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# Sensing High Performance Enablers in the Collective Action of Successful IS Project Teams

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**ABSTRACT**

A disconcerting truth about IS projects persists – project failure and challenged rates remain high. Research has revealed that project failures are attributed more to the social factors than the technical factors. Yet, while there are teams who struggle with poor teamwork and coordination, there are project teams who produce exceptional results and ensure successful project implementations. Employing a phenomenological research inquiry, this study explores the concept of high performance within the collective action of IS project teams. We analyzed data from experiences of project managers whose teams have successfully delivered IS projects across a variety of development methodologies. Our results parallel expectations from collective action theory, a multi-disciplinary theory that informs about interactions in groups. Collective action theory offers insights that explain how patterns of interactions within IS project teams transpire into enablers of high performance activities towards delivering IS projects successfully.

**Keywords**

High performance teams, collective action, successful project delivery, phenomenology.

**INTRODUCTION**

For decades now, failed and challenged IS projects continue to persist at high costs. In 2009 alone, failed IS projects estimated to cost $6 trillion in the United States alone (Sessions, 2009). IS development projects are complex socio-technical endeavors, whose success and failures are found to be caused more by social factors than technical factors (Ceschi, Sillitti, Succi and De Panfilis, 2005; Lee and Xia, 2005). Some of the persistent top causes of project failure are frequent requests by users to change the system, insufficient involvement among executive stakeholders, as well as lack of clear requirements definitions (Standish Group, 2013). These problems arise when there is poor teamwork and coordination within the project (Cockburn and Highsmith 2001). On the flipside, however, there are project teams who seem to flourish, produce exceptional outputs and deliver projects successfully. These teams are characterized as *effective* (Quader and Quader, 2008), *synergistic* (Buchholz, Roth, and Hess, 1987), and *winning* (Ginac, 2000) teams. These project teams belong to the category of *high performance teams* (Hanlan, 2004).

Organizations that suffer from a lack of teamwork underutilize their skilled resources, and thereby, create internal and external organizational conflicts (Warrick 2014). Yet, highly effective teams significantly improve performance of employees in organizations—including job satisfaction, productivity, loyalty, and employee morale (Katzenbach and Smith 1993). High performance teams are highly productive and successful in accomplishing target goals (Khan, Lodhi and Makki, 2011; Warrick, 2014). For this reason, many organizations rely on high performance teams to achieve strategic goals especially in today's highly competitive environments (Buchholz et al.,1987; Castka, Bamber, Sharp and Belohoubek, 2001).

The concept of high performance teams is not new, however, our understanding of high performance teams as applied in IS project contexts is limited. Therefore, using the theoretical lens of collective action, this study explores how teams navigate IS projects toward success. This study asks, *"How do high performing information systems development project teams drive their activities towards the successful delivery of IS projects?"*

To answer our research question, this study follows a phenomenological research approach to explore and describe the essence of successful IS project team experiences that parallel attributes of high performing teams. In this study, "successful" project teams pertain to teams who have delivered IS projects on time that includes all the expected

features. This study interviewed individuals in project management roles and examined their responses using a theoretical lens drawn from group research—collective action theory (Gilbert, 2006; Olson, 1977; Sandler, 1992).

In the following sections, we review the literature on high performance teams and IS project management. Then, we explain collective action theory as well as its application in IS project team contexts. We explain our sample, data collection and analysis techniques, and discuss the findings. Finally, we conclude by sharing the future directions for research and intended contributions.

## BACKGROUND

### High Performance Teams and IS Project Management

High performance teams (HPTs) have been characterized to be composed of members that are highly skilled and competent, driven to succeed and supportive of each other (Collins, 1995; Dyer and Dyer, 2013; Warrick, 2014). Hanlan (2004) explores the success dimensions and attributes of high performance teams, which include achieving success in key dimensions identified by the team, and teams that are principle driven, are guided by underlying processes and are governed by an effective culture.

High performance teams are prevalent in management literature, in contexts such as sales, manufacturing, and research and development (e.g. Carroll, 2000; Garret and Pursch, 2006; Wolff, 1993), because of the teams' potential to drive business success (Hanlan, 2004). In IS project management, however, the application of high performance teams is not well understood. One reason is that many studies on success factors for IS projects and IS project teams paid little attention to how the interaction within the team affects IS project success. One notable study, which links team interaction and project success, is explained in Pinto and Slevin's (1987) ten critical success factors. Yet, many of these factors were related to top management, control, and monitoring of the project. Only two factors were related to the interaction within the team: Communication and Personnel Recruitment and Selection, and Training. De Leoz et al. (2013) examined high performance team characteristics in IS projects by consolidating a list of effective team attributes from IS project management literature, which supported Hanlan's high-performance characteristics.

### Theory of Collective Action

> *"Men journey together with a view to some particular advantage, and to provide something that they need for the purposes of life"* (Aristotle et al., 2009, p.154).

The foundational tenets of collective action theory can be traced as far back as the time of Aristotle (Olson, 1977), which speaks about humans' innate nature to group and associate themselves with one another in order to advance a common cause or interest (Gilbert, 2006; Olson, 1977; Sandler, 1992). Collective action results when at least two people work together (Gilbert, 2006), such that the individuals exhibit interdependencies between and among each other, as marked by the contributions and influences that one brings to the other (Sandler, 1992). Gilbert (2006) simplistically illustrates some common examples of collective action as "painting the house together" (cf. Bratman, 1993), "making music together" (cf. Schutz, 1976) and "executing a pass" (cf. Searle, 1990).

Collective action theory formerly assumed that personal interests of each individual in the group strongly influence a group's collective action for the purpose of attaining a mutual benefit or *collective good* (Olson 1977; Hardin 1982; Maxwell and Oliver, 1993). Yet, further reasoning directs philosophers and social scientists that this assumption is, in fact, a fallacy known as the *fallacy of composition*, or *fallacy of static generalization* (Hardin, 1982). The assumption is a fallacy because, on the one hand, it is possible for individuals with altruistic traits to forego their personal interests towards willingly seeking some collective good for the group. On the other hand, when interests are shared, rational individuals tend to let others pay the cost of attaining a collective good, known as *free-riding* (Olson, 1977). Hence, "individual rationality is not sufficient for collective rationality" (Sandler 1992, p.3).

Yet, people *do* need to act as a collective in order to obtain countless shared benefits associated to solving problems across a wide scale of social units (Bimber, Flanagin and Stohl, 2005). What drives a group's collective action is then perceived with the notion of *joint commitments* and *collective intention* (Gilbert, 2006), as well as the *invisible hand* (Smith 1952) or *selective incentives* (Olson, 1977). These concepts have been found to influence *collective agents* (Sandler, 1982; Tieffenbach, 2013).

Collective agents are likened to "supra-individual" agents, who are different from individual human agents and supersede individual rational actions above and beyond "metaphysical and moral concerns" (Gilbert, 2006, p.4). Collective agents have the following characteristics: (1) composed of human beings who act as a single entity through their members, (2) can make decisions for, and by, themselves; and (3) are capable of considering the reasons that may influence their decision for acting as one body within the confines of rationality. The members, likewise, are in full understanding that everyone in the collective is *jointly committed* to one another in order for collective action to take place.

Collective agents are driven by "collective intention," an outcome of "joint commitment" (Gilbert, 2006). Joint commitment is a mutual expression of commitments *of*, and *by*, the wills of individuals in the group (Gilbert, 1993/2006). Further, joint commitment can only be canceled when everyone in the group involved in the joint commitment agrees to dissolve such expressed commitment since the individual willingness to jointly commit to do a task (as one body) is interdependent to one another at the time the joint commitment was established (Gilbert, 2003/2006). For this reason, the product of joint commitment—collective intention or *we-intention*—either exists as a primitive whole or does not. Thus, *we*-intention is *not* an aggregation of *I*-intentions (Tieffenbach, 2013). Tuomela (2005) explains that, in we-intentions, collective agents intend to perform activities *with* other members of the group for the fruition of a certain state or event.

Members of IS project teams may manifest similar behaviors as explained above (see Figure 1). With the end-goal (or collective good) being the successful delivery of a project, project team members are said to collectively work towards successful project delivery only if they intend to do so a group, and if members effectively contributes towards attaining the group's overall set of goals. Project managers typically act as collective agents, yet this role is not necessarily limited to project managers alone. Other members of the project team may conscientiously assume collective agent roles to ensure everyone in the group effectively accomplishes his or her share of tasks, while vigilantly discouraging acts of free-riding within the team. Collective agents serve as enforcers of joint commitments, which are typically codified in contracts, project charters or other agreement documents. Joint commitments explicitly express the collective's intentions, or *plans-of-action*, which explain the steps to go about accomplishing specific tasks and deliverables as a group. Yet, certain intentions may also be implied, which are typically engrained within a team's work culture. Overall, collective agents uphold explicit and implicit (collective) intentions to perform the activities (collective action) necessary towards the attainment of project goals. As such, *collective intentionality* of the team is said to be a key construct for understanding participative behaviors of members within groups (e.g., Bagozzi and Dholakia, 2006). Lastly, collective action theory includes the concept of the invisible hand or selective incentives. Examples of selective incentives are "coercion" (by authorities of power), "monetary incentives," "social status" and "social acceptance" (Olson, 1977, p.61), which may potentially (but not sufficiently) influence a collective's interest to advance a cause (Tieffenbach, 2013). From a project management perspective, these may manifest both as intrinsic and extrinsic motivators such as job titles and positions, opportunities for job promotion, organizational recognition, and, more typically, wages and other monetary rewards.

## METHODOLOGY

Conducting a qualitative research approach provides an opportunity to capture and understand rich experiences and descriptions from holistic and in-depth points-of-view (Creswell, 2013). This approach has allowed us to explore the concept of high performance in teams who delivered successful IS projects.

### Phenomenology – A Qualitative Research Method

Following a social constructionist epistemological paradigm (Kvale and Brinkmann, 2009), *phenomenology* is interested in understanding social phenomena based on the perception and descriptive accounts of the participants who experienced the phenomena (Creswell, 2013; Kvale and Brinkmann, 2009). The phenomenological approach we followed is in accordance to the discipline of Moustakas (1994)—*transcendental phenomenology*, which examines the structure and changes of a phenomenon based on the participants' lived experiences (Kvale and Brinkmann, 2009). Accordingly, we analyzed rich textual data for their thematic structures and variations, grouped them into related relevant concepts, and ultimately, extracted an emerging *essence*. A key feature of transcendental phenomenology is the so-called *epoché*, where the researcher focuses less on his or her own interpretation of the phenomenon and more on the description of the experiences of the research participants (Creswell, 2013). Doing so allowed us to take a fresh perspective of the phenomenon of interest (Creswell, 2013).

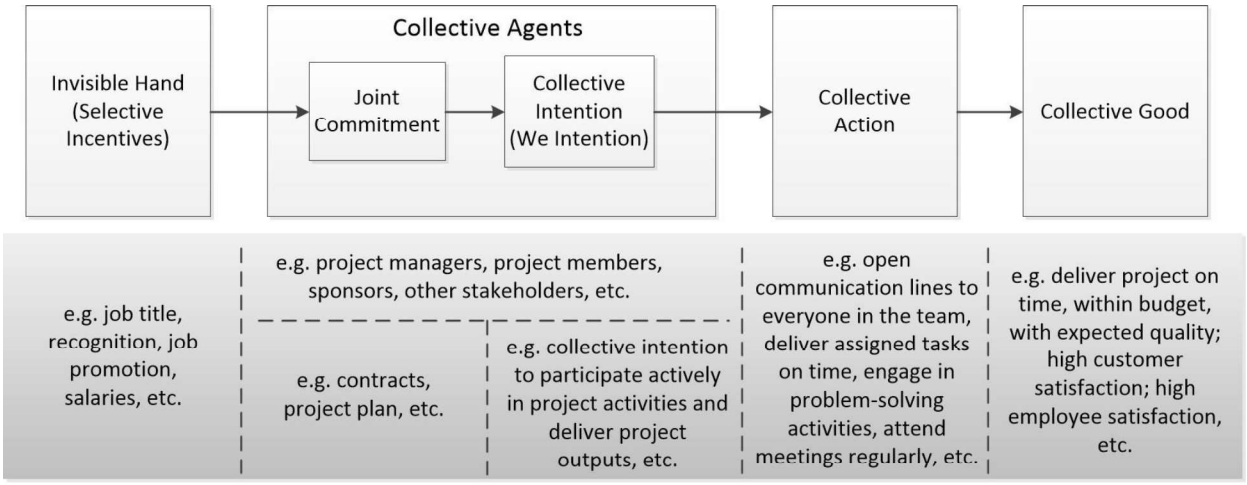


**Figure 1. Applying Theory of Collective Action in IS Project Contexts**

### Sampling, Data Collection and Analysis

Research participants for the study were chosen through *purposeful sampling* (Creswell 2013; Trochim and Donnelly, 2008). The selection criteria are any individual who has performed the role of project manager or its equivalent, and one who can vividly recall the experiences of a recent successfully delivered IS project[1].

In this study, we have interviewed five project managers and project leads (see Table 1 for more information). Dukes (1984) maintains that the recommended total number of participants to be interviewed for phenomenological studies is between three and ten. Yet, to Creswell (2013), the depth and detail of the experiences are more important since "the intent is not to generalize the information [to a population]…but to elucidate the particular, the specific" (p.157).

| ID | Gender | Years of Experience | Core Team size | IT/IS Project Description | Methodology | Project Duration |
|---|---|---|---|---|---|---|
| PM01 | Male | 20 years | 8 members | Data collection system for the marketing department | Hybrid (Traditional and Agile) | 11 months |
| PM02 | Male | 7 years | 7 members | IT Infrastructure project to upgrade core data center firewalls | Traditional | 8 months |
| PM03 | Female | 15 years | 4 members | Book Management System for elementary school teachers | Modified Scrum | 10 Weeks |
| PM04 | Male | 10 years | 7 members | IT infrastructure upgrade to replace mainframe | Hybrid (Traditional and Agile) | 3.5 years |
| PM05 | Female | 18 years | 7 members | Disaster recovery test system | Modified Scrum | 2.5 months |

**Table 1. Research Participants and Their Respective Teams' Profiles**

[1] Includes software and IT infrastructure-related projects

We prepared an interview protocol (see Appendix) that structured our interview questions. The total number of interviews corresponds to one interview per participant. The length of interviews is between 45 minutes to 1 hour (50 minutes on average), which were all recorded. All interviews were conducted within, or near, each of the participants' workplace, which helped diminish some level of "power imbalance" between the interviewees and the interviewer (Kvale and Brinkman, 2009). One co-author analyzed the data by immersing himself in the process of epoché. Then, similar to Colaizzi's (1973) and Auerbach and Silverstein's (2003) data analyses approach, the recordings were transcribed verbatim for analysis. We then identified significant statements, clustered the repeating ideas together and developed a master repeating idea to identify the emergent themes. Box 1 shows a sample list of significant statements we captured from one of the participants, ID no. PM01.

- *It is a combination of both [Agile and traditional methodologies] at this time because in a pure agile methodology, it is all based on user stories, there are necessarily no 'knowns' up front. In our case, we at least know the feature set of what they [sponsors] want in the end, and we just execute that in an iterative fashion, so we are more flexible.*
- *[I consider my team a high-performing team] because each team member has demonstrated that they want to understand the strategy of why we are doing things the way we are doing it [sic]. They're doing it without being told; they're motivated; they have their own initiative to come forward and ask, and that again speaks of the work-culture that we maintain in this team.*
- *As part of that work culture, we take the time to educate the team outside of the tasks that they need to perform and that's how they learn. An example of that is we provide…the high-level requirements document to the end-programmers just so they know how the system is going to morph and what it's going to look like in two years…so that they can be part of that vision.*

**Box 1. Sample Significant Statements from PM01**

## RESULTS AND DISCUSSION

In this paper, we present three emergent themes and their descriptions (Colaizzi, 1973), which inform of collective phenomena that transpired towards the teams' success. Through collective action theory, we explicate the structure and function of these themes that parallel high performance attributes.

**Theme 1: High Team Motivation.** This theme encapsulates a basic yet essential set of characteristics that successful project teams possess—having well-defined skill sets and roles, self-motivated, detail-oriented, having can-do attitudes, have good sense of purpose and direction, and have good sense of ownership of assigned tasks. This theme parallels Hanlan's (2004) theme in that HPTs are motivated to achieve success by fostering key high performance qualities and principles such as promoting high involvement of members, honing leadership qualities of members, devising creative solutions to problems despite constraints, and understanding of end goals.

Yet, not all team members may necessarily possess all desirable attributes. In fact, some PMs mention that they had occasional members whose experience and skill levels were inferior to the rest of the team; and there are others who would exceptionally step up thereby pushing the rest to accomplish crucial tasks. PM03 recounts how her team delivered a project for a prize, despite having one inexperienced member:

> *[One member] brought to that team his inexperience. Let me see here, it was a great asset to the team because they had to figure out how to work, how to help him, you know, come along the project because he didn't have the professional skills that they had.*

When asked what might have brought the team to push each other to succeed, PM03's story continued:

> *I think it was just a matter of not wanting to let each other down…We're competing for a prize for a team… They really rose to the occasion…and what they delivered was creative. They won the competition so it was a great product, a good project, good team.*

On the other hand, PM04 shares the following about his team: *I think they're like internally motivated. Well, I can't say that for the whole team…but the core and the majority, yes."* PM04 added:

> *[For example], our strong folks [built their own testing tool to replace the crappy one] and started enhancing this, and then there is this slick, awesome tool, and that was like really done on their own time 'cause they like really wanted to, 'cause it was fun, and it was like it made everything else easier.*

These behaviors parallel explanations from the fallacy of composition where individual rationality does not necessarily lead to collective rationality. However, collective action theory recognizes the existence of the invisible hand and collective agents. For example, the invisible hand is manifested through the monetary reward (the team prize) that kept PM03's team motivated to push and help each other to succeed, whereas the more experienced members of PM03's team acted as collective agents who pushed the entire team to achieve their goal. PM04's *strong folks*, likewise, served as collective agents that pushed everyone in the team to resolve unforeseen one-off problems towards making regular tasks much easier to accomplish. Hence, it would appear that the more there are project members who act as collective agents in the team, the stronger is the entire team's motivation to succeed.

PM02 shares that his team's strongest point is not taking the answer of "no, we can't do this":

> *'Cause every once in a while, we can't get that done by that date. But then we'd say, 'no, we have to get that done.' And you know everybody on the team would pretty much push that message, 'we need to get this done.'*

Yet, the context with which the individuals in PM02's team operate includes a highly visible mirror-of-authority-figure, who is PM02 himself. PM02 had been a direct report to a vice-president, whose power traverses over all resources working on the infrastructure upgrade project. PM02 added: "*It was a long project but they were meeting all of the expectations in the tasks and schedule. And it helped that the security engineers worked for my boss as well."* The hierarchical power of the vice president is felt in the organization that became a strong motivator (invisible hand), with PM02's collective agent role acting as a supplemental motivator that further pushed the team to deliver in spite of challenges. Overall, it would appear that the more collective action forces—such as invisible hand and collective agents—are present in a team, the stronger is the IS project team's motivation to deliver projects successfully.

### *Influence of high team motivation to the team's structure and function*

High team motivation shapes the teams' mode, or structure, of interactions by opening the members' communication lines to one another, encouraging members to be creative and proactive when tackling problems immediately, and engaging members to participate in problems solving and coordination activities. Thus, high team motivation functions as an immediate driver for teams to work on meeting major commitments for, and deadlines of, the project.

**Theme 2: High Team Culture.** This theme extricates an important set of related attributes of successful project teams—effective work practices, ethics and culture. Highly collectivistic culture spontaneously drives effective team coordination because of the members' high desirability of attachment to one another. This attribute therefore allows teams to follow "canned" set of team-related work practices, which typically complete tasks and resolve problems across many different contexts more efficiently. This theme parallels Hanlan's (2004) theme in that, by maintaining a good set of work team practices and ethics, HPT teams maintain a cultured environment that hones creative problem-solving abilities, enriches interpersonal working relationships, and increases eagerness to work, which often lead towards accomplishment of breakthrough results.

According to PM01: *"I definitely consider my team high-performing because we work hard to prevent delays…we have the thoroughness… trust, respect, and the open communication…that again speaks of the work-culture that we maintain in this team."* PM02 considers having a goal-oriented attitude and meeting project deadlines as some of the team's ways of exhibiting good work culture: *"Yes. I think my team, the infrastructure delivery team, certainly has a good culture...They have to be detail oriented in obviously time management, attending meetings, 'making those a priority' that kind of thing."* PM05 considers their team culture as an attribute that is passed down from their company's work culture:

> *They [our team members/engineers] wouldn't be able to work at (omitted company name) if they didn't really have good work ethics. That's just the way the company is. Everybody pulls their [sic] weight. Everybody is dedicated and devoted to the success of the company…Yeah, it's like a culture.*

PM05 added:

> *They're all young engineers very dedicated and devoted, and wicked smart—just wicked smart. I'm blessed. I've been in places where I've had engineers and just— they go at 8, they leave at 5 and they're done. But these people [current team] take their work home with them.*

When asked what outstanding trait her team has, PM05 answered without a flinch: *"They work together, they all help each other...And they will actually get in a room and figure it all out, and everyone is truly interested in the success of the other person."*

From a collective action perspective, teams who have highly collectivistic values embedded in their culture perform highly as well (Erez and Somech, 1996). It would appear then that culture manifests both invisible hand and collective agency traits. For example, the invisible hand qualities are felt through the mandates (culture) of top management, which was also mirrored by PM02 who acted as a collective agent for his team. Similarly, having high team culture is also a product of wide-felt adherence to organizational-level work ethics and culture (invisible hand) in PM05's organization. Yet again, collective agents of team culture were recognized through the personal initiatives of the members who voluntarily engage in collective activities in PM05's team.

Furthermore, the influence of organizational culture seems to traverse effectively down to team level regardless if the organization is flat or hierarchical. Whereas PM05's organization is characterized as a *strong matrix* (PMBOK, 2013) and flat organization, PM01's organization is hierarchical like PM02's organization. In both organizational types, notwithstanding, the members of those teams emerged as collective agents of high team culture not only because of a predominant higher authoritative power, but also because of shared culture. Indeed, PM01, PM02, PM05 shared stories that linked organization culture and team culture with high performance traits.

### *Influence of high team culture to the team's structure and function*

High team culture enhances team interactions (structure) in that members proactively extend efforts to help and educate co-team members, willingly exert workarounds for unforeseen constraints and obstacles, have a collective goal-oriented attitude, and are responsive, diligent and well-engaged. For instance, a new rolled-in project member may undergo training sessions that immediately inform him or her of basic expectations and standard work procedures in the team. Adherence to highly effective team culture expedites the closure of knowledge gaps among members and makes their learning curve shorter. Thus, high team culture functions as a work template shared by members that make the interaction and coordination pieces of work as seamless and efficient as possible.

**Theme 3: High Team Flexibility.** This theme summarizes the PMs' shared perceptions about how their teams mindfully adhere to established processes, yet become creative especially when unforeseen situations arise. This theme is characterized by the following traits: knows the standard procedures but do not necessarily confine themselves within a box, are forward thinkers on identifying risks for immediate mitigation, and leverages the use of efficient communications channels to effectively collaborate and coordinate with the rest of the team. From Hanlan's perspective, this theme parallels how HPTs would go beyond rigid sets of guidelines of contract and doctrines to ensure that their commitments are satisfied.

PM03 shared:

> *[The problem of spilling over the development scheduled for a week over the following week] did not cause any problems in the big picture [because]…this team did a good job by just working extra if they had to, to get the feature in.*

When asked about observations about his team's assigned tasks, PM04 talked about team members' willingness to rise up to the occasion when needed:

> *The quality assurance person [assigned to do integration testing] has not been strong. And so as BAs [business analysts], we end up doing a lot of testing to fill the gap…One of the issues is that…[there is] a lot of complexities…and unless you've been on enough of the meetings to understand the big picture, it can be difficult to perform that. So we ended up doing [the jobs of integration testers as well]…as BAs we ended up doing a lot."*

Similarly, PM01 expressed: *"And there's a reprioritization that [took place] as needed... [if] we are not able to go any further, then we just resolve it … and find a solution."* PM01 further explains: *"I would say that it was not necessarily a conscious decision [to combine waterfall with agile]…it was just…we had things we needed to do."* PM05 proudly shares that her company (and team) follows guidelines that are "pretty loose," that she did not have to get signatures (similar to some rigid guidelines that waterfall may impose) to get things moving. She gets the work done now, and then the needed paperwork later.

The collective action literature informs us of *collective flexibility* as a strategy to freely alter policies and processes that lead to a collective's capacity to adapt successfully during turbulent environmental changes (Bresser and Harl, 1986). In a project team context, loose guidelines and methodologies allow for workarounds that enable the teams to achieve the desired results with less difficulty and restrictions brought by formal rigid processes. Evidently, PMs who have used agile methods, or their modified versions, chose to do so because of the flexibility value inherently latched to agile (Lee and Xia, 2010). Other teams combine agile with traditional methods to take advantage of the structure that waterfall offers. Yet, there are also traditional project teams who are able to work beyond rigid processes towards completing project tasks and accomplishing desired project results. For example, PM02's team would not take a "no, we can't do this" answer. As such, the team would push each other by performing necessary workarounds to get the job done per commitment:

> *[I consider my team a high performing team] because we got a lot of work done in a short period of time, basically, because of the coordination piece of getting the work done…So we were overlapping the planning, racking, cable, and some of them were going in parallel, you know, just behind the other, so we were doing multiple things at the same time…So we're working on two upgrades at the same time basically.*

It would appear, therefore, that high performance project teams deliberately relinquish their adherence from processes when necessary to flexibly perform creative workarounds towards meeting their commitments. In essence, if IS project teams have sufficient room for flexible workarounds and creative processes, then the choice of methodology may not necessarily be a direct determining factor for a team to deliver projects successfully.

### *Influence of high team flexibility to the team's structure and function*

High team flexibility allows for project teams to interact (structure) in creative ways. This may manifest in the team's experimentation or trial-and-error activities, conducting of research to resolve one-off problems and coming up with strategies that expedite task completion when slippages in schedule portend. Highly limber teams are very responsive and leverage effectively the use every known communications channels to collaborate and coordinate effectively as well. Thus, high team flexibility functions as an "ace up one's sleeve," or extended *team capability* (Lee and Xia, 2005), in case the team encounters unexpected problems that arise despite mindful adherence to recommended processes, well-thought project plans and perceptive risk mitigation undertakings.

**Synthesis: The Essence.** The three textural themes—team motivation, team culture and team flexibility—in essence, talk about some fundamental factors that enable high performance at the project team level we call *high performance enablers*. From the PM's accounts, it would appear that these enablers are driven by factors both inherent at the organization-level and project team-level. Figure 2 illustrates a high-level process on how these factors may influence another towards successful project delivery.

The themes are in no way mutually exclusive from each other, but are linked together through overlapping attributes that reinforce the existence of one high performance enabler with another. For example, highly creative problem-solving attitudes may overlap between high team *motivation* and *culture*, manifestation of highly collaborative and coordinated set of activities beyond established processes may overlap between high team *culture* and *flexibility*, and proactive creation of solutions that circumvent constraints and rigid processes may overlap between high team *flexibility* and *motivation*. Further, it would appear that the presence of organizational and project-level influencers—collective agents in teams, organizational culture, and project guidelines, processes and methodology—impacts all three high performance enablers directly. Thus, however insufficient, the process model suggests what factors may enable the formation of high performing IS project teams.

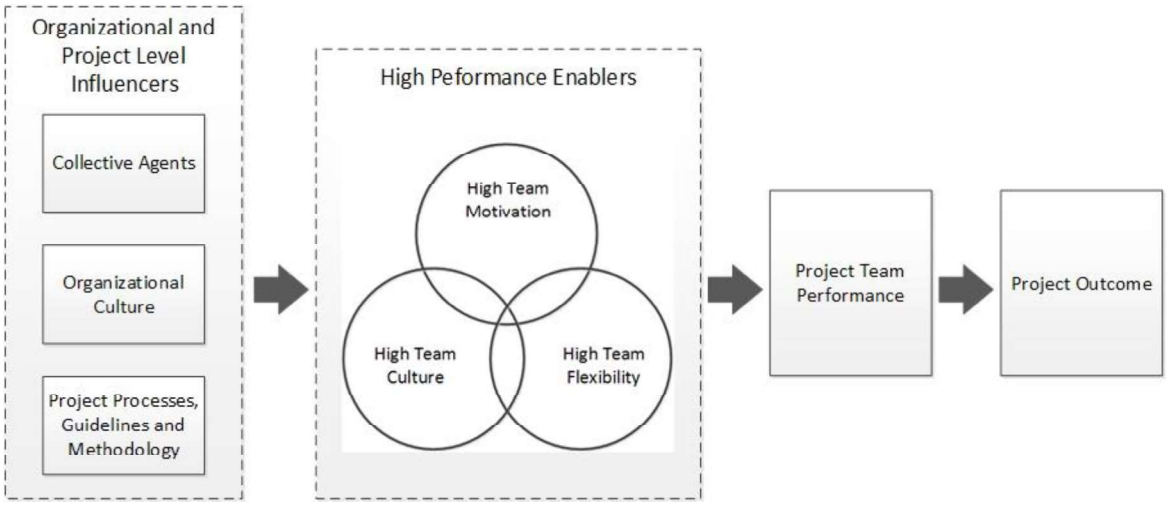


**Figure 2. Factors that Enable High Performance in IS Project Teams**

## CONCLUSIONS

This study is a preliminary attempt to understand what high performance characteristics enable IS project teams to deliver projects successfully, and therefore, has limitations. First, data collection was limited through interviews and best recall of research participants. Second, researcher biases brought in the interpretation of the interview data may have eluded the findings to certain directions. And third, although the goal of our study is not to generalize to a population but, rather, to generalize to theory, our sample size is still relatively small that theoretical saturation may not yet have been reached.

However, although nothing is conclusive, we wish to highlight that understanding the social contexts of high performance interactions in project teams may yet be a worthwhile endeavor for refocusing research activities in the area of IS project management. Collective action theory has helped us uncover high performance nuances in that respect. The next steps of this research is to find a more complete set of high performance factors whose relationships with other constructs could be generalized to other IS project teams.

The contributions of this study are two-fold. From a theoretical standpoint, the study aims to augment the sparse literature of high performance teams in IS project management by providing empirical evidence of high performance characteristics among IS project teams as perceived by the project managers and leads of successfully delivered IS projects. From a practical perspective, the study highlights specific high performance IS project team characteristics that may inform the IS professionals about practices that can improve the chances of IS project success.

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## APPENDIX: STRUCTURE OF THE INTERVIEW PROTOCOL

To understand the nature of successful IS project teams, we structured questions of the interview protocol by first asking questions that helped the interviewees recall the background and scenario of the chosen project they wished to share in the interview. Then we asked more in-depth questions about the teams' day-to-day activities and behavioral characteristics. We directed questions that helped us understand if there are notable characteristics that the project managers' think their project teams exhibited, and asked them to explain why and in what way. Finally, the last question of the interview asks whether or not the project manager considers his or her team to be high performing and, follows up with a 'why' or 'why not.' Such is the structure of the interview protocol to avoid any psychological bias that may tempt participants to answer questions that suggests, or is inclined towards, high-performance.

(1) Scenario Building
    - Background information about the project and project team
(2) Understanding Fundamental Team Characteristics
    - Project methodologies and practices
    - Success metrics (i.e. functionality/quality, time)
    - Level of engagement of team members
    - Challenges encountered in the project
    - Attitudes exhibited by the team
    - Responses to other project stakeholders
(3) Understanding High Performance Attributes of Project Teams
    - Team attributes that overcome challenges
    - Team attributes that make the team successful
    - Team attributes that project manager considers to be high-performance attributes