2001

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Abstract

A range of influences, both technical and organisational, has encouraged the wide spread adoption of Enterprise Systems (ES). Nevertheless, there is a growing consensus that Enterprise Systems have in many cases failed to provide expected benefits. The increasing role of, and dependency on ES (and IT in general), and the 'uncertainty' of these large investments, have created a strong need to monitor and measure ES performance. This paper reports on a research project aimed at deriving an 'Enterprise Systems benefits measurement instrument'. The research seeks to identify how Enterprise Systems benefits can be usefully measured, with a 'balance' between qualitative and quantitative factors.

Keywords

Enterprise Systems, Information Systems, Performance Measurement, Balanced Scorecard, Governmental IS

INTRODUCTION

Enterprise Systems (ES) (synonymous with Enterprise Resource Planning Systems, Enterprise Wide Systems, Integrated Vendor Solutions, Integrated Standard Software and Enterprise Application Systems) are customizable, standard software solutions that have the potential to link and automate all aspects of the business, incorporating core processes and main administrative functions into a single information and technology architecture (Klaus et al., 2000; Bingi et al., 1999; Parr et al., 1999). Organisations have invested heavily in these systems, with the expectation of; improvements in business processes, better management of IT/IS expenditure, increased customer responsiveness, and generally, strategic business improvements (Li, 1999; Ross and Vitale, 1999). Despite growth in the ES market, recent research shows growing dissatisfaction with ES; that they have failed to deliver the anticipated benefits (e.g. Bingi et al., 1999; Gable et al., 1998; Holland et al., 1998). High profile ES implementations (e.g. Fox Myers, Unisource worldwide, Dell computers, Hershey Food Cooperation, Whirlpool and Gore-text) have raised serious questions about the credibility of ES (Calogero, 2000). Some of the organisations mentioned have incurred significant financial losses and also lost business opportunities worth many millions of dollars (e.g. Bingi et al., 1999, Chung and Snyder, 1999; Songini, 2000).

STUDY OBJECTIVE AND DESIGN

Several research organisations, practitioners and academics have investigated the key issues related to low return on investments in ES. These studies have identified the extent of the so-called 'damage' done by the ES, critical success factors of ES, possible causes for low performance, and benefits realisation from ES. Many of these studies have implicitly and explicitly referenced the importance of measuring the performance of ES. Furthermore, it has also been identified that a high percentage of ES benefits are intangible and therefore harder to evaluate financially (e.g. Baer, 1999; Davis, 1999; Deloitte consulting 2000; Knowles et al., 2000; Levingston, 1999; Matthys and Shorter, 2000; Mabert et al., 2000; Radding, 1999; Thorp, 1994). This has further undermined the position of ES; especially in the public sector, where the tangible benefits (i.e. Financial benefits) are a relatively smaller proportion of total benefits sought or achievable.

The aim of this research is to address *'how Enterprise systems benefits can be usefully measured'*, with a 'balance' between qualitative and quantitative factors. The ultimate goal is to derive a comprehensive 'Enterprise Systems Benefits Measurement Instrument' to (a) assess the goodness of the Enterprise System and (b) identify where organizations should focus their 'benefits realisation' efforts and further investments. The study focuses on the public sector and uses the Balanced Scorecard approach (Kaplan and Norton, 1992, 1996, 2000) to capture both financial and non-financial aspects of ES measurement. The research questions are:

1. What measures are appropriate for evaluating an ES?
2. Is the Balanced Scorecard an appropriate approach for ES measurement?
3. What perspectives should be considered when measuring the performance of an ES?

The study outcomes will significantly contribute to the ES and general MIS arenas by: (1) providing a better understanding of the Balanced Scorecard in the public sector and for ES performance evaluation (a domain previously not addressed with this approach), (2) identifying and justifying specific measures that link to co-operate goals and strategies for successful ES performance measurement, and (3) ultimately resulting in a comprehensive "ES Performance Measurement Instrument".

The Queensland Government ES Benefit Realisation initiative and participating Government agencies are the focus of core data collection on the study. This is mainly due to the close alignment of the Queensland Government's ES benefit realisation approach and our study objectives, and to our relatively good access to case agencies and relevant information. The research design includes: (1) a comprehensive literature review of various ES related themes and of the application and development of the Balanced Scorecard; (2) design of a preliminary Balanced Scorecard for ES based on measures identified from the literature; (3) a preliminary case study of the Queensland Government's Benefits Realisation Network (QGBRN); (4) a pilot case study to validate the initially identified Scorecard perspectives and measures; and (5) a multiple case study across several Queensland Government agencies to further evolve and validate the final public sector ES Balanced Scorecard. This paper presents early results from the study, summarizing findings from the literature review and describing a high-level case study of the QGBRN.

REVIEW OF RELATED LITERATURE

The following section summarizes findings to date from the literature review. It first explores the study context, demonstrating potential contributions of this study, and relating to past ES success and failure studies and those that implicitly or explicitly state the importance of a structured ES performance measurement technique. It then introduces the Balanced Scorecard approach and summarizes key studies that have proposed the Balanced Scorecard for IT (and sometimes specifically for ES) performance measurement. Finally, this section concludes with a discussion on the appropriateness of the Balanced Scorecard for Public Sector ES performance measurement.

Research on ES success and failure

A study conducted by Boston Consulting Group (2000) using interviews of more than 100 executives who were involved in Enterprise Systems implementations showed that only 33 % of ES projects could be classified as successful. Another study by the Standish Group established that most ES implementations today result in cost and schedule overruns. A comprehensive study of nearly 100 large companies (with revenue greater than US $ I billion) was carried out by Deloitte consulting (2000) and benchmarking partners Hammer and Co. This study is said to be one of the most successful studies ever conducted into the performance of ES (McCann and Lucas, 2000). Not surprisingly, this study also concluded with mixed outcomes regarding the ES pay-offs. The study identified that approximately one third (37%) of the companies studied reported significant and quantifiable benefits from their ES investments. However, 15% of the companies believed that they had received 'nothing' out of their ES. 25% of the organisations received modest results from ES, and they are not positive about gaining further benefits. The remaining 23% were unable to report any specific quantifiable benefits. The overall research figures show that as many as half of the companies have not realized sufficient benefit from their ES investment.

A study of US manufacturing firms (Mabert et al., 2000), conducted with the objective of assessing the return on investment from ES, has revealed the extent of dissatisfaction. This study found that more than 50% of the ES initiatives studied have reported lower Return On Investment (ROI) than expected. A survey conducted by the Stanford based META group Inc., of 63 companies with ES, revealed an average negative return of $1.5 million, when quantifiable cost savings and revenue gains were balanced against hardware, software, consulting and support (Stedman, 1999; Stein, 1999). However, the META group admits that ES software do help deliver more important intangible benefits, such as better customer services.

There exists a common consensus that ES, given it is managed carefully, provide substantial intangible (non-financial) results as well as tangible (financial) results. Bartholomew (1999) claims that in a typical business environment, 80% of the organisation's value is in intangible assets. This intangibility of assets has made it difficult for organisations to illustrate whether they have received the benefits of ES or not (e.g. Baer, 1999; Bylinsky, 1999; Cameron, 2000; McCann and Lucas, 2000; Radding, 1999; Stein, 1999; Stedman, 1999; Vickers, 2000; Wah, 2000). For a range of reasons, few organisations have sought to carefully measure ES benefits, using both tangible and intangible measures, of course thereby making evidence of these benefits elusive and vague.

Need of an ES Performance Measurement

Recent studies indicate that issues pertaining to IS / ES evaluation and management are of great importance to managers all over the world (e.g. Brancheau et al., 1996; Burn et al., 1993; Galliers et al., 1994). The increased role of and dependency on ES, and the 'uncertainty' of benefits, have in combination magnified the need to monitor and measure ES performance. On the other hand, several studies have indicated that while the ES / IT investment is correlated with organisational revenue; it is not clearly correlated with either productivity or profitability (e.g. Ives, 1994; Pennar, 1988; Sethi et al., 1993; Strassmann, 1997a, 1997b). This situation is very much true in the context of ES, where in many cases, intangible benefits are harder to quantify.

Many traditional measurement and evaluation methods (e.g. Return On Investment [ROI], Economic Value Added [EVA], Net Present Value [NPV], Internal Rate of Return [IRR], Return On Capital Employed [ROCE]), have failed to yield an appropriate estimate of the 'pay back' from these complex systems (e.g. Barua et al., 1996; Martinsons, 1991; Mukhopadhyay et al., 1997; Sharba et al., 1988). Some claim these performance indicators have a high reliance on financial perspectives and thus portrait only one facet of the organisation. Unfortunately, as discussed earlier, the impact of an ES is so vast and diverse that it cannot be measured by using only traditional financial measures (e.g. Deloitte Consulting, 2000; Mabert et al., 2000; Martinsons et al., 1999).

A growing number of companies have begun searching for new ways to measure the return on investment from their IT projects, in particular from ES and with emphasis on ES performance measures (Cameron, 2000, Thorp, 1999). According to Vickers (2000), companies should analyze their ES investment by: (1) justifying the initial purchase with return on investment and (2) trying to find the ROI after implementation. Vickers further (2000) states that cost justification in manufacturing is straight forward, where the tangible benefits are much larger than the intangible benefits. However, cost justification in services and human resources is harder to demonstrate. The timing of benefits measurement is important, due to the fact that most of the benefits of ES take at least 2-3 years to surface (e.g. Baer, 1999; Davis, 1999; Levingston, 1999; Mabert et al., 2000; Radding, 1999; Ross and Vitale, 1999). Cameron (2000) illustrates the importance of measuring the intangible benefits of ES, stating that evaluating a complex system by just looking at the tangible benefits is a huge mistake. Calculating the gain from an ES investment in general requires a deeper understanding of the organisational goals, strategies and expectations.

These challenges have generated new interests and research on approaches to performance measurement, performance evaluation and business value creation from ES, with emphasis on a balance between financial (quantitative and historic) measures and non-financial (qualitative and futuristic) measures (e.g. Bruggeman, 1999; Eicklemann, 1999; Thorp, 1999; Van Der Zee, 1999a, 1999b). Up to now, there have been no comprehensive tools to help organisations measure the performance of an ES.

There are several advantages from applying a performance measurement system in ES implementation, especially for top management. These reasons include: (1) ES expenses are significant - as ES expenditure grows and becomes a significant portion of business costs, top management and stakeholders become increasingly interested in being able to [a] compare the value of these expenditure with the obtained benefits and [b] compare those benefits with how other organisations benefit from a similar ES; (2) To find out the benefit generating areas - top management wants to find the benefit generating points (if any) so that they can further exploit these and apply corrective measures where the benefits are small; (3) ES have a 'holistic' impact on every operation in an organisation; (4) ES performance measures aid in a competitive thrust - performance measures help top management to obtain and maintain Key Performance Indicators (KPI); and (5) As an aid for innovation – as a consequence of the above, top managers can identify and exploit areas for deploying innovative business strategies (e.g. United Communications Group, 1989; Sethi et al., 1993; Sedera et al. 2001; Parker et al., 1988).

Balanced Scorecard: as a performance measurement method

The Balanced Scorecard (BSC) is a technique developed by Kaplan and Norton (1992) that helps organisational decision makers to navigate the organisation towards success. The technique enables organisations to translate their mission and strategy into a comprehensive set of performance measures that provide the framework for a strategic measurement and management system. Organisations have used the Balanced Scorecard to; (1) clarify and translate vision and strategy, (2) communicate and link strategic objectives and measures, (3) plan, set targets and align strategic initiatives and (4) enhance strategic feedback and learning, and succeed in realizing both tangible and intangible benefits of their investments (Kaplan and Norton, 1992, 1996, 2000).

The Balanced Scorecard measures organisational performance, with emphasis on financial objectives. But, it also includes the performance drivers of these financial objectives, and measures organisational performance

across four balanced perspectives; (1) financial, (2) customer, (3) internal business processes and (4) learning and growth.

Creators of the Balanced Scorecard argue that, traditional financial measures *"Tell the story of the past"* (Kaplan and Norton, 1992). They try to address this inadequacy by complementing past performance measures (financial measures) with the drivers of future performance indicators (customers, suppliers, employees, processes, technologies and innovation. The fundamental concept of the Balanced Scorecard is to derive the objectives and measures from the overall corporate vision and strategy and to use the four perspectives as a " balanced" framework to monitor and achieve these objectives. A properly developed Balanced Scorecard should:

(1) Represent financial and non-financial measures from all levels of the organisation (front line to executives)
(2) Maintain an equilibrium between:
    - External measures (developed for the stakeholders and customers) and Internal measures (developed for the bushiness processes, innovation, learning and growth)
    - Outcome measures (results from the past) and measures that are for Future performance
    - Objective (easily quantifiable outcome measures) and Subjective (judgmental performance drivers) outcome measures
(3) Include only measures that are elements in a chain of cause-and-effect relationships that communicate the meaning of the organisation's (or business unit's) strategy.

It must be pointed out that the traditional Balanced Scorecard approach is used to measure the performance of the overall organisation, while the focus of this research is on measuring ES performance and evaluating the ES. The following section addresses the appropriateness of the Balanced Scorecard for IT / ES evaluation.

Balanced Scorecard for IT evaluation

Recently, several researchers (e.g. Martinsons et al., 1999; Martinsons, 1992; Rosemann and Wiese, 1999; Bruggeman, 1999; Reo, 1999) have suggested that the Balanced Scorecard may also help to evaluate the performance of an Information System (IS) and to evaluate IS investments in a holistic manner. Some studies have proposed substantial modifications to the perspectives and measures applied by Kaplan and Norton, while some have preferred to use the original (Financial, Customer, Process and Learning and Innovation) Balanced Scorecard perspectives. Table 1 summarizes several studies (alphabetically ordered), indicating their context and illustrating the perspectives they have used to evaluate the performance of an Information System.

The other two perspectives: learning and innovation and process perspectives are recognized and mentioned explicitly or implicitly as suitable perspectives to measure ES/IT performance (Reo, 1999: Rosemann and Wiese, 1999: Van Der Zee, 1999b). Krauth (1999), Reo (1999) and Rosemann and Wiese (1999) have proposed more than four perspectives to evaluate the performance of ES/IT. Krauth (1999) discusses the connection between the European Foundation for Quality Management (EFQM) standard, ISO 9001 system and the Balanced Scorecard and shows the impact of using these three evaluation methods at the same time. Reo (1999) supports the integration of the EFQM model with the Balanced Scorecard and also mentions the importance of integrating Total Quality Management (TQM) principles. Rosemann and Wiese (1999) discuss the importance of adding the 'Project' perspective in the context of ES management. The Queensland Government utilizes the four original perspectives of the Balanced Scorecard: Financial, Customer, Learning & Innovation, Process. This approach is further described in detail under case study description.

Study	Context	Original Balanced Scorecard Perspectives				Other Perspectives suggested by the authors
		FI	CU	LE & IN	PR	
Beeckmann and Gemini, 1999	IT	**X**	**X**	**X**	**X**	▪ *N/A*
Brogli, 1999	IT / FI	N/A	**X**	**X**	**X**	▪ *BUSINESS CONTRIBUTION*
Bruggeman, 1999	IT	**X**	**X**	**X**	**X**	▪ *N/A*
Cartney, 2000	ES	**X**	**X**	N/A	N/A	▪ *OPERATIONS* ▪ *HUMAN RESOURCE*
Durrani et al., 2000	IT strategy	**X**	**X**	N/A	**X**	▪ *N/A*
Eicklemann, 1999	IT	**X**	**X**	**X**	**X**	▪ *N/A*
Greasley, 2000	Business process simulation	**X**	**X**	**X**	**X**	▪ *N/A*
Gordon et al., 1997	IT	**X**	**X**	**X**	**X**	▪ *N/A*
Krauth, 1999	IT	**X**	**X**	**X**	**X**	▪ *EFQM* ▪ *ISO 9001*
Martinson et al., 1999	IT	N/A	**X**	N/A	**X**	▪ *BUSINESS VALUE* ▪ *FUTURE READINESS*
Reo, 1999	IT	**X**	**X**	**X**	**X**	▪ *EFQM* ▪ *TQM*
Rosemann and Wiese, 1999	ES	**X**	**X**	**X**	**X**	▪ *PROJECT*
Thorp, 1999	IT	N/A	**X**	N/A	**X**	▪ *INFORMATION TECHNOLOGY* ▪ *ORGANISATION (STRUCTURE & CULTURE)* ▪ *BUSINESS STRATEGY*
Van Der Zee, 1999a	IT	**X**	**X**	**X**	**X**	▪ *N/A*
Van Listenburg, 1999	ES	**X**	**X**	**X**	**X**	▪ *N/A*
Van Der Zee, 1999b	IT	**X**	**X**	**X**	**X**	▪ *N/A*
Walton, 1999	IT	N/A	**X**	N/A	**X**	▪ *IT MISSION* ▪ *TECHNOLOGY* ▪ *PEOPLE/ORGANISATION*

FI: Financial, CU: Customer, LE & IN: Learning & Innovation, PR: Process

Table 1: Summary of *IT / ES* Balanced Scorecard perspectives

Balanced Scorecard: as a Public sector ES evaluation method

A fundamental feature of the Balanced Scorecard, is that it requires that each measure should relate to the corporate strategies and to each other in a cause and effect relationship. The individual measures at each instance would be unique depending on corporate goals and strategies (e.g. Barua et al., 1996; Kaplan and Norton, 1996; Lezta, 1996). Thus, identifying the corporate goals and strategies in relation to the core perspectives is a critical preliminary step in a Balanced Scorecard approach.

This study looks at developing a Balanced Scorecard for ES performance measurement, in the public sector. The proposed starting metrics are to be extracted from the mainstream ES management literature as well as from emerging literature on Information Economics, Government directives, and ES success studies (e.g. Ballantine et al., 1996; DeLone and McLean, 1992; Eicklemann, 1999; Saarinen, 1996).

The Balanced Scorecard is applied in Private and Public sectors from two different viewpoints. In the Private sector, the main emphasis is on financial indicators for managing the organisation. The Private sector responds to fluctuations in market share, share prices, dividend growth and other changes in the financial perspective. In the Public sector however, entities must respond mainly to legislative acts and are responsible to higher Government authorities. The most common difference between a Private sector Balanced Scorecard and a Public sector Balanced Scorecard lies in the purpose of utilizing the Balanced Scorecard. Public sector focuses on cost reduction and customer satisfaction, while Private sector is mainly focused on revenue generation and profitability.

CASE STUDY: QUEENSLAND GOVERNMENT BENEFIT REALISATION NETWORK

This section describes an initiative by the State Government of Queensland to realize the 'full potential' from their implemented ES – SAP. In late 2000, the Queensland Government, through the initiative of the Office of Financial Systems and Training (OFST), initiated a 'Benefit Realization Network', aimed at maximizing benefits

from the ES (SAP R/3) investment. The Queensland Government's Benefit Realisation Network (QGBRN) is a voluntary association of agency representatives, who seek to share SAP benefits realization experiences and 'learn from each other'. We were invited to participate in the QGBRN and have been providing advice and recommendations on data collection tools for sharing experiences (i.e. Case study protocol). The QGBRN has recognized the importance of the Balanced Scorecard and has integrated this into a framework for deriving increased benefits of ES. Following, the history of the Queensland Government's ES implementation and objectives of the ES initiative are described. A synopsis of the current ES Benefit realization situation is then provided. This section concludes with a discussion of the Queensland Government ES Balanced Scorecard (Queensland Treasury, 1998, 2000a, 2000b). During the last eight months, since our involvement with QGRBN, we have been documenting Balanced Scorecard experiences and efforts in Queensland Governmental agencies. One such example (in Departments of Primary Industries – DPI) is briefly discussed in this section.

Queensland Government – ES history

In 1983, the Queensland Government adopted the Management Services America (now Dunn and Bradstreet), financial modules. This was the first statewide deployment of a financial management system in Australia (QGFMS-Queensland Government Financial Management System). A decade later, QGFMS, initially broadly considered a success, was in the minds of many inadequate to support the Government's ambitious plans for the future. In 1994, Queensland Treasury sent a request for information (RFI) to key ES vendors of ES. In October 1994, offers were (RFO) sought from three short-listed ES vendors and in December 1994, Queensland Treasury selected SAP R/3.

The main SAP modules installed were Financial Accounting, Controlling, Materials Management and later in some agencies Human Resources. In 1995 the state government of Queensland commenced implementation of SAP Financials across all state Government agencies (later followed by Controlling, Material Management and Human Resources in some agencies). The Queensland Government approach was very much focused on using the Enterprise System as a common reporting and financial management tool (Queensland Treasury, 1998, 2000a). The objectives of the QGFMS are to provide a financial management system to Queensland Government agencies that will: (1) support the Managing for Outcomes (MFO) framework and financial management improvement activities, (2) encourage best practice resource management across Queensland Government, (3) facilitate the consolidation of Queensland Government financial information, (4) meet the business needs of agencies and (5) achieve economies of scale in main operations (Queensland Treasury, 1998, 2000a).

Queensland Government Benefit Realisation Approach

The exploitation of intangible assets has become a decisive aspect of information age organisations. The Balanced Scorecard approach to measuring intangible assets as well as tangible assets has undoubtedly helped managers to make strategic decisions. Further, the approach provides employees with the necessary information required to carry out their duties in support of the strategic decisions of a company. The Balanced Scorecard approach is particularly appropriate in situations where there are no suitable financial indicators to measure effectiveness: for example, in non-profit organisations and in the public sector. Unlike in Private sector, the objective of the public sector is not merely to make or save money, but to offer increased and improved services with resources available. The Queensland Government has chosen to utilize the Balanced Scorecard approach to evaluate the performance of their SAP Enterprise System and to guide its agencies to maximize benefits through strategic decisions. There are three main "tools" that the Queensland Government uses to maximize benefits and thus achieve business objectives: (1) a clear vision of the strategic management plan, (2) a Balanced Scorecard, and (3) a benefit realisation plan (Sedera et al. 2001, Queensland Treasury, 2000a).

Queensland Government Sample Balanced Scorecard

The Queensland Government's Balanced Scorecard approach is tightly integrated to the "Managing for Outcomes" (MFO) budgetary system. The expected benefits from the Queensland Government Balanced Scorecard are to: (1) understand the management approach in a holistic manner, (2) relate strategy to performance and action, (3) set performance targets, (4) focus, communicate and coordinate effort, (5) reduce / eliminate blind spots, and (6) Improve management and performance of the organisation. The proposed Balanced Scorecard will cover all quadrants (Financial, Customer, Internal Process and Learning and Innovation) and a wide spectrum of information needs. The smaller business units (i.e. organisational entities) need to link their Balanced Scorecards to the overall corporate Balanced Scorecard and lower level strategies should be aligned with the Queensland Government mission and vision (Queenalsnd Treasury, 2000a, 2000b). The Queensland government Benefits Realisation Plan consists of 6 main steps: (1) specifying the appropriate business drivers, (2) identifying key stakeholders, (3) determining the Balanced Scorecard perspectives, (4) identifying and applying method/s of measuring (or quantifying) the benefit, (5) identifying initiative to achieve the recognised benefit and (6) deploying a risk management strategy including potential risks, constraints and dependencies (Queensland Treasury, 2000a).

In recent years, the Queensland Government priorities, has increased pressure on agencies to see more holistic in their approaches to portfolio issues (Department of Primary Industries, 2000). For instance, it is no longer acceptable for one agency to concentrate solely on economic gain through industry, while another agency concentrate solely on environmental protection. All agencies have to acknowledge their links with other agencies to deliver the best service to the community.

Performance measurement in Department of Primary Industries (DPI) includes evaluation of the Department's outputs against statewide trends. This broad approach, based on the Balanced Scorecard, takes both internal and external perspectives of DPI into consideration in measuring performance (see figure 1). In this way, the department can link their actual performance with the expectations of stakeholders (Department of Primary Industries, 1999, 2000). Like in the standard Balanced Scorecard, DPI uses the same four perspectives to measure performance and seek improvements.

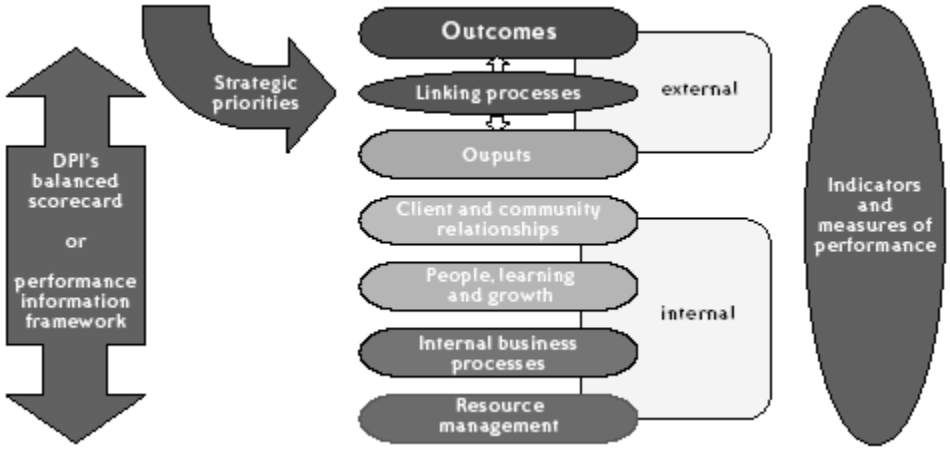

Figure 1: DPI's Performance management framework (adopted from Department of Primary Industries, 2000)

Table 2 briefly depicts the internal strategies and example measures of performance used in the Department of Primary Industries' Balanced Scorecard.

	Strategies	Methods of measuring performance
Client and community Relationships	▪ Regularly review DPI services in terms of satisfaction and relevance to clients and the community ▪ Broaden the interaction of managers and staff with clients and the community to cover all aspects of food and fiber chains ▪ Ensure region-specific requirements are a prime consideration in reviewing DPI client and community relationships and services ▪ Review the level of awareness of the DPI brand and the image of DPI within the community	▪ Client satisfaction surveys ▪ Awareness polls of Queensland community perceptions of DPI ▪ Staff awareness assessments ▪ Consumer research
People, learning and growth	▪ Develop organisational leadership skills ▪ Develop skills and effective knowledge management relevant to future needs ▪ Enhance the diversity and flexibility of our workforce ▪ Recognise and reward appropriate achievements and behaviours ▪ Support investment in innovative learning approaches ▪ Ensure staff are aware of and behave in accordance with the Code of Conduct	▪ Culture survey ▪ Workforce profile reports ▪ Training and development reports
Internal business Processes	▪ Continue to focus on improving overall performance management ▪ Implement rigorous and participative investment management processes ▪ Evaluate targeted areas of performance ▪ Use risk assessment to optimise business opportunities ▪ Develop and implement integrated systems support ▪ Enhance information flows and encourage knowledge sharing	▪ Audit of investment processes ▪ Internal and external compliance audits ▪ Performance evaluation ▪ Trend analysis
Resource Management	▪ Develop DPI's leadership role in financial management of resources ▪ Develop benchmarks for financial management ▪ Implement an internal hiring system for depreciable assets ▪ Link strategic planning with investment decisions and budgets	▪ Trend analysis ▪ Internal comparative analysis ▪ External comparative analysis ▪ Audit of processes ▪ Government Asset Management System

Table 2: Internal Strategies and Measuring Performance (Adopted from Department of Primary Industries, 2000)

CONCLUSION AND OUTLOOK

The goal of this paper was to propose the Balanced Scorecard as an appropriate approach for measuring the performance of ES employed in the public sector. It first introduced the design and objectives of the research, detailing results from past ES success and failure studies, and justifying the need for a balanced ES performance measurement. The Balanced Scorecard approach was then introduced, proposing its appropriateness for ES performance evaluation in both private and public sectors.

Finally, the Queensland Government Balance scorecard approach was discussed describing the overall goals and techniques of applying a balanced scorecard in the public sector.

A high-level case study of the overall QGBRN and an example of DPI's Balanced Scorecard with a comprehensive literature review has been completed to date. Further tasks planned include; a number of case studies of ES benefits realisation projects in Queensland Government agencies to evaluate the effectiveness of the Balanced Scorecard approach to measure Enterprise Systems performance. A pilot case study of the Queensland Police followed by a multiple case study of other agencies practicing the QGBRN guidelines, will be conducted, and the proposed Balanced Scorecard measurement instrument will be developed and justified using pattern analysis techniques (Yin, 1994).

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