Understanding E-procurement: Qualitative Case Studies

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ABSTRACT

E-procurement is constantly receiving attention from industries, business and government agencies. Analysts believe that utilization of e-procurement can lead to enormous cost saving and efficiency in procurement process. E-procurement also enlarges customer base, broadens the search for raw materials to lower its production cost. Though, it has benefited the global business tremendously, its expected growth rate has been moving downwards. While E-procurement can be used for the purchase of indirect or direct materials, the risks associated with the e-procurement has been holding the companies from adopting it. The purpose of this paper is to understand the e-procurement process by focusing on benefits, risks, practices and strategies of e-procurement and its emerging usages in the current business to business (B2B) environment. A qualitative method was used for the case studies in which two companies each from India and Sweden were studied and analysed.

The results showed that cost benefit was the main driver for companies to implement e-procurement. Other benefits included were transparency and visibility across process, better internal and external relations and streamlined buying process. The problems of implementation and integration of existing infrastructure and security and control risks were holding back companies from wide usage of e-procurement. But most of all, lack of managerial commitment hinders the adoption process. Company's needs were the deciding factor for the kind of approach they will follow regarding the adoption of e-procurement and emergence of a new approach. This paper compares the works of different authors in the field of e-procurement and its implications for the B2B.

Keywords — **e-procurement, ICT, e-commerce, case study**

I. INTRODUCTION

In today's dynamic global business competition scenario, web based technology is no longer an after thought, rather it is a must. It is vital for companies to provide its customers with cost effective total solution and life- cycle costs for sustainable value. With emergence of Internet, and information and communication technology (ICT) applications, the companies are strained to shift their operation from traditional way to the virtual e-business, e-procurement and e-supply chain philosophy [1]. E-commerce is seen as the new tool that will revolutionize business as we know it today. Although, the business to customers (B2C) has received attention from the rise of companies like Amazon.com, and eBay Inc, still the bulk of e-commerce remains to be the B2B [2] [3]. IT publications and business analysts alike have been full of the promises of B2B e-commerce. At the center of all this hype was the possibility of what e-procurement could offer a company as means for companies to control costs [4]. Does e-procurement really save cost and time for companies? Well this question can clearly be understood by an example from [5], "one might not think it would matter to an 8.5 billion company, how it buys its pencils. But, when they have upward of 60,000 employees in 100 countries purchasing those pencils, not at mention desk, computers, and spare parts for oil fields equipment, the time and cost can easily mount. Rather than trying to centralize such purchase into some worldwide purchasing office, Schlumberger and other big companies have chosen or are choosing to take advantage of the burdening market for e-procurement". Many authors have defined e-procurement in there own wordings. Some interesting definitions are stated below:

A technology designed to facilitate the acquisition of goods by commercial or government organization over internet [6].

E-procurement is a technology solution that facilities corporate buying using the internet. It has the power to transform the purchasing process because it pervades all of the steps identified by the supply manger [7].

The terms procurement and purchasing has been quite often mixed with each other or used interchangeably. However, they differ significantly in their scope. Purchasing refers to buying materials and all activities associated with the buying process. Electronic purchasing addresses only one relatively minor aspect of the procurement problems faced by companies. Procurement on the other hand, is broadly defined to include a company's requisitioning, purchasing, transportation, warehousing, and in-bound receiving processes. Recent procurement strategies focus on restructuring the entire order-to-delivery process rather than on specific tasks

within the process [8]. Thus, e-procurement is not just an addition of technological aspect to traditional procurement. E-procurement system in essence, mirror the procurement process through the provision of two distinct, but connected infrastructures, internal processing (corporate intranet) and external communication processing (internet based platforms) [9]. The critical difference is that these systems allow individual employees to order goods directly from their personal computers through the web on real-time. Requests and orders are channeled through various forms of hubs or database. It also allows individual employees to search for items, checks availability, place and track orders and initiate payment of delivery [10]. E-procurement had been the subject of a great deal of research, but again this has tended to focus on the development of inter-organizational electronic networks. Inefficient and maverick buying habits, redundant business processes and the absence are symptoms of poor procurement practices [11]. The world of e-procurement is changing at a dizzying pace and B2B procurement is rapidly becoming the most efficient way to conduct all these modes of business.

E-procurement's benefits fall into two major categories: efficiency and effectiveness. E-procurement's efficiency benefits include lower procurement costs, faster cycle times, reduce maverick or unauthorized buying well organized reporting information, and tighter integration of the procurement functions with key back-office systems. The benefits of E-procurement effectiveness include increased control over the supply chain, proactive management of the key data, and higher-quality purchasing decision within organizations [8]. Although, the benefits of e-procurement are frequently discussed, it has its share of risks. In addition to the technology risks, there are risks associated with the integration of these technologies with existing information systems, with the business models that these technologies impose on supplier-customer relations and with the security and control mechanisms required to insure their appropriate use [12].

The purpose of this paper, is to understand the e-procurement process by focusing on benefits, risks, practices and strategies of e-procurement and its emerging usages in the current business to business (B2B) environment.

The article is divided into five parts including introduction which is section 1. In section 2, the literature review: previous research conducted within the areas and the overall purpose is given, which will serve as theory for the study. Section 3 includes the methodology and the next section will handle the case studies, which consist of findings from Indian and Swedish companies and final section includes conclusions and implication for future research.

II. THEORY

A. Benefits with E-procurement

Normally, *cost savings* are the main motivator for companies to implement e-procurement solutions. As cost

per transaction using e-procurement can be reduced by 65% compared to traditional procurement transaction [12]. Cost reduction and negotiation are the reason for transaction costs fall so precipitously with e-procurement. Reductions in labour costs in the purchasing process, increase in purchase volume, leads to better price from supplier and better negotiation i.e. suppliers are ready to reduced the price as they get the assurance of transaction from the buying company. The effect of e-procurement on inter-organization enhances the benefits of e-procurement within an organization. Companies using e-procurement have reported savings up to 42% in purchasing transaction cost associated with less paperwork, which translates into fewer mistakes and more efficient purchasing process. In a labour intensive, paper-based purchasing process, transaction costs can range from $70 to $300 per purchase order. For example, GE (General Electronic) saw those costs drop to 30%. Other firms have experienced even greater reductions [7]. Cost reduction is also influenced by control over *maverick spending* i.e. purchase of goods from suppliers with which the organization does not have formal relationships.

E-procurement users also report a reduction in the number of suppliers, associated cost benefits of lower managerial complexity, lower prices and a headcount reduction in the purchasing process. Cutting those cycle times helps in *streamlining the process* and has a significant impact on the revenue generation potential for the firms because products get to market faster, allowing the firm to position it to capture market share from a first to market position [7]. Different authors have elaborated on the benefits that accrue from adopting e-procurement technologies. These benefits are expected to accelerate the rate of adoption of these technologies once the uncertainties that remain around e-procurement are reduced to levels that encourage significant resource commitments leading towards higher *process efficiency* [12]. E-procurement solutions do not always require additional technology, dedicated personnel or staffing resources. Rather, existing technology infrastructure, including equipment and computers with Internet connectivity (which may already be in place) can be used [6]. E-procurement and related technologies promise major improvements in the management of procurement. These improvements are achieved by sliming the supply chain and by acting on (or perhaps creating) markets at either end of that chain. Also, *buyers and sellers are able to share information* in real time to build specification that add value to resulting product and build strong relations.

The use of e-procurement is known to have implications for information asymmetries or impact on inter-organizational relationships, in particular for search and monitoring costs. Alternative explanations for the benefits of e-procurement arise from the resource based perspective through which the resources of the firm may be leveraged to achieve competitive advantage with electronic commerce presenting opportunities to enhance firm resources [13] [14]. Finally, there is also impact on firm's asset base and

the *inventory level* can be significantly reduced. There are no problems like stock outs, wrong product ordered faster delivery, etc, and there is better inventory control. An effective e-procurement strategy for example, extranets link the system of buyers and suppliers over the Internet facilitate real time exchange of the information in the buyer's production schedule and develops capabilities that allow a degree of flexibility with suppliers [7]. Various studies explicitly done on the benefits through implementation of e-procurement system are briefly explained in Table 1.

B. Risks associated with E-procurement

As mentioned above, e-procurement has lot of benefits but still its expected growth rate has been revised downwards. Recent market observation indicated that the adoption of e-procurement technology into the business mainstream is occurring in a much slower rate than expected. One reason is the implicit association made by investors between e-procurement technologies and the B2C models responsible for the internet bubble bust. More often, the slow down has been associated with technology-related issues [12]. Internet-based e-procurement systems and B2B electronic market solutions need to be compatible to the greatest possible extent with the existing technologies, to have a reasonable chance to be widely adopted in the marketplace this leads to problems like investment cost [15]. A study by the conference board (2000), pointed to the problem in the implementation side and concludes that organization are finding (e-procurement) implementation more complex, expensive and time consuming than they originally envisioned' and that consultants have been 'widely criticized for overstating the business case of e-procurement' [18]. Companies were jumping into the e-procurement bandwagon without fully understanding the inter-organizational collaboration and network effects underlying these technology models, the investment required to move the right information from suppliers to employees, and the complexities of integrating these technologies with existing enterprise recourse planning (ERP) system [19]. The analysis indicated that the slower-than-predicted growth is not the consequences of a single problem. Rather, e-procurement technologies are still in there early stage of the traditional technology S-curve, where alternative technology models are rapidly evolving and users are still sorting out the winning model. Because, a well-defined business process is still unavailable, companies are using different strategies to approach these technologies. The perceived risks that are holding back companies from investing in e-procurement technologies are numerous. These risks mentioned by [12] are:

- *Internal business risks:* Companies are uncertain about having the appropriate resources to successfully implement an e-procurement solution. Implementing an e-procurement solution not only requires that the system itself successfully performs the purchasing process, but it integrates with the existing information infrastructure

TABLE 1
MAIN BENEFITS IDENTIFIED BY DIFFERENT AUTHORS

Leonard and Cochran,2003 [16] • Ability to implement "just in time" strategy • Streamlining of supply chain by removal of inefficient intermediaries • Better access to information and transparency in markets • Removal of market barriers like time difference and geography
De Boer et al,2002 [11] • Cost saving directly related with production or service delivery • Cost reduction of non production goods and services • Reduced cost of operational purchasing activities e.g. ordering, expediting and requisitioning • Reduced cost of tactical procurement activities e.g. formulating specification, selecting suppliers, negotiating with suppliers, contracting, disposals etc • Reduced Cost of strategic procurement activities – e.g., spend analysis, transaction analysis, market analysis, planning, developing purchasing policies etc • Internal benefits arising from investments in particular inter-organizational relationships • The contribution of investments in particular inter-organizational relationships to revenues
ITRG, 2002 [17] • Process efficiencies amounting to annual savings. • Ability to link into existing systems, such as ERP. • Reductions seen in lead times within the procure-to–pay cycle, in some cases by 50%. • Self-invoicing on behalf of clients can add to the bottom line. • Month-end reconciliation can end the problem of the wrong items being ordered or the wrong prices bring offered as business process have been streamlined and all was working off the same catalog. • The buyer is engaged in more strategic product management, leading to better contracts being negotiated. • Maverick spending is reduced. • Reduction in stock levels can lead to savings of millions of dollars
Davila et al,2002 &Presutti, 2002 [12] [7] • Cost savings • Process efficiency • Better information flow between buyers and supplier • Reduced Maverick spending • Streamlined process • Better inventory level

- *External business risks:* E-procurement solutions need not interact with internal information

systems, but also need to collaborate with external constituencies; mainly customers and suppliers. External constituencies need to develop internal systems that facilitate the communication through electronic means, an issue that demands technology investments as well as incentives for these constituencies. For e-procurement technologies to succeed, suppliers must be accessible via the Internet and must provide sufficient catalogue choices to satisfy the requirements of their customers. Suppliers, especially in low margin industries, may be hesitant or even unable to meet such demands without guarantees of future revenue streams.

- *Technology risks:* Companies also fear the lack of a widely accepted standard and a clear understanding of which e-procurement technologies best suit the needs of each company. The significance of this risk factor seems to suggest the need for clear and open standards that would facilitate inter-organization e-procurement technologies. Without widely accepted standards for coding, technical, and process specifications, e-procurement technology adoption will be slow and fail to deliver the benefits as excepted.

- *E-procurement process risks:* Another set of risks has to do with the security and control of the e-procurement process itself. Organizations must be confident, for example, that unauthorized actions will not disrupt production or other supply chain activities when committing to e-procurement technologies.

C. E-procurement practices, strategies and models

There are different practices, strategies and models related to e-procurement implementation and it is essential to understand them as they bring out practical aspects of e-procurement. The theories have been rather vague in-relation to these specific topics, but the authors have tried to bring some insight.

E-procurement Practices:

In the procurement circle, the line is often drawn between *direct* and *indirect materials*. Indirect materials constitute what are typically referred to as maintenance, repair, and operation (MRO) goods, where direct materials are those that are closely linked to production or service delivery. It is common to find direct purchases aimed at external customers with largely unpredictable purchases (based on the current need of the firm). They have a large order size compared to indirect material that are aimed at internal customers, the purchase are internal driven and have a smaller order size. However, for direct purchases, where a firm sends 80% of its total dollar for the total number of purchase order is only 20% compared to indirect purchases. The total dollar send is 20% but the total number of purchase order is 80%, making it more desirable [20]. The [21] have shown consistent growth in the adoption of Web-based methods for indirect purchases.

Much of this is due to the fact that firms both in the services and manufacturing sectors are increasingly making routine purchase for operating and office supplies through online sites, either independently or as part of hosted catalogs. However, when the ISM/Forested results are looked closely, it can be seen that the driving force behind this overall shift to sourcing indirect goods and services via Internet is the largest purchasing organizations. It must be remembered that the exact breakdown on what is a direct purchase and what is an indirect one varies even within companies and even depending upon the timing and circumstances of the purchase. Although purchases of indirect goods may be often outpaced spend on direct materials, acquisition of MRO goods has therefore not been looked upon as a strategic issue [22].

E-procurement Strategies:

The E-procurement market is still evolving with the development of technology and new models to serve the needs of the market. There are various strategies that companies adopt towards e-procurement technologies. The majority (70%) are taking a "*wait and see*" approach (strategy). These companies are either aware of the developments, but not committing resources (37%) or investing selectively until the best e-procurement model can be identified (33%). These companies do not perceive the current state of development merits shifting their established procurement process to the e-world; never the less, they are active in experiments and widespread. The strategy reflects active experimentation but no sizeable investment until the best E-procurement model is defined [12].

A smaller set of companies (4%) adopting a more *passive strategy* of observation without experimentation. Their adequacy (and risk) will depend on how quickly organisational learning can be absorbed without creating the "absorptive capacities" that the wait and see companies seem to be developing [12]. A moderate number of organisations are taking aggressive strategy (27%), stating that they are adopting e-procurement technology declaring that they are 'investing significantly to gain a competitive lead (3%) or moving 'fast into e-procurement solutions (24%). This strategy however is defined as riskier in the absence of any well defined solution and companies may end up betting on the wrong technology [12].

According to the results from one study, one-third of all respondents believe that at least 40% of their competitors are implementing or have plans to implement an e-procurement strategy. Among organisations pursuing an *aggressive strategy*, over 50% believe that their competitors are doing the same [12].

E-procurement Models:

According to [23], e-procurement is the amalgamation of sales and purchasing business models and calls for differentiation based on application and functions. The first application is the "*buy-side procurement*" which refers to one organization using electronic systems to purchase goods, such as office stationary, from contracted suppliers.

These suppliers are also using e-procurement systems for management of all processes relating to purchase. This is simply coalescing of the corporate procurement portals and business to employees (B2E) applications. Also these models are generally driven by the specific requirements of the buying organizations than other models.

The second application is "*sell-side procurement* ". This term is used to describe how one supplier sells to a number of buying organizations using electronic systems such as, using e-procurement systems and e-commerce technology. This model is also referred to as "e-sales". Seller side procurement models are often used extensively in B2C (business to consumers). Well designed seller side solution is usually offering a higher level of customizations for each buyer than their B2C retail counterparts. This type of model attracts big suppliers firms that have a stronger position in relationship with their buyers.

The third application is "*e-marketplace and trading hubs*" which is a combination of industry consortium and the trading exchanges. The marketplace model brings together many different buying and selling organizations in one trading community. The most popular e-marketplace function is auction used for variety of product category. This type of model often helps to increase collaboration between companies in a single industry sector or providing the opportunity of e-procurement to companies, who would normally be too small to benefit [23].

D. Research problem and emerged frame of reference

Based on the above mentioned purpose of the study and along with the thinking of [12], [7], [20], [23], we are able to come up with some intriguing research questions, which need further clarification.

(a) How can the benefits associated with implementation of e-procurement in B2B organizational setting be described in a specific global context?

(b) How can the risks associated with adoption and integration of e-procurement in B2B organizational setting be described in a specific global context?

(c) What e-procurement practices, strategies and models adopted by organizations in B2B settings in a specific global context?

To show the relation between three research question and purpose of the study we developed a frame of reference (Figure 1), which shows that benefits are the drivers for companies to implement the e-procurement. Once a decision is made regarding adoption of e-procurement it is important to adopt these decisions related to practices, strategies and models by companies. Risks are present throughout the process both in the beginning and after the implementation of e-procurement. Risks help the organisation to identify the pit holes and prepared for the problems that come with implementation of e-procurement. And all these components interact together which takes place within the e-procurement environment.
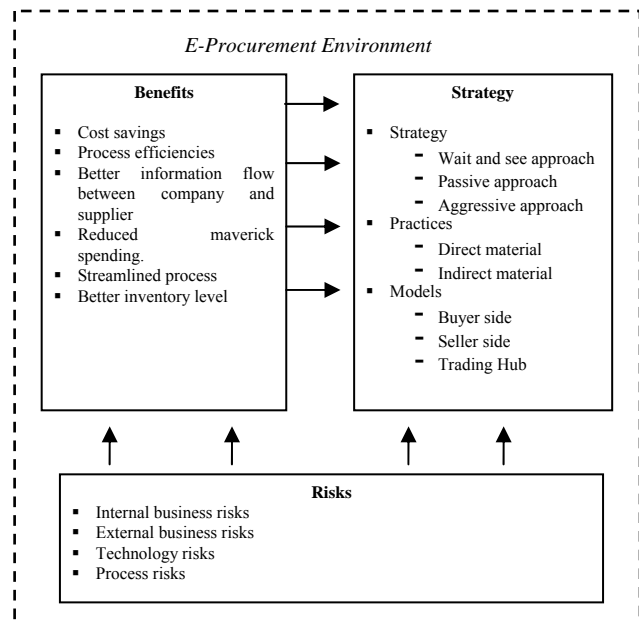

Figure 1: Emerged frame of references

III. METHODOLOGY

The method used for gathering data to answer the above stated research questions is an in-depth, qualitative multiple case study approach. This kind of longitudinal approach is recommended to the authors, who want to study new technology related subjects in B2B context [24]. Qualitative study includes a great closeness to the respondents or to the source that the data. It is characterized by gathering abundant information and to investigate several variables from a few numbers of entities. To make use of the possibility to gather high quality data, the most common way to do this is with the use of case study and interviews, where no set answering alternatives are being offered. The qualitative approach was found to be more suitable for the purpose of this paper, as the purpose is to gain better understanding of how e-procurement is used in a B2B setting. For doing so, we need close contact with the subject, instead of generalization. Finally, as the intention of this paper is to describe, and to find complete and detailed information, qualitative approach is the most suitable method. Further, being descriptive helps us fulfilling our intention to describe the area of research and try to explain the data collected in order to find out the differences and similarities with frame of reference. But we are exploratory in our research and we also, begin to be explanatory. We have stated a purpose of the study that makes us exploratory.

For this study, we used multiple-case sampling, because multiple cases could add confidence to findings. By looking at a range of similar and contrasting cases, we can understand the case finding, grounding it by specifying how and where and, possible, why it carries on as it does [25]. The sample selection used the criteria that companies should have implemented an e-procurement solution or helps to provide an e-procurement solution to other companies. The reason for taking these two perspectives is

that, when a company is implementing e-procurement, it is easy to get in-depth information. And when a company is providing e-procurement solutions, it is easier to get wider information about its customers (companies) and adoption of e-procurement. These two perspectives are further compared from Swedish and Indian companies' views.

While selecting the e-procurement solution, providers from Sweden and India, it was considered to study an established company (A company that is using e-procurement or providing e-procurement service for at lest 3 or more years). The reason for this choice is due to the recent e-procurements evolution in the business community. The companies approached for the study were first contacted via mail and telephone. The company's selected for this paper was e-procurement solution provider from Sweden (A) and from India (C) which qualify under these criteria; both companies were founded around the year 2000. Also, both are leading e-procurement service provider in their respective country. While selecting users of e-procurement, it was purposeful that the user company should be related with the service provider company. So, a banking company (B) was selected for Sweden as company A provides the e-procurement solution to company B and company B is a share holder of company A. Further from India, Steel manufacturing company (D) was selected as company C provides e-procurement solution to them and company D also has a share in company C. Another reason for selecting these companies was due to their involvement in the B2B sector. In addition, it was purposefully tried to take not only companies from different countries, but also, different industry as this widens the scope of the study for a better understanding of the e-procurement phenomena.

Finally, the people approached in each company were not strictly based on their job profiles, as in most companies there is no any particular position or person that handles e-procurement. Hence, the selection of interviewee was left on the company. Companies were approached and the right person was searched after briefing them about the needs of the interview (For details on methodology please refer to [26])

All the four companies formed 4 cases that will be presented in the next section. According to [24], it's beneficial to conduct multiple case studies, instead of single as it gives the opportunity of comparisons. By investigating similar and contrasting cases, the researchers have the opportunity to better understand the findings than if they came from a single case [27]. Data collection of the paper was done using interview and documentation. Interview was conducted personally or via telephone with follow-up e-mails. Websites of each company was used as an important source for documentation and information.

IV. CASE STUDIES

A. Findings from Swedish cases (Company A and B)

Cost saving is recognized in accord with the theory presented by different authors, in company B. High purchase volume helps in getting better price and higher savings from supplier. Company A also, supported this theory, and identified cost saving as the main factor for companies to adopt e-procurement. Moreover e-procurement assures the suppliers and buyers making negotiation natural. Company B partially allied with the theory relating to Process efficiency. It helps in getting market overview, transparency throughout the company and reduction in the overall purchasing. They also associated process efficiency with reduction in numbers of suppliers i.e. in invoicing and other information from suppliers. Similar views were shared by company A, establishing that process efficiency enables better business control, professionalism in work and clears up other processes within the company. Further, they suggest time convenience as a vital benefit, users can utilize their time at work rather then purchasing.

Regarding better information flow between buyers and suppliers, company B agreed with the theory completely whereas, company A partially agreed. They explained that e-procurement solutions enable end-users to search for products to create requisitions and to place orders with supplier. But, the employees\buyers may not always know the supplier. Thus no direct relationship may come to exist and information flow might be restricted. Both company A and B fully approve reduction in maverick spending due to e-procurement. They acknowledged contract compliance i.e. purchase only from suppliers with whom they already have some relationship, which leads to reduced maverick spending. Similarly regarding streamlined process both company feel that e-procurement connects employees with a single process making it smoother, information flow effortless, easier to handle and the whole process is streamlined. This leads to automating requisitions, minimizing data errors, routing all documentation. With reference to better inventory control, company A agreed with the theory company B believes it is not the only major benefit of e-procurement since it deals in indirect material. Finally, the most important benefit of e-procurement for company B was cost savings as non-cost savings are rather intangible. Whereas, company A did acknowledge non-cost benefits to be not existing and better price to be the main motivator. It also rates contract compliance and process savings as important benefits.

Company B partially relates internal risks with the implementation of e-procurement, as suppliers have shown interest in integrating e-procurement but found it to be very expensive to integrate with their existing system. They had to provide training and educate to their employees on proper usage of e-procurement. However, they did not have any problem with the integration and uncertainty of its current IT solution. For company A, internal risks did not exist; this was due to technological advancements, training the employees and other services. They found something new to add to the theory; identifying other internal risks like lack of managerial commitment, and need for change in behavior and management. Company A did not support the theory of external risks the only visible external risk were the suppliers not wanting to join the system (mostly a

risk for smaller companies rather then large companies) while other risks related to the suppliers are taken care of before any transaction. Companies B, believe there can be risk while dealing with new suppliers, as they may not be interested in a marketplace that is expensive. It is seen as extra burden for suppliers for delivery which might discourage suppliers; buyers on the other hand may get confused who to choose from the large supply base. *Technological risks* were not of great concerned to both company A and B as e-procurement technology standard are common and widely accepted, hence this risk is obsolete. But, both companies were more or less threatened by *process risks*, company B gave high priority to security which should not be neglected. They have a separate security and audit department. As the information is vital it should not be visible to competitors, despite the security, measures good communication between all players in the market place is essential. Company A, rated risks linked to security and control issues very low, solitary related to operation risks.

Company A, diverges from the theory and according to them there is a different strategic approach taken by companies now-a-days. They believe *"Wait and see approach"* was quite common one year back in the industry. But now a different approach is adopted by companies regarding implementing e-procurement. It is some were between *passive and aggressive* strategic like a "moderate approach". Companies consider business case or business analyses before making the decision but companies are positively implementing e-procurement. They feel that this transformation is due to change in company's overview regarding e-procurement, as it is not just a new software solution. Risks have significantly reduced and communication of E-procurement has become easier than ever before. Company B, followed 'wait and see approach' when they first implemented e-procurement system. They ran a test pilot with just 25 users and few suppliers in 2001. And it did not take them long to understand the benefits associated with e-procurement and the initial risks conquered. The users got compatible with the system and within a year they changed their strategy to aggressive. They widely implemented the solution by June 2002 and added 600 users; across all branches in Sweden. By Nov 2002, all the employees of company B in Sweden were able to use e-procurement solution.

Although the current use of e-procurement is for *indirect material,* there is a rise in the purchase of *direct material.* It can be seen that in near future more transaction of direct material will be done. The acceptance of e-procurement solutions has got suppliers more interested to get involved. Company B supported the theory as their current e-procurement technology is used only for indirect material due to the needs of their business process.

Company A provides *buy-side* e-procurement model hence agreeing to the theory. They explained it is easy to motivate suppliers, if you have big companies as buyers (e.g. Ericsson, SEB, Novo Nordisk, and etc). Suppliers have assurance on the adoption of e-procurement will yield

them better relations and more money. Making it easier to sell it compare to *sell side or trading hubs.* Also company A's main stakeholder are its customers and all are big buyers. The model adopted by company B is a buy side mode and the reason for choosing this specific model is influenced by need for more specific solution for company B. Sell side model or trading model is not considered because both did not satisfy the need of the company's procurement needs.

B. Findings from Indian cases (Company C and D)

Both companies C and D, partially concur with the theory*, cost savings* is recognized, other related benefits are volume buying is made easy, more options are available and negotiation for a suitable price is easily done. Further, reduction is recognized in fixed cost, man power cost, variable cost through technological intervention. Company C added something new to the theory regarding process efficiency, they stressed on the value of visibility and transparency across the entire process and knowledge management as the imperative benefits along with cost benefits. Company D believes *process efficiency* leads to substantial reduction in lead time for purchasing of materials, simplifying paper work and procedures. Regarding better relationship between buyer-supplier both companies agreed and stressed on *better buyer-suppliers relationships,* which contributes to maintaining better relationship, savings from investments and generation of revenue. This leads to standardization of best practices, increased responsiveness to customer's demands and selling. *Maverick spending* was a benefit recognized by both companies, as transactions are made easy and profitable by using large qualified supplier's base. Company D has *streamlined* the entire purchasing system and suppliers, by higher utilization of e-procurement in centralized purchasing. Company C realize benefits like reducing procurement cycle which streamlined the inventory or workflow integrating new technology to the existing process to avoid duplication within the company. Company C recognized increase in optimal *inventory level* as benefit of e-procurement. Company D identifies real time exchanges through electronic invoicing, lower prices and better inventory control. The whole process used to take two months before and can now is done in two hours, leading to time saving, higher profitability and productivity. Finally, company C recognized cost saving as the *most beneficial,* while for company D acknowledged cost saving, sales relationship with its customers both internal and external as most beneficial.

Company C and D both partially agreed with theory, *internal risk* relates mostly to the early phases of adopting a new technology. This could be due to non-acceptance to change, which makes the scope of the risk very limited. The vital risk identified is responsiveness to e-procurement, the need to develop a strategy for adoption and integration of technologically advance process. It values the adoption, implementation and training employees for better integration of technology and improving previous relationships. Regarding *external risks* company C did not

identify this risk, according to the interviewee. E-procurement leads to transparency between buyers and suppliers, which are accepted by both the parties. This facilitates a degree of standard and quality for the organization. Thus any external risk does not exist.

For company D, the decision to adopt is directly related to investments and suppliers, which is an important consideration as most of its suppliers are still new to adoption of e-procurement and situated in remote areas. Both companies again correlated to the theory regarding *technological risks*, as there is lack of acceptance of technological standards in India, which is still a developing economy. Hence, here traditional and modern business coexists. It was agreed that with training employees and operational flexibility across organization technical efficiency can be achieved. Also, large unorganized sectors, lack of infrastructure makes quality and delivery capabilities a farfetched inspiration. Finally concerning *process risks*, is not identified largely by company D as the roles are defined within the organization. And company C, acknowledges that process risks may arise during the initial stages which lead to transparency and visibility that delegates control all across the organization.

According to company C, companies have moved on from the early scenario of *wait and see and passive approach*. Where not many companies were ready to take risk, but now they are surer about the e-procurement solution. Most of them are changing to *aggressive adopters*, for those who have already adopted the solution it is about moving one step forward. Company D's adoption strategy was aggressive as they wanted to expand on the first mover advantage in their industry. They identified the need to accept new technology and gain competitive edge. It successfully set company C to acquire resources, save money and achieve higher efficiency. The adoption of e-procurement within company D started with only one department and in time was adopted across the organization. It was a deliberate and strategic attempt to take on the aggressive strategy rather then passive or wait and see approach.

Company C mentions that most Indian companies consider *direct material* purchasing takes longer cycle and longer wait before the result can be judged and benefits can be identified, while with *indirect material* results can be viewed immediately. There is a shift in the market towards direct material, similar to the auto industry. However it is quite slow due to lack of technological and low acceptance by buyers and suppliers. The user company D is among the few companies in India that has implemented e-procurement for both direct and indirect material. Most of its procurement takes place for direct material (raw material like steel) but its slowly moving towards indirect material (MRO materials). This has led to better buyer supplier relationships and improved long term associations.

According to company C, *trading hubs* were most widely used by companies before. But due to diverse market segmentation, the buyers and suppliers communication could not be brought on a single platform. Now most companies are adopting a buy side model which allows the companies to purchase goods from contracted suppliers, while the *sell side model* is not so popular due to the fewer adoption capacities of the suppliers. Company D adopted the *'buy side model'* which complements the needs of the organisation and better price. In the initial stages trading hubs where also considered as an option. This was quickly rejected due to the lack of technical development and supplier's willingness to adopt the technology while still striving to build sustainable competitive advantage.

V. CONCLUSION AND IMPLICATION

The purpose of the article was to provide better understanding by focusing on the benefits, risks, practices and strategies and its emerging usage in the current B2B environment. By conducting an extensive yet not exhaustive review of previous studies on e-procurement phenomena, three research questions were formulated. These research questions were the guidelines for the whole study and for selecting the methodology used in the study. By use of case and cross case analysis [27] the findings were compared with the theory and between the cases. Conclusion contains the cross case analysis between the companies. Whereas implication for future research deals with specific research that can be visualised after this study.

A. Conclusion

Our research indicates benefits are the drivers for companies to implement e-procurement solution. Although the risks are present throughout the process, the benefits clearly over power them. *Cost saving* has been identified by all four companies as the main motivator for them to implement e-procurement. It is easy to speak about cost benefits compared to other benefits as its effect can be seen immediately in companies' savings. According to the Swedish firms, *process efficiency* is not just about less paper work and fewer mistakes, but reduction of suppliers used for the procurement process before implementation of e-procurement solution. It stressed that e-procurement leads to professionalism in work, better business control and cleans up the processes within the company. Researches indicate an agreement between most companies regarding the benefit of *better information flow between buyers and suppliers*. Some of the main points worth mentioning are increase in number of transactions, transparency in process, standardization of best practice and increases in responsiveness to customers. A relation between better information flow and saving from investments and generation of revenue were also acknowledged. A consensus between the companies was documented regarding the *reduced maverick spending*. They confirmed using a recognized supplier for purchasing products, leads to control and regulation of spending, and transaction easier and less expensive for company purchasing. Same trend were recognized in reduction of maverick spending with benefit from *streamlined process*. Some points worth mentioning are: single process makes

the process smoother and effortless information flow, minimizing data errors, automating requisitions, and reduction of procurement cycle.

Another related effect can be noticed in integrating new technology to the existing process is to avoid duplication within the company. Indian and Swedish companies had different views regarding *inventory level*. They recognize real time exchange helps in reduction of problems like stock out and delivery problem thus leading to *time saving*. But this benefit is not that valuable as it has become an accepted norm. It is acknowledged that specific benefit of inventory level is mostly related with companies using e-procurement for direct material purchase. For companies, that are using e-procurement system for purchasing indirect material it's not that beneficial. Cost benefit was mostly recognized as *important and essential benefit* of e-procurement. However, company A stressed on contract compliance and process saving. Similarly, Indian companies identified sale relationships with both internal and external customers to be beneficial. Consolidation of purchasing practices leads to greater discounts and better service from suppliers.

Our research indicates that, while most companies have accepted the risks involved in adoption of e-procurement others have moved forward and have identified additional risks associated with e-procurement. Regarding *internal risks* companies identify the need to provide proper training at all levels for better understanding and collaboration across the organization. Investigation of the Sweden based e-procurement provider enlightens the lack of managerial commitment constraining the adoption of e-procurement. Hence a need to change the overall behavior and management is acknowledged. The research recognized *external risks* associates with e-procurement, which mainly constitutes - customers and suppliers. There are risks of dealing with new customers with no previous records, lack of integration between the system used by the suppliers and the companies and connectivity. Adoption of e-procurement is slow and results are delayed mostly due to lack of technological standards. A similar view was shared by the companies in India, but the Swedish counterparts felt that *technological risks* are ever present. They also concluded that in countries like Sweden, adoption of e-procurement is standard and commonly accepted. Individual companies differ in their specific way to deal with risks related to *security and control*. Based on the finding, both Sweden and India it can be understood that these risks are more fundamental during the initial phases of implementation of e-procurement, but once the roles get defined it becomes part of a system or process.

Regarding the adoption strategy, it was felt that companies change their *strategic approach* to suit their needs. We conclude that the three different approaches identified by theory are not necessarily different as one could starts with an approach and changes it on later stage to convene its current requirements. Regarding the e-procurement *practices* adopted by companies, we found that both direct and indirect materials are purchased from

the e-procurement solution. Regarding e-procurement practices theory suggests that indirect materials are more likely purchased by e-procurement solutions. However there is a rapid change in the market scenario in both countries towards direct material purchase. The research indicates that when compared, e-procurement *models* used by companies to the theories in all the case studies were surprisingly similar. Companies recognised all the three models in the adoption of e-procurement; the buy side procurement model was mostly implemented. As specific requirement of the buying organisations are met by this model compared to other models (e.g. sell side or trading hubs). Other factors that helps in influencing this decision are large customer base for suppliers, big players assure suppliers of better revenue and relations.

From this study we gather the correlation between companies dealing with e-procurement and how they identify the benefits, risk and strategies. This area is not fully developed in literature and possibilities to expand the research would be motivating. Conversely, we anticipate that the findings from the study could serve as the base for constructing a hypothesis, which can be tested and used to produce generalized results.

B. Implication for future research

Some interesting propositions for future researches to indulge in the field of e-procurement are summarized below:

- The dissimilarities regarding e-procurement amongst companies could be an area for future research to be undertaken.
- The dissimilarities regarding e-procurement due to location (country) and its culture can be an interesting area for further research
- A quantitative study in e-procurement would be interesting in making the research area border

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