WORK THAT RELATIONSHIP:
INVESTIGATING TOP MANAGEMENT SUPPORT VIA TOP AND PROJECT MANAGER RELATIONSHIPS IN SOFTWARE DEVELOPMENT PROJECTS

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INVESTIGATING TOP MANAGEMENT SUPPORT VIA THE TOP AND PROJECT MANAGER RELATIONSHIP IN SOFTWARE DEVELOPMENT PROJECTS

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Abstract

High rates of failure are reported for software development projects and top management support has been identified as a critical factor in avoiding such failure and achieving project success. However, there has been little in-depth examination of what exactly is meant by “top management support” and how it can be realized. This study investigates top management support in the context of the relationship between a project manager and his/her immediate senior (top) manager. Prior literature was used to develop a framework that characterizes the relationship between project and top management. The framework was tested and refined using the data gathered in an exploratory study involving interviews with project managers and their top managers in five organizations. The framework shows promise for deeper understanding of top management support in the context of top and project manager relationship. The ten important attributes of the relationship identified in the framework are communication, documentation, leadership, decision making, governance structures, governance processes, resourcing, education, managerial engagement and time management.

Keywords: project success, top manager, project manager, critical success factors, top management support, software development, governance, management unconsciousness
1 INTRODUCTION

Software projects are known to be high risk and the probability of unfavourable project outcome is high. Industry and academia are acutely aware of the issue, and considerable time, effort and resources continue to be devoted to promoting project success. Research into the causes of project success has led to the identification of what is referred to in the literature as Critical Success Factors (CSFs). Researchers have looked at many types of projects and identified the CSFs needed for success with different project types. However, despite the fact that many CSFs can be enabled in projects, they still do not seem to bring about the promised success rate. As a result, projects continue to fail at an unacceptably high rate (Reel, 1999; PMBOK, 2004; Meredith & Mantel, 2006; Schwalbe, 2006). Thus it is apparent that continuing work on the nature of CSFs is of value.

One of the main CSFs that have been associated with project success is Top Management Support (TMS) (Young & Jordan, 2008). However, the enabling conditions for TMS are not well known and as our ensuing discussion reveals, the construct is often defined in different ways. Taking into account the importance of TMS and the ambiguities that surround it, we are keen to pursue research in this area. This study advances on prior literature by examining TMS in the context of the relationship between project managers (PMs) and their immediate senior managers. The immediate senior managers represent top management (TM) for the purposes of this study. When the relationship between a PM and TM is not working well, major breakdowns in communication may ensue, leading to problems with ongoing project development. In the worst case scenario the relationship between the top manager and the project manager becomes dysfunctional, with poor communication, lack of mutual respect and lack of understanding resulting in unsuccessful project outcomes. When the relationship is working well, project managers are given support and encouragement by top management, at the same time taking care not to interfere.

Industry has not yet learnt how to optimize the TM-PM relationship. If it had, we believe we would have seen evidence of better levels of TMS for projects and, in turn, enhanced project success. It is of interest to further our understanding of why TMS is not rendered as expected in some projects. The question of interest to this study is what enables TMS from the perspective of the TM-PM relationship. For example, is lack of TMS attributable to insufficient interest in the project by top management, or, a communication issue where, for instance, project managers do not ask for help when it is needed. We believe it is timely to investigate the relationship between the top manager and the project manager to gain better insight into the answers to these questions.

This study develops a preliminary framework of the key attributes of the TM and PM relationship drawing on existing literature. The framework allows the attributes of the TM-PM relationship and TMS to be investigated as part of an on-going research program, and was tested in a small exploratory study. The study involved interviewing five project managers and their top managers in five separate organisations, using a semi-structured interview approach.

The remainder of this paper is organized as follows. First, the related theoretical background is reviewed and the initial TM-PM relationship framework developed. Then we present the methodology, followed by the findings from the interviews conducted in the case study organizations. The discussion, limitations and conclusions follow.

2 THEORETICAL BACKGROUND

2.1 Background (software projects, project success and CSFs)

Concern regarding the level of success for software development projects is evident (Rockart & Crescenzi, 1984; Hartman & Ashrafi, 2002; Thomas et al., 2002; Young & Jordan, 2008). Software
development projects involve volatile requirements, managing professionals and working across domains using multiple technological platforms. There are multiple stakeholders to manage and large amounts of money at stake. As a result of this complexity, software projects are plagued with multiple risks concerning time, cost, scope and many others (Reel, 1999; Nah, Lau & Kuang, 2001; Meredith & Mantel, 2006; Schwalbe, 2006; Scott et al., 2006; Kearns, 2007).

The success criteria for the various stakeholders involved in a project may be different, and, for that reason, project success is a multi-faceted issue (Shenhar, Dvir & Levy, 1997; Lim & Mohamed, 1999). It is interesting to note that certain projects do not meet some of the predetermined constraints such as time, cost or scope, yet they are deemed to be successful solely on the basis that the client is happy with the project’s product. Previous studies describe project success as multi-dimensional. For example, Shenhar, Dvir and Levy (1997) maintain that project success can be measured in terms of how well the following project outcomes are met: internal project efficiency, impact on the customer, business and direct success and preparing for the future. An alternative view of project success is that it is two dimensional, i.e. micro and macro (Lim & Mohamed, 1999; Agarwal & Rathod, 2006). At the macro level organizations look at project completion and customer satisfaction. At the micro level only project completion is deemed important.

There are various factors that are believed to be critical to project success (Keil & Robey, 1999; Reel, 1999; Nah, Lau & Kuang, 2001; Hartman & Ashrafli, 2002; Kearns, 2006, Kearns, 2007; Young & Jordan, 2008; Zwilkael, 2008). Some of the factors mentioned are TMS, user involvement and project manager expertise. Many prior studies portray the CSFs as deriving from a practitioner’s perspective. The Standish group (1995), for example, published the top ten CSFs after conducting a series of studies in practice. However, there is also evidence that the CSF concept is a valid academic concept (Butler & Fitzgerald, 2000). TMS is one significant critical success factor (Krumwiede & Lavelle, 1998; Butler & Fitzgerald, 2000; Nah, Lau & Kuang, 2001; Avison, Gregor & Wilson, 2006; Zwilkael, 2008a-b; Zwilkael, Levin & Rad, 2008). This study focuses on developing our understanding of this important factor.

2.2 TMS and the relationship between top managers and project managers: Theoretical perspectives

Consensus on the definition of TMS is still lacking (McLagan, 1998; Loonam & McDonagh, 2005). Some authors define it as devoting time in proportion with cost and potential benefits (Young & Jordan, 2008). Others however, define it as the degree to which top management understands the importance of the project function (Ragu-Nathan et al., 2004).

Prior studies indicate that understanding of TMS is rooted in strategic information systems management (Kearns, 2007; Cicm & Hodgson, 2006). Researchers consider that TMS should be streamlined and should be embedded in the project environment, not simply being made available on the sidelines (Rockart & Crescenzi, 1984). Many studies believe that top management support is vital and will most certainly increase the probability of software development project success (Young & Jordan, 2008; Zwilkael, 2008a-b). Previous studies have suggested critical success processes in TMS (Zwikael, 2008a-b) and a TMS maturity model using these critical success processes (Zwikael, Levin & Rad, 2008). Prior studies also suggest that TMS leads to better time-based performance, design quality, product success and financial performance (Swink, 2000).

Although studies have prescribed TMS as essential, these prescriptions fall short of providing guidance for its achievement (Young & Jordan, 2008). What is needed is a level of involvement that not only changes a manager’s perceptions, but could also change their behaviour towards the project (Collier, Fishwick & Floyd, 2004). However, at the same time, top managers should be mindful in delivering their support and involvement as they should not overstep and try to implement their own agendas which may be distressing to the project and the project manager (Swink, 2000).
Our reading of the prior literature suggests that TMS should be viewed from a relational perspective as many of the studies reviewed hint that TMS is a phenomena arising from the relationship between TM and PM (Correll, 1994; Armstrong & Sambamurthy, 1999; Atkinson & Butcher, 2003). This relationship, however, is seen as complex and multi-dimensional. Project managers may require top management support for direction, decisions on project escalation or de-escalation during the life of the project (Krumwiede & Lavelle, 1998; Keil & Robey, 1999; Nah, Lau & Kuang, 2001; Loonam &McDonagh, 2005; Young & Jordan, 2008; Zwikael, 2008a-b; Zwikael, Levin & Rad, 2008). TMS may be lacking for a number of reasons, a project is part of an organization (Turner & Muller, 2003) and there is much interaction between the organization and the project. However senior (top) management may fail to see project management’s connection with the goals of the organization (Swink, 2000) and as a result not provide the necessary support. The lack of senior managerial insight in that respect has been referred to in past studies as managerial unconsciousness, inattention and deficit and has been associated with some notable project failures (Huff, Maher & Munro, 2004; Huff, Maher & Munro, 2005; Avison, Gregor & Wilson, 2006).

The foregoing discussion leads us to a closer examination of TMS from a relational perspective.

2.3 An initial framework for examining TMS

We seek to further understand TMS in the context of the TM-PM relationship. Drawing on prior literature we developed an initial framework showing nine important attributes in the TM-PM relationship that may be important for ensuring TMS. Table 1 shows these attributes and their respective descriptions. The attributes and the descriptions were identified by repeated passes through the literature and consensus discussion amongst the research team.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
<th>Study</th>
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<tr>
<td>1. Communication</td>
<td>‘Good’ communication with rich content and taking effect at defined or required frequencies. Effective two-way communication pre-defined or instigated by either party when necessary.</td>
<td>D’Aveni, &amp; MacMilan, (1990); Correll, (1994); Thomas et al., (2002); Avison, Gregor, &amp; Wilson, (2006); Zwikael, Levin, &amp; Rad, (2008)</td>
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<tr>
<td>2. Documentation</td>
<td>Exchanging important project documents (specifications, letters, and memos) for current and for archiving purposes.</td>
<td>PMBOK, (2004); Capability maturity model integrated (CMMI); International Standards organization (ISO); Correll, (1994); Kearns, (2006); D’Aveni, &amp; MacMilan, (1990)</td>
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<tr>
<td>4. Decision Making</td>
<td>Being decisive (escalation/de-escalation, product design) in</td>
<td>Viswesvaran, Deshpande, &amp; Joseph, (1998);</td>
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</tbody>
</table>
Table 1: A Top Manager-Project Manager Relational Framework for TMS

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<tr>
<th>5. Governance Structures</th>
<th>Having formal oversight mechanisms for governing projects (project management office, models, and standards, risk management, authority).</th>
<th>Mintzberg, (1994); Huff, Maher, &amp; Munro, (2004); Crawford, (2005); Avison, Gregor, &amp; Wilson, (2006)</th>
</tr>
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<tr>
<td>6. Governance Processes</td>
<td>Executing tasks according to an implemented governance structure (strategic planning, cost benefit analysis, reviews, and evaluations, including risk management).</td>
<td>Correll, (1994); Collier, Fishwick, &amp; Floyd, (2004); Ragu-Nathan et al., (2004); Huff, Maher, &amp; Munro, (2005); Kearns, (2006); Kearns, (2007); Control Objectives for Information and related Technology (COBIT); Information Technology Infrastructure Library (ITIL)</td>
</tr>
<tr>
<td>7. Timely Resources</td>
<td>Supplying and applying resources (expertise, finance, infrastructure) on time.</td>
<td>Keil, &amp; Robey, (1999); Keil, Mann, &amp; Rai, (2000); Zwilkael, (2008a-b)</td>
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3 METHODOLOGY

This paper is the first stage of a larger research project. In subsequent work we will investigate the relative importance of the TM-PM relationship attributes and TMS in different project management processes and how they contribute to project success as a whole.

The methodology we employed in this study involved the following three steps:

1. First we developed the initial framework from prior literature (Table 1).
   We used the open coding method to identify probable perspectives with team discussion to resolve differing views and reach consensus (Neumann, 2000).

2. Next we investigated the applicability of the framework through an exploratory study that involved data gathering in five case study organizations. Five software development organizations were
selected, all of them from the software development industry in Sri Lanka. The size of the organizations ranged from small (50 employees) to large (over 4,500 employees). The sample was chosen so that it would provide a range of organizational sizes. Table 2 provides a brief description of the organizations. In each case we were able to interview the project manager and the relevant top manager. Our definition of a top manager in this context is the person to whom the project manager reports directly. Semi-structured interviews with the project managers and their immediate top managers were conducted. Indicative questions were as follows: how often do you communicate, do you think that your communication is understood well by the other party, do things happen according to your communication, how would you describe your relationship with the other party, what factors would you like to improve in your relationship, and what sort of support do you need from the other party. The time taken in the interviews ranged from fifty minutes to an hour and ten minutes. A total of 10 interviews were conducted. Participants were encouraged to freely convey their views. The interviews were transcribed before analysis.

3. The data collected was then analysed against the attributes of our original framework.

4 FINDINGS

Both management levels willingly expressed their expectations and views of the other party. We observed that certain perceptions were common across all five cases. In particular, all thought that communication, documentation and resource provision were of high importance for effective functioning on the project front. Another observation was that the need for some attributes may vary with the stage of the project while others will be constantly needed. Some of the organizations that were moving into newer organisational standards and models (Cases 1 and 5) had the impression that the organizational model or standards should take care of their software development project relationships once the model was in full use. However, although Cases 2 and 4 had stringent methods installed already (CMMI Level 4); they still seemed to struggle with the TM-PM relationship.

The responses were mapped to the TMS framework shown in Table 1. The analysis showed that all the nine attributes from the initial framework were evident as themes in the data. Further, a tenth attribute “time management” that was not present in our initial framework ‘arose from the field’ and was recognized as being an important tenth attribute. Discussion of the nature of each attribute as observed in the case study organizations follows, with quotations from the participants’ responses shown in italics.

1. Communication

This was the attribute most frequently referred to by both project managers and top managers. All parties expected the other party to be an effective communicator and this was universal across all five cases. TMs and PMs in all of the five cases maintained that effective communication was of utmost importance. All preferred face-to-face communication when ever possible. The TM of Case 5 said I am updated weekly or when necessary, we also have a meeting with our US office weekly to make sure that they are in sync with us, daily scrum meetings are conducted for team updates. The TM of Case 1 said that communication is very important, they (PMs) have to do so before any problems blow out of proportion.

TMs in Cases 1, 3 and 5, believed that communication is inherently problematic with technical project managers because of their technical backgrounds. They saw communication skills as a strength to be cultivated, which could also be used in dealing with customers and in motivating the team. According to one project manager (Case 4), it would have been easier to work with better knowledge and information than what was specified. He said this would have prevented ambiguity of tasks and would have helped promote the success of the project.
Table 2: Case study organizations

2. Documentation

TMs and PMs of all five organizations considered documentation as highly important. The TM of Case 5 stated that documentation is of high importance and she said she was hopeful that when the organisation achieves CMMI Level 3 in April 2009, this would close existing gaps. She said, we found gaps in the documentation structure, which we have since filled, because of this our monitoring arm was weak. Now when moving in to CMMI level3 there are many matrices that we have to adhere to. Although we were able to hit the timelines of projects, we lacked this part.

3. Leadership

Leadership was expected on both sides. The TM of Case 1 said, I have given them a lot of freedom, I don’t go and interfere, and they come to me only if they have to. As long as they can successfully complete there projects, they are free to make decisions. According to the PM from Case 1, he (the TM) should follow the middle path; provide supervision but not too hard or too soft. He went on to explain that he did not appreciate undue pressure, yet needed some sort of deadlines to effectively execute work. Overall, the qualities the project managers sought from the top manager included supervision when needed, being approachable (Cases 1-5) and being easy to work with (Case 5).

4. Decision making

It was interesting to find that both TMs and PMs thought that the other party has to be decisive. TM of Case 1 said, if decisions can’t be made they (the PM) have to make the decision to escalate. The TM of Case 3 said, ‘he (meaning the PM) was a new recruit when that project (the project referred to) was live, so he needed a lot of support when decisions had to be made. PM of Case 4 said that he
requested to retain a key employee in the project, but the TM was indecisive and therefore project time was lost. He went onto say that TMs should make timely decisions.

5. **Formal governance structures**

Project managers saw implementing governance structures as the responsibility of the TM. Having popular or standard methods have helped project managers to successfully conduct project activities. As one project manager (Case 2) put it, *when the customer realizes that we work with proven methods, they just fall in line*. One major aspect of these methods (Case 2, 4 and 5) is to ensure client participation which is considered vital for project success and product acceptance. Further the PM of Case 5 said, *it is good to have a proper organizational structure, so when it comes to a project, the resources and etcetera can be shared well. We also have visibility to the hierarchy.*

6. **Governance processes**

Top managers were serious about project managers following the prescribed processes. The TM of Case 5 said, *according to our process we should not do any allocations which have not been approved, time to time there are little flips, where overruns are done without informing, these are mundane things still…. Process is now streamlined so we can catch these faster and correct it*. TM of Case 1 also says, *if they (the PMs) have to make changes to the project plan, they have to do it according to the process.*

7. **Timely resources**

All project managers from across the five case organizations saw it as very important that the TM supplied the required quantity and quality of skilled personnel when necessary. One project manager (Case 1) said that it was helpful that the TM was able to get experts from different departments when they faced unforeseen technical issues. He said *all in all we were able to get help from others when we needed it and that led to success*. TMs on the other hand stressed the fact that resources will be pulled out when the allotted time is over. TM of Case 5 said, *we do not have any bench time for resources; the project managers should be aware of any overruns and request resources when necessary*. TM of Case 4 also had the same opinion.

8. **Education**

One TM (Case 5) stated how important it was that the project managers knew what they were up against. *We want our guys to understand the bricks and mortar of software before they become managers; they have to relate to what the technical guys are doing.* The TMs of Cases 1, 3 and 4 stated that they encourage training (company funded or otherwise) and would prefer their project managers to be certified.

9. **Managerial engagement**

PMs maintained that when the TM was interested in engaging in the project, there was a greater likelihood of project success (Cases 1-5). One TM said recalling her interest in the first project with a customer; *we pay a lot of attention to the first project of a customer, sort of leaving a foot print, so that the customer will get back with more work. I also talk to the guys and throw in a special feature and so on.* Project managers of Cases 1, 3 and 5 thought that when the TM is engaged, it was easier to achieve user involvement in the software development process. Especially since the TMs were able to refer to the client top management.

10. **Time Management**

Both (TMs and PMs) parties were in agreement regarding the need and value of time management. Having an effective TM-PM relationship means managing time effectively. One main aspect portrayed to us was time management in communications, executing project priorities managing time
for each was another. TMs are busy people who may have many PMs reporting to them. It was evident that PMs were aware of the time slicing the TMs had to do. PM of Case 1 said, *He has a lot of work to do, so sometimes I feel like it is difficult to get his time, I would prefer to get his attention at the right time. Sometimes it does not happen. I understand that overly demanding his time is unfair for others in my capacity, however this is one area I would like improved.*

PMs appreciated the time TM invested in project activity. They said that if the TM could not be available physically, they would like virtual contact such as e-mail or Internet/Intranet access (Cases 1, 4 & 5).

TMs on the other hand needed the PMs to be efficient at time managing (Cases 1, 3, 4 & 5). TM of Case 4 said referring to a report he had requested but did not receive yet, *I reminded him (the PM) twice, it is important as I have to report to higher up, he does have some time competing tasks, but he needs to manage those.* When asked what aspect they would like improved in their PMs, the TMs of project 1, 4 and 5 said that they would like to see the time management skills enhanced. TM of Case 5 specifically said that, *I would like to see them (the PMs) prioritise and execute tasks managing their project time.*

## 5 DISCUSSION, LIMITATIONS & CONCLUSION

Our findings indicate that the case study data could be mapped and fitted according to the initial framework developed from the literature. Further, the data enabled us to gain additional insights into the attributes in the framework. Thus, we believe that our initial conception of the TM-PM relationship framework for obtaining TMS has validity. Additionally, the analysis of the data identified a separate attribute that had not been prominent in the literature, namely “time management”. This extra dimension is worthy of further study.

We were able to see that certain dimensions were given greater emphasis by the case study participants than others and, on that basis, would appear to be of more importance. The more salient attributes were communication, documentation and timely resource provision. We found a common (mis)conception where the project staff (Cases 1 and 5) believed that once the standards are implemented all relationship gaps will be closed. We also found from the literature (Crawford, 2005) and also from certain other Cases (2 and 5) that even if very high level standards are implemented relationship gaps still exist. Therefore, having standards in place does not necessary improve project success. Cases 2 and 4 both had CMMI Level 4 standards and Case 2 had in addition, ISO 9001 standards implemented. Both of these cases reported the same level of concern regarding the TM-PM relationship as the others.

We see the following limitations in our study. We appreciate the fact that many CSFs may contribute towards software development project success. Our study was designed to look at one such CSF, which is TMS. However, together with prior researchers we believe that this is one of the most important CSFs. In this study we defined TM as the management directly above the PMs, to whom they report. We acknowledge that other researchers have given this term their own meaning. Further, there may be perspectives other than the TM-PM relational view of TMS.
In conclusion, the authors set out on a quest to answer a timely call for further investigation of the CSF, TMS for software development projects. Academics and practitioners emphasise the importance of top management support in software development projects. Notwithstanding that emphasis, projects do not seem to receive enough support from top management. We believe that the absence of TMS indicates, in part, a poor working relationship between the two management levels. Our research is significant, even in this preliminary stage, as it increases understanding of the nature of this relationship.

Our findings suggest that communication, documentation, leadership, decision making, formal governance structures, governance processes, timely resource provision, education, managerial engagement and time management are key attributes of a relationship that works in the context of TMS. The major contribution from this preliminary stage of our research is the TM-PM relationship framework for TMS, with 10 attributes. We plan to further refine and test this model extensively in the industry using a combination of qualitative and quantitative techniques. We intend to further contribute to knowledge about how the TM-PM relationship attributes for TMS flow across the project management processes during the life of a project. In refining this framework we also aim to identify the relationships among the attributes and their relative importance.

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