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# A Balanced Approach to IT Project Management

SUSAN BROCK, DANYAL HENDRICKS, STEPHEN LINNELL AND DEREK SMITH

University of Cape Town, South Africa

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This research focuses on existing project management structured methods and practices for improving the design, implementation and success of projects, with a view to uncovering methodologies suited to address the particular needs and problems of IT project management. After identifying the Balanced Scorecard as a possible methodology, the research then develops a management model based on the Project Management Body of Knowledge. A web-based questionnaire, designed to measure the internal management of an IS project, was completed by IS project managers in the Western Cape. The results of this analysis highlighted a positive link between the degree of balance in project management based on the model and the overall level of success.

Categories and Subject Descriptors: K.6 MANAGEMENT OF COMPUTING AND INFORMATION SYSTEMS, K.6.1 Project and People Management, *Management techniques*

General Terms: Management, Performance

Additional Key Words and Phrases: I.S. Projects; Project Performance; Balanced Scorecard, Project Management

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## 1. INTRODUCTION

The operational context in contemporary organisations is progressively dominated by projects in order to complete tasks both in and outside of ordinary professional activities. As the beneficiation of data into valuable corporate information has become more viable through information technologies, the application of Information Technology based projects has risen too. Despite the perceived benefits that such operations promise, actual success rates have in general been poor although they are improving [The Standish Group, 1998].

To address the poor performance of organisational projects, much research and application has surrounded the development of IT project management methodologies and/or accepted frameworks of best practices. Due, however, to the pervasive impact of IT projects and the breadth of their resource-drain, many of these methodologies have remained too narrowly focused on only certain pertinent aspects of the IT project. [Morris, 2001]

As has been illustrated by the Norton and Kaplan “Balanced Scorecard” in the domain of conventional management, there is a need to investigate the value of broader focused and more encompassing IT project management methodologies – this given the context of high IT project failure based on conventional ‘time, scope and cost’ benchmarks.

## 2. OBJECTIVES OF THE STUDY

The primary objectives of this study were to identify the state of IT project management and methodologies, to test a new methodological approach within this domain and to draw recommendations regarding its application and potential value.

Although the research is positioned to have potential application within international project management discipline, its statistical analysis is constrained to a South African project management perspective. Within this field its propositions relating to a balanced approach are restricted to only consider the internal aspect of project management.

## 3. LITERATURE SURVEY

Measuring the success of IT projects is complicated by varying definitions of success. Simplistically, success can be measured in terms of adherence to deadlines, budgets and features or services delivered [The Standish Group, 1998]. An analysis of the Chaos reports from the Standish Group over the last few years (as shown in Figure 1) shows a steady improvement in project success based on the measures of “on budget, on cost, and to specification”. Failures have also reduced significantly considering the number of projects has almost doubled in the 8 years of research. However, almost half of the projects remain “challenged”. According to the Standish Group, this means that these projects are over budget, over time or under specification.

Author Addresses:

S. Brock, Department of Information Systems, Private Bag, University of Cape Town, Rondebosch, 7700, South Africa; susan.brock@bsg.co.za.

D. Hendricks, Department of Information Systems, Private Bag, University of Cape Town, Rondebosch, 7700, South Africa; danyal@graffiti.net

S. Linnell, Department of Information Systems, Private Bag, University of Cape Town, Rondebosch, 7700, South Africa; stephen.linnell@accenture.com.

DC. Smith, Department of Information Systems, Private Bag, University of Cape Town, Rondebosch, 7700, South Africa; dsmith@commerce.uct.ac.za

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	1994	1996	1998	2000	2002
<b>Succeeded</b>	16%	27%	26%	28%	34%
<b>Failed</b>	31%	40%	28%	23%	15%
<b>Challenged</b>	53%	33%	46%	49%	51%

Figure. 1. *Chaos Report findings (collated from Standish Group Reports)*

However the extent of these problems has also reduced dramatically. For example, the average cost overrun in 1994 was 189%, whereas in 2000 it was 45%; the time overrun in 1994 was 222% which reduced in 2000 to 63%.

In order to avoid the common pitfalls of low returns on large IT investments, the success of IT projects should also be measured in terms of their value to shareholders and contribution towards the enterprise's strategic goals [Shenhar et al. 1996]. Which criteria take precedence depends on the nature of the project and the policy or culture of the organisations involved.

A number of critical issues have commonly been identified as significant contributors to IT project failure, which suggest that the IT project performance problem should be addressed by better attention to implementation procedures and management of these projects.

The issues found by numerous studies [Allan 2002; Kolenso 2001; Yetton et al. 2000; The Standish Group 1998, The Standish Group 1996; DeMarco 1997] that increase the likelihood of failure in IT projects include:

1. Absence of a clear vision and statement of requirements
2. Unrealistic expectations due to estimating difficulties and organisational politics
3. Lack of project decomposition
4. Inadequate staffing policies and team conflict
5. Lack of stakeholder involvement and focus
6. Lack of strategic focus and executive management support

This research focuses on existing Project Management structured methods and practices for improving the design, implementation and success of projects, with a view to uncovering methodologies suited to address the particular needs and problems of IT project management.

### 3.1 Project Management Guidelines and Techniques

One such framework or methodology is the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK). The PMBoK seeks to define all the generally accepted areas of knowledge required by a project manager in an attempt to standardise and improve the project process. Other methodologies, such as the Centre for Research in the Management of Projects Body of Knowledge (CRMP BoK) expand on the traditional PMBOK areas to incorporate additional areas pertinent to project management knowledge – such as technology, design, people issues, environmental matters, finance, marketing, the business case, and general management [Morris 2001].

The CRMP BoK's expansion on the PMBoK's knowledge areas for project management highlights a need for project management guidelines to maintain a balanced and encompassing awareness perspective. A similar knowledge-expanding effort, yet in a different field of knowledge, was made by Kaplan and Norton in their development of the *Balanced Scorecard* methodology (originally a performance management system) to replace overemphasised use of financial indicators as measurement benchmarks with a more holistic organisational view [Kaplan and Norton 1992].

By considering both financial and non-financial measures when assessing the health of their organisations, the Balanced Scorecard gives managers a broader, more accurate and ultimately more balanced perspective. Although the Balanced Scorecard was initially proposed as a system for organisational *measurement*, it has evolved over time – through both design and application – into a mechanism for strategic *management*.

One of the benefits of the Balanced Scorecard lies in its inherent flexibility. In their book, Norton and Kaplan have presented different balanced scorecard frameworks for different types of enterprises such as governmental establishments, non-profit organisations and strategic business units found within a particular organisation [Kaplan and Norton 1996]. This adaptation of the framework is achieved primarily through the alteration of the four original Balanced Scorecard perspectives as illustrated in figure 2.

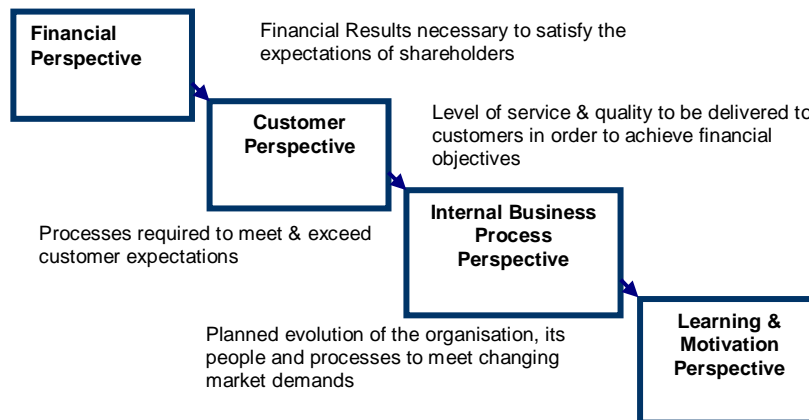


Figure. 2. *The Four Perspectives of the Balanced Scorecard*

This same customisation of the Balanced Scorecard can also be used when applying it to projects. The available literature on this application (which is scarce), suggests that in the application of the Balanced Scorecard to projects, a project can conceptually and simply be seen as a mini-company [Stewart, 2001; Martinsons et. al. 1999]. Thus it can be theorised that the project-based balanced scorecard can be used as both an indication of the performance of a project, as well as a complete project management methodology tool.

The flexibility behind the balanced scorecard also allows one to apply it specifically to Information Technology businesses and IT projects. To date however there has been little non-proprietary research into this application of the Balanced Scorecard. However, a number of IT-based Balanced Scorecard frameworks have been developed, all of which claim that using the scorecard within IT can promote internal alignment and eliminate projects that contribute little or no strategic value [CIO, 2002]. The frameworks have an intrinsic stakeholder focus – placing emphasis on learning and skills development and providing a tangible structure for general communication to all stakeholders.

Thus, at least in theory, the application of the Balanced Scorecard to the IT project has great potential to address critical issues in IT project management.

### 3.2 Inadequacies of the Balanced Scorecard for Project Management

The primary reason for the Balanced Scorecard's flexibility is that its theoretical constructs do not explicitly specify which areas or factors must be considered under each of its four high-level perspectives. This descriptive (and possibly prescriptive) void is also however considered by many to be one of the main reasons for high BSC implementation failure rates [Wagner, 2002]. BSC failure has been estimated at approximately 70% [Neely and Bourne, 2000].

Another inadequacy of the Balanced Scorecard in its application to projects is that in its present form it does not contain a sufficient theoretical knowledge base applicable to projects. Specifically the four Balanced Scorecard perspectives do not adequately reflect the relevant project management focus areas, areas that have been more suitably defined in the CRMP BoK and PMBoK.

## 4. BALANCED APPROACH TO IT PROJECT MANAGEMENT PROPOSAL

To overcome the limitations of the Balanced Scorecard mentioned above, whilst still attempting to improve the rate of IT project success through a balanced management emphasis, a new four-tier model has been developed in this study (see figure 3) that will be referred to as the 'Balanced Approach to IT Project Management'.

The proposed 'balanced' model consists of two primary divisions to project management, the *internal focus* and the *external focus*. The internal focus consists of all people processes and practices that reside within the domain of the project itself and are relevant during the lifecycle (*project processes*) of the project. The external focus consists of the influencing factors outside of the project itself, but within the domain of the organisation that initiated it. Within these two divisions are four further sub-divisions, namely the *project*, *strategic alignment* and *program management*, *project processes* and the *project foundation*. These will be considered in detail below.

### 4.1 The Project

The first tier within this model takes an introspective look at the internal factors influencing a project during its lifecycle. So as to ensure a broad and balanced coverage of majority of relevant internal influencing factors, the nine key areas of knowledge – as specified by the PMI's PMBoK were selected as a proxy for these perspectives.

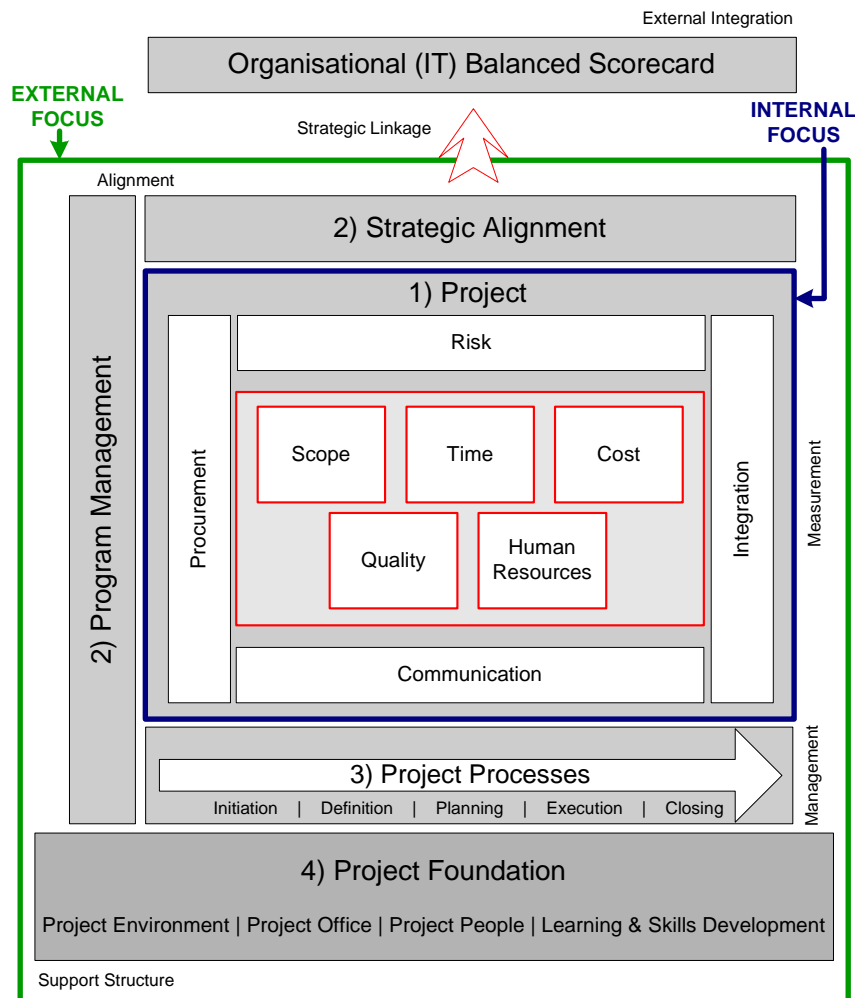


Figure. 3. The 'Balanced Approach to IT Project Management' Model

The selection of these nine knowledge areas has not however been an arbitrary one and is justified on three grounds. Firstly they were selected due to their rigorous supporting theoretical background (The PMBoK). Secondly parallels between these nine areas and the four perspectives of the Balanced Scorecard can be made and thus imply a form of balance. Finally each of these areas can in theory be seen to address the six impedes to IT project success as previously described (See Figure 4. for an indication of which of the nine areas address which IT project success impedances).

It should be noted that the nine knowledge areas defined within the PMBoK are there not to be applied uniformly across all projects, but rather to be used selectively in adding rigour to projects where relevant [PMBoK Guide, 2000: p3].

It is proposed under this approach that for IT projects to be considered *internally balanced*, the project manager will need to ensure that these nine areas (with the possible exception of 'Procurement' which is not applicable to all projects) receive proportionate consideration. These criteria focus primarily on attaining project success in terms of *cost, time and scope*.

#### 4.2 Strategic Alignment and Programme Management

The second tier within this proposed model attempts to ensure that the additional criteria to project success, namely its strategic context and stakeholder focus (as defined earlier in the study) are also addressed. This tier takes into account the external context in which a project operates (factors considered lacking in the nine knowledge areas of the PMBoK but included in the CRMP BoK and APM BoK).

It is further suggested under this proposed model, that for IT projects to be considered *externally balanced*, the selection of projects (*Program Management*) must be inline with the implementation of the firms' strategy (*Strategic Alignment*) and closely linked to the resultant stakeholders' requirements (*Program Management* and *Strategic Alignment*).

<b>Focus Areas for The Balanced Approach to Project Management</b>				
<b>Project Scope</b> 1, 2, 3, 5	<b>Project Cost</b> 1, 2, 3, 4, 5	<b>Project Communications</b> 3, 6	<b>Project Time</b> 1, 2, 3, 4, 5	<b>Project Quality</b> 1, 2, 3, 4, 5
<b>Strategic Alignment</b> 4, 6	<b>IT Project Success Impedances</b>			<b>Project Foundation</b> 4, 6
<b>Program Management</b> 3, 6	<ol style="list-style-type: none"> <li>1) Unrealistic Expectations</li> <li>2) Lack of Project Decomposition</li> <li>3) Lack of Stakeholder Involvement and Focus</li> <li>4) Inadequate Staffing Policies and Team Conflict</li> <li>5) Absence of a Clear Vision and Statement of Requirements</li> <li>6) Lack of Strategic Focus and Executive Management Support</li> </ol>			<b>Project Process</b> 1, 2, 5
<b>Project Procurement</b> 2, 5	<b>Project Human Resource</b> 4	<b>Project Risk</b> 1, 2	<b>Project Integration</b> 5, 6	

Figure. 4. Solution Linkages between 'IT Project Success Impedances' and Balanced Approach focus areas

### 4.3 Project Processes

This tier has been included to illustrate that the focus areas mentioned within the previous two tiers do occur within a project process continuum and thus the relevance or importance of each area may fluctuate over different phases of the project life cycle.

### 4.4 Project Foundation

This final tier has been included to illustrate that these previously mentioned balanced knowledge areas do not exist as contained entities and need to be supported by various foundations within the broader organisation. This includes for example the support of middle and upper management, stakeholder support, as well as the necessary skills and resources required to run the project.

## 5. RESEARCH DEFINITION

There is a trend in IT project management literature that speaks to an unsatisfactorily *low degree and rate of IT project success* experienced by IT project managers globally. Although this poses a problem for project managers, the poor performance of IT projects also necessitates further investigation into a better understanding of the project as a distinct entity.

The section of this paper entitled the "*Balanced approach to IT Project Management*", proposed a new model for IT project managers to consider. This model is presented as an aid to the better understanding of the project as an entity in order to provide better management and thus alleviate the likelihood of project failure. The purpose of this study's statistical analysis focused purely on addressing those proposed influences *internal* to the project (i.e. only the "Project" section of the proposed model) and the management thereof. Included is an assessment of whether these influences are relevant as criteria important for improving the level of IT project success.

Given this, an embracing and research defining query has been proposed, namely:

*Will a balanced approach to the internal management of IT projects lead to an improved degree and rate of project success?*

This question provides the high-level focus from which this study's specific objectives and testable hypotheses were derived (see box 1 for an explanation of the terms used in the research question).

As noted in the research question, the analysis considered only one dimension (those *internal*) of the total factors that influence IT project success. Since it is not only possible but also highly probable that factors external to the direct management of a project also contribute to its outcome, when interpreting the effect of these internal influences on a project, it is critical to note that they form only one potential grouping of influencing factors.

Within this internal focus of project management, a *balanced* project management approach requires only consideration of the nine PMBoK knowledge areas. It is possible however that these nine areas are not the only internal influences that a project manager should focus on and thus this model is limited by their potential exclusion.

*'Internal Management'* Generally this categorisation would refer to project influences that the project manager has direct control over prior and subsequent to project initiation. In the context of the proposed model under consideration, these influences are limited to the nine areas within the first tier called 'Project'.

*'Balanced Approach'* This refers to a focus of intensity and inclusiveness, during the project life cycle, on the combination of factors defined within the first tier of the proposed model called the 'Project'.

*'Project Success'* Success is defined here as a project being completed on-time, on-budget and on-scope. Additional project success criteria considered in the literature review, such as 'adding value to stakeholders' and 'being inextricably linked to the enterprise's strategic goals and visions' are generally more pertinent to initial project selection and not project management itself. These criteria are thus considered *external success factors* and have subsequently been removed from the definition due to the internal focus of this research question.

Box 1: *Research terms*

## 6. RESEARCH METHODOLOGY

The target profile of respondents for the research was identified as being IT project managers. Thus, a questionnaire was sent to numerous IT project managers currently working in industry in the Western Cape, a provincial area of South Africa. It should be noted that due to the nature of the research topic – one that is merely assessing the influence that various internal project management influences have on the project outcome – there is no reason to believe that the geographic location of the respondents would have had any impact on the results.

In order to explore the research question defined above, a survey instrument was designed to aid in the empirical testing of the balanced approach model. The questionnaire as a data collection means was chosen to facilitate an accurate yet impersonal means of data collection, as well as to aid in the exploratory nature of the research. It was decided against using any form of interview technique (personal, group or phone) or case study.

A web-based questionnaire was developed primarily because responses would then be subject to immediate validation, ensuring full integrity and completion of data. Other reasons for this option included the assurance of anonymity if desired by the project manager, the speed and extent of distribution and the minimisation of cost and time incurred as a result of data collection administration.

The questionnaire was first separated into three sections, and then further partitioned conceptually according to the nature and categorisation of the contained questions. Questions that required attitude-based comment were separated from those that required opinions based on actual events. Although this was an attempt to ensure objectivity of response, the cognitive nature of the questions could not entirely prevent the relativity of emphasis placed by respondents.

The first section of the questionnaire contained eight mandatory and one optional question. The purpose of this section was to assess the degree of emphasis given to the nine internal influencing factors as proposed in the 'Balanced Approach to Project Management Model'. The nine questions reflected the nine management areas of the PMBoK, and required the respondents to rate their focus on each of these areas for the project under consideration. The optional question related to the 'Procurement' area of the PMBoK.

The second section was designed to assess whether a project was completed, and if so how close it was to its initial goals in terms of the three components of success – namely *time*, *cost* and *scope*. In the case of projects that were prematurely cancelled, respondents were requested to give qualitative reasoning for this 'failure' so as to allow for the detection of any potential trends.

The third section contained questions based more on the individual project managers' attitudes regarding the nine internal influencing factors. Respondents were first required to supply an ordinal rank to each of the nine factors in terms of their perception of its importance in ensuring a 'successful' project. They were then required to provide a cardinal rating to these factors, but this time in terms of effort required during a project.

The total response rate after the closure of the data collection stage amounted to 28.8%, and a sample size of 41 respondents. Before the analysis process commenced the collected data was validated for any irregularities that would cause bias in the sample. A total of 5 responses were considered incorrectly completed and removed from the sample.

As previously noted, the primary data for analysis was collected over three separate sections within the questionnaire. The first two sections, which focused on project management activities and project success over two projects was, for the purpose of analysis, partitioned into two separate samples of 36 projects each (72 projects in total), with each sample containing data relevant to one specific project. The third section, however, which was not project specific, remained in its original sample structure, with one data entry per project manager.

### 6.1 Project Balance Determination

As previously indicated in the “Research Definition” section, the definition of a balanced approach to project management includes a combination of both the *intensity* as well as the *inclusiveness* of the now eight management areas.

One option for obtaining this measure from the collected data would be to simply sum all the ‘usage ratings’ over the management areas for each project. This method was however disregarded since the sum of these values would disguise a balanced inclusiveness, where one high value compensated for one low value in the same project.

Instead it was decided that the most appropriate measure of ‘balance’ would be a combination of the mean (which indicates the intensity of the management) and the standard deviation (which through noting a variance from the mean indicates the inclusiveness of the management) across all management areas of a particular project. This would be calculated by subtracting the variance from the mean.

### 6.2 Project Success Rating

In the context of this research, the definition of a *successful project* relates to its completion relative to its expected *budget*, *completion time* and *scope* (specification).

An attempt was made to derive a single unique value from the three separate measures that indicated a total (corporate) level of success. A number of different methods were tested in this respect, but it was found that all of them were to some degree flawed, and thus, since an overall total measure of success was difficult to obtain, all statistical analyses performed included both individual and corporate project success rating tests.

One method tried, was a simple aggregation of the three separate measures and thus a higher aggregate number would imply a higher degree of project success. The optimum success level here would thus be 100% below budget, 100% under time and 100% over specification. This method was however limiting in that a high value in one of the dimensions would compensate for a low value in another dimension and would thus result in an equal rating for two very differently performing projects.

Another method tried, considered any deviation from the project performing exactly on-time, on-budget and on-specification as a deviation from total success and thus not optimal. Here the three (absolute values of) deviations for each dimension were summed to obtain an overall deviation from what was planned at the outset of the project. This method would thus consider a project that completed under budget as less successful than one completed exactly on-budget. The rationale behind this being that, for a project manager to bring a project in under budget for, it is likely to mean that the project was not budgeted for correctly, and thus the money could have been budgeted more usefully elsewhere. Similarly a project that was completed over budget would be considered in the same light.

It was decided by the authors that this second method provided the ‘best fit’ in terms of evaluating project success. The main merit of this measure is that it represents ‘balanced’ success, i.e. a good balance between budget, time and specification. Its primary limitation however is that many project stakeholders (for example the system user) would prefer a project that added more value than was initially specified and thus although the most appropriate measure of total success in this context, it will not necessarily apply in all situations.

## 7. ANALYSIS OF RESULTS

The results of the analysis were split into various hypotheses, of which each was tested using different statistical tests. A description of the tests as well as the results is provided below.

The first test aimed to assess whether a balanced perspective of project management improves the likelihood of success (in terms of intensity of focus and general inclusiveness, i.e. focussing on all of the relevant individual project management areas and also ensuring that each one is of a high level of individual focus).

The testing of this hypothesis involved the calculation of both the degree of project balance and various measures of success. These two measures were then correlated with each other in order to determine whether a significant relationship existed. This was done for the overall measure of success, as well as each individual measure of success.

The correlations found (-0.45 in sample 1 and -0.37 in sample 2) between project balance and corporate success (all three criteria combined) clearly indicates that a certain degree of success is due, in part to the degree of balance project managers utilise in managing their projects. The negative relationship shown further indicates that the greater the projects’ balance the lower its deviation from overall success. Thus it would appear that project managers, in order to achieve a higher total level of success should employ some degree of internal balance when managing projects.

The low correlations found between project balance and the individual types of success indicates that although a balanced approach to project management might increase the degree of corporate success, it is unlikely to influence the success of any one individual success criteria (time, cost or scope). As a result, should a project manager wish to succeed most importantly in, for example, budget attainment, then it would be more beneficial to focus on a smaller sub-set of these management areas that is more aligned to this end. This notion could indicate support for existing project management literature that considers project success as a combination of three forces (time, cost or quality) that act against each other. For example a decrease in the time taken to complete a project might produce an increase in the cost of the project due to increased use of resources.



Another test was conducted to examine whether the actual emphasis given to the various project management perspectives by IT project managers during the life of a project relates closely to the perceived importance they give to these areas. This will try to establish whether project managers are in any way constrained from managing projects as they would like to if they were unrestricted by any external factors.

For this analysis, manager's perceptions were compared with the degree of actual attention given to the management areas of their projects for Sample 1 and 2.

The results indicated that there was no significant difference between project manager's perceptions and how they managed their projects. This result could imply one of two conclusions. Firstly that project managers are not constrained in their project management activities by factors such as corporate culture and protocol. This might mean that the organisations within this sample do not enforce a specific project management methodology upon their employees. Secondly, it might simply imply that project managers' perceptions are very closely aligned (and possibly formed) by strict methodologies within the organisation. A correct assessment of the true prevailing conclusion here can only be based on further research into this field and not be inferred by the analysis presented here.

The final test aimed to examine whether a divergence between perceived and actual emphasis given to the various project management perspectives by IT project managers impacts on the degree of project success attained.

The analysis approach taken here was to compare the mean differentials between project managers' perceptions and their actions, to the various measures of project success. Spearman's rank order correlation was used to compare the mean of the project managers' perceptions against that of their actions. This test yielded no significant correlations at the 5% level.

Although this conclusion could be limited by the relatively small sample considered, the implications of this result could be that the dictatorial organisational requirement that projects conform to a particular project methodology will not cause any employee problems that adversely affect project success – other than those created by the characteristics of the methodology itself.

#### Box 2. *Non-core results from the research*

The assessed low coefficients of determination might indicate that external influences (outside of the internal project management criteria under consideration in this report) play a significant role in project success determination.

The second test aimed to identify which individual project management perspectives correlated most closely with project success.

Although the proposed model initially advises an encompassing (balanced) use of the project management perspectives, the objective of this test was to establish whether there are certain factors among these perspectives that have a greater influence on project success than others.

The statistical technique of forward stepwise regression analysis was used in this case to test the relationship between the project management areas and project success, both corporate (total) and individual (i.e. budget, time and scope), using a P-to-enter of 0.1 and P-to-leave of 0.2.

Although it was expected that certain project management areas would *clearly* be linked with certain areas of project success, results from the above-mentioned tests proved *inconclusive*. Although there were significant relationships found, the relationships and their nature differed widely across the two samples. This discrepancy again reinforces the notion that projects are unique and vary widely in implementation and nature.

Based however, on the individual significant relationships found in the tests, the following tentative conjectures can be made:

- *Scope, Time* and *Quality* management areas were found to have contributed significantly to the *overall* measure of success and this possibly further supports traditional project management theory that considers these three factors as the primary variables that compete against each other in a project's determination of final success.
- *Cost, Quality* and *Human Resource Management* were all found to be significant variables in determining the adherence of a project to its *budget*. Part of this can possibly be justified by the notion that better attention to quality at the beginning of a project, reduces later time and cost spent on maintenance, rework and support.
- *Scope, Quality* and *Cost* management were all found to contribute significantly to determining a project's adherence to *time* delivery. *Scope* could be seen as a significant factor in affecting the ability of the project to deliver on time. *Scope creep* is found as a common reason for projects that deliver late, and better management of this area could conceivably lead to reductions in time-to-completion. *Quality* plays a role in affecting on-time delivery since the pursuit of an improved quality product will in theory take more resources, one of which could be time.
- *Time* and *Cost* management were all found to contribute significantly to determining a project's adherence to *scope* delivery. *Time* and *Cost* management could conceivably lead to a project completion on-scope, this due to the extra cost associated with producing more features in a project.

See Box 2 for information relating, but not core to the outcome of, this research.

## 8. CONCLUSIONS

This report has, through its review of existing literature, drawn attention to not only the progressive trend within organisations to rely on IT projects for gaining competitive advantage, but also the disappointing levels of success that these projects have actually attained.

It has been further illustrated that many attempts to improve project success have been made frequently through the development of various project management methodologies. Despite these attempts, IT project success has continued to perform poorly and this has resulted in a perception that project management literature frequently remains too narrow in focus. To assess the validity of this perception the report considered a number of broader focussed methodologies, namely the CRMP BoK and the Balanced Scorecard.

Although these methodologies conceptually were an improvement of existing narrow-focussed methodologies, they were all limited to some degree in their applicability to IT projects. To compensate for these limitations, a new methodology, the Balanced Approach to Project Management, was proposed and was used as a means for testing the research question that queried whether a balanced approach to the internal (one domain of the proposed model) management of IT projects would in fact lead to greater project success.

With the research question under consideration, the internal perspective of the model was empirically tested. The results of this analysis highlighted a positive link between the degree of balance in project management and the overall level of success. This implies that in order to obtain a corporate level of success (a combination of time, budget and scope) a project manager would need to pay adequate attention to the broad (balanced) areas of management perspective as prescribed by the balanced model.

It must be noted, however, that in certain cases this corporate level of success is not the primary goal of a project and as can be deduced from the outcome of the first test, there are occasions when one particular success criterion is favoured. In this case 'balanced management' cannot guarantee this specific level of success.

When applying a balanced approach, it is not however automatically the case that the nine project management areas prescribed within the balanced model will cover all the necessary perspectives for successful internal balanced management. Moreover, there is no indication that they are all necessary for every IT project. For example, while procurement may not play a significant role in some projects (perhaps systems development projects), it is crucial to other projects involving the purchase of large amounts of hardware and software. The selection of areas to use as a basis for determining balance should depend on the priorities and success criteria of that project.

## 9. THE USE OF KEY INDICATORS WITHIN THE BALANCED FRAMEWORK

The guiding framework should be used by managers to identify the key areas that are pertinent to the success of the project at its initiation phase. These areas should be used to manage a project, along with performance measures to evaluate and control the performance of the project during its life-cycle. This concept is similar to that presented by Balanced Scorecard theory, in that a number of 'perspectives' – or in this case 'management areas', are used to guide the development of goals and identification of key indicators. Specific selection of key areas should be used due to the varied nature of each project, in order to ensure that different projects receive a different focus based on the requirements they need to fulfil.

## 10. REFERENCES

- ALLAN, G. 2002. *Project Management Methodologies*. <http://www.tech.port.ac.uk/staffweb/allang/pm-mthds.htm>.
- CIO. 2002. *How to use the Balanced Scorecard*. [http://www.cio.com/archive/051502/scorecard\\_content.html?printversion=yes](http://www.cio.com/archive/051502/scorecard_content.html?printversion=yes).
- DEMARCO, T. 1997. *The Deadline*. Dorset House Publishing, New York.
- GOLD, R. 1999. *The Balanced Scorecard and IT Management*. [http://www.compassamerica.com/white\\_papers/balanced-scorecard.pdf](http://www.compassamerica.com/white_papers/balanced-scorecard.pdf).
- KAPLAN, R. AND NORTON, P. 1996. *The Balanced Scorecard*. Harvard Business School Press, Boston, Massachusetts
- KAPLAN, R; NORTON, P. 1992. The Balanced Scorecard – Measures that Drive Performance. *Harvard Business Review January-February 1992*, 64-72.
- KOLENSO, K. 2001. *Do The Right Projects, the Right Way*. [http://www.aisc.com/us/lang\\_en/library/white\\_papers/Right\\_Projects\\_Right\\_Way.pdf](http://www.aisc.com/us/lang_en/library/white_papers/Right_Projects_Right_Way.pdf).
- MARTINSONS, M., DAVIDSON, R., AND TSE, D. 1999. The Balanced Scorecard: A Foundation for the Strategic Management of Information Systems. *Decision Support Systems* 25, 71-88.
- MORRIS, P. 2001. Researching the Unanswered Questions of Project Management. *Proceedings of the PMI Research Conference*. Paris, 2000
- NEELY, A, AND BOURNE, M. 2000. Why Measurement Initiatives Fail. *Measuring Business Excellence Vol. 4 No. 4*, 3-6.
- PMI STANDARDS COMMITTEE. 2000. *A guide to the project management body of knowledge*. Project Management Institute, Newton Square, Pennsylvania.
- SHENHAR, A, RENIER, J AND WIDEMAN, R. 1996. *Improving PM: Linking Success Criteria to Project Type*. <http://www.maxwideman.com/papers/improvingpm/intro.htm>.
- STEWART, W. 2001. Balanced Scorecard for Projects. *Project Management Journal Vol. 32 No. 1*, 38-53.
- THE STANDISH GROUP. 1996. *Unfinished Voyages*. [http://www.standishgroup.com/sample\\_research/unfinished\\_voyages\\_1.php](http://www.standishgroup.com/sample_research/unfinished_voyages_1.php)
- THE STANDISH GROUP. 1998. *Chaos: A recipe for success*. [http://www.standishgroup.com/sample\\_research/PDFpages/chaos1998.pdf](http://www.standishgroup.com/sample_research/PDFpages/chaos1998.pdf).
- WAGNER, C. 2002. What's Wrong with the Balanced Scorecard? *Considerations for the Design of an Improved Enterprise Performance Management System*. University of Hong Kong, Department of Information Systems, UHK.
- YETTON, P., MARTIN, A., SHARMA, R., AND JOHNSTON, K. 2000. A Model of Information Systems Project Performance. *Information Systems Journal* 10. 263-289.