The Performance of IT Professionals: the Difference that Makes a Difference

Completed Research Paper

Introduction

Information Technology (IT) organizations are expected to develop and deploy solutions that improve firm effectiveness and/or provide competitive advantage. Despite clear evidence that the role of IT is increasingly important to organizational processes and competitive strategy (Kaarst-Brown and Guzman 2005) only 25% of global business executives claim satisfaction with the performance of their IT investments (Compass Group Survey 1999) and 75% of global companies admit to wasting one in three dollars spent on IT development and implementation (Ellis 2009). A recent survey of 3,000 US government and commercial organizations (Lynch 2009) revealed nearly a quarter of IT projects are cancelled before completion and 44% are delivered over budget and/or miss their schedules by as much as 120%. As the role of IT has evolved, new roles have emerged requiring specific skills and competencies to manage and perform work expected to provide competitive advantage for the firm (Applegate and Elam 1992). IT managers and individual contributors (ICs) work in an unprecedented environment of sourced and insourced teams (Pinnington and Woolcock 1995), global virtual teams (Casey et al. 2007) and contingent workforces (Newton et al. 2007) resulting in shifting requirements for IT professionals.

Few researchers have focused on what influences the performance of IT ICs and managers. A rare exception was a study distinguishing the competencies of average and superior ICs nearly two decades ago (Spencer and Spencer 1993). While many notable researchers (McClelland 1973; Winter 1979; Boyatzis 1982; Spencer and Spencer 1993) have argued that behavioral competencies impact performance more than technical skills, competencies identified even a few years ago may no longer be relevant.

We addressed this knowledge gap by designing a qualitative study based on semi-structured interviews with IT managers and ICs assessed as average and superior performers at three multinational corporations operating in North America. Our data demonstrates dramatic differences in the behavioral patterns of average and superior professionals at both levels -- particularly with respect to role breadth self efficacy (RBSE). Although RBSE has been studied in other fields, we are unaware of any work that has previously singled out IT ICs and managers. In particular, superior and average IT ICs and managers were seen to differ significantly with respect to when, how and to what extent they interacted with others in the organization. Our findings strongly support the claim by Boyatzis et al. (2002) that IT technical ability, while important, is insufficient to make a difference in managerial performance.

Literature Review

Rapid and pervasive changes in IT are affecting the management of IT people (Baroudi 2008; McGee 1996; Moore 2000) and creating new and different demands in the IT labor market (Keen 1988; Lee et al. 1995). The literature on IT performance has concentrated on the business value of IT (Bharadwaj 2000; Li and Ye 1999) and the relationship between IT capital investment and organizational performance (Brynjolfsson and Hitt 2000). IT employees are often excluded from analysis, hindering understanding the IT IC and manager roles in creating value (Hitt and Brynjolfsson 1994). As organization dependence on IT increases (Moore 1965), so does the importance of the people in it.

Technical and managerial expertise are distinct concepts and it is managerial, not technical IT skills that confer a sustainable competitive advantage (Mata et al. 1995). More specifically, Bharadwaj (2000), Brynjolfsson & Hitt (1996), and Lichtenberg (1995) argue technical skills provide a temporary competitive advantage, but managerial skills provide a sustainable advantage. A review of the literature evidences a plethora of studies on the effectiveness of IT processes and technologies, but a relative paucity of research about IT professionals, motivating us to explain the difference between average and superior performing IT ICs and managers. To inform our inquiry we identified factors that impact performance. In particular, we looked at the work on individual competencies, including that of McClelland (1951), Boyatzis (1982), Goleman (1998), and Spencer and Spencer (1993). Their studies indicate that social, cognitive and

emotional competencies influence interpersonal relationships that, in turn, affect individual job performance, and ultimately firm performance.

Laying the foundation for the vast literature on performance, McClelland (1951, 1961, 1973, 1975, 1985, and 1998) paved the way for contemporary theories on which our work is based. In a rare and very early study on IT people, McClelland (1961) revealed that motives drive their performance. McClelland offered a theory of personality, describing it as comprised of relationships among a person's unconscious motives, self-schema, and observed behavioral patterns. Two decades later, McClelland & Boyatzis (1982) argued that need for achievement, a motive driving the performance of ICs, becomes intrusive when they are promoted to middle management and is superseded by another motive -- the need for power.

The power motive McClelland (1975) contended, measures a person's desire to have an impact or be influential, while the affiliation motive, a measure of a person's need to establish and maintain positive relationships and self control, is a measure of the disposition to control one's own impulses. He claims neither are substitutable personal qualities, i.e., having more of one does not compensate for having less of another. The optimal motive pattern for effective managers according to McClelland (1975) consists of being moderately high in power (having impact on others), lower in affiliation (makes difficult decisions without worrying about being disliked), and high in self-control (likely to be concerned with maintaining organizational systems and following procedures) (McClelland and Burnham 1976). Although personality plays an important role in performance outcomes, unfortunately the personality variables of technical managers do not predict who is more or less likely to be promoted (McClelland 1975; Winter 1979). Rather, promotions in IT depend more on technical abilities than personality characteristics.

Three derivative theories of McClelland – the theory of competence (Spencer and Spencer 1993), contingency theory of action and job performance (Boyatzis, 1982), and the theory of performance (Goleman 1998) – address the differences between effective and less effective performers. The first suggests that competencies are underlying characteristics that signify ways of behaving or thinking, across situations, endured over a long period of time and makes a distinction between five competency characteristics: knowledge, skill, motives, traits, and the self-concept (Spencer and Spencer 1993). Knowledge and skill, Spencer et al claim, are relatively easy to identify and develop, while motives and traits are more difficult to assess, with self-concept lying somewhere in between. The best performing technical professionals, according to Spencer and Spencer (1993) use interpersonal skills and teamwork to accomplish their goals. They claim that a managerial position requires development of interpersonal and managerial competencies. A danger for new technical managers is they will retain too much of their IC role and "take over" projects, rather than guide and inspire subordinates (Spencer and Spencer 1993).

Boyatzis' (1982) contingency theory of action and job performance, an integrated system approach to analyzing employee effectiveness, suggests that emotional competencies (self-awareness and self-management) social competencies (relationship management), and cognitive competencies (systems thinking and pattern recognition) predict effectiveness in professional, management and leadership roles and that maximum performance occurs when a person's talent is consistent with job demands and organizational environment.

Goleman (1998) positions emotional, social, and cognitive competencies as focal for the study of performance, concluding that emotional competencies are twice as prevalent as technical skills and cognitive abilities combined in high performers. Emotional competence is defined in his theory of performance as a "learned capability based on emotional intelligence (EI) which results in outstanding performance at work." Goleman promotes the merits of EI as the ability to distinguish, understand, and apply emotional information about oneself and it has five elements – self-awareness, self motivation, self-regulation, empathy, and social skills. Some combination of which, Goleman (1998) distinguishes effective leaders. Goleman has argued that EI is twice as important for superior performance as technical skills and IQ for jobs at all levels.

Organization climate may also affect performance. Downey et al. (1975) discovered job performance is affected by sociability and that organizational climate, an individual's perception of his work environment, moderates competencies and performance outcomes (Jarvenpaa et al. 1998; Iacono and Weisband 1997). Climate is unique to each organization, deeply rooted in its behaviors and norms (Pritchard and Karasick 1973) and affects leadership quality, overall performance, and the leader's commitment to IT (Weill 1990). The quality of interactions among IT and other internal organizations,

Neo (1988) concluded, strongly influences IT performance, because employees need to develop strong teamwork and collaboration skills to function in a diverse environment.

Our intent was to shed light on factors that may explain differences between the performance of average vs. superior IT ICs and managers. We hoped an enlightened understanding of how they construe and enact their roles might inform how IT and its support organizations recruit, train and promote IT professionals to optimize organization effectiveness. While the literature has recognized highly honed emotional and cognitive competencies – not simply excellent technical skills -- as critical for success, there is scant empirical work specifically on IT ICs and manager competencies – a deficiency we aimed to address.

Methods

Methodological Approach

We conducted a qualitative study using semi-structured interviews with IT professionals to generate a grounded theory about how average vs. superior IT ICs and managers understand and enact their roles. Corbin and Strauss (2008) recommend a grounded theory approach, involving rigorous, systematic collection and analysis of field data, to promote understanding of complex psychological and sociological phenomena. Heeding the direction of Maxwell (2005), we focused on narratives rather than numbers to generate data that would reveal differences in the meanings of events, situations, experiences and actions of IT managers and ICs. Data like ours, in the form of respondents' own words, as well as observations based on immersion in their worlds, is argued to be often more insightful than that generated from questionnaires or surveys (Boyatzis 1998). Three defining characteristics of grounded theory – constant comparison, theoretical sampling, and theoretical saturation, guided our work.

Sample

The sample consisted of 40 IT professionals – 17 ICs and 23 middle level managers (11 average and 12 superior performing IT managers and 10 average and seven superior performing IT ICs) at three North American companies: an international investment bank in New York, a global automobile manufacturer headquartered in Detroit, and a major telecommunications provider based in Toronto. Using the principle researcher's professional network, we contacted top IT executives at each of the three firms to invite their participation in the study. In each case, the CIO or a designate from each firm provided a list of employees fitting pre-established criteria. We emailed each nominee to introduce the study and affirm their participation- and all agreed. Respondents included both average and superior performing IT ICs and managers. Selection was based on an employee's previous year performance appraisal. Superior performing nominees were selected on the basis of having achieved the highest possible appraisal rating. Average performing nominees were selected on the basis of appraisals documenting average or fully met objectives. The participant's performance status was not revealed to the researcher until the analysis stage of the research. Tables 1-4 below represent our participant pool by industry, gender, and nationality, and age. Particpants were randomly selected and perform a variety of roles within the organizations. Specific roles were not requested, the only identifiers were if they were individual contributors and/or managers.

Table 1. Participant Pool for Qualitative Study				
Role	Manager Superior	Manager Average	Individual Contributor Superior	Individual Contributor Average
Investment Bank	4	4	3	3
Automobile Company	4	3	2	3
Telecommunications Company	4	4	2	4

Table 2. Gender of Participant Pool				
Gender	Manager Superior	Manager Average	Individual Contributor Superior	Individual Contributor Average
Male	9	7	3	7
Female	3	4	4	3

Table 4. Nationality of Participant Pool				
Nationality	Manager Superior	Manager Average	Individual Contributor Superior	Individual Contributor Average
American	6	5	4	3
Asian/Indian	2	3	1	2
British	1			
Canadian	1	2	1	3
Dominican Republic			1	
Hispanic				1
Israel	1			
Russian				1
African	1	1		

Table 3. Age Group of Participant Pool				
Age Groups	Manager Superior	Manager Average	Individual Contributor Superior	Individual Contributor Average
25-35	1	1	3	3
35-45	7	6	3	4
45-55	3	3	1	3
55-65	1	1		

Data Collection

All interviews were conducted on site at the North American headquarters of each of the three participating companies between April and July, 2010. The interviews averaged 60 minutes, were guided by an interview protocol, audio recorded and later transcribed by a professional service. We adopted the behavioral event interview (BEI) technique recommended by Boyatzis (1982) and Spencer and Spencer (1993) to conduct semi-structured interviews. The respondent was asked to recall and narrate recent specific events that had occurred in the last 12 to 18 months reflecting perceptions of effectiveness and probes were used to elicit detail. The accuracy of recall of events is increased dramatically when the events are recent, have a high saliency to the person, and the recall involves specific actions (Rubin 1986). Throughout the interview process, the researcher composed field notes and memos to capture emerging ideas.

Data Analysis

Thematic analysis is a process for encoding qualitative information by perceiving and interpreting patterns and themes (Boyatzis 1998). Coding can be thought of as a way to relate data to ideas about the data (Coffey and Atkinson, 1996). Our analysis involved iterative readings of our transcripts and continuous review of our audio tapes. We rigorously "open coded" all 40 interview transcripts, involving multiple line by line readings of each transcript with the goal of identifying what Boyatzis (1998) calls "codable moments," i.e. fragments of text with potential significance. The transcripts yielded 840 codable moments that were subsequently grouped into 32 categories. Five themes characterized our three findings. These findings included: building and maintaining relationships, varying communication patterns, organizational awareness, proactivity, and anticipating and managing bureaucracy. We then developed a codebook to convert open-ended responses or unstructured responses and behavior into a set of quantified variables for analysis. A "good code" has five elements; a label, a definition of the theme, a description of how to know when the theme occurs, qualifications to identify the theme, and examples to eliminate confusion when looking for a theme (Boyatzis 1998).

Findings

Our data revealed differences in the competencies of average and superior performing ICs and managers, which may explain why the performance of IT managers varies considerably.

Finding 1.0: IT ICs (the resource pool for future IT managers) self-construe (regardless of appraisal rating) primarily as technologists, but demonstrate very different interpersonal and organizational competencies. Superior ICs tend to build and utilize larger social and organizational networks than do average ICs.

When asked to narrate both effective and ineffective work experiences, average ICs emphasized the importance of their immediate workgroups and reliance on them for solutions to problems. Overwhelmingly they revealed solidarity with peers, being insular, and seldom extending beyond their teams. In vivid contrast, superior ICs reported interacting with more distant organizational members, networking and building relationships with peers in external to their workgroups. Six of seven superior ICs preferred collaborating and seeking information from others, reporting proactive efforts to make new contacts and build partner relationships.

While average ICs reported solving problems by "talking amongst ourselves" and "bouncing ideas off (fellow team members)," avoiding "intruding on others (outside the workgroup)," and turning beyond the team only when "traditional processes" had been exhausted, superior ICs celebrated "working across the organization," spanning functional boundaries "to gain a broad view of the organization" and going "from person...to another person...to somebody (else) who might know something" to accomplish tasks. The interview quotes in Figure 1 demonstrates network orientation differences between superior vs. average performing ICs. Superior ICs emphasize organization wide interests and interactions, while excerpts from average IC interviews, demonstrate a focus on local interests and interactions.

Superior	Average
"I really enjoyed the culture. We'd create project teams for a particular launch. Then you're on two or three different project teams at any given time, getting to work across the organization and people working together very collaboratively."	"We would basically just try and resolve problems on our own, but then if we had any issues, we would just sort of collaborate amongst ourselves, figure things out. We would just have to bounce ideas off each other".
"I liked working with the engineers and got an understanding of what they're doing. I worked with purchasing so I understood supply chain and then I talked directly to the sales guys. I liked the fact that I could gain a broad view of the organization".	"Typical operating is you first talk to your team; make sure nobody else in the team knows that answer. Then talk to supervisor. There are traditions here at X company. There's always a process to be followed".
"Usually, I ask somebody that I think might know information, and that person sends me to another person, and then that person might not be the right one, but he knows somebody who knows somebody. It's through people, talking to people".	"I really enjoy working with the team I am working with now. I feel like they can teach me a lot. It's not like you feel like you're really intruding on people when you need to get help".

Figure 1. Interaction Patterns: Superior versus Average Individual Contributors

Finding 2.0: Superior and average rated IT managers demonstrate different networking and communication skills, as well as strategy preferences. The networks of superior managers are more expansive than those of average managers and they prioritize and communicate more with business partners and subordinates.

While skill in networking beyond their immediate peer groups distinguished superior from average ICs prior to promotion, how and with whom they networked after promotion differed. Although interaction with business partners and with direct reports was required of both sets of managers, those rated as superior focused more on developing relationships and purposefully orchestrating communication with both clients and subordinates. The regularity and frequency of their interactions with both groups exceeded that of average rated managers. Superior performing managers (more so than average managers) deliberately focused on building collaborative relationships with their business partners. These managers emphasized efforts to build rapport, trust and understanding among their clients and employees, forging "cohesive teams," while average managers tended to emphasize tensions and differences between the two.

Superior managers prioritized spending time with clients, reporting meeting with them frequently to discuss current project status, future IT needs, and requirements but, also organizing social activities to intensify relationships. They "joke around and go out and have a few drinks after work" to further enhance the relationship. Social events such as picnics, parties and dinners involving teams and clients were reported by most superior managers, but by few average managers. Superior managers emphasized the importance of "maintaining an open dialog" and "sharing mutual expectations" with clients. Further, superior managers reported building relationships with business partners by "showing how technology adds value" and "getting the business involved in the system development", "putting themselves in their shoes," and "looking at things from their perspective and understanding their business challenges,"

In contrast, average managers report that they often disagree with customers over requirements. "We bring the developer and customer together and fight with them," frequently try to limit customer requirements to "what they know they can deliver" and "overprice project estimates to come in under budget." All 12 superior managers emphasized their association with direct reports, reporting purposeful efforts to position themselves as "a part of the team," and "being in the trenches with them, as if in a war" because "if they see you are in it with them, then they will be in it with you." Superior managers focused on communicating with direct reports whom they said, helped them to better predict and prepare for potential issues and problems and also "to make sure they understand the goals and wanting them to know why we're doing what we're doing." Superior managers acknowledged that taking the time to listen results in better outcomes for their team and the businesses they support. They recognized segregating communication sessions to gain differing types of feedback, such as focusing on business issues at team meetings and personal and career issues in one on one meetings.

Superior managers were preoccupied with team morale and productivity and focused on protecting the group and its reputation. They reported interest in "diving into what motivates and inspires people, and knowing what they need," "adjusting their management style accordingly," and giving team members a sense of ownership "by encouraging active participation in setting meeting agendas, running meetings, and taking minutes…making it their meeting."

In contrast, average managers revealed having limited time to focus on employees because of "higher priorities," admitted having "…cancelled meetings with my team…when "things come up," and acknowledged focusing less on their subordinates and more on superiors. Only one of 11 average managers discussed "listening" to stakeholders. Rather, they reported that "emails are effective," they "pop by employees' desks to see if they are on track," and "listen to them (only) when they're complaining." They acknowledge that they "do not push them to always be in a room, unless it's mandatory and there's an issue to be resolved." They revealed much of their communication with direct reports and business partners is negative, with discussions focused on complaints and solving problems. Unlike their superior peers, they hold meetings only when a problem needs to be solved or when directions for proceeding with work tasks are needed and rarely spend one on one time with direct reports or business partners.

Average performing managers sought direction from superiors and conceded frustration when they didn't get it. "It was ugly, not being able to gain a direction from senior management. What should I be doing and who should I be doing it with?" Average managers reported they slow or hold off progress on work while they await direction or approval. With respect to engagement with business partners, average managers narrated transactional relationships while superior managers described more personal rapport. Average managers reported both positive and negative interactions while superior managers cited only positive ones. Figure 2 (below) contrasts how superior managers strategized to collaborate and average managers sought to "service" business partners, Figure 3 (below) reveals distinctions between the two groups and their relationships with subordinates and Figure 4 (below) expresses the communication patterns of superior performing managers.

Superior versus Average Performing Managers' Relationships with Business Partners	
Superior	**Average**
"One of the things that I did that helped was to bring the business closer to my team. We brought in the business to define their drivers, needs, and issues. I scheduled weekly meetings with my team and the business, playing a critical factor in the business taking ownership. They see us as part of the team. Not just IT."	"The clients always want everything. We try to understand what they really need, but we continue to emphasize the fact that we need to make the best use of our resources. If this is where you want us to spend the money and time, that's fine, but just realize that other things will need to be pushed down."
"I always try to develop a personal relationship with the business partners, understanding what they do, and how they do it. I've spent a lot of time to make certain that the folks who work for me learn that. I maintain social relationships with my business partners. They come around my house; we'd have parties together and go on trips together. It is very important to me that we operate on a partnership basis and as a team."	"I'm trying to get my team focused on who is our customer and what do they need from us because we're not sufficiently customer focused. The perception is we don't deliver any value. Which is just nonsense, but it is the reality."
"It is about the working relationship. So, for me, it's effective when you know what your counterpart or the other group that you are working with needs, how they operate, and how they do things. It is a priority to know what their thinking is."	"I had weekly meetings with them where I would list all the requests. And so together we would sit down and just come up with here's the list. And they were pretty reasonable."
"With clients, I try to establish more of a personal relationship with them. I gain an understanding of their strategy. I try to align the IT strategy with that. The key is to be more proactive than reactive with them. My strategy is to show them what we can do. They see that I'm trying to partner with them and be more than just a service. "	
Figure 2. Building Business Partner Relationships	

Superior versus Average Performing Managers' Relationships with Subordinates	
Superior	**Average**
"As far as my people, I met with all of them individually, just to understand who they are, what their background is, what are they working on, what do they got going on, both in the office and personally, anything I needed to be aware of."	"I let everybody take their own lead, let them do what they're going to do. If I see they're either tripping or fumbling, then I'll schedule more time with them. If they're on their own, I'll have less frequent meetings with them."
"I provide my direct reports with a good amount of responsibility and give them guidance on what we're after; the vision. I give them a lot of freedom to go and manage to those objectives. I think they enjoy that freedom and we meet together as a close knit team."	"You have your regular weekly meetings but, e-mails are effective for quick little things. I have hour-long status calls and pop by their desks to make sure they're on track. Not everyone's able to get together. I don't push them to always be in a room unless there's an issue to be resolved."
"I look at us as a team. I say, I'm with you. I'm in the trenches with you guys. You guys give me updates, but I'm the one calling the shots, but I don't call all the shots. I want to hear their opinions. One of my directs told me, I think we should do this. I know you said let's go this direction, but – what about this way? I said, I like it, let's do that."	"I found myself to be completely ineffective on a day-to-day basis. I didn't have any direction. I didn't have any mandates. I didn't have a lot of stuff from senior management. I found myself floundering. There was a lot of confusion. I was extremely ineffective."
"I provide my direct reports with a good amount of responsibility and give them guidance on what we're after; the vision and objective. I give them a lot of freedom to go and manage to those objectives. I think they enjoy that freedom and we meet together as a close knit team."	"A lot of times I didn't feel like I had very good direction, didn't know where the larger department was. It was hard for me to communicate anything positive to my team. As a result, I lost a number of people on the team. So that's been harder for the team too because then everybody else has got to pick up their work. It just spiraled all down."

Figure 3. Building Direct Report Relationships

Superior Performing Managers' Communication Tactics	
"I look at us as a team. I say, I'm with you. I'm in the trenches with you guys. You give me updates, but I'm the one calling the shots, but I don't call all the shots. I want to hear their opinions and one of my teammates told me, I think we should do this. I know you said let's go this direction, but – what about this way? I said, I like it, let's do that."	"I have weekly meetings with the team to get statuses, have them open up, see if there are any issues. I do an information cascade down to update them. Then I give them a rundown of important topics and we do roundtable status of their projects. Everybody gets a say, and they feel involved. I have weekly one on ones with everyone on what they want to talk about; career development and personal issues."
"To be an effective manager, listening is very important. And understanding, right? I think understanding my people is critical. I think a manager has to be a team player, and you cannot take it all on yourself."	"As far as my people, I met with all of them individually, just to understand who they are, what their background is, what are they working on, what do they got going on, both in the office and personally, anything I needed to be aware of."
"I make sure their ideas got listened to and discussed and having them involved with every single stage along the way. I help them to be successful for what they bring to the task, regardless of how huge or how small the task is."	"By listening to other people's ideas, I thought that was really, really powerful. I made them come up with the plan. And they got recognized – I didn't need to get recognized. As the team goes forward they're always going to be looking for each other and trying to come up with different solutions."
"I met with each one of my employees and went through a career plan with them. All four of them, came back to me separately and said this was great. You actually spent the time. You listened."	

Figure 4. Purposeful Communication

Finding 3.0: Superior performing managers "manage bureaucracy" to circumvent organizational policies and practices that could negatively affect their efforts.

Eight of 12 superior performing managers described that they manage bureaucracy by employing creative tactics to circumvent policies and practices that get in their way. Acknowledging that compliance with organizational policies and practices can often slow down work progress or interfere with desired solutions, they purposely anticipate potential barriers and issues and "deftly" workaround them. The majority of superior managers expressed willingness to challenge organization norms, policies, and practices for the purpose of satisfying the needs of their team and business partners. They report that they "find a way around things" and "if there are people blocking or causing disturbances in a project" that they

keep copious written communications and gain authorizations so that "everything is on paper and signed off" and therefore it is "more difficult to maneuver around the back and change commitments."

Superior managers report seeking out and working to maintain power relationships within the organization and proactively identify decision makers and key influencers to "pre-sell them" on issues. They indicated that they seek to understand the organization's culture (how things work) and recognized that "there is a game to it (knowing when to push and when not to push) and anyone who denies it is at a disadvantage." Respondents reported they "lobby their management" and get stakeholders "face to face" to share their ideas. Superior managers persuade others by appealing to their interests or use other techniques with the intent to advance their agendas and get stakeholders to accept ownership of their ideas, projects, or activities.

Nine of 11 average managers, complained about the negative effects of bureaucracy on the achievement of their goals – while expressing their lack of confidence and hesitancy to challenge it. They reported that although organization policies and management practices may negatively impact their ability to achieve desired performance outcomes, they are not likely to purposely challenge them. Average managers reported that events such as a restructure or change in direction negatively impacts them. They react by "not giving it much credence" and/or not "wanting to believe that this is changing," often denying the change is actually happening.

Average performing managers also reported they do not purposely seek to build relationships with people of influence and are passive when it comes to marketing their ideas or attempting to influence others. Figure 5 (below) demonstrates how superior vs. average performing managers anticipate obstacles and use creative tactics to accomplish their goals.

Superior versus Average Performing Managers' Creative Tactics	
Superior	**Average**
"I went to my stakeholder meeting with the deck that I put together. They loved it. Of course I reviewed it with my team and presented it to them before. I presented it to my boss after that, post-presentation. I sat and I lied to him and said, yeah, this is going to be for the next session."	"I felt like I failed. To be able to just shut down a number of functions in an organization and not understand the implications and impact to end users and not have a care means that I probably didn't do enough to educate that manager. The final result was the closure of a department of 30 folks out."
"One of the things that I instituted was a regular meeting with my business boss and my IT boss together. When you have two masters, one of your big challenges is alignment, and so getting them together face to face and agreeing on objectives seemed like a good thing. I used this meeting as the linchpin to aligning to the strategy. Otherwise, you'll end up getting sort of caught between two powerful forces**."**	"I guess I would've had to have pushed it more and paid attention more. This actually would've been a very big benefit for everyone. I think I should have pushed it more and made my manager realize that these are the benefits and if we don't do this, we'll just go back and do them the way we did before."
Ended up getting the CIO's email address and I emailed him every Friday at 12:00 until he gave me a job, did that for about seven months. And finally he caved and he said if you stop emailing me I will see what I can do for you".	"I like people and I like meeting and talking to people, but I don't like the baggage that comes with people either. So all the politics, that stuff drives me up the river. I have zero tolerance for that, and I just think it's an inhibitor for getting things done."
"I just laid down on the runway tracks, and flat out refused, and just said there is no way. He was upset, and I just said to him, "If you were in my shoes, what would you have done?" He said, "I would've done exactly what you did, but I'm still mad at you." So while there was anger, and there was emotion, there was a recognition of what I'd actually done was appropriate, and the right thing for the firm. They didn't like it, they didn't get their own way, but they also recognized why they weren't getting their own way."	"Some people market themselves and some people showcase the work that they're doing. The people who do that more so than others, they're successful, especially if they know who to mingle with and who to schmooze with. They do get ahead. I think, when you get to a certain level, you have to do some amount of marketing of yourself. I don't think I'm very good at doing that."
"In the past year, right around compensation and bonus time, I would actually lobby my manager to basically get more money for my team, my guys, and I would justify it and say, okay, the reason why this person deserves this is they worked on five or six really important projects that had a direct impact on a lot of the executive board, so that alone helped me a lot, had a direct impact."	"The supervisor really wanted me to take the lead. But I guess I could have had more confidence. I didn't really want to come out and say, "Okay. This is the way things should be done," because I really wasn't confident that I knew enough about the system or the data. And so I guess I got off to kind of a slow start at this application. But I guess there was enough pressure that I froze a little bit, and I just didn't say much."

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So I had to reach out to everyone across the firm. I had to get my team on board that we're going to get to 100 percent people testing this year. I had to reach out to every business group and get them to buy in. I got the COO to buy in. And I was like just campaigning. I was like a cheerleader out there."	"I mean I should have pushed for certain things in certain ways. The business has certain timelines with the vendors that are not set with our timelines. For us to be able to work to their schedule was difficult, but they drive us, right?"

Figure 5. Creative Tactics to Accomplish Goals

Discussion

Our research addressed the well documented perception that information technology organizations fail to maximize returns on the significant investments firms make in them (Brynjolfsson 1994). Although many explanations for IT performance shortcomings exist, we focused on people, seeking to shed light on the competencies of IT professionals. Our findings revealed differences between two tiers of IT professionals – ICs and managers –appraised by their organizations as average or superior performers. Appreciation for these differences may help firms to select and promote people best suited to manage their IT programs.

The IT professionals we studied exhibited patterns of interaction with peers, superiors, subordinates and others in the organization that appear to be correlated with their job roles and rankings. In the previous section we reported that average ICs performed their job responsibilities while remaining insulated within their work groups, demonstrating *internal reach*. We contrasted them to superior ICs who connected with peers both inside and outside their immediate work groups, exhibiting *external reach*.

Superior ICs who were later promoted to IT managers on the basis of their performance as technical professionals were thereafter appraised as either average or superior – and these rankings were also associated with discernable interaction patterns. Average rated managers, extended their *external reach* and intensified their *upward reach* in the firm -- i.e. focusing on supervisors and others higher in the organization and forging limited relationships with peer level constituents in the larger organization. In contrast, superior managers demonstrated longer *external reach*, strategically developing relationships with diverse and widely dispersed constituents throughout the firm -- and focusing their attention on subordinates (*downward reach*), rather than superiors. The patterns of interpersonal interaction our data revealed seem to support Goleman's (1995) claim that high performers exhibit emotional competencies twice as often as they display technical skills and cognitive abilities combined. Our average managers appear to be technical experts who, as Winter (1979) described, are promoted for their ability to explain what they know, but lack the personality necessary to be effective. Figure 6 (below) illustrates the interactive patterns that were revealed by our participants.

Figure 6. Interaction Patterns of Average vs. Superior Performing Individual Contributors and Managers
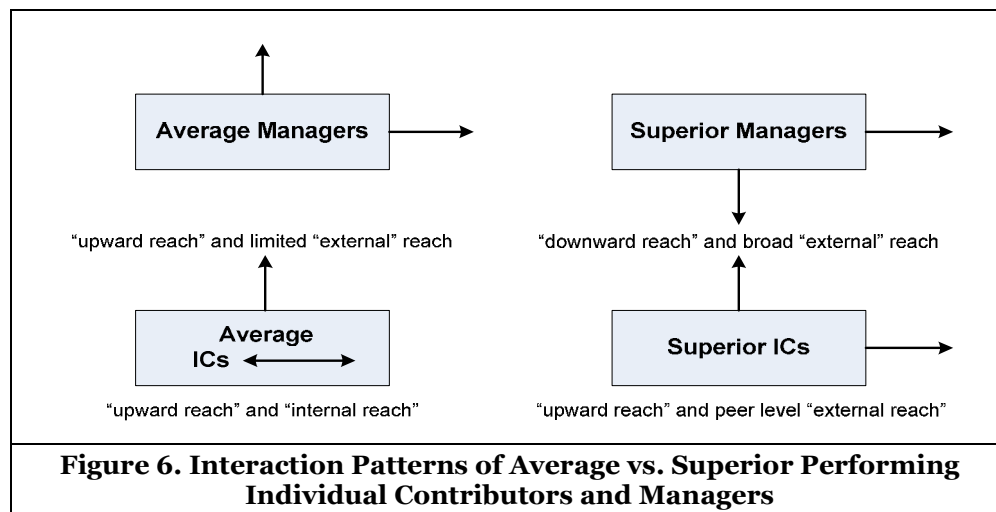
Because they work independently or in small groups, ICs interact primarily with peers and superiors. However, once promoted to managers, they are called upon to interact with broader organizational constituents, including, for the first time, subordinates. As managers, they are now in the position to mentor and motivate other ICs and to satisfy and build confidence in clients. Some previously rated superior ICs rise to the occasion, but others do not. The ability to distinguish and to develop the relationships key to their success differentiates average and superior performing managers. While the network boundaries of average managers certainly expanded after promotion, those of superior managers expanded faster and much wider. Superior managers reached out to greater numbers of individuals and teams at varying levels in the organization, often crossing business unit boundaries. Although we did not purposefully set out to study interaction patterns, we found strong evidence of them and clear differences between how average and superior managers use them to establish organizational networks.

Effective networking is an activity characteristic of high performing managers (Luthans et al. 1985) and, according to Luthans (1988) makes the biggest relative contribution to managerial success. The smaller, more dense and defined networks of superior ICs and average managers in our sample – and the comparatively more expansive and diversified networks of superior managers – illustrate the contrasting social capital theories of closure and structural holes. Burt (2000), in arguing the superior value associated with the latter, describes structural holes as gaps between people across which information does not flow smoothly and which offers competitive advantage to individuals able to bridge them. The structural hole argument contends that social capital is created by a network in which people can broker connections between otherwise disconnected others. The more "structural holes" between groups that a person can span, Burt (2002) argues, the richer the information benefits of that network and the more potential power available to the broker. Kalish and Robins (2006) have observed that people who feel vulnerable to external forces tend to inhabit closed networks. The fundamental proposition of social capital theory is that network ties provide access to resources and constitute a valuable source of information benefits – i.e. "who you know" affects "what you know" (Nahapiet and Ghoshal 1998). Luthans (1988) claims social capital makes the biggest relative contribution to manager success. Our study revealed that superior managers build larger and more diffused networks providing them with more social capital. Average ICs fail to extend their lateral reach beyond their immediate work groups, and average managers, not far enough beyond those limits.

Evidence supports the proposition that extrarole behaviors do impact organizational performance and are important to understand, predict, and encourage in the organization (Organ et al., 2006; Podsakoff et al.,1997; Podsakoff & MacKenzie, 1997). Parker (1998) recently introduced the concept of role breadth self-efficacy (RBSE) to capture employees' perceived capability of carrying out a broader and more proactive set of work tasks that extend beyond prescribed technical requirements. Unlike proactive personality, which is a relatively stable personal disposition, RBSE is expected to change as environmental conditions and employees' organizational experiences change.Organizational members who proactively seek broad access to others, cross boundaries (i.e. inter-organizational structural holes) and engage in integrative activities that extend the prescribed technical requirements of their given roles, are said to have role breadth self efficacy (RBSE) (Parker 1998). Employees with RBSE demonstrate proactive behaviors and personal initiative, but Crant (2000) points out, they must also possess interpersonal and integrative skills. These employees are viewed as more valuable because they assume broader roles essential for organizational success (Parker 1998), engage in behaviors that extend beyond narrow role definitions, and do more things with less supervision. RBSE describes the motivational behaviors we observed in the narratives of superior managers such as taking initiative, anticipating barriers, managing change, planning solutions and scanning for opportunities (Bateman and Crant 1993).

Superior managers revealed seeking greater organizational awareness of "how things work" and willingness to manipulate and manage bureaucracy to get things done. These robust networks enlarge environmental access, promote feelings of control and facilitate creative integrative activity appearing to reinforce one another. Studies have shown that the higher a person's self efficacy, the more likely he/she is to initiate tasks, stay with them to completion, and be persistent in the face of roadblocks (Bandura 1986, 1997; Stajkovic 2003, Luthans 1998a, b). We found that superior managers anticipated barriers, demonstrated confidence by taking the initiative to develop/deploy creative tactics, and used persuasion and persistence to accomplish their goals. Luthans (1988) suggested, and our data vividly reflected, that increased self efficacy of managers leads to strengthened engagement and heightened effectiveness.

Low self efficacy, on the other hand, interferes with the effective use of cognitive abilities, negatively impacting the deployment of successful strategies and may result in adverse outcomes (Luthans 1988). Our data revealed that average ICs and managers harbor self doubt about their abilities, seek direction from superiors and are far more apt to obey organization rules and policies than superior managers. Our average ICs stayed insulated in their work groups and average managers extended their lateral reach into the organization more tentatively and less expansively than their superior rated peers.

Parker (1998) investigated how RBSE might be enhanced; using interventions that develop employees to respond more effectively to today's demanding performance requirements. Parker's rationale for this approach was Bandura's (1986) notion that gaining mastery through repeated performance accomplishments is important for the development of self-efficacy. Parker (1988) argues that enactive mastery towards an expanded, proactive role is likely to be increased when employees are able to make autonomous decisions, use their abilities and work on challenging tasks. Thus initiatives such as job enlargement, workplace communication and participation in improvement groups might be important facilitators of RBSE. Since RBSE can be developed, organizations should offer tools and courses to expand IC and manager role breadth, which should lead to improvement in IT performance.

The majority of average performing ICs and managers were preoccupied with improving their technical skills by pursuing more training, while superior managers revealed little focus on improving technical skills. Average managers reported seeking training to "take charge of my own destiny" and "learn as much as I can." RBSE is useful in explaining the seeming paradox of why average, rather than superior managers may seek more self development. Preoccupation with training may reveal average managers' lack of confidence in their abilities. They revealed that lacking skill in the latest technology may incite negative perceptions about their value and target them as expendable. In contrast, superior performers relied on existing knowledge and focused on their ability to interact with business unit customers.

We saw ample evidence of proactivity, taking initiative, persuasiveness, organizational awareness, and persistence unique to superior performing managers. Boyatzis (1982) claims individual competencies have a direct impact on behavior. Our data supports the claim by Spencer and Spencer (1993) that competencies distinguish superior from average performers.

In this discussion, we have focused on proactivity and its expression in RBSE as a critical distinguishing competency of superior IT professionals. Crant (2000) contends that the proactive component of extra-role behavior has been underemphasized. Strong evidence of this was demonstrated by our comparison of IT ICs and managers, suggesting attention might be focused on this construct and its association with RBSE. Figure 7 (below) illustrates our study results, suggesting RBSE affects performance, and is affected by creativity, directional orientation, job autonomy, proactivity, oral communication, problem solving, and social networking.
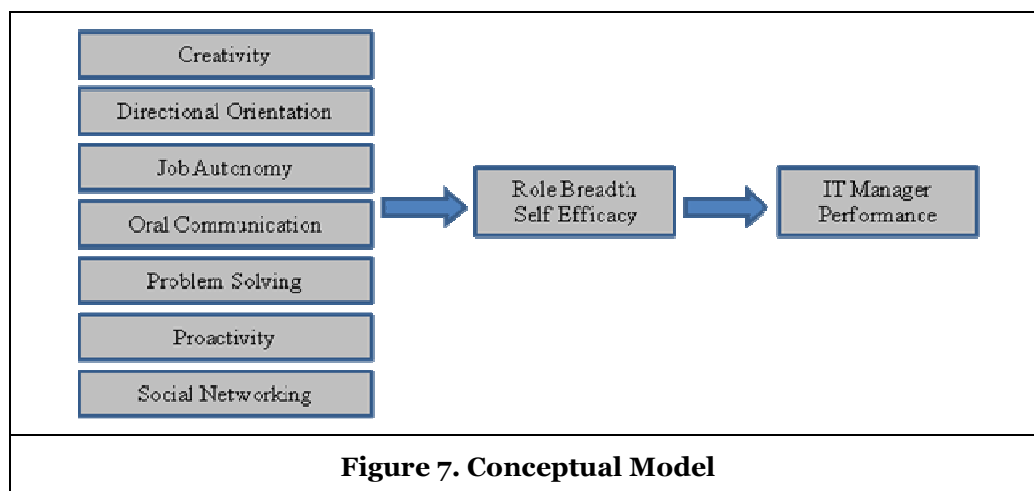
Figure 7. Conceptual Model

Implications for Practice and Future Research

This study may have important implications for HR and IT leaders and IT practitioners who might leverage our findings to improve performance, hiring practices, focus training investments, and increase retention. Recognizing that superior rated IT managers may have greater RBSE, HR professionals might broaden their focus and shift investment in technical training for ICs to more of a balanced training strategy of technical and behavioral development — prioritizing, in particular, behavioral competencies associated with role breadth self efficacy. It has implications for workforce planning by senior executives. Although our study did not identify any differences in gender behaviors and since we were not permitted access to the age of the participants, further study in these areas might yield expanded findings.

Morgeson, Klinger and Hemmingway's (2005) recommended, and we concur, enhancing RBSE through organizational intervention, suggesting that managers can take actions to enhance employees' level of self-efficacy, thus developing their potential to be proactive and thereby increasing their RBSE. HR professionals might also consider changes in the IT appraisal process. We did not have access to respondents' appraisals nor were we privy to the specific competencies used in their assessments, but the HR professionals at participating firms who recommended our respondents, confirmed that the superior status of their ICs was based primarily on their technical skills. Since behavioral competencies are more important at the managerial than the IC level, they should be recognized prior to promotion.

Our work underscores the importance of behavioral competencies and supports the research of McClelland, Boyatzis, Spencer & Spencer, and Goleman with respect to the impact of competencies on performance. Specific empirical inquiry about the interaction patterns of IT professionals is recommended to further define differentiating behavioral competencies related to specific roles within the IT organization. Future qualitative inquiry could explore more specificity how IT managers understand role breadth and how they enact it. We also recommend further research centered on the directional orientation of IT ICs and managers to gain increased understanding of how superior managers balance their orientation to superiors versus subordinates. A quantitative study to determine which competencies associated with RBSE most influence superior performance. We suggest a longitudinal study focused on how specific types of training may or may not affect the RBSE of ICs that are newly promoted to the manager role.

Limitations

Several limitations of this study should be noted. Although our focus on IT ICs and managers was deliberate, our sample was drawn from just three multinational firms and may not thus be generalizable to all IT professionals. Our respondents, sourced from very large for-profit organizations, may not be representative of those in smaller IT organizations. Our respondents represented three distinct industries (financial services, manufacturing, and telecommunications) which may not be generalizable to all industry sectors and the firms were multinationals, but our research participants all worked in their North American operations. We were provided the ratings of the participants, but were not offered insight to the performance management and appraisal criteria or forms of each firm. A more global sample may have produced different results. It should be acknowledged that the principle researcher of this study has extensive management and consulting experience in the IT and HR sector and despite conscious efforts to control for bias, this may have affected our data collection and interpretation.

Contribution

Our work is unique in its focus on behavioral patterns of IT professionals – in particular with respect to RBSE. Although RBSE studies have used samples of employees in other fields, we are unaware of any that have singled out IT ICs and managers. Despite their significant impact on IT performance; little previous research has targeted IT managers and sought to explain the differences between average and superior performers. We contribute to the literature about IT professionals and to the practice of IT. Our findings have potential impact on IT hiring, training and promotion practices which, can be improved by enhancing individual propensities for job enlargement by proactivity, networking, social capital accumulation and utilization.

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