Examining High Performance Teams in Information Systems Projects

Completed Research Paper

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ABSTRACT
Looking into past project successes and failures through the lens of “high performance teams,” we suggest that repeatable project success may be achieved through the use of “high performance IS project teams” (HPISPTs)—any IS project team that demonstrates measurable compliance within appropriate timeframes for all key project success dimensions, satisfies the requirements of themes of success, and manages the themes of failure. These teams, combined with the right skill sets, employ the right set of principles and attitudes to execute IS projects successfully. Using a secondary case analysis method, we reveal evidence that affects a project’s success or failure as perceived through HPISPT success and failure themes. This research offers insights on how teams can use characteristics of high performance teams to improve the likelihood of IS project success.

Keywords
High performance, information systems, project teams, success criteria, failure criteria.

INTRODUCTION
Information systems (IS) project failures continue to remain high despite the concerted attention to improving project management practices. While 2011 noted an increase in successful software project implementations, 63% of the IS projects in the 2011 Standish Group CHAOS Report were still categorized as challenged or failed.

Many IS project teams struggle in their management of IS projects, yet other project teams seem to flourish. There are examples of IS project teams that produce exceptional outputs, ensure a successful project implementation, and convert failing projects into successful ones. These teams are comprised of the right skill sets and use the right set of processes principles and attitudes to adjust quickly to sudden changes in complex business situations. Through the guidance of the right project managers, the team becomes high performers. This research focuses on exploring criteria that encourage the development of “high performance information system project teams (HPISPTs)” which guide a project to success.

High performance teams (HPTs) is a concept from the management literature, but is not necessarily a concept specific to project teams. In organizations, high performance teams are highly efficient cross-functional teams that improve quality, reduce cost, are process oriented, and meet turbulent business environment challenges (Castka, Bamber, Sharp & Belohoubek, 2001). The development of high performance teams have been used to drive business success (Hanlan, 2004),

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this study explores if the concept of high performance teams could apply in an IS project management context. Therefore, the objective of this research is to explore the application of high performance teams to the context of IS project management.

The study employed qualitative analysis of case studies of successful and failed IS projects to comprehensively evaluate if high performance teams can be applied to the concept of IS project management. Our findings demonstrated the ability to adapt this organizational level approach to the IS project team environment to create opportunities to increase the number of successful IS projects.

The next sections explain HPTs and how the concept of HPT could be applied to IS project management. Next, we explain the research design to use published case studies to explore how to apply the concept of HPT for IS projects. The findings as well as insights are provided. Finally, we conclude with a discussion of limitations, future research, and the contributions of this study.

BACKGROUND

High Performance Teams

In an organizational context, a high performance team achieves a 50% or greater improvement in the dimensions of customer value, operational value, shareholder value, employee value through the use of processes and cultural shifts. (Hanlan, 2004). Teams achieve these improvements through the use of principles of advanced team development that encourage strong cohesion, and, consequently, foster communication as a core strength that guides the team’s actions.

To understand the factors that encourage the development of high performance teams, Hanlan (2004) identifies themes of success related to high performance teams. To achieve success, high performance teams should (1) accomplish all key success dimensions in less than a year, (2) be used when breakthrough results are needed and desired by the organization, (3) be principle driven, (4) be guided by those who understand underlying processes, and (5) be created by a shift in culture.

However, to expose the “two sides of the coin,” Hanlan (2004) also indentified themes related to failure, or as he called “common themes of missed opportunity” that describe what would-be HPTs should have done to achieve high performance. These themes related to failure include (6) runaway empowerment, (7) disillusioned leader and workforce, and (8) chaos.

By considering both themes for both success and failure in high performance teams, it is possible to understand how to create high performance teams in dynamic environments.

High Performance Teams in IS Projects

While high performance teams is a lens that has been used to explain team performance at the organizational level, to date, there has not been an application of high performance teams in the context of IS projects. This lens has the potential to provide guidance to researchers and practitioners about necessary components for a successful project team.

However, project teams assume unique characteristics that require specific treatments compared to other types of business teams (Storm & Janssen, 2004). Project teams, for example, are often assembled having members that are specially selected for their skills and ability to deliver, to achieve a given set of tasks within a bounded timeframe. Likewise, the temporal nature of projects usually spans for as short as a few months to as long as a few years, causing project teams to dissolve upon project termination. In contrast, business performance can be measured repeatedly over long periods of time (Storm & Janssen, 2004). Additionally, most business teams may be composed of members whose engagement is not as volatile compared to the project team members’ engagement in a project. Therefore, it is necessary to examine the variations within an IS project team context to understand how to modify HPT themes to HPISPT themes.

Relating HPT Themes of Success to IS Projects

Theme 1: In HPT, the first theme states that all key success measures should be achieved. These success measures include: customer value, operational value, shareholder value, employee value and positive cultural shift. To examine these dimensions in an IS project context, we relied on several dimensions of project success identified in the literature (e.g., Shenhar & Levy, 1997; Yeo, 2002; Ika, 2009). We also considered specific approaches to measure each dimension in a project context to make these definitions more operationalizable.

However, an important adaptation of the first success theme in HPT is the time constraint. In HPTs, all success measures should be achieved within one year. Assessing project success is time-dependent and should consider both short-term and long-term implications (Shenhar & Levy, 1997). Therefore, the constraint to achieve success simultaneously among all HPT success dimensions within less than a year may not be applicable to projects.
See Table 1 which relates the HPT success dimensions to the IS project context and also provides examples of measures and the potential timeframe for measurement.

**Theme 2:** HPTs are best applied in times of organizational stress and when there is a need for revolutionary results; however, HPT may still develop without these additional stress and demands (Hanlan, 2004). It is common to see HPTs though in these challenging environments because radical changes to the organization are required to achieve dramatic results.

Yet, the very nature of IS projects often imposes significant stress and can significantly motivate project teams regardless if organizational “breakthrough” results are demanded. Therefore, this theme is already implied in any project endeavor and does not appear to be a distinguishing theme for project teams to become a high performance team. The question of how IS project teams manage these challenges is what delineates them to become high performers.

<table>
<thead>
<tr>
<th>HPT Success Dimensions</th>
<th>Potential Dimensions of HPTISPT Success</th>
<th>Measurement Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Improved Sales and Customer Retention (Shenhar &amp; Levy, 1997; Ika, 2009)</td>
<td>At least one year after implementation (Shenhar &amp; Levy, 1997)</td>
</tr>
<tr>
<td></td>
<td>Preparation for Future (Shenhar &amp; Levy, 1997; Ika, 2009)</td>
<td>Three to five years after implementation (Shenhar &amp; Levy, 1997)</td>
</tr>
<tr>
<td>Shareholder Value</td>
<td>Improved Income and Profit (Shenhar &amp; Levy, 1997; Ika, 2009)</td>
<td>At least one year after implementation (Shenhar &amp; Levy, 1997)</td>
</tr>
<tr>
<td>Employee Value</td>
<td>Direct Compensation for Performance (Ika, 2009; Lawler et. al., 1995; Yeatts &amp; Hyten, 1998; Harris, 2001; Bishop, 1987)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employee Recognition (Ika, 2009; Lawler et. al., 1995; Yeatts &amp; Hyten, 1998; Harris, 2001; Bishop, 1987)</td>
<td></td>
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</tbody>
</table>

**Table 1: Measures of HPTISPT Success**

**Theme 3:** HPTs achieve business improvements because they are highly principle-driven—motivated to achieve success beyond rigid sets of guidelines of contracts and doctrines. These principles are categorized as key business principles (i.e., those set to achieve a unique, perceived, value-added service or product in all dimensions) and key high performance principles (i.e., those that tend to foster high involvement of members, win-win attitudes, understanding of higher business goals, leadership potentials among members, balanced sharing of power and authority, creative solutions to solve a problem despite constraints, and elimination of non-value-added work) (Hanlan, 2004). These principles are highly desired among project teams, thus making this theme applicable in a project context.

**Theme 4:** The same process-based success theme for HPTs was used in a project context. By analogy, some project teams may adhere to common practices upheld within the organization in which they belong. The coaches and facilitators of these practices may exist as subject matter experts (SMEs) that provide valuable information to project teams as the requirements of the projects are defined and developed. The degree of adherence to these practices may evolve to become common
organizational norms and principles that become organization-wide best practices to which project teams adhere for future projects.

**Theme 5:** Depending on the project duration, a project team may have a limited amount of time to bond cohesively to establish a “team” culture. This can be addressed, however, by careful selection of team members as well as the involvement of facilitators to speed up the bonding process (Landale, 1999). External facilitators, go-to persons, and SMEs with extensive experience within the organization can help the project team immediately address knowledge gaps to help the team accomplish project tasks. A project member’s participation and experiences from past projects contribute to the establishment of team best practices to develop a “culture” of efficiency and high performance.

**Relating HPT Themes of Failure to IS Projects**

**Themes 6 to 8:** Similarly, project performance needs to be understood through success and failure perspectives (Ika, 2009). The framing HPT’s common themes of missed opportunity provide consistent descriptions that are applicable to projects and project teams. It is a missed opportunity when (1) team members believe that empowerment is a chance to mandate their own rules, (2) leaders do not want to implement team recommendations, or when leaders adhere to the unrealistic expectations of the team, and (3) the attempted transition is great (due to inadequate planning) thereby bringing greater potential for confusion and chaotic activities. Yeo’s (2002) 10 issues of influence to project failure map coherently with the HPT missed opportunities (Table 2).

<table>
<thead>
<tr>
<th>Theme of Missed Opportunity</th>
<th>Yeo’s (2002) Issues of Influence to Project Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runaway Empowerment</td>
<td>Project management and control; Corporate management; Politics</td>
</tr>
<tr>
<td>Disillusioned Leader and Workforce</td>
<td>Users; Information technology; Business process and system design; IT/IS professional and knowledge sources</td>
</tr>
<tr>
<td>Chaos</td>
<td>Business planning; Corporate culture; Project planning</td>
</tr>
</tbody>
</table>

**Table 2: Themes of Missed Opportunity with Yeo’s 10 Issues of Influence to Project Failure**

**Defining High Performance IS Project Teams**

Based on the understanding of the themes of success and failure in an IS project context, it is now possible to develop a working definition of high performance teams in an IS project context. Therefore, a high performance IS project team (HSISPT) is defined as:

*Any IS or IS-reliant project team that demonstrates measurable compliance within appropriate timeframes for all key project success dimensions—customer value, operational value, shareholder value, employee value—for a given project, satisfies the requirements of themes of success—principle-driven, process-based and cultural shift—and manages all themes of missed opportunity—runaway empowerment, disillusioned leader and workforce and chaos.*

After identifying a working definition of HSISPT and themes of success and failure, we wanted to identify if these adaptations of HPT are appropriate based on case studies of IS project successes and failures.

**RESEARCH DESIGN**

We used a secondary case study analysis to explore the applicability of HPT to the IS project domain. Our research analyzed published case studies of successful and failed IS projects. We chose to explore case study articles given the rich data provided in the discussion given that case studies combine the existing theoretical knowledge with new empirical insights to expand and generalize to theory (Vissak, 2010).

**Data Collection**

We chose to limit our review of case studies to journals and conferences that tend to publish larger numbers of case studies relative to other types of studies and journals in the project management discipline. Since case studies are qualitative,
European journals and conferences tend to publish more manuscripts that use this method (Chen & Hirschheim, 2004; Dwivedi & Kuljis, 2008). Project management journals may provide articles that have a deeper focus on the project management domain, but may not have as many case studies.

Therefore, we focused our case study analysis on the European Journal of Information Systems (EJIS), European Conference on Information Systems (ECIS), Project Management Journal (PMJ) and International Journal of Project Management (IJPM). Since the purpose of this study is to explore the applicability of the framework (rather than validation), this subset of journals provides a reasonable starting point to evaluate HPT in an IS project context. To identify potential case studies for review, the phrases “project management”, “virtual project management”, “dispersed project team”, “high performance project management” “high performance team”, “project team” and “case study” were defined as keywords to search in the abstract or in the title of the above mentioned peer-reviewed journals and conference publications.

After examining the abstracts of these articles, we selected articles focused on topics within the scope of our research and that used case study as their research methodology. Articles that were not included contained the search keywords but possessed no direct relationship with our research goals. As an example, an article entitled “Confirming BPM theory in creative industry context – a case study in the German TV industry” was selected based on our initial screening but was excluded based on a more in-depth review in that this research focused on the management of business process and creativity rather than an IS project. As a result of filtering process, 23 relevant research papers were reviewed for detailed examination. Table 3 identifies the number of papers found based on the keywords search and number of studies reviewed by source.

<table>
<thead>
<tr>
<th>Source</th>
<th>Case Studies Identified</th>
<th>Case Studies Reviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Journal of Information Systems (EJIS)</td>
<td>78</td>
<td>20</td>
</tr>
<tr>
<td>European Conference on Information Systems (ECIS)</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Project Management Journal (PMJ)</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>International Journal of Project Management (IJPM)</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3: Case Study Sources

Data Analysis

The detailed analysis examined each article for situational evidence that support one or more HPISPTs themes. Using the above descriptions of each theme, we examined the article to identify quotes (if any) that provide support for each theme (see Table 4 for sample). Three of the authors performed this exercise and discussed the coding to reach agreement.

Table 4 demonstrates how one of the articles was coded using each of HPT themes. For example, Fitzgerald & Russo (2005) mentioned, “Management fear of failure led to ‘full steam ahead’ approach, in spite of evidence that system was inadequate” (p.255), which fits the description of the failure theme disillusioned leader and workforce.

Overall, the coding was used to find patterns among the various themes of high performance IS project teams and draw conclusions as to the applicability of HPT in the IS project context.

RESULTS AND DISCUSSION

Table 5 summarizes the number of articles that expressed evidence of the each dimension or theme of HPTs.

Examination of Success Dimensions for HSISPT

Among the four success dimensions, operational value was described most often in the case studies. Among the articles that discussed project success, the criteria commonly mentioned pertains to operational value, such as project efficiency (Shenhar & Levy, 1997) or meeting the triple project constraint of time, cost, and functionality (Wateridge, 1998; Ika, 2009).
The next most supported dimension, customer value, suggests that satisfaction of customers as an important IS project success criteria. The customers mentioned in these case studies typically pertained to the end-users of the IS system developed by the IS project team. For example, Jones & Hughes (2001) identified the importance of customer value by identifying that the team “really need[s] to understand what IS users think of information systems” (p.199). Luna-Reyes, Zhang, Gil-Garcı´a & Cresswell (2005) stated that the “MACROS team promoted the creation of MACROS user groups for sharing applications and customizations of their daily work” (p.100). These quotes identify activities performed by the team to ensure customer satisfaction.

<table>
<thead>
<tr>
<th>Manuscript</th>
<th>Fitzgerald &amp; Russo, 2005 (p.255)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Value</td>
<td>No response time, or other problems, with implementation. The system had full back-up system that could take over if problems arose with the primary system.</td>
</tr>
<tr>
<td>Operational Value</td>
<td>Very relaxed project timetable. Training good, timely, and accurate. Training manager assigned.</td>
</tr>
<tr>
<td>Shareholder Value</td>
<td>Widened ownership by involving users in the development process. Users felt they had been listened to and the new system reflected their wishes. (Ambulance crews not so involved)</td>
</tr>
<tr>
<td>Employee Value</td>
<td>CE made peace with labour unions and spent time with ambulance crews. Ambulance fleet was upgraded. Staff and crews more receptive to the system.</td>
</tr>
<tr>
<td>Principle Driven</td>
<td>Initial system very simple, built in stages. First implemented simple call-taking system as users requested. Initial system closely followed manual way of working.</td>
</tr>
</tbody>
</table>

Table 4: Sample coded case-based IS project article

Although not mentioned as much as customer value and operational value, shareholder value was widely discussed in the case studies used for our analysis. Jones and Hughes (2001) emphasized the constraints and pressures brought by stakeholders that require satisfying: “In practice, this means that it is almost exclusively the CIO who is the final decision maker at IS Departmental Management Meetings. This is not best practice (…) However, the CIO maintains that he understands the priorities of the organization and what IS should be contributing and therefore is best placed to make IS investment decisions” (p.196).

Employee value was the success criteria mentioned the least in our analysis. This could suggest (a) the authors of these papers were more inclined to reporting operational efficiencies pertaining to successful project execution or (b) that project managers and teams did not consider employee value as a success dimension. The most common manifestations of this success dimension include personal satisfaction within the projects (Kotlarsky & Oshri, 2005), project team trust (Fitzgerald & Russo, 2005), senior management support (Akkermans & van Helden, 2002; Cragg, 2002), and management’s rewards for a team member’s contributions (Hatzakis et al., 2005).

Examination of Success/Failure Themes for HSISPT

More than half of the articles (61%) supported all of the success dimensions which comprise the first HPT success theme. It may indicate that project teams that aimed to be successful are nonetheless inclined to satisfy all of the success dimensions of the project— one of the requirement characteristics of high performance IS project teams.
The other success themes are also supported through this analysis. The principle-driven success theme was noted in 17 out of 23 of the articles analyzed. These articles revealed best IT management practices or strong management factors that support success. In one case study, this was indicated: “Good change management practice limited the turnover among employees (...) The workshops helped to bridge the culture gap between the vendor and the buyer, and to prepare a seamless integration of the affected personnel into the buying company” (Fähling et al. 2009, p.8).

For the process-based theme, 70% of the articles showed support for this theme. Project success is more likely on projects with strong foundational knowledge of business and working processes. For example, Milosevic & Patanakul (2005) reveal that “standardized PM process, organization, information management systems, tools, metrics, project culture and leadership.” (p.185) were success factors in their study of high-velocity industry projects.

<table>
<thead>
<tr>
<th>Themes and Dimensions</th>
<th>Number of Supporting Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Success Dimensions</strong></td>
<td></td>
</tr>
<tr>
<td>Customer Value</td>
<td>19</td>
</tr>
<tr>
<td>Operational Value</td>
<td>20</td>
</tr>
<tr>
<td>Shareholder Value</td>
<td>18</td>
</tr>
<tr>
<td>Employee Value</td>
<td>14</td>
</tr>
<tr>
<td><strong>Other Themes of Success</strong></td>
<td></td>
</tr>
<tr>
<td>Principle Driven</td>
<td>17</td>
</tr>
<tr>
<td>Process Based</td>
<td>16</td>
</tr>
<tr>
<td>Cultural Shift</td>
<td>16</td>
</tr>
<tr>
<td><strong>Themes of Missed Opportunity</strong></td>
<td></td>
</tr>
<tr>
<td>Runaway Empowerment</td>
<td>5</td>
</tr>
<tr>
<td>Disillusioned Leader and Workforce</td>
<td>5</td>
</tr>
<tr>
<td>Chaos</td>
<td>5</td>
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</tbody>
</table>

Table 5: Tally of Themes and Dimensions with Supporting Articles

The cultural shift success theme was noted in 70% of the articles. This theme revealed notions on change of paradigm reflecting a collective sense of understanding to accomplish work. For example, Huang et al. (2001) reveal that paradigm expansion is “the process by which program participants (...) communicate, confront and anticipate different concerns, attitudes and perceptions as a means of building a shared understanding and collectively making sense of knowledge” (p.168). The “constant interaction with the developers and the users was vital (...) to keep track of system modifications and ensure their millennium compliance” (p.166).

As for the themes of missed opportunity or failure, these were less likely to be noted in the case studies. It is possible that the low failure project cases we have retrieved contributed to this. Nonetheless, runaway empowerment was noted in the form of management’s deaf attitudes towards users, usually utilizing IT as a driver to affect imposed changes (e.g., Fitzgerald & Russo, 2005; Bartis & Mitev, 2008; Wastell, 2010). The disillusioned leader and workforce theme were manifested as disjoint participation and inadequate feedback received between senior management and project teams (Sharif et al., 2005; Fitzgerald & Russo, 2005; Conboy, 2010; Wastell, 2010). Chaos was exposed as the teams’ resistance to, or failure to manage, aggressive changes due to lack of strategic vision and proper planning (Lam, 2005; Fitzgerald & Russo, 2005; Bartis & Mitev, 2008; Wastell, 2010).

All of the themes could be identified our analysis to varying extent, suggesting the ability to apply the concept of HPT to IS projects.
CONCLUSIONS

Limitations and Future Research

This study is limited through the use of secondary case analysis to evaluate the concept of high performance teams in an IS project management context. First, published case studies provide limited information; therefore, the analysis is constrained by the results published by the authors. Second, even though research supports the use of European IS journals, future efforts will consider an expanded base of literature since the current scope of case studies may have brought biases. Further, the number of case studies is limited to date, primarily based on the journals analyzed to date. However, given that the purpose of the secondary case analysis was to find evidence for using high performance teams as a framework to understand successful IS project teams, the scope of the literature review has currently supported this view. However, a broader review of additional case studies may yield new insights to refine the definition, success themes, and failure themes of HPISPT.

Future research will explore the role of HPISPT through empirical research. Currently, more evidence is needed to confirm that the employment of HPISPT does indeed lead to project success. Further, more insight is needed on the actions required by project managers and team members to become a HPISPT. Interviews and surveys will allow for the development of a research model to develop a research model examining the relationships among IS project team actions and IS project success using the HPISPT lens. This study is the first step in understanding if HPT could be applied to IS project management.

Contributions

This research introduces the lens of high performance teams to the concept of IS project management. Further, this study evaluates if the concept of high performance teams can be adapted to the IS project team context using a secondary case study analysis. There is evidence of the primary success and failure themes of high performance teams in the case studies analyzed in this study. By doing so, we have demonstrated the ability to create opportunities to increase the number of successful IS projects. Further, this study posits how to define high performance IS project teams.

IS project managers can use this definition and the adapted themes to derive more specific and measurable high performance success and failure criteria that could be used to assess the current status of their teams. Through self-evaluation, IS project managers can realign their focus to promote success themes and avoid failure themes, enabling project teams to be predisposed to project success.

REFERENCES

