Study Plan for Graduate Studies

Academic Background:

I have completed my undergraduate studies in Electrical engineering from "ABCDUniversity of Engineering and Technology", , Pakistan, in March 2012, with aCGPA of 3.86 out of 4.00. I was an active somehow indulgent student among others during my undergraduate studies, very often involved in many curricular and co-curricular activities. In fact, I was up to the mark and honored in the top 1'slist of 120 students in my undergraduate class. If observed by the meritoriousefforts I remain very competent and I have passed all entrance tests conductedby the academic institution of my education with high achievements and securedoverall 4th place in the whole district.I did my final year thesis project on "Design, development and fabrication ofunder/over voltage relay using static devices" with the group of five membersin which I was made the Group Leader. The fabricated relay can be used for theautomatic protection of house hold appliances and power system against voltagerelated problems. In this project, I learned and researched automated controland protection using Circuit Breakers and Relays along with other high speedautomatic control and protecting equipment's involved in automation of themodern systems. While working on this project I found strong motivation inmyself towards graduate study and research in the area of power systemautomation.At present, I am working as a Maintenance Engineer in Dawlance Group of Companies(the leading household appliances company in Pakistan); my job's majorresponsibilities include; Maintenance and Automation of industry's power systemand machines along with the planning and the proper allocation of availableresources to achieve the smooth and efficient operation of the plant byconducting routine and reactive preventive maintenance activities. Here, inDawlance, I have learned, researched and practically implemented theapplications of electrical automation engineering in manufacturing processalong with the extensive knowledge of Electrical automation devices likedigital relays, vacuum and oil circuit breakers, Programmable LogicControllers, Programmable automation controllers , Human Machine Interface andinstrumentation devices. Furthermore, I Led the project "Energy saving by theoptimization of electric motor usage" with annual savings of 1.2 Million PKR byconducting efficiency analysis, Right sizing of installed motors, formulatingthe saving calculations and obtaining USAID OFFER by negotiations with vendorsand USAID audit authorities.Also because of ardent interest and motivation towards power system automation,I was selected for 16 weeks internship in National Transmission & DispatchCompany; the sole electric power transmission company of Pakistan. Where Igained quality level knowledge and working experience about Grid SystemOperations (GSO), Protection and Instrumentation (P & I), SCADA, Meteringand Testing (M & T). Along with these technical aspects I also earned practicalknowledge about transmission system planning including Power Flow Studies,Reactive power compensation studies, Reliability and Stability Analysis withrespect to interconnection of distributed generation with transmission system.My work at NTDC was highly praised and I was awarded with the certificate of appreciation by the senior management.

My Personality:

By fact, I am socially active person with friendly nature, a good communicatorindeed who is blessed with many friends. I keep a keen view to the reality oflife thus approach people with

positive mind and attitude and always prove tobe helpful with honest efforts and true dedication. Besides that I always feelvery joyous and fortunate to meet and greet people belonging to differentbackgrounds and cultures. As such meetings are always important because they prove to be beneficial in future also it makes things easy to cope whether one works or studies in his own country or outside the country.

Study Plan in China:

I would like to apply for the Master's Degree in Electrical Power system and its automation in China because from my current industrial job experience,past internship and my final year project I come to know the vast practical applications of the automation engineering, this caught my attention and created a thirst of knowledge in me to study my chosen course. My motto is to work in an international field related to Electrical Engineering. Therefore, I would like to gain deeper theoretical and practical knowledge in starting and managing most innovative projects. During my studies, with great hidden abilities in myself I will try to come up with the best of everything; to accompany the professors and university colleagues in carrying out research and exploring for immense exciting industrial mysteries in the field of power system Automation. After completion of my master's studies I hope to be able to take part in maximizing my country's research technology in such fields to benefit its economy and enhance the living standards of my compatriots.I believe that this Masters Program will provide me with the chance to get toknow with Electrical systems and affiliates me dedicatedly to the industries,which are living examples of the art of Electrical and automation engineering.I hope that I can gain more experience in dealing with situations, peoples,systems and demands which will be of a great help in my future career.

Reasons to study in China:

Now the question arises, "Why China?" Reading the books, watching the news, analyzing and observing the people of China, I am really impressed by the way these individuals have proved themselves to be dedicated to their work and with true efforts they have set China as a successful example for other third world or developed countries. The fast-growing economy, technological advancement and the global ranking education institutes of China with high reputation makes a great aspiration to the students and professionals for the better career perspectives. Thus such kind of positivity has boosted my confidence further and I am highly satisfied with the decision I have taken. Moreover,China's diverse cultural norms and values, the famous gentle hospitality of its people and Pakistan-China all weather friendly relations since past to promote bilateral trade , acceptance and peace to both sides in great clarity make me feel China as my second homeland; also my family fully supports my choice forChina being my preference for graduate studies. All these reasons put together make China an ideal place for me to do my Masters degree.Concluding it, with high hopes I believe this application will receive your favourable consideration and I will be happy to provide any additional information you may need. I look forward to receiving your reply.

Regards,

Fahad

RESEARCH PROPOSAL

Improving Competitive Advantage through Absorptive Capacity and Capabilities: An Empirical Analysis of Chinese Software Firms

(Course: Research Topics in Innovation Management)

Submitted By: Muhammad Shehzad Hanif
Applicant for Ph.D. Scholarship

School of Management & Economics
University of Electronic Science and Technology of China, Chengdu.

Jan 15, 2013

RESEARCH PROPOSAL

Proposed Research Topic:"Improving Competitive Advantage through Absorptive Capacity and Capabilities: An Empirical Analysis of Chinese Software Firms"

1.0 Base of the Research

1.1 Background

Turbulent business environment and intense business competition lead to multifaceted challenges like globalization, demand for innovation, short product life cycles, product proliferation, and time to market pressures. These challenges affect IT industry in general and software industry in particular. Dealing with such issues requires firms to focus on *'knowledge'*, a dominant source of sustainable competitive advantage. Thus, recognizing, assimilating, transforming and applying

valuable external knowledge is imperative for firms' success. This ability of a firm is termed as absorptive capacity (Cohen and Levinthal, 1990).

The selection of this research area is justified through a research conducted by Roberts et al. (2012). The researchers find that only 98 papers are published during 1990 to 2008, which directly or indirectly include the concept of "absorptive capacity". 37% papers use it as a minor citation, 50% use it as a theoretical support, 13% use it in research models, and 5% use it as a theoretical base. This shows that there are limited empirical studies that use absorptive capacity in research models. This justification lays the initial ground to conduct this study.

Undoubtedly, the firm's ability of absorptive capacity is important for survival in a dynamic environment. It not only helps in anticipating varying innovation trends but also in taking advantage of emerging opportunities ahead of competitors. However, organizational mechanisms and capabilities play an essential role in the successful development and maintenance of absorptive capacity; hence should not be ignored (Cohen and Levinthal, 1990; Justin et al., 2005). Many researches focus on different organizational mechanisms like cross functional interfaces, control systems, dominant values, connectedness, social relations etc. (Henderson and Cockburn, 1994; Verona, 1999; Zahra and George, 2002; Justin et al., 2005; Todorova and Durisin, 2007; Glutch et al., 2009).

In addition, modern information technologies (fast diffusion of computing and communications, internet based services, and content technologies) play a vital role in the development and maintenance of absorptive capacity. Firms are combining IT investments with complementary assets to create digital capabilities which enhances absorptive capacity (Gold et al., 2001). This construct has been debated in different IS researches like IT innovation (Fichman and Kemerrer, 1997), IT governance (Sambamurthy and Zmud, 1999), and IT business value (Bhatt and Grover, 2005). Despite of these studies, the empirical research integrating absorptive capacity in IS field is still lacking. Moreover, prior researches ignore the power of IT as a key organizational capability (Roberts et al. 2012).

Based on the above arguments, this study integrates the concept of absorptive capacity in IS field by combining IT capabilities and other organizational capabilities. Additionally, it proposes a framework for software firms (SFs) and intends to empirically investigate the impact of capabilities on absorptive capacity, which in turn, helps firms in achieving competitive advantage. The software firms are selected for the study as they continuously innovate due to technological breakthroughs. Likewise, they focus on their absorptive capacity to develop new software according to external customers' requirements (Carlo et al., 2012).

1.2 Present Research Situation, Research Gap, and Further Development

Principally, Cohen and Levinthal's (1990) research paper is the influential work on absorptive capacity. Later, other dominant researches are conducted by Szulanski (1996), Zahra and George (2002), Lane et al. (2006), and Todorova and Durisin (2007). Cohen and Levinthal (1990) define absorptive capacity as a "firm's ability to recognize valuable and new external knowledge,

assimilate and transform this knowledge into the firm's knowledge base, and then apply new knowledge through innovation and competitive actions".

Two researches by Jansen et al. (2005) and Roberts et al. (2012) serve the basis to design the framework of this study. First, Jansen et al. (2005) examine the impact of organizational mechanisms on absorptive capacity. According to the researchers, the organizational mechanisms are common features of three combinative capabilities namely coordination capabilities, systems capabilities, and socialization capabilities. The researchers do not add IT capability as a key organizational antecedent of absorptive capacity. However, they suggest future researchers to extend their framework by incorporating additional organizational antecedents.

Secondly, Robert et al. (2012) consider IT capability and two complementary organizational capabilities (coordination and socialization). The researchers propose a conceptual model based on the relationship of combined capabilities and absorptive capacity. However, they suggest that future researchers may empirically test the model and add other capabilities like control mechanisms in their framework.

Finally, Jansen et al. (2005) and Robert et al. (2012) fail to investigate the consequences of absorptive capacity. Jansen et al. (2005) recommend later researches to add consequences such as flexibility, innovation etc. Therefore, this study attempts to fill the theoretical gap identified by both researches and combines IT and other organizational mechanisms in their given frameworks. Also, competitive advantage is added as a consequence of absorptive capacity.

Besides filling the theoretical gap, this study contributes practically by focusing on Software Industry in China. Software industry faces intense competition, globalization, and technological breakthroughs. These challenges put a constant burden on software firms (SFs) not only to innovate with internet based services but also enhance their ability of absorptive capacity to develop new software according to changing customers' needs (Carlo et al., 2012). Furthermore, the massive yearly growth rate of Chinese software firms (Yuan, 2012) directs author's attention to design a framework that helps in improving their innovation, strategic flexibility, and performance.

Base on the theoretical and practical gaps identified above, this study is an attempt to integrate the concept of absorptive capacity in IS field. It combines IT and other organizational capabilities (coordination, control systems, and socialization) in a single framework and intends to analyze the role of these capabilities in enhancing firm's ability of absorptive capacity. This ability, in turn, affects competitive advantage of the Chinese software firms.

1.3 Significance of the Study

As indicated, the absorptive capacity leverages firm's ability to gain competitive advantage in today's challenging and demanding business environment, which leads to shorter product life cycles and dynamic product proliferation. This is especially the case with software industry. Therefore, this study focuses on software firms (SFs) in China, which develops software and related services for external customers.

This study helps Chinese SFs and their managers in understanding the importance of combining organizational capabilities and IT resources before investing in innovative projects. Due to technological breakthroughs these SFs face cognitive burden to enhance ability to identify, assimilate, and mobilize valuable knowledge related to the development of new software according to market demands. The combined IT, coordination, systems, and socialization capabilities can reduce this burden. Finally, this study gives SFs a road map for improving their innovation, flexibility, and business performance, hence, achieving competitive advantage.

2.0 Research Objectives, Research Questions, and Research Contents

2.1 Objectives of the Study

The objectives of this study are:

1. To provide a holistic view by combining firms' IT capabilities with other capabilities: coordination, systems, and socialization in a single study.
2. To investigate the degree to which Chinese software firms are successful in maximizing their ability of absorptive capacity and competitive advantage by exercising combined capabilities.

- To propose and empirically test a framework of capabilities and absorptive capacity of Chinese software firms.

2.2 Research Questions

The research questions of this study are:

1. What is the impact of IT and other combinative capabilities (coordination, systems, and socialization) on firms' ability of potential absorptive capacity (PACAP)?
2. How do IT and other combinative capabilities affect firms' ability of realized absorptive capacity (RACAP)?

- What is the impact of potential and realized absorptive capacity on competitive advantage of Chinese software firms?

1. How does absorptive capacity mediate the relationship between capabilities and competitive advantage?

2.3 Main Contents

The proposed framework of this study is based on four major constructs: IT capabilities, combinative capabilities, absorptive capacity, and competitive advantage. These constructs are explained briefly:

2.3.1 IT Capabilities

Based on the work of Wade and Hulland (2004), Roberts et al. (2012) conceptualize three different types of IT capabilities. These are outside-in, inside-out, and spanning capabilities. Outside-in capabilities are outward facing which help firms in building knowledge identification capability. Inside-out are inward focused capabilities which help firms in developing knowledge application capability. Whereas, spanning integrates the first two capabilities and helps firms in building assimilation and transformation capabilities.

2.3.2 Organizational Mechanisms associated with Different Combinative Capabilities

Justin et al. (2005) identifies various organizational mechanisms associated with each combinative capability: coordination, systems, and socialization. The details of these mechanisms are below:

1. *Coordination Capabilities*: organizational mechanisms that facilitate coordination capabilities are cross functional interfaces, job rotation, and participation in decision making (Henderson and Cockburn, 1994).
2. *Systems Capabilities*: common features of these capabilities are formalization and routinization (Galunic and Rodan, 1998).

- *Socialization capabilities*: common features of socialization capabilities are connectedness and socialization tactics (Adler and Kwon, 2002).

2.3.3 Absorptive Capacity

Absorptive Capacity is defined as the firm's ability to identify valuable and new external knowledge, then assimilate or transform this knowledge into the firm's existing knowledge base, and finally apply this knowledge to commercial ends through competitive actions and innovation (Cohen and Levinthal, 1990; Zahra and George, 2002; Lane et al. 2006). Absorptive capacity is further divided into potential absorptive capacity (PACAP) and realized absorptive capacity (RACAP). PACAP focuses on new knowledge acquisition and its assimilation. Whereas, RACAP focuses on transformation and exploitation of new knowledge in business operations (Zahra and George, 2002).

2.3.4 Competitive Advantage

Competitive advantage measures the output or benefits received from firm's ability of absorptive capacity. Cohen and Levinthal (1990), Zahra and George (2002), and Todorova and Durisin

(2007) assess competitive advantage by measuring firms' flexibility, innovation performance, and business performance.

3.0 Research Program

3.1 Methodology and Data Collection

In order to achieve the stated objectives, the Structural Equation Modeling (SEM) will be used which seems to be the most suitable and fitted technique. The study intends to explore the relationships between capabilities, absorptive capacity, and competitive advantage. The study will incorporate the primary data in order to offer in-depth discussion for the academicians/ practitioners and helping them to understand the existing issue. The primary data for the study will be collected through structured questionnaires.

The population of the present study focuses on software firms (SFs) in China, which develops software and related services for external customers. There are multiple reasons for selection of SFs. First, Chinese software industry is rapidly growing. According to the Ministry of Industry and Information Technology, the size of the software industry in 2011 hit a record of more than $60 billion, a 40% year-by-year increase (Yuan, 2012). Secondly, SFs face continuous challenges of globalization and technology breakthroughs. Such challenges forces SFs not only to keep innovating but also enhance their ability to recognize, assimilate, transform, and exploit knowledge to develop new software (Carlo et al., 2012). The sample data will be collected from the top managers working in Chinese software firms using purposive sampling technique.

3.2 Technical Road Map of Research and Time Plan

The sample data will be collected from the managers of the software firms that achieved revenue of atleast 100 million RMB. According to a survey, there are 984 software firms in China who achieved this benchmark (Jin, 2009). Purposive sampling technique will be applied as the aim is to collect expert opinion from the top management of each firm.

Before sending final questionnaires to the managers it will be pre-tested through academic reviews/ opinions, and discussions with business experts for confirming face and content validity. The author will also conduct pilot testing and confirmatory factor analysis (CFA) to check the discriminant validity. For data gathering, company's managers will be contacted through telephonic calls, emails, or through letters for their participation in the survey. After their affirmative responses, the questionnaires will be mailed to them. The software packages like AMOS, SPSS, Microsoft Excel, etc, will be used and finally, results will be analyzed.

As the researcher intends to collect data from 984 software firms spread all over in China, it may take atleast six months for final data collection (with an appropriate response rate) and data analysis.

4.0 Novelty of this Research

As indicated in section 1.0, this research is novel as it fulfills the gaps identified Jansen et al. (2005) and Robert et al. (2012). The study combines IT capabilities with other organizational capabilities like coordination, control systems, and socialization in a single study. Secondly, it adds competitive advantage as a consequence of absorptive capacity in the frameworks proposed by both researches. Finally, it empirically explores a mediating role of potential and realized absorptive capacity between capabilities and competitive advantage.

5.0 Possible Achievements

The study will have its practical implications for Chinese software firms. It is hoped that the present study will provide a roadmap for successful investments in innovation projects. This roadmap will simplify the process of building absorptive capacities and developing new software according to the changing demands of market/ external customers. Before undergoing a risky and costly project, the managers of SFS should emphasize on combined efforts of IT, coordination, systems, and socialization capabilities. These integrated capabilities make it easy to develop and maintain absorptive capacity and improve firm's innovation, flexibility, and overall performance.

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