Chapter II

Review of literature:

Introduction

Studies were conducted based upon certain aspects. These maybe as a continuation of old one or a new area of study. Where new areas are concerned, it amounts to an introduction to the concept itself as the entire work is the beginning of the new study. Whereas, in the case of continuity of study, the topic picks up on the current situation which may not be the same depending on the location and conditions prevalent.

In the study at hand, view points of a majority of past studies and also a few from the same field as that of the subject matter have found a place. It is but essential that the same needs to be gone through with so that the line of thought and also track of study is maintained keeping in mind to take the study further from the point at which it stood previously.

The review of literature at this instance is prepared with a intention to give a brief about various view points that have come forward from others in the stream of the subject matter at hand which might throw some light of clarity on the same and in its course also bring about an amount of sense of direction to the study being conducted.

The following are some of the reviews of the research work conducted by the different authors on the same subject or subject
related to them either in the same geographical area or in other parts of the region or place.

These reviews would give a strong foothold to the researchers on their subjects and they can have a good insight into the problems and it is easy for them to conduct a study and draw a meaningful conclusion.

**Ali Reza Aliahmadi (2003)** In the book Information Technology & application has discussion software, Hardware, organization ware, substructure system, Nets, and elements of formation of Information technology the book also deals with Automation systems, Electronic exchange of data, E-commerce, E- city, E- University, E- banking, Marketing, Retailers system, E- payment and etc. The author has also discussed the policies and strategies of Information Technology in few countries. This book gives a general understanding on the subject which is useful to the researchers.

**Anonymous, (Jan 12 2004)** reports on electronic cropping and the e-Choupal experiment as having the potential to transform the farm sectors. It cites an example of Soya farmers in Madhya Pradesh who are being helped by Sanchalaks of ITC for soyabean commodity futures. It further gives the coverage of e-Choupals in rural India. It also tells how e-Choupal addresses the two basic problems crippling Indian agriculture.

**Anonymous,** report discusses the role of information technology (IT) and its practical contributions to agriculture and rural
development. It also presents Japan's experiences in the use of IT in agriculture, and identifies the requirements and the issues needed to make practical use of IT systems for the agricultural domain. The paper also introduces new technologies that can fulfill the requirements and give solutions to resolve said issues, showing several successful applications of the technologies. Finally, it emphasizes on the importance of international collaboration in promoting the use of IT in agriculture sector.

**Bob Keefe, (2004)** reports on the Tribal Digital Village Project of the Southern California Reservations, which is helping the remote people, connect to the rest of the world. This project will hopefully create job and education opportunities people there never knew about. Wireless broadband systems are being used to provide high speed Internet service in these areas. Such wireless broadband systems make a lot of sense in the rural areas that do not already have other good options for Internet services. This Tribal Digital Village Project got its start with a grant from Hewlett Packard Co. and has been running on subsequent federal funding.

**Prof. F: provost (2000)** speaks about Information technology (IT) makes it possible to undertake initiatives that were inconceivable a few years ago. Technology, especially the Internet, provides unprecedented connectivity, access to information, coordination and communications on a worldwide scale. IT enables electronic commerce, which is changing the nature of markets and industries. This same technology transforms the structure and operations of organizations.
The report discusses on the effects on modern business of the widespread application of information technology, including the evolution of new business models. We focus on electronic commerce as a highly visible example of the impact of information technology on business.

The theme of the report is that electronic commerce is changing the nature of markets, industries and businesses. It enables new business models for e-commerce as well as all other activities. He focuses on "what's new?" How are things different today? How does e-commerce differ from traditional commerce? This class also introduces some of the technology that is essential for e-commerce.

**Jhamtani et.al (2004)** conducted a study to examine the performance of three ICT projects in India. The projects have quite different origins and purposes, but all are concerned with improving the delivery of information to farmers and other rural dwellers. One project is managed by the government of Madhya Pradesh as part of an exploration of e-governance. A second project is run by sugar cooperatives (with some government support) in Maharashtra and attempts to expand services to growers. The third project is an experiment by a large private agricultural input supplier to provide information to farmers in Andhra Pradesh.

**Schiefer, G., et.al., (2001)** speaks on electronic commerce in agriculture: current situation and perspectives in Britain. The use of agricultural information and communication technology in the UK has grown rapidly and access to personal computers and the Internet is not
now considered limiting to the uptake of e-commerce. The activities of the six main players in the UK, e-commerce markets are discussed and the differences between them highlighted. The models of trading in use and the attitude to intermediaries are quite different with four of the six models using simple trading sites and the other two providing a greater degree of 'disinter-mediation'. The issues emerging from the growth in e-commerce in the UK are discussed including the role of distributors in complex agricultural fulfillment and the need for new payment models.

Anonymous, the author (2001) has reported on the Agri-business portal for floriculture called rosebazar.com, which brings e-commerce in close contact with the traditional industry of floriculture. The portal caters for all needs of floral trade—auction, logistics, superstore, information, news and consultancy. Further the author elucidates how online auction reduces marketing cost by 80% and consumer price by 25%. He also gives a list of variety of flowers available for auction and emphasizes on the logistics management module, which see that the flowers are delivered to the buyer’s doorsteps anywhere in the world within 24 hours of purchase.

Anonymous, different countries have developed different systems, with variations only partly related to the amount of money invested in the system. They are also related to planning priorities, and the type of commodity produced. Most countries in Asia operate a marketing information service with the express aim of promoting efficient marketing and raising farm incomes. The form it takes varies according to the level of economic development, and especially the
extent to which agriculture has changed from subsistence to commercial farming.

Anonymous, the report is about the essential data of marketing information is price data. Agricultural price data are based on thousands or millions of transactions, many of them on a small scale, that are taking place every day all over the country. Collecting an adequate sample and making sure that these are representative enough to be useful is not an easy task. In each country, the central government office is linked to numerous reporting stations in the provinces which report regularly on the local prices of a range of commodities.

Fathimam Mohd (1994) discusses the agricultural marketing system for three major commodities in Malaysia, namely, palm oil, vegetables and fish. It shows how the information system is related to the type of production and marketing of each commodity. Generally, existing systems benefit government agencies and large-scale producers and dealers. Small-scale farmers receive little benefit, although they are the targets of most agricultural development plans in Malaysia. In conclusion, the paper discusses the nature of an ideal information system, and the problems encountered in trying to achieve this.

Gerhard Schiefer speaks on agri-food sector facing global challenges that cannot be met without support by information technologies (IT) on a level even beyond today’s advanced IT utilizations. However, emerging technologies and their integration
open the way for the development of integrated digital environments that could provide platforms for a reorganization of sector activities, and especially market related activities, capable of coping with the challenges ahead. The paper discusses the major IT development lines, the support potential of their integration, organizational requirements for the utilization of the potential and possible consequences for the future organization of the agri-food sector.

The implementation of the development paths presented in this paper will transform the sector, the production and trade of food products, the relationships between participants in the supply chain reaching from farmers to consumers and the market infrastructure in agriculture and the food sector. These effects evolve from integrating different IT development lines and their underlying technology components into IT application environments that not only improve present activities but eventually replace the business model of today’s agri-food sector.

John D.C Little (1990) speaks about how Information technology affects marketing in many ways. Some of these save labor and provide better service, whereas others create an entirely new product and organizational forms. Still others enhance marketing operations in ways that can change their character. An example of the latter is now taking place behind the scenes in the consumer packaged goods industry, where a new generation of data is producing a discontinuity in the information available to marketers. In this case the combination of data and technology is bringing increased marketing effectiveness, organizational change, and shifts in power within channels of distribution. More generally, information technology blurs
traditional strategic and functional boundaries by enabling an organization to deliver a large number of differentiated products to a large number of differentiated markets.

Jaselskis, Wilson, & Ladson (1997), in their paper titled “Developing an International Agribusiness Construction Information System”, investigated the information needs of the construction industry for accurate bidding in projects abroad. To the firms that participated in their survey, different areas were important and the information related to that would be vital to the success for an international agribusiness construction information system. They also emphasized on the fact that in case such an information system is to be put into the use, the question of cost effectiveness of such program should be rightly answered. Willingness of the companies to subscribe to such a service will always be one dimension of the problem, the price that they are willing to pay offsetting the research and data entry time would be the second dimension for the problem at hand. Therefore, they suggest that to do such project successfully, a pilot program should be develop, using construction data from one or two countries and contacts within those countries to keep the information current. In such projects, the effectiveness and usefulness of the data base used should be evaluated after a trial period.

Henderson, et al (2001), in their paper titled “E-business and Distribution Channel Strategies in Agribusiness Industries” analyzed the expected growth in Internet sales by agribusiness firms, providing insight into the selection of and e-business distribution. They found that agribusiness has relatively broad, but not yet deep, e-business
base from which to build. Forecasting extremely rapid growth in the level of internet sales from 1999 to 2002, accompanied by some shift to direct distribution, two points emerged from their analysis - first, they found that manufacturers, distributors, and retailers with high levels of e-communication contact with existing customers or suppliers have higher expected internet sales growth. Secondly, manufacturers, distributors, and dealers that perceive a greater ability of the internet to improve the logistics function of the supply chain expect higher levels of internet sales growth. Their empirical results showed a lack of consistency suggesting a need for further analysis of the expected growth and implementation of e-business.

Mangina and Vlachos (2004) in their paper titled “the changing role of information technology in food and beverage logistics management: beverage network optimization using intelligent agent technology” described a model of intelligent food supply chain that improves efficiency within the supply chain, aiming to demonstrate that agent technology can optimize food supply chains by reviewing intelligent agents applications for supply chain optimization and illustrating how a multi agent system can optimize performance of a beverage logistics network. According to them, optimization agents can be the building block of a correct design simulation for an accurate representation of a supply chain. Moreover, the efficiency of the supply chain may be increased through elimination of unexpected mistakes. They proposed a system in their paper that has some main contributions. These contributions are flexibility, information visibility & efficiency. However, there are some concerns regarding developing
of such systems at the operational, tactical, and strategic level. For instance, they found that there are data-related concerns at the operational level. For example, problems such as incomplete or missing data, data handling difficulties, or unreliable and inaccurate data source might be found in the system. As another example, process related a concern at the tactical level is another point they mentioned in their paper. Concerns such as process complexity, has to be specified. Moreover, partner related a concern at the strategic level is another point mentioned by them. According to them, partners should be willing to share information at the tactical and operational level.

Henderson, Dooley, & Akridge (2000), the authors in their paper titled “adoption of e-commerce strategies for agribusiness firms” analyzed the factors guiding Internet and E-commerce implementation by agribusiness firms. They also investigated the relationship between Internet/e-commerce strategies and manager perceptions on the barriers and factors to e-commerce adoption in a supply chain management framework. They believe that managers’ perception of the impact of Internet/e-commerce strategies on the five functions of the supply chain is expected to influence the likelihood of Internet/e-commerce adoption. They also conclude that the ability of the Internet to reduce transaction costs through improvements in transaction, information, and negotiation functions of the supply chain is associated with the higher probabilities of Internet/e-commerce adoption amongst agribusiness firms. Moreover, they found that the ability of the Internet/e-commerce strategies to reduce production
costs arising from the logistics and promotion functions encourages Internet/e-commerce adoption. Yet, they have raised some questions finalizing their work. First, the way the impact of the internet on manufacturing and financing functions of the supply chain influence the adoption of Internet/e-commerce strategies. Second, the forces causing the different probabilities of Internet adoptions between small and large firms and between firms with a local, national, or international scope should be identified. Third, whether the driving forces of the Internet/e-commerce adoption change over time or not.

Hooker, Heilig, and Ernst (2001), in their paper titled “what is unique about E-agribusiness” established basic definitions for the various interfaces between information technology and the business processes. They then examined the core factors in the shift of business to a new economy driven by innovation and the speed of transaction. They concluded that agriculture has some unique constraints related to IT. For example, they addressed the problem of internet connectivity which is still a greater problem in rural areas and small towns where agribusiness is located. The more the firm is away from the city, the more will be the problem of internet connectivity. Moreover, they addressed the problem of inconsistency of IT deployment across regions creating constraint within an increasingly integrated global economy. They believe that any technical constrains are impediments to the growth of the industry since responsiveness and speed of business are critical to the success of e-agribusiness.

Leroux, et al, (2001), the paper titled, “Dominant factors impacting the development of business to business (b-2B) e-commerce
“agriculture” have discussed three dominant factors having impacted the development of e-commerce in agribusiness. These factors are (a) industry structure, (b) product complexity, and (c) high tech nature of transactions, leading to several different potential types of strategic options. They conclude that since consolidation alters the competitive dynamics at both ends of the value chain, that is, farm inputs and food retailers, both the value and the mere existence and profitability of third party, pure play ventures are marginally at best. According to their results, the true value of the internet and hence the market capitalization of pure play ventures is ultimately going to be determined by their ability to introduce efficiency into antiquated and inefficient business practices and systems.

Asadi and Ji (2005), the researchers in their paper titled “Developing e-business technologies for international market access: the case of Pistachio industries in Iran” tried to find effective ways of using e-business technologies to help pistachio companies and the industry. They conducted their survey among a number of pistachio producers and exporters and reviewing e-business, e-agribusiness, and other disciplines such as international marketing, information technology management, and customer relationship management. They listed several factors as the main successful factors in pistachio e-business. For instance, some the factors they listed are as follows; (a) Information technology must accompany company’s strategies. (b) e-business must get top managements’ support in the company. (c) Company must consider all situations and conditions to enter into markets. (d) Information technology infrastructure must support e-
business effectively. (e) All costs must be controlled. (f) Customer relationship management is an important part of this process, etc.

Hooker, et al, (2001), in their paper titled “policy concerns for online B-2B exchanges” discussed the important elements of e-business activities which by itself arises policy concerns, especially the pro and anti-competitive assessment of online business to business exchanges. They picked on three general areas of discussion of online B 2 B exchanges which suggest their pro and anti-competitive implications for food distribution systems. For instance, policies like Federal farm policy are likely to be affected by the rise of online B2B exchanges. Farmers producing more specialty products may require different levels or types of support from the government. Moreover, food support programs for poor and underprivileged consumers (regulated within the federal Farm Bill) gain new efficiencies from the use of online G2C (government to Consumers) exchanges to deliver cash benefits or manage food grant inventories.

Moss, et al (2003), this study on “institutional economics and the emergence of e-commerce in agribusiness” examined the economic implications of ecommerce for agribusiness within the framework of New Institutional Economics, implying the e-commerce has the potential to reduce direct transaction costs in agricultural markets, but that it also may add additional indirect transactional costs. According to them, within the Williamson framework, this transaction cost reduction could either be in the form of direct transaction cost (like reduced commissions), or indirect transaction cost (like shrinkage), but transaction cost reduction under Coase and Williamson may or
may not lead to changes in the structure of the marketing channel. They studied the Schumpeterian framework, and found out that innovations are carried out by new firms replacing existing firms. But it was hard for them for finding an agribusiness which followed the Schumpeterian framework, due to the significant start of costs involved in forming a supply chain based on e-commerce, and the fact that consumer behavior has not been amenable to the use of e-commerce in agribusiness in the past.

**Stiroh (2001),** author in his paper titled “*the economic impact of Information Technology*” reviewed the empirical research done by economists and business analysts. It discussed the way economists think about information technology and measure it using the hedonic theory of prices. They concluded that information technology has indeed played a major role in the then revival of the US economy. They predicted that it is less clear what one should expect from information technology, and economists have made reasonable arguments with quite different conclusions. They presented the “new economy” proponents viewpoints arguing that we are just now achieving the critical mass of information technology, complementary innovations, and knowledge that will spark a continued wave of productivity and value enhancing uses.

**Ntaliani and Costopoulou (2007),** in their paper titled “Mobile government: A challenge for agriculture” studied the deployment of m-Government services in the agricultural sector, taking into account its peculiarities, priorities, and needs. They first presented a framework for identifying appropriate and cost-effective m-
Government services for the agricultural sector and secondly, illustrated the application of the proposed framework, describing a case study for a particular agribusiness sector. This paper proposed a set of generic m-Government services for agriculture mainly describing the interaction between agricultural agencies and producers. Such services may contribute to the revitalization of the agricultural community as it improves communication between the involved parties. In this regard, they proposed a descriptive framework for identifying mG2B services for agriculture, taking into account its peculiarities, priorities, and needs. The framework they proposed consists of (a) Identification and usage of potential mG2B services. (b) Description of a set of technical solutions for the provision of these services. (c) Techno-economic and socio-economic evaluation of the solutions.

Sartorius and Kirsten(2007), the paper titled “A framework to facilitate institutional arrangements for smallholder supply in developing countries: An agribusiness perspective” tried contribute to a better understanding of institutional arrangements that can promote stable smallholder agribusiness contracting arrangements in a developing country context. In their case study, incorporating a transaction cost framework, they tested whether trust can significantly change the contract characteristics of supply. They use an expanded transaction cost framework to explain the suitability of a governance structure, as well as demonstrate the influence of trust on transaction cost in an agricultural setting. Moreover, they investigate an agribusiness, rather than a farmer, perspective of how to structure
small holder arrangements and the study makes some practical institutional proposals to promote small holder outsourcing. They found that it is difficult to assume that trust has played a significant role in reducing transaction cost in a developing country context because a wide range of other factors contribute to pragmatic stable supply arrangements.

Granados, Gupta, and Kauffman (2007), in their article on “Designing online selling mechanisms: Transparency levels and prices” developed decision support models for suppliers to set prices for online mechanisms with different transparency levels. They then empirically analyze the price levels set by airlines across transparent and opaque online travel agencies. Their paper, through its modeling and analysis, and the methodology that it offers to create effective pricing strategies, directly supports electronic markets in which firms are in a position to implement transparency strategies that capitalize on the potential to design their own electronic selling mechanisms, to participate in an existing electronic market, and to price discriminate across channels based on the information provided to consumers. They focused their analysis on scenarios where a supplier has the power to set online market prices, which is the case of airlines and the OTA industry. Based on their empirical findings, airlines can increase the price differential across mechanisms to increase revenues. Moreover, they pointed out that market transparency affects consumer demand, there is an increasing need for senior managers to establish a tighter organizational links among the IS, marketing, and sales departments of their firms.
Crespo and Bosque (2008), in their paper titled "The effect of innovativeness on the adoption of B2C e-commerce: A model based on the Theory of Planned Behaviour" analyzed the factors that lead Internet users to becoming online shoppers. They proposed a model of electronic commerce adoption that adds personal innovativeness to the traditional formulation of the Theory of Planned Behaviour, assuming that Internet is an innovation affecting the way individuals shop. They intended to analyze the factors that determine consumers’ intention to shop online, and that lead Internet users to become buyers on the Net. They especially aimed at analyzing the effects of individual innovativeness, both general and domain-specific in new technology, on the acceptance of e-commerce. They considered the Theory of Planned Behaviour as the basis for their model of adoption of e-commerce by individuals with no previous online shopping experience. The empirical evidence obtained in this study confirms the efficiency of the Theory of Planned Behaviour’s approach. They found that general attitude to the system the main factor determining the future intention to purchase online. Moreover, they found that the subjective norm, showing the influence of third parties, have a significant effect on the decision to shop online.

Garrido, Gutiérrez and, Jose (2008), in their paper titled “Organizational and economic consequences of business e-procurement intensity” investigated the intensity of the impact in the use of internet procurement in organizational, referring to the structure of the buying center in terms of size, participation, number of hierarchical levels and functional areas, and economical, materializing
in concrete purchase results in terms of efficacy and efficiency, point of view. According to them, Internet as a medium has two implication, i.e., communication and transaction. Their study showed an increase in both the size of the buying center and of the number of functional areas involved in the purchase as two organizational consequences of Internet intensity of use in procurement, due to the fact that through the use of Internet tools, information is easily transmitted to all organization members and this allows the participation of a higher number of people from different departments. According to their study, the number of hierarchical levels involved in the purchase process and the participation of the buying center members are greater in those companies using Internet tools with a higher intensity. Their research provided empirical evidence for the Internet added-value regarding the ability to alter the information stream inside firms and the consequences derived from this fact on industrial purchasing processes.

**Lin and Liu (2008)** in their paper titled “An incentive-based electronic payment scheme for digital content transactions over the Internet” proposed an incentive-based electronic payment scheme based on cryptographic techniques, which can ensure both important properties of fair exchange and customer anonymity in e-commerce transactions and enhance authors’ motivation to create digital contents. The proposed payment scheme is based on Cao et al.’s (2005) partially blind signature electronic cash, multi-signature (Schneier, 1996) and Fan et al.’s (2006) fair transaction protocol. They adopted a mechanism called “the apportionment contract of
sales revenue”, which records payees’ apportionment amount. According to them, well-designed electronic payment schemes, ensuring fair exchange and customer anonymity on ecommerce transactions and high-quality digital contents, requiring a lot of authors having motivation to create, are two critical successful factors. According to them, the efficiency of the proposed payment scheme is acceptable through efficiency analyses. Therefore, this scheme is well-designed and has significant potential to flourish digital content transactions because it can keep customer anonymity and encourage authors’ motivation to create high-quality digital contents because it immediately apportions sales revenue to payees. They tried the existing cryptographic techniques to show that a new concept, the incentive-based e-payment scheme, is feasible while it is implemented in the real world.

**Hsia, Wu and Li (2008)** in their paper titled “The e-commerce value matrix and use case model: A goal-driven methodology for eliciting B2C application requirements” developed a goal-driven methodology for eliciting and modeling the requirements of a business-to consumer application, using two phases of e-commerce strategy formulation, utilizing e-commerce strategy formulation and eliciting system requirements to develop a strategy and value-adding services for a business and eliciting system requirements, using a goal-driven approach to specify the system requirements based on the strategy. They concluded that an effective EC application development methodology must include an integrated and seamless method of strategic planning and software development. To this end
they developed a goal-driven methodology that integrates ECVM and a goal-driven use case model for B2C applications, which provided a guiding framework for planning and formulating EC strategies effectively. Moreover, they addressed multi-requirement conflict issues and provide a systematic trade-off solution and requirement analysis for application development. Their work has two managerial implications, namely, methodology, providing a systemic approach that makes the eliciting and modeling of EC system requirements easier, integrating several concepts and methods (such as CDP, VCC, ECVM, and a goal-driven use case model) into a requirement eliciting process and allows the seamless definition of customized requirements from EC strategies, and methodology, taking both strategic and technical aspects into account, and not only provides e-business managers with a framework to help them develop differentiated EC strategies and gain a competitive advantage, but also helps system designers to translate the core e-services into critical system requirements.

Doukidis, Pramatari, Lekakos (2007), in their paper titled “
OR and the management of electronic services” studied various aspects in which operations research may support the management of electronic services, taking into account the different characteristics of alternative electronic media, such as the Internet, mobile communications, interactive television etc. According to them, in meeting the challenges posed by the digital economy, management science researchers are (a) making greater use of parts of economics and computer science/information technology, and (b) exploiting the
improving productivity advantages of empirical and methodological work in comparison with theoretical work.

**Ray and Zhang (2007)**, in their paper titled “Experiences in developing a fair-exchange e-commerce protocol using common off-the-shelf components” tried to develop a new e-commerce protocol to address the problem of fair-exchange for digital products, based on a novel cryptographic technique, showing how to use common off-the-shelf software components to develop such a protocol. The unique property of the protocol they developed allows a customer to ensure that the product he/she has ordered with a merchant and is about to be received is indeed the product that he/she wanted, before paying for the product, preventing the merchant from substituting incorrect or defective products. One of the objectives of developing and building such facilities was to test the easiness of building the software using common off-the-shelf software components. This is the stage where there is a working prototype of the e-commerce facility requiring a lot of improvements to be done in terms of interfaces. For instance, providing a web based interface to all the modules using a widely accepted security protocol like https to provide bulk of the security functionalities like digital signatures, cryptographic checksums, etc.

**Nasco, et al. (2007)**, in their article titled “Predicting electronic commerce adoption in Chilean SMEs” used the TPB to model intentions to adopt e-commerce among 212 managers/owners of SMEs in Chile. The paper tried to enhance understanding regarding specific beliefs that may influence a manager/owner's decision to adopt ecommerce in a developing country. According to them,
attitudes and subjective norms strongly influence adoption intentions in this sample, suggesting that, in order to encourage managers in developing countries to adopt e-commerce, one must change managers' attitudes and emphasize the social referents surrounding the adoption decision. They believe that since Chile's culture is characteristic of other countries in Latin America, it is expected that the findings from this study can help other developing countries to determine managers/owners' beliefs toward e-commerce adoption. Their research was supposed to create awareness among managers/owners of the beliefs that may stimulate the adoption of e-commerce by focusing on SMEs, and considering that SMEs contribute greatly to the economy of developing countries.

It maybe mentioned here that the study at hand deals with the use of IT for products like pistachio and saffron.