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Micro-Firm IT Shops: Update on Unique Challenges and Opportunities

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ABSTRACT

Information Technology (IT) departments within Small- and Medium-sized enterprises (SMEs) face challenges that are significantly different from larger corporations with greater resources and higher levels of IT staffing. From resource constraints to nonexistent training budgets, IT personnel are constantly striving to do more with less. This Research-in-Progress investigates the challenges and opportunities of IT specialists working in micro-firms, the lowest end of SMEs. Interviews will be used to explore this topic, developing a framework of salient factors and key indicators. Although this general topic has been studied for nearly three decades, rapid advancements in technologies and corporate pressures have created radical changes that directly impact this sub-strata of the IT world. A survey will be developed and distributed using a social networking method; results of analysis will be used to evaluate the research propositions and to assess the primary antecedents contributing to IT success and job satisfaction in micro-firms. The research contributions will increase theoretical knowledge and provide insights for both IT specialists and executives in these business settings.

Keywords

Micro-firm IT, SMEs, IT Success, IT challenges, IT opportunities, Job Satisfaction, Tactical IT, Strategic IT.

INTRODUCTION

Much of the research performed on IT resources and personnel has focused on large corporations with significant technology investment. Although there are a number of excellent exceptions (c.f. Fink, 1998; Raymond, 1985), historically, relatively little research has been dedicated to investigating the characteristics and constraints of IT within small- and medium-sized enterprises (SMEs). Additionally, much of the research was performed in earlier periods, when SMEs were less likely to invest in technologies. The expectation was that they simply could not afford the luxury of information technology (IT) due to the expense being cost prohibitive. Even today, IT departments within SMEs face challenges that are significantly different from larger corporations. For instance, some researchers have found that IT in SMEs depends on the background and technical skills of the owner/founder (Levy and Powell, 2000). Considering the budget limitations and skills availability, SMEs are forced to employ greater innovation when developing solutions to even common, routine problems. Throwing money at the IT problem just isn't feasible. By contrast, problem-solving reaches new levels of artistry and creativity in these settings.

Dividing time between tactical (operational) and strategic (visionary) activities invoke constant pressures. These trade-offs are driven by temporal constraints and extreme prioritization of tasks. For example, when end users are requesting (or demanding) urgent fixes that directly impact their work performance, an ongoing IT integration project designed to proactively improve information systems usage throughout the enterprise gets postponed. Regardless of anticipated cost savings, corrective actions to facilitate operationally vital systems will usually take precedent over the strategic project. IT specialists often become frustrated by the necessity to delay beneficial projects, thereby creating tension and anxiety. There is never enough time in the work week to accomplish all of the tasks, and the backlog continues to expand.

MOTIVATION AND BACKGROUND

Two relevant experiences prompted the investigation of this topic. First, during a recent sabbatical, the author was a participant observer at an IT consulting firm in the Midwest geographical region, USA. The competitive intelligence (CI) firm performed research and information analysis for large corporate clients. Each client engagement was unique, involving diverse analytical skills and industry familiarity and/or domain knowledge. Length of assignments also varied; some were essentially "one-off" activities, while others were multi-year contracts. In this small organization there were eight analysts, three managers, two office assistants, and only one IT specialist. The CI consulting group relied heavily on subscription

databases, information portals, social networking sites, customized alert systems, and reporting/visualization tools. The IT specialist created many of the tools and interfaces in-house, using his personal skills and expertise. The analysts were very satisfied with their applications and information storage, particularly since their needs were generally met by the IT specialist in a timely manner.

In the second case, an IT director of a small consulting firm was struggling to balance the tactical requirements of the analysts he supported with the strategic goals related to the IT function. In a personal conversation with the researcher, he detailed the challenges he faced on a daily basis. His sincere passion for meeting all needs with excellence was driving him to frustration and potential burnout.

These scenarios highlighted the importance of investigating IT challenges and opportunities within micro-sized firms. For the purposes of this study, micro-firms are defined as SMEs with fewer than 50 employees and an IT staff of fewer than five individuals.

The remainder of this document discusses the method that will be followed in the study, analysis of the interview and survey data, and the anticipated contributions. The two-fold objective is to increase the theoretical understanding of this topic, and to contribute to the awareness of IT specialists in micro-firms.

METHODS

This study involves both interview and survey data. Initially, IT specialists employed in micro-firms will be recruited through online social media outlets and personal contacts. In particular, relevant LinkedIn groups will be used as a primary means of reaching out to the target audience. The researcher will conclude each interview with a request for names of potential participants, friends and associates of the interviewee, who might be interested in providing insights related to the study. The interview protocol for these in-depth interviews (see Appendix) will likely require between 30-45 minutes per session. The protocol will be reassessed and revised, if necessary, after completing the first five interviews. The interviews will be transcribed, and a content analysis will be performed. Revealed causal mapping technique will be used to analyze the interview data (c.f. Armstrong, Riemenschneider, Allen and Reid, 2007; Fahey and Narayanan, 1989; Fiol and Huff, 1992; Huff, 1990; Narayanan and Armstrong, 2005). These exploratory findings will provide richness in developing our final results and representative quotations will be included, as appropriate, while ensuring the confidentiality of the participants.

A survey instrument, previously tested and validated (Bailey and Pearson, 1983; Hamilton and Chervany, 1981; Raymond, 1985), will be adapted based upon themes that emerge from the interviews and modified for applicability to SMEs (Ives, Olson and Baroudi, 1983). Survey results from a test population will be evaluated for comprehensive psychometric properties and validity. Access to the survey will be provided using a LinkedIn social media site. The targeted sample size is, at minimum, 250 complete responses. It is appropriate to use social networking for data collection since we will be attracting IT specialists from our professional connections and associations.

ANTICIPATED CONTRIBUTIONS

Given the recent global economic crisis, SMEs are not immune to the financial pressures influencing IT resource allocation and problem solving (Upadhyay and Dan, 2009). The results of this study will increase understanding and awareness of the important pressures directed at IT specialists within micro-firms. An essential approach for qualitative research is to maintain an open perspective for identifying emergent findings. Some general concepts of interest to the study are briefly outlined in this section. These topics contribute to the motivation for this study and the importance of this phenomenon.

Challenges of IT Specialists in Micro-firms

Primarily due to pervasive financial constraints, a majority of IT specialists are forced to “do more with less”. They gallantly use innovative solutions to solve immediate problems and preserve productivity levels. They are continuously pulled back into the present moment, avoiding catastrophic failures while sacrificing the potential benefits of radical improvements. Incremental changes are the best they can hope for, given these restrictions. The interview protocol (see Appendix) addresses this topic, encouraging the IT specialists to describe their experiences and observations.

Opportunities for IT Specialists in Micro-firms

Based on perceived corporate agility due to size, there appear to be potential opportunities available to IT in micro-firms that do not exist in larger enterprises. Specifically, flexibility and time-to-market are examples of competitive advantages tied directly to IT (Byrd, 2001). Another potential advantage is the personal relationships that can develop between IT and analysts/end users in smaller firms. Anticipating the needs of the end users could even enhance IT responsiveness and reduce

latency. IT specialists in micro-firms are also more likely to feel personally entwined within the business strategy of the company, identifying more closely with the company's "big picture". This study investigates the perspectives of the interviewees on these relevant topics. Feeling indispensable is inherently rewarding, while at the same time potentially overwhelming. How do the IT specialists navigate this potential trade-off between technical expertise and work/life balance (Nayak and Joshi, 2012)?

RECOMMENDATIONS AND CONTRIBUTIONS

Directors and technicians in very small IT shops are often expected to be both specialists and generalists in order to satisfy the immense landscape of required responsibilities. *Managing* IT is balanced against the functional aspects of *maintaining* IT, often creating dramatic friction and aggravation. Unfortunately, these vital corporate members are subject to burnout, and it is incumbent on their supervisors and managers to monitor behavior for signs of corporate IT fatigue. The recommendations will be developed fully following data analysis. Potential areas for discussion are the following: Management ability to provide opportunities for professional development of IT skills (e.g. remain current), requirement of IT specialists to disconnect electronically from the firm for periods of R&R (i.e. rest and relaxation), and availability of updated technical resources (e.g. prioritize technology investments).

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APPENDIX

Interview Protocol

1. What is your job title? How many individuals are considered information technology (IT) staff in your company?
2. Please explain your primary responsibilities in your IT role in your company.
3. What are your most significant challenges related to IT?
4. Where do you see your greatest work-related achievements?
5. In general, are you satisfied with you job in IT?
6. What would improve your job satisfaction? (If necessary, probe for specific recommendations.)
7. What is your average work ratio of tactical (operational IT support) to strategic (continuous enterprise wide improvement)?
8. How do you keep your skills updated? What resources do you rely on to stay current?
9. What is your greatest fear related to IT in your organization?
10. How much does management support your recommendations for IT changes and innovations? (Probe)
11. Professionally, where do you see yourself in 5 years? What will it take to reach those goals?
12. Please describe general challenges regarding work/life balance. Are you able to “un-plug” from corporate technology and responsibilities when you leave work?
13. Have you worked in IT for a large company? If so, how does your IT role in a micro-firm compare to that position? If not, how do you perceive your role as being similar to, or different from, your counterpart in a large firm?
14. How long have you worked in IT? What is the most important IT change or innovation you have witnessed during that time? How has that impacted your work responsibilities?
15. Three “hot topics” today are mobile computing, big data, and cloud computing. How have these disruptive technologies influenced your job? What adaptations do you foresee in the near future?
16. How do you see yourself fitting into the corporation’s “big picture”?
17. Is there anything you would like to add, related to the role of an IT specialist in micro-firms or solo IT shops?