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EMERGING IT OUTSOURCING TRENDS USING THE CLOUD

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ABSTRACT

In addition to reducing operational costs, cloud technologies, the next wave of Information Technology, have become the basis for radical business innovation and new business models. The objective of this research paper is to investigate latest outsourcing trends and how cloud technologies are transforming business operations. To do so, we investigate a sample of local organizations in terms of the impact of such trends and their effect on key organizational factors including: IT outsourcing, client vendor relations, cloud computing, IT governance, and risks. The study is focused on substantiating the findings from the detailed literature review using a qualitative case study of several local businesses, and employing a quantitative treatment to support our findings. The study concludes with a set of recommendations of IT outsourcing best practices for the local market in the UAE.

Keywords: Outsourcing, Cloud Computing, Business Operations, IT governance, UAE, Best Practices.

INTRODUCTION

Technology and data are continuously growing and overwhelming both consumers and businesses with access to a wealth of information. With growing new trends such as cloud computing that facilitate the development of technology and the numerous possibilities of benefits it can provide, one of the challenges most organizations face is how to manage and access all this data (Hisham, 2012). . IT outsourcing is used to subcontract an organizations services, internal functions, or activities to other third party organizations that usually specialize in that scope of work. IT outsourcing greatly benefits organizations by leveraging core functions or services of an organization such as accounting, IT support, repetitive activities distributed throughout the organization, and much more to help the business improve its overall performance (Maelah et al., 2010). Impact of cost savings has always played an essential role in IT outsourcing. However, the continuous growth of technological advances and the impact it has on emerging new trends, have changed the management of how cost influences organizations (Cooney, 2012). As technology continuously shapes itself, paving the way for new trends, the impact and management of costs on IT outsourcing in parallel will moreover adjust (Gartner, 2011). Using the latest trends in IT outsourcing has already proven to be adapted globally and steadily growing, especially in the field of cloud accounting (Zhang & Gu, 2013). Organizations are taking advantage of such emerging trends and utilizing major benefits such as lower costs, compliance, vendor flexibly and much more.

The UAE has always been a strong player in IT outsourcing and adapting the latest technological trends (Baldwin, 2011). The growing trend of IT outsourcing has been noticed in the UAE since 2004. As a result, the UAE has launched in 2007 the "Dubai Outsource Zone" that has

helped accommodate this shift of businesses saving huge costs by outsourcing critical IT applications allowing them to focus on their core competences (AME Info., 2012). Nevertheless, the issues of IT outsourcing and adaptation of growing trends in technology such as cloud computing in such a young growing market has had its fair share of challenges in organizations.

The past several years, business in the UAE economy has steadily grown. The IT industry and outsourcing plays a crucial role in the current market, yet little is known on how the rapid evolvement of technology and outsourcing has changed the impact on organizations. A research study of how cost influences organizations in implementing or using the latest IT outsourcing trends that in return will demonstrate and help organizations today better understand the role of cost in IT outsourcing. An exploratory analysis of organizations in the UAE to help uncover and better understand how costs in IT outsourcing new trends, impact organizations in today's world of continuous evolving technology. Issues of how to fully utilize and manage best practices of IT outsourcing and the latest trends are still a major concern that have an impact on the performance of businesses in the UAE (Rossi, 2012; Prodhan, 2011). Most organization still have not explored core cloud computing solutions, especially new trends such as cloud accounting, MS Office 365, and MS Exchange Online. These new trends provide many benefits for an organization if utilized correctly, such as: costs saving, improved performance, and convenience. Also, IT outsourcing is on the rise, nevertheless, most SMB's fail to implement or even try to outsource technical core functions to reduce costs and improve performance. In this research paper, a case study on several organizations on IT outsourcing and the use of new trends such as cloud computing will be analyzed and reviewed to provide a set of recommendations for businesses on IT outsourcing & cloud computing best practices.

Our exploratory research in this paper is flexible and is based on the following milestones:

1. Literature review, understand and study the history and direction of IT outsourcing in relation to where it stands today.
2. Research attributes such as risk and possible best practices to mitigate such risks are identified.
3. Study existing theoretical frameworks in the literature and propose a suitable framework for testing out hypotheses.
4. Gather findings and utilize information to investigate the local market in the UAE.
5. Create qualitative semi structured (interview guide approach) interview questionnaire's related to Patton's six types of questions.
6. Interview, more than ten organizations using our proposed framework.
7. Analyze the qualitative data collected from the interviews taken.
8. Prepare recommendation of best practices for IT outsourcing.

The rest of this paper is divided as follows. In Section 2, we provide a detailed literature survey on existing works on IT outsourcing, Client-Vendor Relationship, Cloud Computing, IT governance, and the Risks involved. This detailed survey will be the foundation on which we will base our research analysis on local organizations which is presented in Section. Our research results and hypotheses testing are provided in Section 4 and 5. We conclude this paper is Section 6 with a set of recommendations and future insights.

LITERATURE REVIEW & ANALYSIS

Software development for various organizations is not a core competence. A vehicle manufacturing plant or insurance company for example would like to focus on providing competitive services, rather than occupy resources on developing or maintaining software in-house. Outsourcing lets these companies keep their business focus and brings about efficiency and productivity by outsourcing IT related services to a third party (Dhar, 2012). General services like payroll processing, e-mail and web hosting, and online storage are being increasingly outsourced. Outsourcing benefits organizations to reduce the problem of legacy systems and allows them to focus on core capabilities to take advantage of increasing globalization, to quickly deploy products and services globally and gain competitive advantage. Many IT outsourcing vendors emerged aggressively into the market offering low cost value added services, in addition to coming out with attractive offers, technologies, and innovative business models to influence businesses about outsourcing as a solution. Usually there are three forms of outsourcing: 1) Internal outsourcing using in house divisions mainly comprising of large firms, 2) External outsourcing using local outsourcing vendors with global overseas operations, and 3) External outsourcing using overseas outsourcing, companies who maintain an onshore presence. Outsourcing decisions involves appropriate valuation of costs, the time period involved, and additional opportunity costs. A survey by Kakabadse (Kakabadse et. al, 2005) among US & European companies collected

fourteen factors influencing outsourcing grouped into three categories:

1. To achieve best practice by enhancing cost discipline and control skills of managers.
2. To improve service quality and management, by focusing on core competencies.
3. To expand access to new technologies and skills, reduce employees, enhance capability to develop new product or services and reduce capital cost.

Experience from financial services sector shows that outsourcing plays a significant role in improving company's performance by increase in profitability, return on investments, capital efficiency, and improved focus. From existing literature review, we summarize in Figure 1 the added benefits as well as the required procedures that organizations usually follow in the outsourcing process.

Figure 1: Reasons behind outsourcing including procedures in place.

Client Vendor Relation

Regardless of well documented possible benefits of IT outsourcing, it is also subject to a lot of disapproval due to risks involved. The outsourcing risks arise as a consequence of dependency of an organization on the vendor for IT services, and high uncertainty involved in IT responsibilities. These conditions lead to opportunistic behavior of the vendor. IT outsourcing risks are understood through Agency Theory (AT) and Transaction Cost Theory (TCT) found in existing theoretical frameworks. It is argued that risks are created by the consequences that result from the failure to achieve expected benefits such as, low implementation costs, high system performance, and compatible systems. Risk involves two dimensions (Gorla & Lau, 2010): first the possibility of unexpected issues arising, and second the consequences of such issues arising. The effects of risk factors as a result of the stated two dimensions may cause concern for organizations in the following four areas:

Vendor Attitude Issues is regarded as the vendor's non-committed or negligent conduct. The vendor may display opportunistic behavior (TCT) by not providing the exact requirements of an organization. This leads to dissatisfaction with the vendor services and consequently not to re-outsource in the future. As a result, a revenue oriented vendor, looking for rapid solutions and lower production costs, may offer tailored but similar systems to numerous other competitors.

Vendor Capability Issues such as the lack of technical skills or knowledge and experience with outsourcing. Since IT functions require high technical skills, they usually are outsourced, the vendor capability problem results in a software product that may not meet the functional requirements of an organization. Poor product or service quality, may sooner or later lead to the termination of the current outsourcing vendor. Therefore, the capability of consultants is key for effective IT solutions.

Vendor Management Issues refers to the collaboration of different stakeholders to achieve a set of cooperative tasks. The issues include miscommunication,

were the vendor and client do not collaborate effectively resulting in the client not having enough control over outsourced activities. As a result, higher goal conflict between stakeholders suggests higher self-interest and monitoring costs.

In-house Skill Issues includes inadequate technical skills by the internal IT staff and lack of experience with outsourcing or contract management from client side. Two types of problems arise, lack of effort by the vendor, and misrepresentation of knowledge by the client. In the absence of in-house IT knowledge, the above two issues will increase, leading to under-performance by the vendor.

Based on the existing literature survey on client vendor relationship, we summarize a set of negative outcomes that may incur in Figure 2.

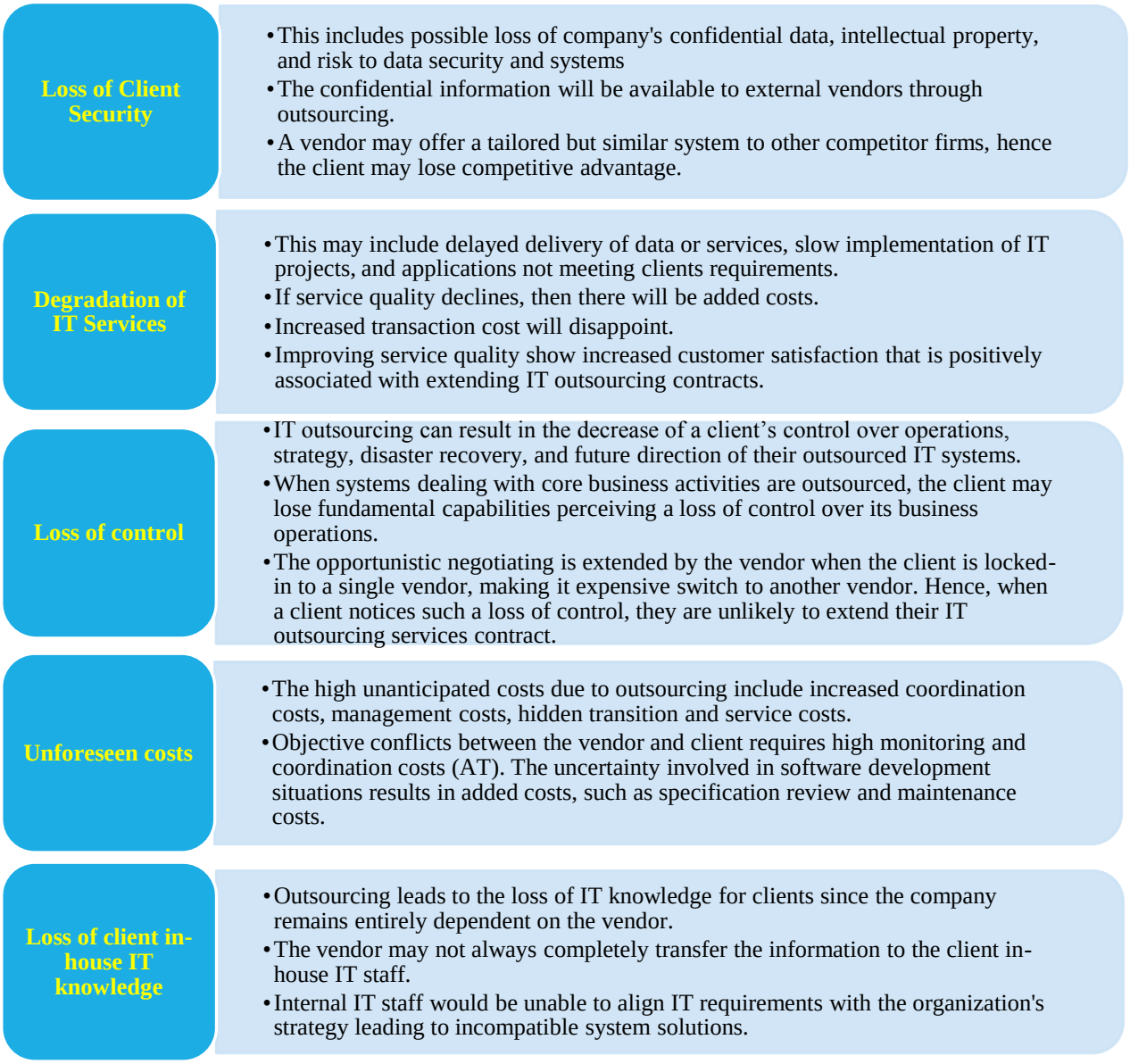

Figure 2: Compiled set of negative outcomes that may incur in client vender relationships.

Studies show a lot of business still do not correctly understand why and how to implement IT outsourcing. In IT outsourcing, it is important to manage the outsourcing activities effectively and choosing the right service provider. A good service provider will improve the quality of security, management, and costs of a project, narrowing the risk gap most organizations face in IT outsourcing.

Cloud Computing

Cloud computing is one of the latest trends that help outsource some or whole IT processes to run a business that delivers a flexible and highly scalable technology platform. It reduces IT costs and offers organizations with the people and knowledge to create a pre-integrated collection of software applications. Numerous experts forecast billions of dollars in revenue from Cloud computing. Market research firm Gartner considers that worldwide Cloud services revenue is estimated to reach $150 billion in 2014 (CRN Staff, 2010). IT research firm Forrester foresees that the global Cloud computing market will be $241 billion in 2020 (Dhar, 2012). Cloud computing present's serious challenges to old-fashioned outsourcing and has a strong impact on how IT outsourcing is done. Faster delivery, flexible infrastructure, and shared responsibility, cloud computing lets organizations choose from a variety of hardware, software, and networking infrastructure, managed independently or by the service provider, reducing costs of ownership through a shared infrastructure by outsourcing low level management services. Virtualization hides the physical appearances of a computing platform from clients and produces a simulated computer environment presenting another abstract computing platform such as a, server, operating system, or storage device. While traditional IT outsourcing will not instantly fade away, most top IT outsourcing vendors are investing in cloud technology and are providing competitive solutions to stay ahead of the competition. Such state-of-the-art solutions can possibly open up segments of markets such as small to medium sized businesses. Vendors are strategically well positioned to take advantage of these opportunities to integrate cloud technologies within their wider outsourcing solutions to become cloud services providers themselves. While providing faster delivery time and flexible IT services, costs are reduced in two ways, by leveraging a virtual collection of pre-integrated applications and infrastructure that simplifies the difficulty of managing old fashioned IT services. As a result, this diminishes organizations managing and monitoring costs and leverages business resources.

Based on exiting literature search, we summarize the reasons behind the development of IT cloud services in Figure 3 and they are as follows:

Regional limitations are fading. Worldwide delivery model is becoming a standard practice triggering a rising acceptance of global delivery. These are the success attributes to efficient communication, lower costs, together with value-added services.

Increasing client knowledge resulting in organizations today being more ready. Clients are more efficient in vendor management due to their past experience of working with outsourcing vendors, clearly understanding the complexities and challenges of outsourcing, and their expectations and requirements. This has led to value-based pricing and a timely outcome of projects along with development of long term strategic relationships.

Higher vendor responsibility The adoption of multi-sourcing are a result of a large number of poorly executed and failed traditional IT outsourcing projects, causing many clients to steer away from large multi-year commitments of outsourcing projects. As an alternative, clients prefer short-term contracts, which involve assigning separate IT functions to different vendors. As a result, clients leverage skills and value of each vendor, thus reducing risk and increasing efficiency.

Increased value and scope of services by vendors are driving outsourcing solutions to expand operations on a global scale along with a wide range of services. These benefits along with the growing number of cloud vendors make them serious competitors for larger IT service providers, since they also bring a wealth of program management expertise.

Increase use of cloud services Vendors are implementing delivery models that meet the specific requirements of clients to develop long-term relationships. Software as a Service (SaaS) for example is a preferred delivery model for on-demand services that deliver low-cost access to numerous applications across a global network. It allows customers to focus on their business rather than developing and managing IT infrastructures, thus providing greater flexibility.

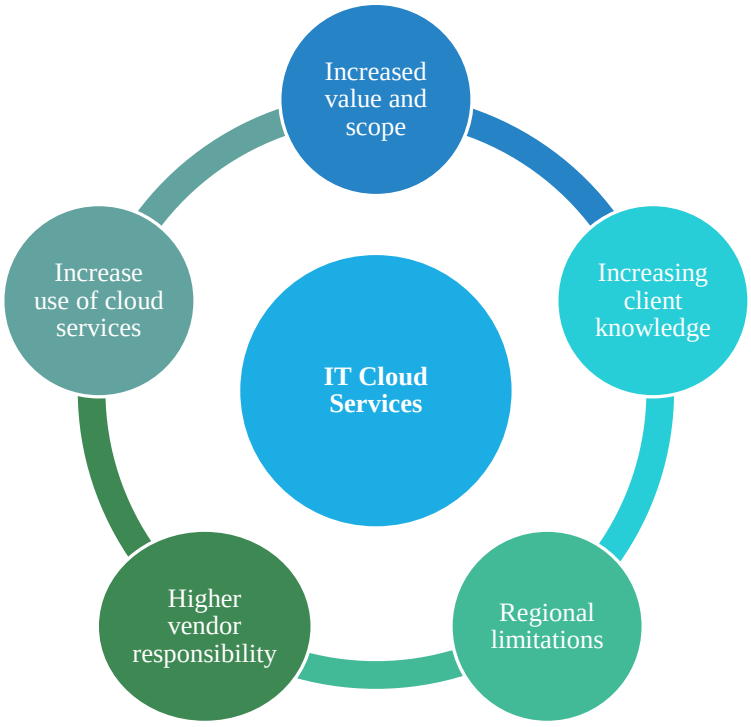

Figure 3: Reasons behind the development of IT cloud services.

IT governance and Risks Involved

Latest reviews indicate that many early adopters of cloud services are not entirely satisfied as security still continues to be a key concern. The rise of cloud computing virtualization and pay-per-use models have increased the complexity of outsourcing relationships. Cloud computing has opened new opportunities for IT outsourcing vendors as a great deal of services associated with cloud computing such as cloud services implementation, integration, management, and support are necessary for successful deployment. Outsourcing vendors are taking advantage of cloud computing and positioning themselves to adopt new tools and technologies along with a robust delivery network. Several challenges of cloud computing were identified in (Dhar, 2012) including Security & Privacy, Vendor experience & reliability, Compliance & data control, and Lack of standards. Switching from one vendor to another becomes quite complicated because cloud service providers have their own proprietary standards. Common or universal standards for how applications communicate and control data have not yet been established. IT outsourcing vendors improve their position by integrating cloud solution services making the view point of the IT services industry look promising. Countless emerging trends will impact the future of IT services and cloud computing. This includes the integration of new services with existing ones, increasing the number of applications that utilize cloud infrastructure and global delivery models in demand. The deployment of new innovative cloud services with attractive business models will lead to a higher level of customer satisfaction and improved acceptance of outsourcing cloud solutions. On the other hand, effective IT governance (Ali & Green, 2012), ensures alignment between business goals and IT, even though starting and applying governance in an organization has become a significant difficulty. Studies reveal that IT governance is ranked as one of the top issues for the need of developing an organizations strategy. The significance of the study was reinforced by showing that businesses with greater IT governance gained higher returns than those with insufficient governance. Furthermore, they also stated that effective IT governance is the single most important predictor of the value an organization generates from IT. When IT performance does not contribute enough in achieving organizational goals, management faces an urgent need to review the role of IT within the

organization. One of the options available is transferring all or part of its poor internal IT tasks to a third part by outsourcing. We summarize the following hypotheses derivations from existing studies:

- H_1: A negative association between IT performance and the degree of IT outsourcing in American organizations exists.
- H_2: There is a strong positive association between poor IT performance and the decision to outsource IT functions.
- H_3: Companies without IT governance that had major IT outsourcing had a decreasing profit compared to companies with a lower level of IT outsourcing.
- H_4: Companies with a higher level of IT governance maturity outsourced their IT tasks more selectively compared to companies with a lower level of effective IT governance.

A set of IT governance attributes are necessary to implement IT governance effectively such as: IT steering committee, IT strategy committee, involvement of senior management, IT performance measurement systems, ethics or culture of compliance, and corporate communications systems. Effective IT governance needs close collaboration between the business and IT strategy to improve understanding and alignment. The existence of IT governance mechanisms does not necessarily guarantee that effective IT governance can be attained within an organization. IT governance is dynamic and complex in nature, that involving a set of interdependent subsystems, mix of structures, processes, and relational mechanisms that need work together as a whole to be effective. A diagram that captures all the relevant factors that contribute to this research is depicted in Figure 4.

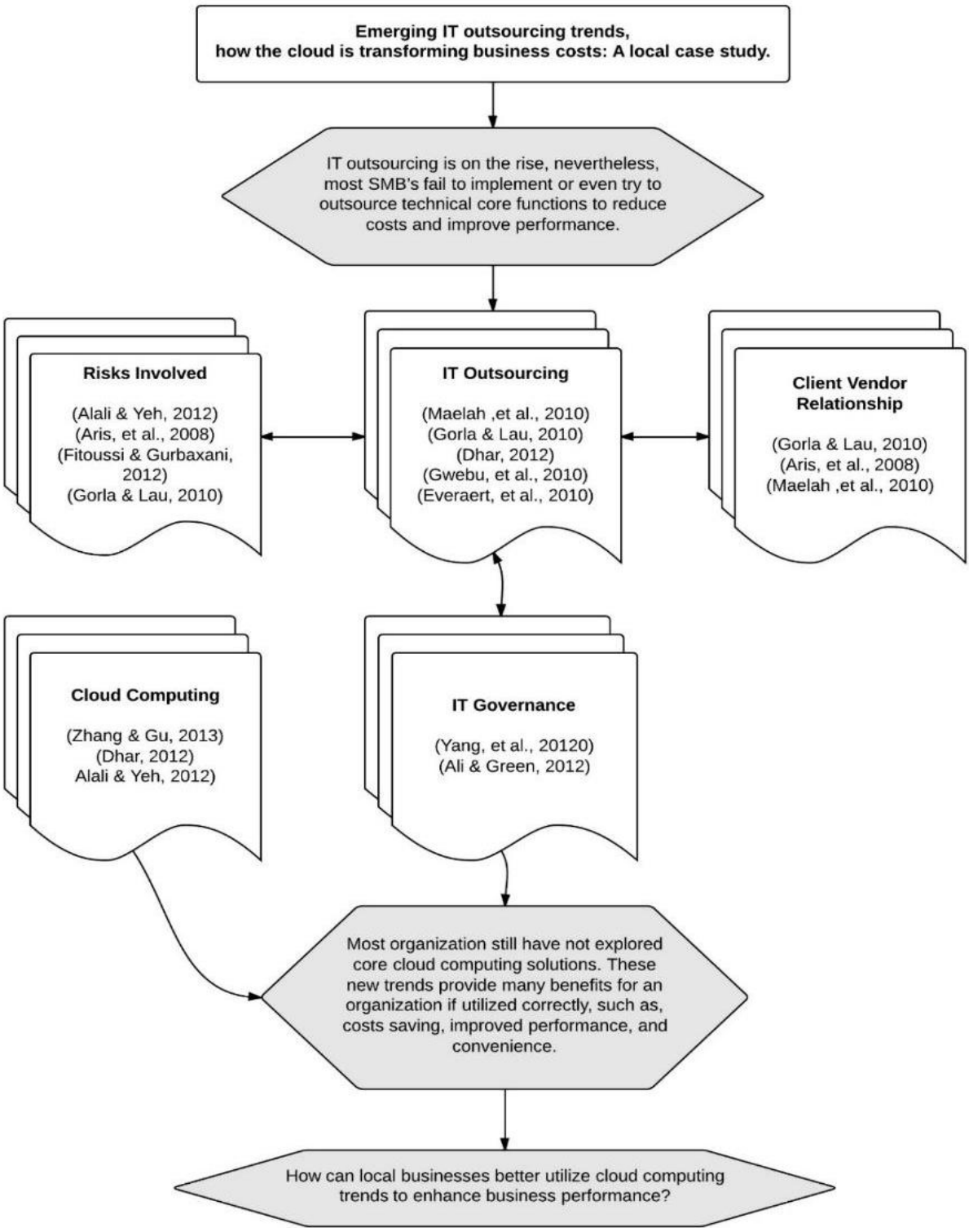

Figure 4: Summary of existing research and their dependencies with respect to the outlined problem statement in this research.

RESEARCH QUESTIONS, THEORETICAL FRAMEWORKS & PROPOSED METHODOLOGY

Research Questions

Based on the results of the detailed literature review in Section 2, the qualitative research cycle is deemed suitable to fulfill the set of objectives. Hence, the following two research questions are proposed:

- What are the relevant attributes that organizations face in IT outsourcing?
- How can local businesses better utilize IT outsourcing trends to enhance business performance?

Theoretical Framework

A number of related theories (Aris et. al, 2008; Everaert et. al, 2010) were identified to assist us in answering the above research questions including the following:

Transaction Cost Theory (TCT) has been a major framework used to examine the causes of outsourcing in manufacturing. In general, the decision to outsource or internalize in a given situation depends upon comparative transaction costs, the costs of running the service, and including the costs of negotiating a contract, monitoring performance and providing feedback. Outsourcing is favored in situations in which markets are competitive for example where many possible vendors are available were market pressures reduces the need to monitor vendor behavior. When markets fail and the variety of vendors existing is limited, a vendor has a possibility to behave opportunistically. This opportunistic behavior can only be reduced through strict negotiations and widespread supervision of contractual relationships, thus increasing transaction costs. In such situations, an organization can reduce its transaction costs by replacing vendors with its own personnel, whose behavior can be supervised and controlled more effectively.

Relational Exchange Theory (RET) is based on relational norms of understanding. Relational norm of understanding is the key to regulate the effectiveness of contract governance between client vendor relationships involved in a transaction. The attributes include flexibility, information exchange and a strong long-term relationship. Flexibility refers to willingness to make sacrifices in rough situations. Information exchange indicates that parties will together actively share useful information. While strong relationship focuses on maintaining a high value long term friendship between client and vendor.

Agency Theory (AT) in IT outsourcing always creates an agency situation where issues arise. An organization employs an IT vendor to do certain job. Two issues arise for the client, the hidden characteristic problem and the hidden action problem. The hidden characteristic problem occurs before the client and vendor enter into an agreement, that the vendor has the necessary skills, capacity, and experience to perform the job. The hidden action problem occurs after they enter into an agreement, that the vendor may not achieve its goals and expectations of the client. It is difficult for organizations to validate the quality and value of work achieved by the outsourcing vendor in specific profession situations such as IT related jobs. Thus the risk arises of inadequate IT solutions and requirements if the vendor is unable to provide the needful. Our proposed framework is presented in Figure 5.

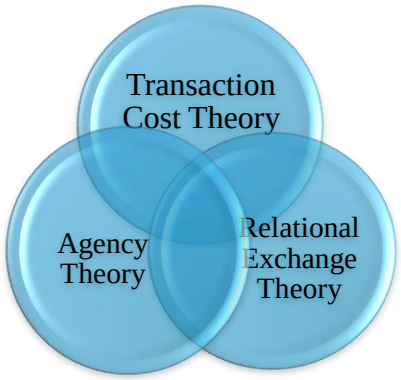

Figure 5: Our proposed theoretical framework

The three theories are combined in our theoretical framework because they complement each other in explaining risk issues and their impacts on successful IT outsourcing. The unseen characteristic problem joined with the achievement issues between the client and the vendor sooner or later results in the decline of vendor performance. This situation contributes to an increase in client transaction costs of monitoring and management. The high transaction costs will lower the interest of IT outsourcing for the client since one of the main reasons for outsourcing in the first place is to lower costs. In addition, in TCT, opportunistic behavior are created from the vendor because of the "locked-in" situation of the client and this too will contribute to underperformance from the vendor. Twenty IT managers from more than ten companies in the UAE were interviewed. The interview

questions were designed around Michael Quinn Patton's matrix of question types (Patton, 1987) and include the following discussion questionnaires:

- Q1. Why IT Outsourcing?
- Q2. What solutions did you implement or use?
- Q3. What issues did you face? (Advantages and disadvantages)
- Q4. How do you measure your benefits or losses? (E.g. reputation, costs, business growth)
- Q5. Risks with IT outsourcing using vendors? (E.g. vendor flexibility, lack of management support)
- Q6. How did all the above impact your organization IT structure?

Table 1 shows attributes used from the literature review that are linked to Quinn's question options to help define our six discussion questionnaires. This helps use better understand the type of questions our interview covers and which areas are weak that lack coverage.

Table 1: Interview Matrix

Quinn's type of questions	Cost	IT Knowledge	Performance	Risks	Governance
Behavior/experience	Q1	Q2, Q3	Q4	Q5	Q6
Opinion/value		Q2, Q3 (weak)	Q4 (weak)	Q5	Q6
Feeling					Q6
Knowledge	Q1	Q2, Q3	Q4	Q5	
Sensory					

Table 2 shows a list of literature review attributes linked to discussion questionnaires. These attributes along with Quinn's matrix help create, define, and facilitate the type of interview to be used.

The interview guide approach was used where the topics and issues to be covered are specified in advance, in outline form; the interviewer decides sequence and wording of questions in the course of the interview. This technique resulted in some advantages and disadvantages as follows:

Strengths: The outline increases the comprehensiveness of the data and makes data collection somewhat systematic for each respondent. Logical gaps in data can be anticipated and closed. Interviews remain fairly conversational and situational.

Weaknesses: Important and salient topics may be inadvertently omitted. Interviewer flexibility in sequencing and wording questions can result in substantially different responses from different perspectives, thus reducing the comparability of responses.

Table 2: List of attributes mapping

	IT Knowledge	Cost	Performance	Governance	Risks
Why IT Outsourcing?	• IT outsourcing is a growing trend. • Benefits of cloud computing.	• Help reduce or optimize costs.	• Compliance. • To focus on internal expertise. • To improve technical know-how. • Expand product or service scope. • Knowledge transfer. • Early adopters of new trends such as cloud computing can benefit organizations. • Globalization and limitations.	• Larger companies outsource more selectively. • Companies without governance have higher IT outsourcing.	• Minimize outsourcing risks.
What solutions did you implement or use?	• Cloud computing.	• Help reduce or optimize costs.	• Compliance. • Improved scope and level of services provided.	• Whole or part of IT department functions outsourced.	• Solutions to risks.
What issues did you face?	• Aware of vendor client issues?	• Inadequate management and hidden costs, increased costs.	• How costs are measured and monitored.	• Internal IT expertise weakens. • Internal IT gradually becomes obsolete. • Lack of internal knowledge of IT outsourcing management.	• Business risks.
How do you measure your benefits or losses?	• Previous knowledge of standards, ISO, or experience?	• Costs increases / decreases.	• Internal IT performance strong link with decision of IT outsourcing.	• Impact?	• Measuring new risks.
Risks / Problems with IT outsourcing using vendors?	• Existing knowledge.	• Was cost a major factor?	• How was performance measured? Through vendor analysis tools? Or internal department?	• The importance of having internal IT governance to manage outsourcing and vendors.	• Vendor relationship problems: o Management o Capability o Data security o Loss of control o How were relationship issues resolved?
How did all the above impact your organization IT structure?	• Did client learn from previous mistakes? • Are client more knowledgeable in the field of information technology.	• Was cost the only major factor?	• Improved performance?	• Did internal IT departments improve? Close down? Or new sub divisions opened. • Policies reviewed or created? • IT strategy change?	• What risks on management or organization structure occurred?

Table 3: Key findings

IT Knowledge	• Almost all respondents agreed that companies need to at least have a minimum knowledge of the current trends in technology and IT solutions. This was understood only after having to learn from failed past experiences, and not from the very beginning. • Latest solutions such as cloud computing may help open a wide scope of opportunities for businesses to further grow and develop on, yet two thirds of the respondents were not aware of such latest trends.
Cost	• Most of the respondents were confident of their cost savings and measurement matrix. Each company had more or less the same approach and understanding of costs, consisting of a mixed matrix of cost aligned with performance expectations. • Cost was not a major attribute of concern, yet was one of the main reasons along with IT knowledge of why companies usually outsource.
Performance	• Performance measurement systems are crucial to support clients in better understanding how their IT outsourcing can be more efficiently utilized. Nevertheless almost all companies did not have a concrete performance measurement system for their IT outsourcing and were mostly confused with measuring costs and expectations as an alternative to a well-designed IT outsourcing performance analysis system. • Almost all organizations did not follow a recognized performance analysis system and based their current measurement systems on custom nonexistent standards, not linked to any internationally recognized framework.
Governance	• IT governance has a strong presence and effect on maintaining and supporting further successful IT outsourcing. Without IT governance as a supporting trait, the communication, support, and monitoring of IT outsourcing gradually degrades.
Risks	• Organizational risks can be reduced or even possibly completely avoided if the above key points are taken into consideration. Hence the strongest impact a company may face is having a direct threat to its business. All interviewees did not have a solid understanding of how IT outsourcing may or may not have helped them reduce or avoid any current or potential future business risks. This is a very interesting attribute of concern that most companies have not taken into consideration.

ANALYSIS & RESULTS

Some key findings resulting from the interview are summarized in Table 3. Based on our key findings from the interviews, the following recommendations are suggested:

1. Companies need to consider utilizing technology and latest trends to give them a competitive edge. New technologies that help save cost and improve performance such as cloud computing solutions (cloud accounting, virtual teams, and online storage) can really help make an organization make a difference for itself amongst its competitors.
2. Although cost has always been a core attribute of focus and careful measurement, most businesses still fail today in preparing and acknowledging common risks of hidden costs such as running costs which are usually unforeseen before a contract agreement. Organizations need to also consider unforeseen costs that may occur out of their normal scope of expectations.
3. Very important, but not the least, is organization performance analysis. It is very common for most businesses to have a mix understanding and view of performance analysis in measuring the outcome and direction of their IT outsourcing. Organizations need to clearly understand and implement performance analysis systems that help measure and continuously monitor the performance of their IT outsourcing.
4. Basic knowledge of technology and latest trends in the market are essential. Little do organizations realize the importance of IT awareness and how important it is to have the basic current knowledge of current technologies and available opportunities to choose from in the market. Hence where IT governance plays a strong role having in a company to support and maintain IT outsourcing.

5. Most organizations outsource either only for cost or for IT knowledge purposes. Many do not consider other important factors of why to outsource, such as for reasons to minimize or reduce current or potential business risks that may arise in the future. Organizations should always consider a link between IT outsourcing and what impact this may have on business risks.

These recommendations may serve as guidelines for organizations that may want to consider IT outsourcing by underlying common existing issues faced in businesses today.

HYPOTHESIS TESTING

IT outsourcing helps reduce cost and increase performance. Most common problems are between vendors and clients. Sometimes the vendor is an opportunist taking advantage of clients because of their lack of knowledge in outsourcing, or because of the locked in position. Performance measurement and IT governance plays an important role in outsourcing. Measuring systems help improve costs and sustain long term outsourcing, while IT governance maintains and monitors the progress and relationship of outsourcing requirements. Our first hypothesis includes the following:

H_1: IT governance and performance measurement systems are critical supporting factors for the success of IT outsourcing.

Using SPSS, the Table 4 summarizes our results for the first hypotheses with a 95% confidence level.

From the H_1 calculations, we calculate t=0.18, hence t<2.015, therefore we fail to reject the null hypothesis and conclude that there is insufficient evidence to say that less than 80% of IT managers agree that IT governance is crucial for the success of IT outsourcing. This result is quite interesting as it highlights the importance of IT governance in outsourcing.

New technologies significantly improve costs and performance when adopted correctly in time. Cloud computing is still evolving, yet has security issues of data retention and lack of global standards. Our second hypothesis is as follows:

H_2: Increased cloud computing client awareness and knowledge further helps improve the adoption of cloud computing solutions for IT outsourcing. Table 5 summarizes the results of the tests.

Table 4: Hypothesis 1 results

Test type	Single sample one tailed test.
N=20	Is our sample size of 20 interviews.
T-score testing	Because we do not know the population (sigma), and we have a small sample size, we use the T-score testing instead of Z-score.
H_0: $\mu \geq 0.8$ H_1: $\mu < 0.8$	Null hypothesis predicts that 80% or more of IT managers believe IT governance is important to have when IT outsourcing.
Xbar=0.83	Average mean number of interviewees from our n sample, who agreed with H_0.
Alpha=0.05	Our confidence level of 95% that we have chosen for this test.
SD=0.11	Standard Deviation.
Df=19	Degrees of freedom (n-1).
CV=2.015	Critical T Value from T-table for Df.
If t>2.015	Chance of committing type I error, reject H_0.

Table 5: Hypothesis 2 results

Test type	Chi Square Test	
	Yes	**No**
Expected	15	5
Observed	6	14
N=20	Is our sample size of 20 interviews.	
Alpha=0.05	Our confidence level of 95% that we have chosen for this test.	
CV=3.841	Critical Value Df from Chi-Square distribution table.	

We expected most IT managers to already have been familiar with IT cloud solutions before IT outsourcing. We want to find out if the variation in our data is just due to chance or has something to do with one of the variables we are testing. From the above H_2 calculations, we calculated the Chi Square value to be 0.67, which is less than our Critical Value of 3.841, hence we fail to reject our null hypotheses which confirms that there is dependency between cloud technologies awareness and cloud computing adoption for IT outsourcing.

CONCLUSIONS

In this paper, we have identified and attempted to answer both research questions related to outsourcing and cloud computing. In answering research question one, we have identified the relevant attributes faced by organization in IT outsourcing. Five categories are (IT Knowledge, Cost, Performance, Governance, and Risks) were obtained from the literature review. These factors were used to help in understanding the latest trends in IT outsourcing. These categories are further examined in depth using interviews with local senior managers of companies in order to explore similarities with the literature review findings. The analysis show distinct and recurring critical factors that affect IT outsourcing and the impact of new trends such as cloud computing. There are several findings that can provide guidelines highlighted for organizations when considering to IT outsource.

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