Literature Reviews

Andrew Gemino, et al, (2006), in their paper “Executive Decisions About Website Adoption In Small And Medium-Sized Enterprises” narrate their research where a survey of 89 SMEs without websites was used to test a model hypothesizing relationships among: perceived benefits, perceived pressure, organizational readiness and intent to adopt a website. Survey findings indicate perceived benefits (strategic and informational), organizational readiness (IT resources) and internal pressure directly affect intent to adopt a website. However, financial resources and external pressure were not found to be significantly influential.

Arun Sukumar & David Edgar, (2009), have explored an altogether a new dimension in their paper “E-Business, SMEs and Risks: Towards a Research Agenda”. The authors state that there is a limited understanding of the nature of e-business risk in organisations, and in SMEs. The results highlight that key themes revolve around strategic risk, customer risk, branding risk, security threats, legal and tax risks, leadership risks, outsourcing and dependency risk and technology risk.

Aykut Hamit Turan, & Taylan ÜRKMEZ (2010), in their paper “Information Technology Satisfaction of Small and Medium Sized Enterprises in Turkey” write that adoption of new technologies is very important to initiate the movement for a higher quality and competitiveness in SMEs. In this study, a survey was conducted to measure the user satisfaction of IT in SMEs in Turkey. The results revealed that Turkish SME owners and top managers are not very satisfied with their IT investments and IT infrastructure in place.

Birgül Kutlu, & Meltem Özturan, (2008), explores in their paper “The Usage And Adoption Of It Among Smes In Turkey: An Exploratory And Longitudinal Study”, usage and adoption of Information Technology in SMEs. The survey was conducted in two stages in 201 SMEs. The findings state that the increased use of IT in SMEs is limited mainly for operational and routine tasks, development of internal IT skills. Further findings indicate that the increased adoption levels of IT in SMEs in Turkey are increasing leading to market transformation from national to international.

Boemo Nlayidzi Jorosi (2006), in this study “The Information Needs and Information Seeking Behaviours of SME Managers in Botswana”, investigates the information needs and information seeking behaviours of SMEs in Botswana. The key findings conclude that: for SME customer and competition to be the most important types of information, information source selection is largely determined by accessibility and ease of use; and SMEs use information for making important decisions and performing their routine activities.

Carr, J. (2005), in his “The Implementation of Technology-Based SME Management Development Programmes” investigates how the Higher Education (HE) sector can use its growing expertise in learning technology implementation to develop effective SME management development solutions. The author states that there is potential for the development of new learning technologies by business schools for use in SMEs. This is explored through the development of the Learning Technology Practice Framework (LTPF), leading to five key recommendations for HE educators, learning technology developers, SME trainers and public funding bodies to consider.

Damien Power (2006). In his interesting research paper “Adoption of supply chain management-enabling technologies in SMEs” compared views of Australian SMEs in
relation to the benefits accruing from the use of Business-to-Business (B2B) enabling technologies for the management of supply chains. The evidence from this research indicates that there are significant differences in perception of contribution to performance, understanding and knowledge of the implications and potential of B2B e-commerce technologies. Findings indicate that compared with managers of functional areas, senior managers are found to be more negative about their contribution to business outcomes, and they generally display a lower level of understanding of their potential and of the implications of adoption. The observation of this interaction provides some insight into the dynamics of adoption of technology-related innovations in SMEs.

David H. Brown, Nigel Lockett (2004), in their paper “Potential of critical e-applications for engaging SMEs in e-business: a provider perspective” investigate the emergence of, and potential for, critical e-applications defined as ‘an e-business application, in SMEs. The three key findings are: the emergence of aggregation -specific e-business applications; the emergence of collaboratively based 'one to many' business models; and the importance of trusted third parties in the adoption of higher-level complexity e-business applications by SMEs. Significantly, this work takes a deliberately provider perspective and complements the already considerable literature on SME IT adoption from a user and network perspective. In terms of future research, the importance of a better conceptual understanding of the impact of complexity on the adoption of information technologies by SMEs is highlighted.

Drew, Stephen (2003), has expressed in his “Strategic uses of e-commerce by SMEs in the East of England” that the SMEs’ businesses are emerging as significant Internet users and are increasingly adopting e-commerce. This research suggests that SMEs in different industry sectors may adopt different strategies for e-commerce and have different needs for training and support. This paper also explores the possibility that the Internet may be pose both a threat and an opportunity for SME business strategies. Survey results of this research show that despite recent setbacks to the dot-com sector, SMEs are placing ecommerce at the centre of their technology and corporate strategies and plan to use the Internet as a means for achieving transformational change.

Dyerson R., et al., (2009), “National Survey of SMEs’ Use of IT in Four Sectors”. This paper examines the adoption and use of information and communication technology (ICT) in SMEs. The paper explores the factors facilitating or hampering the successful adoption and use of ICT by SMEs. Findings are that SMEs are generally satisfied with their investments in ICT but that they are concerned about the cost of such investments and are uncertain about the business benefits. Much of the investment in ICT is directed at meeting bottom line issues of cost and productivity but little use is made of potential strategic applications. A particular case in point is the diffusion of ecommerce in which firms report increased consumer interest but there is little evidence in the survey to suggest that interest is being actively managed by SMEs. One concern that emerges from the survey is the SMEs’ perceived dependency upon consultants. SMEs appear to be encountering knowledge/competency gaps related to ICT. They may be too small to be able to employ a dedicated ICT expert and lack the experience to have confidence in its reliability of consultancy advice. They often have limited experience in selecting, implementing and evaluating suggested ICT solutions.

Elena Urquía Grande, et al., (2011), with two other co-authors write in their research paper titled as “The impact of Accounting Information Systems (AIS) on performance measures: empirical evidence in Spanish SMEs” that this research study is aimed at measuring the relationship between the use of the Accounting Information Systems (AIS) by SMEs in
Spain. This empirical study is based on a survey carried out among SME firms to ascertain the extent of implementation of accounting information systems. An analysis was also done as to know the impact on improvement in outcome indicators and productivity. The findings indicate that there is a positive relationship among the SMEs that use AIS for fiscal and bank management and better performance measures.

**Elizabeth Daniel, et al., (2002),** infer in their paper “Adoption of E-Commerce by SMEs in the UK - Towards a Stage Model” that SMEs are rapidly adopting the Internet and e-commerce. This study addresses the research gap by seeking to understand how SMEs in the UK are adopting e-commerce, through an exploration of their level and sequence of adoption. The authors found four distinct clusters of adoption. These formed a set of sequential stages, through which firms appear to pass during the adoption of e-commerce. The firms in the first cluster are currently developing their first e-commerce services; the second adoption cluster are using e-mail to communicate with customers, suppliers and employees. Those at the third level of adoption have information-based websites operating and are developing on-line ordering facilities. The most advanced adopters have on-line ordering in operation and are developing online payment capabilities.

**Farhad Nejadirani, et al., (2011),** with 2 other co-authors in their paper “Developing Countries and Electronic Commerce the Case of SMEs” state that the forecasters all agree that how business is done will be profoundly affected by ICT. SME’s in developing countries need to be able to figure out how, when, if and where to use electronic commerce techniques to reap these gains. They face obstacles and constraints specific to the developing countries in which they operate such as higher costs to access the Internet and language barriers. For SMEs in developing countries E-Commerce poses the advantages of reduced information search costs and transactions cost.

**Federici, Tommaso,** in his paper “ERPs IN SMEs: EX-POST EVALUATION OF SUCCESS FACTORS”, has observed that the introduction of ERPs into SMEs cannot be based on a sheer reproduction of the experiences with larger companies and represents a new challenge with significant peculiarities to be considered. The research presented here was specifically targeted to the SMEs which already completed the process of adopting an ERP system, with the aim of evaluating these experiences ex-post, by examining some improvement indicators associated with some context and project characteristics. The results suggest that the ERP introduction is evaluated as a success and that the benefits obtained are mostly related to the simplification of internal procedures, a much easier information retrieval, an improved performance management and some increase in production efficiency.

**Giovanni Fulantelli, & Mario Allegra (2003),** in their research paper “Small company attitude towards ICT based solutions: some key-elements to improve it” have illustrated some research results concerning the attitude of small companies towards ICT based solutions (specifically Distance Communication, Training and Consultancy) in Italy. They have also introduced some key-elements to overtake the obstacles to introducing ICT in small companies for new business processes; amongst others, and highlighted the need for training about technological innovation as well as about organizational and cultural changes that must occur within a company.

**Griffiths M and Light B (2008),** have investigated in their paper “Innovation in ICT adoption by SMEs, the role played by a managing director of a small to medium-sized enterprise (SME) consultancy in an ICT project associated with organisational development.
Findings of this research are that those engaged with organisational development projects need to be better educated as to the reasons for resistance, particularly positive ones, and the methods by which this might take place.

Hazbo Skoko, et al., (2006), in this article “ICT Adoption Policy of Australian and Croatian SMEs”, have stated that though many SMEs are currently adopting information and communication technology (ICT) and services based on it, there is little systematic research into how they are doing this and what are the organisational and environmental factors associated with this adoption. In this article, the authors build the model of ICT adoption in Australian and Croatian SMEs. By applying Qualitative Comparative Analysis (QCA) and Boolean algebra, the authors developed a model of necessary and sufficient factors for ICT adoption by SMEs in Australia and Croatia.

Hemant Verma, (2005), has elaborated in detail in his paper “Enhancing Export Competitiveness of Indian SMEs through ICT”, that in recent years, organizations have implemented thousands of large and small innovations in software applications, work process, business organization, enterprise resource planning & management, supply chain management, customer relationship management and business intelligence & agility. ICT adoption in the Indian SME sector can be evaluated by using, a 4 stage model. These stages are (i) Basic ICT Infrastructure, (ii) Functional Automation, (iii) Business Automation, and (iv) Business Integration. This model can also be used for benchmarking ICT adoption among different industry sectors.

Idisemi Apulu, Ann Latham, (2011), observe in their paper “An Evaluation of the Impact of Information and Communication Technologies: Two Case Study Examples” that there is a growing requirement in recent times for stronger cost control and a demand for higher returns in businesses. The use of Information and communication technology (ICT) to gain competitive advantage has become a key strategic issue amongst organizations in the fast globalizing environment as ICT plays a strategic role in the management of organizations. Thus, it implies that ICT brings about organizational advantage. This paper intends to deepen understanding on the impact of implementing ICT in organizations using two companies in Nigeria as case study examples.

Ismail, Noor Azizi (2009). This study titled as “Factors influencing the effectiveness of information system implementation among small and medium manufacturing enterprises in Malaysia” examines information system (IS) effectiveness and its influence factors in the specific context of SME. The model evaluated the importance of manager participation in IS implementation, manager IS knowledge and accounting knowledge, and external experts (vendors, consultants, government agencies, and accounting firms) for IS effectiveness. The results suggested that managers of SMEs need to acquire sufficient accounting knowledge to help them better understand business information requirements. Secondly, SMEs should engage qualified vendors who have experience and understand unique characteristics of SMEs to overcome their lack of IS knowledge.

Jan Devos, et al., (2008), observed in their paper “Outsourced Information Systems Failures in SMEs: a Multiple Case Study”, that since the 1980s, a number of frameworks have been proposed for understanding the concept of information system (IS) failure. Two approaches to IS failures seem particularly important: the concept of Expectation Failure and the concept of Termination Failure. However, one more dimension which authors call the Outsourced IS Failure (OISF) is not covered. The authors conclude that the agency theory has strong
prediction and explanation power for OISF. However some adjustments are needed to the agency theory. The theory seems to work in two ways, opportunistic behaviour is also observed on the side of the principal. The findings indicate that lack of trust is a prominent determinant for failure.

**Japhet Lawrence (2010)**, states in her study “The Factors that Influence Adoption and Usage Decision in SMEs: Evaluating Interpretive Case Study Research in Information Systems” that the purpose of using case study was to provide an understanding of the factors that influence SMEs decision to adopt and use Internet in business. The aims of using case study are: (1) to elicit qualitative information (2) to produce an in-depth and holistic study. (3) to generate theory which is fully grounded in the data. The findings suggest that innovation adoption theories should not only account for technological factors, but also organisational and environmental factors should be included in IT adoption and use in SMEs organisation.

**Juell-Skielse, Gustaf (2006)** in “ERP adoption in small and medium sized enterprises” observes that this study looks at the level of adoption of ERP functions, perceived organizational effectiveness and critical success factors. The most common use of ERP is for financial control and reporting, followed by order entry and purchasing. A significant relationship between the level of adoption and organizational effectiveness was found. Although Enterprise Resource Planning has become an established phenomenon the investments in ERP software are far from fully utilized. Most companies have started to use ERP to integrate functional areas but few companies have moved to extended ERP (ERPII). The adoption of functionality for customer relationship management seems to have started, but the use of e-commerce, business intelligence and supply chain management is very low.

**Kannabiran G. and Dharmalingam P., (2012).** This paper "Enablers and inhibitors of advanced information technologies adoption by SMEs: An empirical study of auto ancillaries in India" is most extensive research relevant to India. The auto ancillary industry in India has witnessed huge capacity expansion and modernization due to entry of foreign automobile manufacturers in the post liberalization era. In spite of potential benefits, the adoption of advanced IT among SMEs is low in India. There are several technological, economical and organizational factors that enable or inhibit the adoption of advanced IT. The primary objective of this research is to identify and evaluate the key factors that are enabling or inhibiting adoption of advanced IT in the Indian auto ancillary SMEs.

**Li Ping and Mula, Joseph M. (2009),** wrote in their paper “Extent of adoption of EDI by Singaporean SMEs: a survey of practices” that based on the literature review of EDI adoption and small business use of IT, the four variables of decision factor that influence Singaporean SMEs to adopt EDI were identified as perceived benefit of EDI, organizational readiness for EDI, competitive pressure, and power and inter-organization relationships. Furthermore, EDI volume, diversity, depth, and width were also identified as to the degree of EDI adoption/integration that strongly influences the impact of EDI. Finally, the different levels of impact (transaction benefit, information sharing benefit, and competitive benefit) associated with the different degrees of EDI adoption/integration were also identified. Singaporean SMEs did not expect that adoption of EDI would improve their trading partner relationships. However, Singaporean SMEs improved their level of awareness of EDI benefits after adoption of EDI, in practice.
Mahadevan Supramaniam, and Mudiarasan Kuppusamy (2009). “Investigating the Critical Factors in Implementing Enterprise Resource Planning system in Malaysian Business Firms” This paper describes the impact of Critical Success Factors (CSFs) during the Enterprise Resource Planning (ERP) system implementations using the responses from 151 organizations that completed or are in the process of completing an ERP implementation and identifying the key benefits of ERP implementation in the firm. The importance of these factors was investigated within Malaysian companies using questionnaire survey method. Results provide advice to management on how best to utilize their limited resources to choose those CSFs that are most likely to have an impact upon the implementation of the ERP system.

Mahesha Kapurubandara (2009), “A Framework to e-Transform SMEs in Developing Countries”, The few available studies related to SMEs in developing countries reveal a delay or failure on the part of SMEs to adopt ICT and e-commerce technologies. Various factors identified as causes for this discretion can be broadly classified as Internal Barriers and External Barriers. This paper explores the question how barriers for adoption of e-commerce impact the SMEs at different stages of sophistication. The paper also presents a framework to determine the current stage of an SME on a roadmap, which tracks eTransformation, and assists in overcoming barriers for moving between stages. The paper also identifies barriers predominant at various levels for different SMEs on the roadmap.

Masayuki Morikawa (2004), “Information Technology and the Performance of Japanese SMEs”, This paper examines the impact of investment in information technology (IT) on the performance of Japanese SMEs firms. The findings imply that there is a positive and statistically significant relationship between IT and firm’s profitability and innovation, for small firms. The acceptance of IT by this sector is fundamental to the success of structural adjustment in the Japanese economy.

Meshram K.G., & Chavan S.R. (2011), in their paper “The Role of CRM In Indian SMEs Growth: Issues And Challenge”, state that SMEs play a vital role for the growth of Indian Economy. The major Contribution of SME sector is towards employment generation and they are the largest creators of employment opportunities which second only to agriculture. Since the process of Globalization and Privatization gained momentum across the globe, SMEs are facing great challenges to survive and sustain in the market. CRM is one of the most exciting areas that organizations looking at these days.

Monika Sharma, et al., (2010), has stated their observations in the paper “Scope of cloud computing for SMEs in India”, about Cloud computing by SMEs. The authors mention that the SMEs of India are one of the most aggressive adopters of ERP Packages. This paper presents the cost savings and reduction in the level of difficulty in adopting a cloud computing Service (CCS) enabled ERP system. In the cloud computing environment the SMEs will not have to own the infrastructure so they need not spend any capital expenditure and instead they can utilize the resources as a service and pay as per their usage.

Morteza Ghabakhloo, et al., (2012), in their paper titled as “Strategies for Successful Information Technology Adoption in Small and Medium-sized Enterprises”, observe that Due to the numerous advantages of IT, SMEs are trying to adopt IT applications to support their businesses. IT adoption by SMEs differs from larger organizations because of their specific characteristics, such as resources constraints. Therefore, this research aims to provide
a better and clearer understanding of IT adoption within SMEs by reviewing and analyzing current IT literature.

Morteza Ghobakhloo, et al., (2011), have in their paper “Information Technology Adoption in Small and Medium-sized Enterprises; An Appraisal of Two Decades Literature” reviewed variety of aspects of the subject. Owing to the intensified competitive pressure and necessity for entering to global market undergone by SMEs, these businesses are incrementally employing Information Technology (IT) to take advantage of its substantial benefits. With regard to the limited resources controlled by SMEs, the process of IT adoption in this business sector is considerably different. The purpose of this paper is to analyze and contrast the internal and external issues affecting the process of IT adoption in SMEs.

Muafi, R. et al., (2012), in their research paper “The Information Technology (IT) Adoption Process and E- Readiness to Use within Yogyakarta Indonesian Small Medium Enterprises (SME)”, state that to understand adoption process and its relevant factors influencing this research they have applied the model that uses T-O-E approach (technology, organization, and environment) and orientation process approach. The conclusion of all the hypothesis proposed are there is positive influences of; (1) technology competence on IT usage, (2) of government policies on IT usage, (3) government policies on technology competence, (4) IT usage on IT value, and (5) IT usage on E-readiness to use.

Petar Vrgovic, et al., (2012), “Open innovation for SMEs in developing countries – an intermediated communication network model for collaboration beyond obstacles”, The authors state that there is increasing interest in exploring open innovation in developing countries, the conceptual and potential applications of using open innovation in the SMEs sector are rarely explored. While SMEs in developed countries have learned how to innovate, SMEs in developing countries face a range of obstacles that hinder them from innovating as much as they could. This paper suggests that in these cases a government agency, using innovation hubs, could help SMEs to connect, communicate and collaborate with independent inventors and other parties to jumpstart innovation practices.

Ramayah Thurasamy, et al., (2009), the authors in their paper “Technology Adoption among Small and Medium Enterprises (SME’s): A Research Agenda”, present the research agenda that has been proposed to develop an integrated model to explain technology adoption of SMEs in Malaysia. Technology adoption has been a major issue among SMEs as they require big outlay which might not be available to the SMEs. With that in mind this paper proposes a model to explain the technology adoption issue among SMEs.

Ritchie B. and Brindley C. (2005), in their paper “ICT adoption by SMEs: implications for relationships and management” discuss a conceptual model of the changes in SMEs interfaces and relationships consequent on their adoption of information and communication technologies is developed and explored in this paper. Emphasis is placed on the implications for management, employees and working practices. Empirical evidence from two organisations is provided to illustrate the model and corroborate this new perspective.

Roslin, Rosmimah Mohd Ismail, Noraini (2008), in his study “Assessing competitive advantage of SMEs through effective supply chain management”, he starts with an inter-organizational approach where relational elements are incorporated in the analysis of Supply Chain Management (SCM) of SMEs. The findings suggest an interesting perspective on SCM and distribution channel functions among SMEs where elements of information sharing,
cooperation, and integration are linked to competitive advantage. The correlation amongst the three independent variables of cooperation, information sharing, and integration with competitive advantage are all significant, depicting the relevance for SMEs to focus on these relational elements. There are perhaps other factors that should be considered besides relational elements that influence competitive advantage.

Sarut Jaidi, Nicholas Beaumont (2003), state in their paper “Factors affecting SME's owners/managers in adoption of Business-to-Business techniques: A research framework”, that this paper uses innovation and diffusion theory and the technology acceptance model as a theoretical basis. The new model for SMEs is proposed in this paper which includes individual factors, perceived usefulness, perceived ease of use, innovativeness, attitude, and behaviour as a factor affecting owner’s decision.

Shahawai S.S. (2010), comments in his paper “Pre-considered factors affecting ERP system adoption in Malaysian SMEs using a technology-organization-environment framework”, that the adoption of ERP system among most SMEs in Malaysia are still lagging behind. This paper aims to discuss the pre-considered factors affecting ERP system adoption in Malaysian SMEs by using a technology-organization-environment (TOE) framework. The findings would help outline the strategies that should be considered to increase the understanding on the successful adoption of ERP among Malaysian SMEs.

Southern A. and Tilley F. (2000), “Small firms and information and communication technologies (ICTs): toward a typology of ICTs usage”, Despite government support for a number of initiatives to encourage more small firms to adopt information and communication technologies (ICTs) implementation of ICTs has been a slow and very diverse development. This article examines the relationship between small firms and ICTs and highlights a number of typical, but often negated, characteristics that show how small firms use the technology.

Stephen O. Migiro, Dennis N. Ocholla (2005), in their paper “Information and Communication Technologies in Small and Medium Scale Tourism Enterprises in Durban, South Africa”, enlist the objectives of this paper are to identify factors influencing the adoption of innovations, specifically e-commerce readiness and to identify specific barriers or obstacles to the use of ICT by small and medium tourism enterprises in Durban, KwaZulu-Natal Province, South Africa. Enterprises studied included guesthouses, lodges and self-catering, bed and breakfast, and tour operators. The results reveal that high cost, limited funds and not knowing what to adopt are perceived as barriers to the diffusion of ICTs among the tourism service providers in the study.

Sudhakar S., & Sudharani Ravindran. D. (2012) in this paper “Adoption of Customer Relationship Management Technologies among Indian Small & Medium Enterprises – A Review and Suggested Model” suggest that a framework for adoption of innovation like CRM among Indian SMEs. The factors and impediments to adoption of CRM are studied and help in providing both researchers and Government to rethink policy at technological adoption among industry with specific reference to SMEs.

Sylvestre Uwizeyemungu, Louis Raymond (2011), in their research paper “Information Technology Adoption and Assimilation: Towards a Research Framework for Service Sector SMEs” observe that IT have become one of the most important infrastructural elements for SMEs in service industries. However, these firms show specific characteristics and behaviours with regard to adopting and assimilating IT. In this paper after reviewing the
literature on IT in the services sector, the background of IT adoption and assimilation in the context of service SMEs are identified and integrated within a research framework. This framework is then applied to generate a set of twenty-two salient propositions for future research on IT adoption and assimilation in service sector SMEs.

Ta - Tao Chuang; et al., (2009) investigate in their paper “An exploratory study of the extent of information technology adoption in SMEs: an application of upper echelon theory” the effect of compositions of managerial/demographic characteristics of the top management team (TMT) on the extent of information technology (IT) adoption in SMEs. The findings of the study were that the age average and the education average of TMT in SMEs are significant predictors of the extent of IT adoption.

ThuyUyen H. Nguyen, (2009), in the paper “Information technology adoption in SMEs: an integrated framework” also attempts to lay down framework for the clearer understanding of information technology (IT) adoption in SMEs by analyzing the current literature. This paper also highlights the enablers and the inhibitors that influence the adoption process. The findings suggest that SMEs adopt IT because of pressures from both internal and external sources. The paper proposes a conceptual framework that is composed of those perspectives relevant to the adoption of IT in SMEs.

Usman A. Tar, & Japhet E. Lawrence, (2011). The authors in their paper “The Potentials of ICT infrastructure in a developing economy: the case of small businesses in Kurdistan Region” observe that ICTs have the potential to improve efficiency and productivity in many areas and, present opportunities in developing economies especially for small businesses in Kurdistan region of Iraq. The paper first examines the IT infrastructure in the region of Iraq, and then assesses the potentials opportunities and challenges of e-commerce to small businesses in the region. It is found that this region is rapidly catching up ICT development, though small businesses are yet to exploit full potentials of ICTs.