting at the top and permeating throughout the whole organisation. All levels should be aware of the significance of the BSC and its future benefits. Organisations need to create, therefore, a culture where all employees can participate and be involved in the BSC programs relevant to their workplace.

Designating BSC team

Katzenbach and Smith (1994) provide the following definition for a team: "A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable". Teams have been working together for centuries to solve complex problems, to support the capabilities of individuals, and to overcome management challenges (Brewer *et al.*, 2004).

However, creating a team is critical for successful building and implementation of BSC. A well-structured BSC can eventually only be accomplished through a team effort. Monczewski (2003) argues that the sustainability of the BSC can not be achieved unless the top management support the team efforts. He believes that no single individual within an organisation possesses all of the knowledge of organisational strategy, internal processes, markets, vision, time, etc. to produce and articulate an enduring BSC

In essence, Kaplan and Norton (2001b) believe that the dynamics of the BSC team frequently determine whether the BSC can be sustained, consequently that the strategy can be successfully executed. From many studies, it has been realised that that most BSC teams have slight experience in market segments, customers, and employees (Andersen *et al.*, 2004; Gumbus and Wilson, 2004; Van der Meer and Vosselman, 2004; Urrutia and Eriksen, 2005). Therefore, Davis and Albright (2004) suggested that, to remedy this lack, marketing and human resources representatives have to be included in the BSC team.

Initial plan of BSC

As with any other initiative, BSC needs an accurate plan to guide the team. BSC plans vary from one organisation to another. Many organisations prefer to set a comprehensive and detailed plan. These organisations usually use the Microsoft Project system to facilitate the plan. Other organisations choose

to start with a simple plan that might be easy to follow. Simple plans usually contain critical tasks and use MS Excel or Word document systems. Niven (2002) states that it is important to include all the important elements of a project, whether as chunks or detailed steps. in any case, a considerable amount of time will be devoted to meetings.

Communicating BSC

Kaplan and Norton (2001c) state that credible communication in considerable quantity is essential to win employees' hearts and minds. New projects have to be communicated to employees in order for them to be successful. The organisation has to set a comprehensive and sustained plan to communicate the BSC to its employees. A well-structured communication plan will facilitate the implementation of the BSC. The communication plan should not only be comprehensive but also periodic. Various communication devices can be used to begin the BSC project such as executive announcements, videos, town meetings, brochures and newsletters (Kaplan and Norton, 1996a; Doran *et al.*, 2002; Chand *et al.* 2005; Evans, 2005).

2- Developing Factors

After preparing for BSC as mentioned early, the organisation has to start its BSC by connecting it with its Vision, Mission, Values, and Strategy.

Vision, Mission, Values, and Strategy

Olve *et al* (1999) defined vision as "a challenging and imaginative picture of the future role and objectives of and organisation, significantly going beyond its current environment and competitive position". The vision is about what the organisation wants to become. It should be understandable by all members of the organisation. A vision should stretch the organization's capabilities and image of itself. It gives shape and direction to the organization's future. Moreover, the vision should "balance the interest of all groups and portray a future that will lead to wins for everyone involved; the BSC is the

mechanism [the organisation] uses to track [its] achievement of this lofty goal" (Niven, 2002).

A mission statement defines the purpose of the organisation – why it exists (Niven, 2002;Olve, 1999; Kotter, 1996). It is an organization's vision translated into written form. It also enhances the leader's view of the direction and purpose of the organization. It is a critical element in any attempt to motivate employees and to give them a sense of priorities. In essence, Niven (2002) believes that an effective mission should inspire change, long-term in nature, and easily understood and communicated. The BSC translates the organisation's mission, values, vision, and strategy into performance objective and measures in each of the BSC perspectives. Then the measures have to be examined to be certain they are consistent with the organisation's mission.

Values represent the core priorities in the organization's culture, including what drives members' priorities and how they truly act in the organization. It defines how people want to behave with each other in the organization. They are statements about how the organization will value customers, suppliers, and the internal community (Niven, 2002; Olve, 1999; Kotter, 1996). The BSC represents the best solution for disseminating the organisation's values, reviewing them over time, and building alignment from top to bottom in the organisation. The BSC may also enable the organisation to follow the extent to which the organisation really implements its values (Niven, 2002).

Training

Balanced Scorecard is essentially a new approach for original development. It is about adopting new perspectives and processes, and about innovation and change. Employee training and education initiatives may help facilitate the change by providing employees with the knowledge and skills they require to adapt to and to lead the change process (Zelman *et al.*, 2003 Andersen *et al.*, 2004; Davis and Albright, 2004; Karathano and Karathanos, 2005; Urrutia and Eriksen, 2005).

Tsang and Antony (2001) define a training program as "the primary practice that organizations use to develop particular skills in employees that are necessary for carrying out the principles of [BSC]". Therefore, the organisation has to develop appropriate training materials and provide a compulsory and comprehensive training program; all the key personnel in a BSC project at all levels have to be trained and educated.

Determining BSC perspectives

Kaplan and Norton's four perspectives have been found to be appropriate for most organisations and industries. The four perspectives have to be considered as a template (Kaplan and Norton, 1996c). The critical question to be asked before BSC developing is how many perspectives are required in the BSC? Niven (2002) comments that the choice of perspectives should be based on what is necessary to execute the strategy and create competitive advantage for the organisation. When the organisation attempts to translate its strategy into action, it will discover the perspectives required. If the organisation finds that competitive advantage may be achieved as a result of relationships or processes another dimension, it may consider adding a separate, relevant perspective (Kaplan and Norton, 1996b, 2001; Olve et al, 1999). For example a manufacturing firm may rely heavily on suppliers in order to manage its operations to maximum efficiency.

Setting objectives and measures

Performance objectives link organisational strategy and performance measurements. The statement of objective is a concise description of the specific tasks the organisation must perform well if it is to successfully implement its strategy (Niven, 2002). Therefore, the objectives can be considered as a connecting tool between organisation strategy and measurement.

The organisation should ask the BSC team to create objectives for each perspective. The best way to create these objectives is to examine them in question form (Kaplan and Norton, 1996a,

2001; Olve et al, 1999). For example, if the organisation is attempting to reduce its costs, then the team may consider objectives termed as "Lower our indirect costs" or "Increase revenue per employee" (Niven, 2002).

After setting the strategic objectives, the organisation has to set the measurements for each perspective of the BSC. Niven (2002) defines performance measurement as a "tool we use to determine whether we are meeting our objective and moving toward the successful implementation of our strategy". The performance measurements, however, have to possess several characteristic and attain a balance between different aspects, such as financial and non-financial indicators of success, internal and external constituents of the organization, lag and lead indicators of performance (Olve et al, 1999; Kaplan and Norton, 1996c).

Finalising measures

In this stage, the organisation has a number of choices with regard to objectives, measures, targets, and initiatives, because each manager has already set his or her objectives and measures (Kaplan and Norton, 1996c). In addition, Urrutia and Eriksen (2005) argue that the BSC may help the organisation to choose an adequate combination of objectives, measures and initiatives. The BSC team have to narrow these measures, and choice of those may help the organisation to execute its strategy. Niven (2002) summarises several criteria that may help the organisation to choose the adequate measures for BSC such as linking measures to strategy, quantitative measures, easy to understand, and relevancy.

In general, the organisation has to be aware regarding the number of the measures chosen. A sufficient BSC usually contains between 20 to 30 prime measures (Kaplan and Norton, 2001a; Lawson *et al.*, 2003). The key to determining the organisation BSC measures, however, is ensuring adequate description of the organisation strategy through its BSC perspectives (Niven, 2002).

Cause-and-effect linkage

Radnor and Lovell (2003) emphasise that the well-designed BSC illustrates the organisation's strategy through the objectives and measures that have been chosen. These measures should link together in a chain of cause-and-effect relationships. This agrees with Niven (2002) who indicate the relationships between measures should be explicit so that they can be monitored, managed, and validated. The linkage of measures in BCS is dependent upon a series of 'if-then' statements. For instance, if the organisation increases training, then cycle times will lower. If cycle time is lower, then loyalty will increase. If loyalty increases, then revenue will increase (Brown, 1996). Kettunen and Kantola (2005) described the four perspectives of BCS and its relationships as a tree. Learning and Growth are the roots of the tree that will lead through the trunk of internal processes to the branches of customer results, and finally to the leaves of financial returns.

Integration

Kaplan and Norton (1997) emphasise that the BSC must be integrated in the management system. In spite of BSC's strengths, it cannot stand alone. That is because, although it can alert managers when something is wrong, it cannot provide solutions. And eventually, the organisation does not observe the payoff from a Balanced Scorecard implementation until the problems identified have been solved (Leahy, 2004). However, the BSC system should be used in management processes like "monthly reviews", "quarterly business reviews" etc. Most BSC data, however, is collected by different operational systems, such as financial reporting systems, Enterprise Resource Planning (ERP) systems or Customer Relationship Management (CRM) systems. Hence, the BSC should be integrated into operational IT systems (Olve *et al.*, 1999).

Key Performance Indicators (KPIs)

KPIs are quantifiable measurements, agreed to beforehand, that reflect the CSFs of an organisation. KPIs typically consist of any combination of reports, spreadsheets, or charts (Kaplan and Norton, 2004; Vokurka, 2004; Wells and Weiner, 2005). Beatham *et al.* (2002) argue that BSC translates an organisation's strategy into a comprehensive set of KPIs. These KPIs measure performance linkage corporate goals by tracking performance across the BSC perspectives. By demonstrating the cause-and-effect relationships between KPIs, the BSC provides managers with an obvious understanding of how their decisions impact not only on their direct area of responsibility, but also on other departments and the overall organisation strategy.

3 - Implementation Factors

The BSC implementation requires strong support from the top management. Most recent studies have mentioned that the implementation stage is the most crucial one where the most problems occur, and this, even after seeming successes, like winning national recognition awards (Doran *et al*, 2002; Vaivio and Jarvenpaa, 2002; Brewer *et al.*, 2005; Chand *et al.*, 2005; Evans, 2005). The BCS, however, requires time to be fixed, so management have to be patient enough and not accelerate the results (Fogg, 1997). Therefore, the organisation has to set a plan for the BSC implementation, and attempt to provide its team with all the resources required.

Finalizing the implementation plan

As mentioned earlier, BSC systems have to be integrated into the organisation's management systems to create value. Kaplan and Norton (1996c) recommend that the BSC system should be used within 60 days. They also comment that "the best available information should be used to focus the management agenda, consistent with the priorities of the scorecard. Ultimately, the management information systems will catch up to the process" (Kaplan and Norton, 1996a)

Designing the information system

Information systems play a significant role in developing and implementing of the BSC. The organisation should therefore set up an adequate information system that may assist to implement the BSC (Sandkuhl *et al.*, 2003; Akkermans and Van Oorschot, 2005; Chand *et al.*, 2005; Gumbus, 2005; Phillips and Louvieris, 2005). However, Marr and Neely (2003) argue that if any unexpected result is given by the BSC, managers need access to underlying data to explore the cause of any problem, or analyse trends and correlations. If the information system is inadequate, however, it can considerably influence the effectiveness of the BSC (Olve, 1999; Pereira *et al.*, 2004).

Cascading the BSC

The BSC will not be implemented sufficiently unless it cascaded to all organisation levels. Niven (2002) defines the BSC cascade as a "process of developing Balanced Scorecards at each and every level of [the organisation]". Epstein and Wisner (2001) emphasise that the fact BSC measures and objectives should cascade downwards to business units and eventually to departments. The organisation starts its BSC by identifying the strategic objectives in the upper level of the organisation, then cascading to the lower level departments to determine their achievements and contribution to overall goals. Olsthoorn *et al.* (2001) comment that the cascading downwards of objectives and measurements should take account of the level of aggregation required. The objectives and measurements should fit the lowest level of the organizational hierarchy, where decisions can be made properly. In addition, all employees need the chance to reveal how their actions are making a difference and helping the company accomplish its strategic objectives (Niven, 2002).

Rolling out implementation plan

Implementing an established valuation programme like the Balanced Scorecard brings a significant change in the way employees view their job (Zelman *et al.*, 2003; Brewer *et al.*,

2005). The natural suspicion that comes with change is bound to surface; therefore, it is important to ensure that everyone is involved at every level of the organisation by rolling out the BSC between the different levels of the organisation (Kaplan and Norton, 1996a).

Fine tuning and refining

After the rolling out of the implementation plan, senior managers have to monitor this plan continuously. They have to diagnose any problem which appears, either tiny or big, and attempt to solve it immediately (Kaplan and Norton, 2001a; Niven, 2002). They have to make the fine tuning and refine the plan and problems accordingly. In other words, senior managers should carry out diagnoses in order to check how implementation was being done, examine the results achieved, and identify any problems associated with it.

4- Sustainability Factors

Balanced Scorecard implementation is not the end of the journey. The sustainability of BSC is significant if the organisation requires achieving continuous results. Zairi (2001) defines sustainability as "the ability of an organisation to adapt to change in the business environment, to capture contemporary best practice methods, and to achieve and maintain superior competitive performance". Therefore, BSC needs to be sustained and maintained continuously to achieve those desired results.

Automating the BSC

Manual processes and reports considerably increase the effort and costs of scorecard development and implementation. Automation is critical in order to manage the huge amount of information related to a company's mission and vision, strategic goals, objectives, perspectives, measures, causal relationships, and initiatives. In addition, BCS automation may enable a quicker culture change, can provide visibility to the BSC process, and enable participation by a wider audience

(Bloomfield, 2002). Therefore, organisations should automate their BSC and choose the proper software. Today, the most widely used software to support a BSC is Microsoft Excel (Marr and Neely, 2003). BSC software has to be flexible because "flexibility is required due to changes in data processing systems" (Lawson *et al*, 2004). Kaplan and Norton (2001c) reveal that the BSC software may assist organisations in becoming strategy-focused.

Updating BSC measures

It is well known that the BSC system is a dynamic tool, flexible and capable of changes (Self, 2004). Phillips and Louvieris (2005) argue that the BSC team has to expect a number of changes in the measures of each perspective. Even the organisation strategy may require to be changed due to sudden changes in internal or external circumstances. Therefore, the performance measures have to be updated according to new circumstances. Despite the change of circumstances, the measures should be evaluated and reviewed at least once a year in conjunction with the organisation planning. (Kaplan and Norton, 2001a; Niven, 2002).

Benchmarking and Target stretching

Benchmarking is an approach to assessing and improving operational and financial performance. "Benchmarking involves determining best practice guidelines for maximizing performance and guiding a company toward improved efficiency and effectiveness while reducing waste" (Goldberg, 2004). Modern benchmarking was established, however, as a powerful management tool in 1979, when Xerox Manufacturing Operations decided to compare the unit manufacturing cost of their copying machines with that of their main competitors (Massheder, 1998). Cook *et al.* (2004) claim that benchmarking activities positively force any business unit to continuously evolve and develop in order to survive and grow in a business environment facing global competition. The BSC, however, may use benchmarking information to set targets. "Benchmarking can be used to incorporate existing best practice and to verify

that internally proposed targets will not keep the business unit trailing in strategic measures" (Kaplan and Norton, 1996c).

Corporate alignment

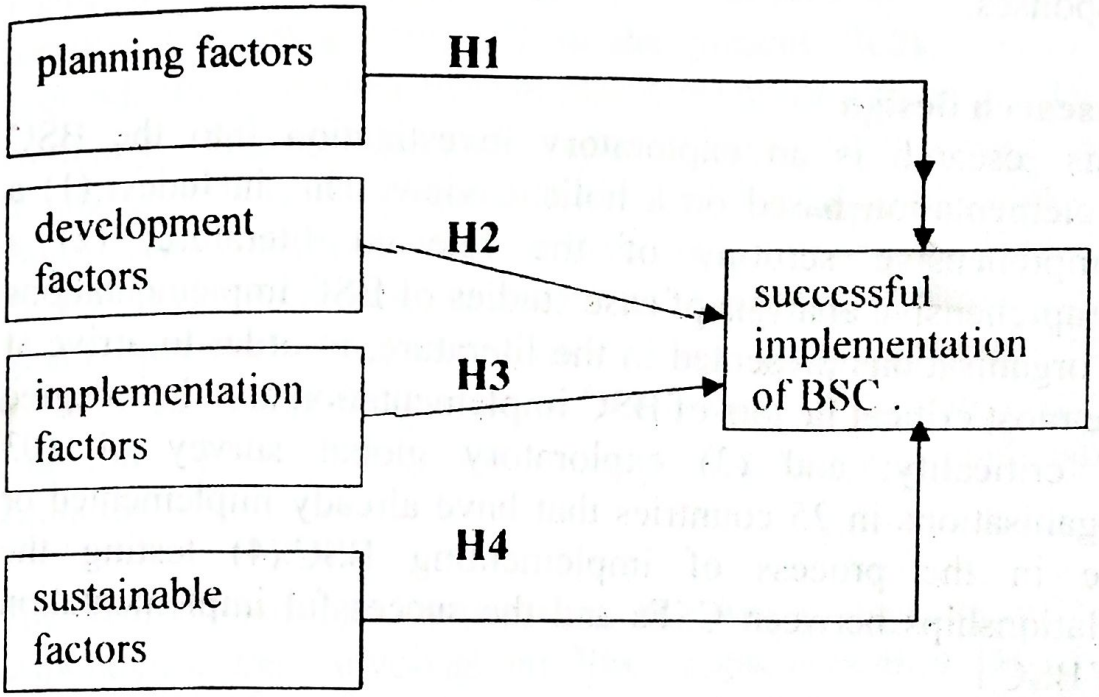
Intangible and tangible assets have to be aligned with the strategy in order to create value, and they take on value only in the context of strategy (Gumbus and Wilson, 2004; Brewer *et al.*, 2005; Wells and Weiner, 2005). In addition, integration is necessary to support the enhancement of all the organisation's intangible assets. Together, alignment and integration supply the theoretical building blocks for establishing objectives for human capital, information capital, and organisation capital in the learning and growth perspective (Kaplan and Norton, 2004). Consequently, an important part of the BSC is organisational alignment to corporate strategy. Identifying key strategic initiatives to achieve objectives, and allocating resources appropriately, lay the basis for effective execution.

Self assessment through Excellence Models

Organisations can use various methods of self-assessment to identify 'Strengths' and 'Areas for Improvement' for the achievement of excellence. Vokurka (2004) claims the process of self-assessment provides a systematic learning experience for employees within an organisation, of both excellence concepts and the stages in the quality journey (Wongrassamee *et al.*, 2003). EFQM (2004) advocates that there are many benefits which can be realised through using the EFQM Model, such as an understanding of overall performance, creating an opportunity and focus for improvement, increasing customer and employees satisfaction, and improved productivity (Johnson, 2003). However, Johnson (2003) believes that the BSC and the EFQM Model can be used interactively with the strengths and weaknesses recognised in EFQM assessments (as part of a strategic appraisal or performance checkpoint process), focused and prioritised through the strategic direction of the BSC.

The research model and hypothesis

The model of the research (figure 1) is formed on the basis of the hypothesis :-



(Figure 1) The research model

H1 - There is a significant positive relationship between planning factors and the successful implementation of BSC .

H2 - There is a significant positive relationship between development factors and the successful implementation of BSC .

H3 - There is a significant positive relationship between implementation factors and the successful implementation of BSC .

H4 - There is a significant positive relationship between sustainable factors and the successful implementation of BSC .

Research methodology

To empirically test and validate the 22 CSFs, a survey instrument was developed. A 5-point Likert scale has been used for all items to ensure higher statistical variability among survey responses.

Research design

This research is an exploratory investigation into the BSC implementation based on a holistic view. This includes: (1) a comprehensive scrutiny of the relevant literature; (2) a comprehensive analysis of case studies of BSC implementations in organisations presented in the literature, in order to arrive at the most critical factors of BSC implementation and their degree of criticality; and (3) exploratory global survey of 103 organisations in 25 countries that have already implemented or are in the process of implementing BSC.(4) testing the relationships between CSFs and the successful implementation of BSC .

Data collection

The generalisability of the study relied on the representative ness of the respondents. Therefore, a representative selection of companies was made from a large sample of organisations worldwide, in order to elicit their experience regarding elements and key factors in BSC implementation. The sample organisations were chosen from the BSC Collaborative, BSC associations, literature, and BSC newsgroups on the Internet. A further selection process involved the individuals to be contacted. The selection included the Singapore Productivity and Standards Board (PSB), Hong Kong Quality Management Association (HKQMA), Saudi Arabian Quality Council (SAQC), the Dubai Quality Group (DQG), American Society for Quality (ASQ) and European Foundation for Quality Management (EFQM). All the selected organisations had implemented the BSC system or in the process of implementation. A research packet, which contained a covering letter and an anonymous [self-administering] questionnaire, was

mailed to a single recipient, i.e. CEO or general director of the sample organisation in order to enhance the chance of getting back a quick and effective response. [240 in total]. This procedure resulted in 103 useful responses or a 42.91 % overall response rate.

There were organisations from 25 countries from different continents which participated in the present study, 25.2% of respondents were from Europe (from organisations in England, Germany, France, Finland, Spain, Italy, Switzerland and Ireland), 21.4% were from the Middle East (organisations in Saudi Arabia, United Arab Emirates, Iran, Jordan, and Kuwait), 21.4% from Asia (organisations in Malaysia, South Korea, Japan, Philippine, Singapore, and Taiwan), 19.4% from the USA 9.7% from Africa (organisations in South Africa and Egypt), and only 2.9% from other countries (Australia and New Zealand).

The sample can be described as follows: a majority of the respondents were involved on BSC implementation [60.2%], nearly half (51.5%) of the respondents had implemented BSC from 1 to 3 years, 23.3% for less than 1 year, followed by 22.3% of respondents where BSC had been implemented from 4 to 6 years. In terms of industry sector, the majority of respondents (36.9%) were from the manufacturing sector, followed by financial and energy sectors (14.6%), the retail sector was (8.7%), followed by consulting, transportation and education sectors (6.8%, 5.8%, and 3.9% respectively), and the lowest responses came from telecommunications, distribution, and healthcare sectors, with 2.9% for all of them. With respect to size of organisations, the majority of respondent organisations had 10,001- 50,000 employees (33%), followed by those employing 1,001- 5,000 (17.5%), third are those organisations with 5,001- 10,000 and 501- 1,000, with 15.5% for each and organisations employing over 50,000, 101- 500, and 100 or fewer had the lowest responses rate with 7.8%, 5.8%, and 4.9%, respectively. Finally, the majority of respondents are senior managers representing 40% of all respondents, followed by executive managers with 26.5%, 21.6% of the respondents are managers, whereas only 10.7% are supervisors.

To ensure that the valid responses were representatives of the larger population, a non-response bias test was used to compare the early and late respondents. χ^2 tests show no significant difference between the two groups of respondents at the 5% significance level, implying that a non-response bias is not a concern.

Research instrument development—Measures

The development of the research instrument was based mainly on new scales, because we could not identify any past studies directly addressing all of the issues in this research. However, and where possible, we used validated measures that have been previously applied. The constructs, scale items and factor loadings obtained from exploratory factor analysis are presented on the data analysis section.

Two consecutive rounds of pre-testing were conducted in order to insure that respondents could understand the measurement scales used in the study: First, the questionnaire was reviewed by three academic researchers experienced in questionnaire design and next, the questionnaire was piloted with three BSC experts known to the researchers. The pilot took the form of an interview where the participants were first handed a copy of the questionnaire and asked to complete it and then discuss any comments or questions they had. The outcome of the pre-testing process was a slight modification and alteration of the existing scales, in light of the scales context under investigation.

Analysis and Results

First, the psychometric properties of the constructs were assessed by calculating the Cronbach's alpha reliability coefficient and the items-to-total correlation (Nunnally & Bernstein, 1994). These coefficients are represented for each of the constructs in (Table I). All scales have reliability coefficients ranging from 0.6170 to 0.9589, which exceed the cut-off level of 0.60 set for basic research (Nunally, 1978).

Second, we performed an exploratory factor analysis [with Varimax rotation] to examine if the items for a construct share a

single underlying factor [i.e. are unidimensional] to assess (a) BSC critical success factors for the planning stage, (b) BSC critical success factors for the developing stage, (C) BSC critical success factor for the implementation stage and (b) BSC critical success factors for the sustainability stage. Items, which did not satisfy the following two criteria, were deleted: [1] dominant loadings greater than 0.5, and [2] cross-loadings less than 0.35 (Hair *et al.*, 1998).

The 21 items (variables) measuring the BSC critical success factors for the planning phase were subjected to principal component factor analysis. Eigenvalues and scree plot were used to determine the number of factors to be extracted. A four-factor structure was suggested using the criteria of an eigenvalue greater than 1, and the extracted factors account for 73.14 % of the total variance. All factor loadings are generally high, and the lowest loading is equal to 0.519, while the Kaiser--Meyer–Olkin test of the factor analysis is substantial [0.812]. The resulting factor loadings are shown in table (**II**) with all factor loadings less than 0.5 suppressed. All items loaded onto the expected factors as they were originally designed. Factor loading were all higher than 0.5 on its own factors and, therefore, each item loaded higher on its associated construct than on any other construct. This supported the discriminant validity of the measurement.

The 46 items (variables) measuring the BSC critical success factors for the developing phase was subjected to principal component factor analysis. The resulting factors defined the eight categories of CSF of the developing phase. These factors are Mission, Values, Vision, Strategy; Training; Identify BSC perspectives; Set objectives and measures; Finalise measures; Cause & effect linkage; Integration and KPIs. Eigenvalues and scree plots were used to determine the number of factors to be extracted. Moreover, in order to ensure the valindity of factor analysis, the Bartlett Test of Sphericity (BTS) and Kaiser-Meyer-Olkin (KMO) test of appropriateness were carried out accordingly (**See table III**). The results (the BTS ranged from 103.545 to 590.034 and the level of significance at P=0.000) indicated that the data is appropriate for the purpose of factor

analysis. Statistically, this means that there are significant relationships between the variables and that they can be appropriately included in the analysis (Bryman, 1989). As shown the result of sampling adequacy ranged from 0.600 to 0.850 which, following Kaiser-Meyer-Oklin measure reflecting a high level of sampling adequacy.

The 32 items or 'variables' were loaded onto the five factors using an eigenvalue greater than 1, and the extracted factors account for a range from 49.679 to 73.219 of the total variance, using a verimax rotation. All factors loading were higher than 0.5 since, as Hair *et al.* (1998) observe, a factor loading higher than 0.35 is considered statistically significant at an alpha level of 0.05.

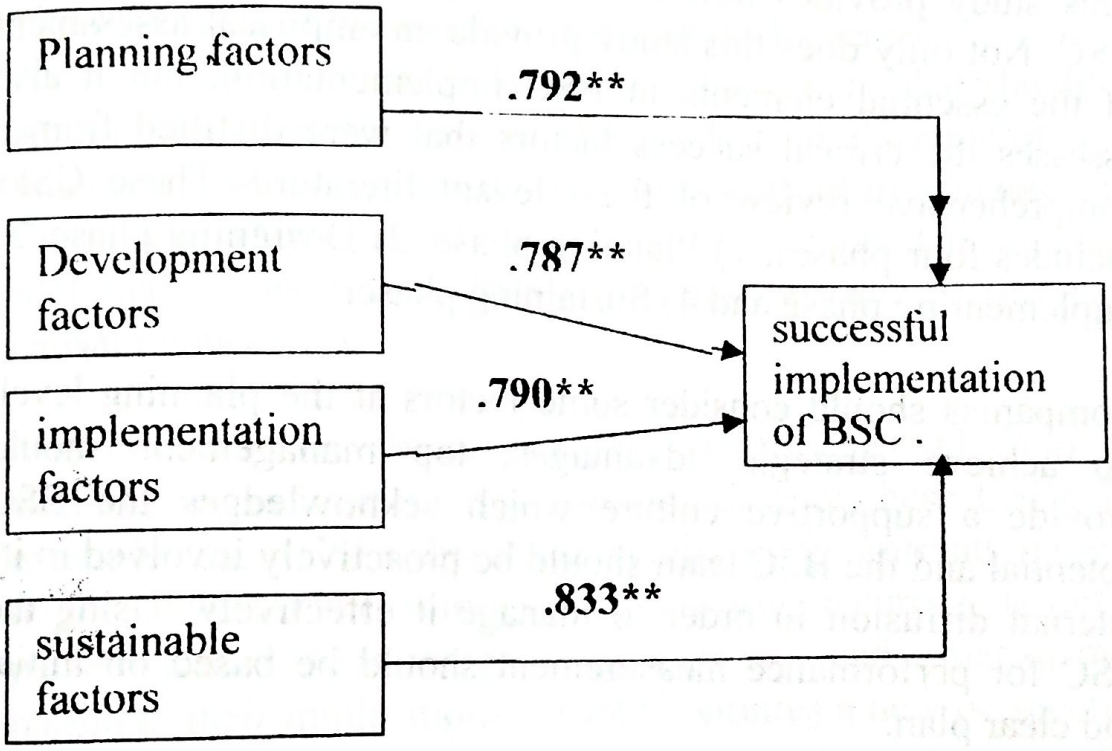
The 26 items (variables) measuring the BSC critical success factors for the implementation phase were subjected to principal component factor analysis. Eigenvalues and scree plot were used to determine the number of factors to be extracted. A five-factor structure was suggested using the criteria of an eigenvalue greater than 1, and the extracted factors account for 74.24 % of the total variance. All factor loadings are generally high, and the lowest loading is equal to 0.515, while the Kaiser–Meyer–Olkin test of the factor analysis is substantial [0.766]. The resulting factor loadings are shown in table (**IV**) with all factor loadings less than 0.5 suppressed. All items loaded onto the expected factors as they were originally designed. Factor loading were all higher than 0.5 on its own factors and, therefore, each item loaded higher on its associated construct than on any other construct. This supported the discriminant validity of the measurement.

The 29 items (variables) measuring the BSC critical success factors for the sustainability phase were subjected to principal component factor analysis. Eigenvalues and scree plot were used to determine the number of factors to be extracted. A five-factor structure was suggested using the criteria of an eigenvalue greater than 1, and the extracted factors account for 80.30 % of the total variance. All factor loadings are generally high, and the lowest loading is equal to 0.517, while the Kaiser–Meyer–Olkin

test of the factor analysis is substantial [0.379]. The resulting factor loadings are shown in table (V) with all factor loadings less than 0.5 suppressed. All items loaded onto the expected factors as they were originally designed. Factor loading were all higher than 0.5 on its own factors and, therefore, each item loaded higher on its associated construct than on any other construct. This supported the discriminant validity of the measurement.

The results of hypothesis testing

(Figure 2) shows the regression results of hypothesis testing :-



(Figure 2) The results of hypothesis testing

H1: The relationship between planning factors and successful BSC implementation (coefficient = 0.792 $p<0.01$)

H2: The relationship between development factors and successful BSC implementation (coefficient = 0.787 $p<0.01$)

H3: The relationship between implementation factors and successful BSC implementation (coefficient = 0.790 $p<0.01$)

H4: The relationship between sustainable factors and successful BSC implementation (coefficient = 0.833 $p<0.01$)

Discussion and Implications

The purpose of this article is (a) to offer some useful and practical guidelines for companies and other types of businesses wishing to successfully apply BSC systems and (b) to enhance our understanding of its impact on organisational success.

BSC Critical Success Factors

This study provides new theoretical grounds for studying the BSC. Not only does this study provide an empirical assessment of the essential elements in BSC implementation, but it also assesses the critical success factors that were distilled from a comprehensive review of the relevant literature. These CSF's includes four phases; 1) Planning phase, 2) Designing phase, 3) Implementing phase and 4) Sustaining phase.

Companies should consider some factors at the planning level. To achieve strategic advantages, top management should provide a supportive culture which acknowledges the BSC potential and the BSC team should be proactively involved in its internal diffusion in order to manage it effectively. Using the BSC for performance measurement should be based on initial and clear plan.

At the developing level, successful implementation of the BSC depends on how clearly defined the strategic goals; vision and mission are for an organisation. Proper training also plays a critical role on the effective implementation of the BSC. However, identifying BSC perspectives; setting objectives, measures, targets and initiatives; finalising measures; Cause-effect linkage and KPIs are major challenges.

At the implementation level, finalising BSC plan, designing information system, cascading BSC, rolling out implementation plan and fine tuning & refining play a critical role to successfully implement the BSC.

At the sustainability level, while both automating the BSC and updating measures are both critical to successful BSC initiatives, it is the corporate alignment and self-assessment through excellence models which are the building blocks of performance measurement. Finally, benchmarking best practice play a significant role in shaping the strategic direction to be taken for changes a BSC system require.

The hypothesis testing results shows the positive significant relationships (at 0.01 level) between the four main of factors and BSC successful implementation

Limitations and Suggestions for Future Research

As with any study, there are certain limitations that should be recognized. First, the present study relied on a sample of firms managers and, consequently, we cannot afford to generalize the findings in other types of businesses. Second, the data are cross-sectional in nature and hence it is not possible to determine causal relationships.

The direction for future research, which emerged from our findings, is to improve our understanding of these CSFs. For example, each CSFs discussed in this study warrants more in depth study. While some CSFs has been recurring issues in performance measurement, accounting and management research, their implications for BSC requires a new perspective. Given the high costs associated with the implementation of BSC systems, a potentially fruitful area would be to develop the quantification of CSFs into an "index of practice" so that companies could determine the level of performance on a time-based approach. The results from an audit, with regard to the index, could pinpoint areas that need attention and improvement. Future research may choose to focus on one or more of the CSFs to generate an in-depth knowledge to inform both theoretical and practical applications. Researchers could use these factors to assess the success of companies. On the other hand, these CSFs must be subjected to review, critique, and discussion for an extended period before getting general acceptance. Additional items might be tried in each category. Finally, different constructs could be tried to measure the BSC

success. To this end, a very promising research approach is the development of a model that explains how BSC implementation influences variables such as profit, customer retention and employees satisfaction.

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(Table I) : Measure of constructs' reliability

Constructs		Number of Items	Alpha
Planning phase			.9177
	Stimulation of culture	7	.8972
	Communicate BSC	4	.9144
	BSC team	5	.8990
	Initial plan	5	.8441
Developing Phase			.9589
	Mission, Values, Vision, Strategy	10	.9037
	Training	5	.9054
	Identify BSC perspectives	5	.8446
	Set objectives and measures	9	.8592
	Finalise measures	4	.7461
	Cause & effect linkage	3	.7397
	Integration	7	.8271
	KPIs	3	.8569
Implementation Phase			.9439
	Rolling out implementation plan	14	.9536
	Cascading BSC	4	.7600
	Finalise BSC Plan	4	.6903
	Design Information System	2	.7399
	Fine Tuning and Refining	2	.6170
Sustainability Phase			.9548
	Updating BSC	13	.9567
	Corporate Alignment	6	.8862
	Benchmarking	3	.9046
	Automating the BSC	3	.7494
	Self Assessment	4	.8225

(Table II) : factor analysis of CSFs for the planning Phase

CSFs for the Planning Phase	Component			
	Factor 1	Factor 2	Factor 3	Factor 4
	Stimulation of culture	Communicate BSC	BSC team	Initial plan
The organisation's climate, culture & behaviour	.746			
The organisation's legacy system.	.771			
Strategic evaluation for each business unit.	.816			
The employees' culture for BSC implementation.	.808			
Developing a high-level corporate set of measures.	.707			
Clear strategy.	.739			
A broader set of objectives	.705			
The employees are well-informed.		.782		
Commentary & written guidelines		.917		
Executives are committed to the BSC.		.806		
The BSC is communicated throughout the organisation.		.798		
The BSC team members have various skills and knowledge.			.593	
A special team for the BSC project.			.854	
Good communications between different departments.			.835	
BSC team is visible and has access to top management.			.707	
Adequate resources and time for establishing the BSC project.			.538	
The organisation identifies the critical processes.				.601
Identifying the sources of performance data.				.774
An initial plan for BSC development and implementation.				.616
The organisation has a clear short-term business plan.				.792
Executives play an effective role in establishing the BSC.				.840
Initial Eigenvalues	**8.277**	**3.573**	**2.224**	**1.288**
% of Variance	**39.41**	**17.01**	**10.59**	**6.13**
Cumulative %	**39.41**	**56.42**	**67.01**	**73.14**

(Table III) : Factor Analysis of the CSF for the Development Phase

Development Phase	KMO	Bartlett's Test		No. of Extracted Item(s)	Eigen-values	Eigen-values %
		Chi-Square	Sig.			
Mission, Values, Vision, Strategy	0.818	590.034	.000	1	6.105	50.877
Training	0.850	320.891	.000	1	3.661	73.219
Identify BSC perspectives	0.837	236.655	.000	1	3.222	64.430
Set objectives and measures	0.834	394.869	.000	1	4.471	49.679
Finalise measures	0.646	126.941	.000	1	2.334	58.355
Cause & effect linkage	0.600	103.545	.000	1	2.113	70.439
Integration	0.743	280.260	.000	1	3.280	50.672
KPIs	0.664	167.797	.000	1	2.350	78.340

(Table V) : Factor Analysis of the CSFs for the Implementation Phase

CSFs for the Implementation Phase	Component				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	Rolling out implementation plan	Cascading BSC	Finalise BSC Plan	Design Information System	Fine Tuning and Refining
Communicating the scorecard's importance to every level	.720				
Top management support.	.750				
Strategy is communicated throughout the organisation.	.787				
Executives reviewed and agreed all the BSC measures.	.807				
Comparing the current performance with past results.	.579				
Developing a clear plan.	.798				
Causal relationship between effort and result.	.776				
Communicating vision and strategy to employees.	.644				
Implementing a pilot before introducing a new scorecard.	.633				
Common understanding of each other's roles.	.791				
Employees' acceptance of BSC.	.794				

The executive information systems.	.740				
Top management involvement	,747				
Costs and benefits calculation	.586				
All individuals are assigned tasks within the BCS project		.635			
The leadership played a significance role.		.827			
The organisation's measures have a direct link to its strategy.		.813			
The organisation developed a plan for BSC cascading		.720			
The operational and strategic significance of every measure.			.618		
Measures accurately depict the process or objectives.			.735		
Costs and benefits			.677		
Precise meaning of performance measures.			.761		
Communicate BSC requirements and best practice				.757	
Integration and communication of information.				.870	
Developing a personal BSC for employees.					.652
Refining measures according to the BSC reporting results.					.605
Initial Eigenvalues	**11.400**	**2.908**	**2.107**	**1.651**	**1.174**
% of Variance	**43.876**	**11.186**	**8.104**	**6.351**	**4.514**
Cumulative %	**43.876**	**55.061**	**63.165**	**69.517**	**74.03**

(Table IV) : Factor analysis of the CSFs for the Sustainability Phase

CSFs for the Sustainability Phase	Component				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	Updating BSC and link it with Rewards	**Corporate Alignment**	**Benchmarking**	**Automating the BSC**	**Self assessmer**
The information reaches the right people, in the right format	.865				
Receiving strategic information on a regular basis..	.923				
Incentive systems are aligned with BSC measures.	.887				
Creating cultural change..	.851				
Awareness to scorecard results is significant.	.902				
The BSC is tweaked to describe the strategy	.717				
The measures are re-visited to confirm their relevance.	.860				
The BSC results are reviewed takes..	.830				
Up to date.	.797				
The measures are re-visited and re-defined on regular basis	,753				
The focus is on individuals' contributions.	.631				
Resource capacity management.	.874				
Recognition and reward	.779				
Achieving sustainable alignment		.645			
The Bsc rules ,processes and procedures are maintained		.645			
Measure should be reviewed		.798			
Alignment of the organisation strategic objectives		.785			
Regular team meeting		.880			
Motivate employees to achieve organisation objectives		.883			
The targets are stretched according to external benchmarking			.870		

organisations					
Benchmarking is used in the organisation			.896		
The organisation's automated BSC and integrated with standard office applications				.772	
Automation of the organisation's performance				. .517	
Administrating BSC and the accompanying responsibilities				.884	
Improving Supply chain management.					.833
Improving Asset utilisation.					.803
The organisation jkj implements Self assessment frequently					.533
Improving internal processes					.804
Initial Eigenvalues	**10.35**	**3.635**	**3.527**	**1.349**	**1.198**
%of Variance	**41.39**	**14.61**	**14.11**	**5.39**	**5.79**
Cumulative %	**41.39**	**56.00**	**70.11**	**75.50**	**80.30**

(Table VI) : Direct , indirect effect and total effect of CSFs of BSC implementation and the success of the implementation

Dependent variable	The success of BSC implementation		
	Direct Effect	Indirect Effect	Total Effect
Planning Factors	.792	.055	.847
Development Factors	.787	.117	.904
Implementation Factors	.790	.010	.800
Sustainable Factors	.833	.000	.833