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ABSTRACT

E-Business is the new business imperative in the age of Internet. With the features of Internet, business can extend their business activities across space and time. Without traditional fact-to-face interaction, most of the e-business activities can be done through networks. Since they do not have to see each other during e-business transaction, the levels of trust between members are pretty low. Mutual trust within a business, between suppliers and retailers, and between sellers and customers is the most important successful factors of e-business. Based on the review of literatures, we proposed that trust is the most important invisible platform for the e-business. In this article, we discuss the relationship between trust and three major components of e-business: (1) the trust for effective knowledge management (KM) within an organization; (2) the trust between organization and customer for effective customer relationship management (CRM); and (3) the trust between organizations for supply chain management (SCM).

Keywords: E-business; Trust; Knowledge Management; Customer Relationship Management; Supply Chain

Management

E-business		
Supply Chain Management (Between Organizations)	Knowledge Management (Within Organizations)	Customers Relationship Management (Between Customers and Organization)
Managerial Level Platform: Mutual Trust		
Technical Level Platform: IT Infrastructure		

Figure 1. e-business Model

INTRODUCTION

Keen et al. commented that the number one issue on e-business management is building and maintaining trust within the organization and between organizations [29]. This article reviews the relevant papers in trust and discusses the issues regarding the needs for (1) the trust relationship for internal management within an e-business, such as knowledge management (KM); (2) the trust relationship between e-business and their partners, such as supply chain management (SCM); and (3) the trust relationship between e-business and their customers, such as customer relationship management (CRM). The structure of this paper is presented in figure 1. In brief, an e-business is supported by three main components: SCM, KM and CRM. As these three components of e-business interlock business units and individuals in different organizations, two basic platforms, managerial and technical levels, are required to guarantee that flow of data run across the inter-organizational boundaries effectively. The former platform focuses on trust, security and privacy policy, etc., while the later one focuses on data structure, protocol and security controls.

TRUST

Trust is the expectation that arises within a community of regular, honest and cooperative behavior, based on commonly shared norms, on the part of the members of the community [16]. One of the most salient factors in the effectiveness of our present complex social organization is the willingness of one or more individuals in a social unit to trust each other. The efficiency, adjustments and even survival of any social group depend upon the presence or absence of such trust [45].

For trust is a concept with many meanings in different disciplines such as psychology, economic, social, and organization theory. Lane tried to summarize three common elements as following [33]: First there is an assumption of a degree of interdependence between trustor and trustee. Therefore, expectations about another's trustworthiness become relevant when the completion of one's own consequential activities depend on the prior action or cooperation of the counter party. Secondly, trust provides a way to cope with uncertainty in exchange relationship. Risk arises because trusting behavior will expose the agent to the presumed opportunistic of the business partner. So, trust is required for a risky pre-commitment on the part of one actor. If there is no risk, it is not necessary for trust involved. Thirdly, trust is a belief or an expectation that the vulnerability resulted from the acceptance of risk will not be taken advantage of by the counter party in the relationship. In general, trust is a risky investment, and the risk is due to the fact that the trustee may exploit the vulnerability of the trustor. Keen et al. argued that trust is especially one of the critical successful factors of e-business, for the highly interdependent and complex operation environment of e-business is creating a series of risks that have impacts that need to be addressed in new ways. Therefore, the establishment of trust in e-business operation will be a result of the followings:

- Creating the perception that the information systems running within or between the organizations are trustworthy and can be used with confidence to resolve the interior response of information system operation.

- Ensuring that the reliability of the systems and processes are impeccable, well-described and managed for performing the tasks they are designed to.

- There has to be true values to the parties in the exchange process.

In order to guarantee the success of e-business, the value and return to the participants have to be equitable and accessible. In brief, trust relationship building and maintaining within and between organizations are not only technical issues, bust also critical management challenges for the e-business operation [29].

From the resource point of view, trust is a valuable asset of the company since it reduces transaction costs. Kini & Choobineh have divided trust into three kinds [30]:

(1) Individual Trust (The Approach of Personality Theorists): It focuses on the individual’s personality characteristics that determine the readiness of the individual to trust, such as marriage.

(2) Societal Trust (The Approach of Sociologists And Economists): It is the trust between individuals and institutions, such as an organization, or societal structures, such as judicial system or an education system.

(3) Relationship Trust (The Approach of Social Psychologists): Like a social psychologists who approach trust as an expectation of the other party in a relationship, this approach focuses on the factors that create or destroy trust in individuals involved in a personal or work relationship.

If trust is very important to business, then it is imperative to find out what kind of antecedent factors can assist to build up strong trust. Table 1 shows the antecedent factors been studied.

Nevertheless Doney & Cannon thought that a trust relationship will not only be built on the static antecedes, but also on a dynamic process in which the trustor and trustee interact. They addressed five distinct processes by which trust can develop in business relationships [11].

(1) Calculative process: An individual or organization calculates the costs and/or rewards of another party cheating or staying in the relationship to the extent that the benefits of cheating do not exceed the costs of being caught (factoring in the likelihood of being caught), one party infers that it would be contrary to the other party's best interest to cheat and therefore the party can be trusted.

(2) Prediction process of developing trust relies on one party's ability to forecast another party's behavior. As trust requires an assessment of the other party's credibility and benevolence, one party must have information about the other party's past behavior and promises. Repeated interaction enables the party to interpret prior outcomes better, providing a basis for assessing predictability.

(3) Capability process involves determining another party's ability to meet its obligations, thereby focusing primarily on the credibility component of trust.

(4) Intentionality process, the trustor interprets the target’s words and behaviors and attempts to determine its intentions in exchange. People or groups motivated to help or reward the perceiver will be more trusted than those suspected of harboring exploitative intentions. Inferences of benevolent intentions also can result when two parties develop shared values or norms that

enable one party to understand the other partner's objectives and goals better (i.e., what drives their behavior).

(5) Transference process. The "extension pattern" of gaining trusts as using a "third party's definition of another as a basis for defining that other as trustworthy." This suggests that trust can be transferred from one trusted "proof source" to another person or group with which the trustor has little or no direct experience.

Clearly, some factors can invoke multiple trust-building processes. For example, frequent contact with a supplier's salesperson can invoke the prediction process by helping the buyer more accurately predict the salesperson's behavior. Or, the buyer could interpret frequent contact as an indication of the salesperson's genuine interest in the buying firm's welfare, thereby invoking the intentionality process. Therefore, each process represents a different manner in which subjective probability judgments of a partner's trustworthiness can be made.

Table 1. Trust Antecedents

Authors	Antecedent Factors
Boyle and Bonacich [2]	Past interactions, index of caution based on prisoners' dilemma outcomes
Butler [4]	Availability, competence, consistency, discreetness, fairness, integrity, loyalty, openness, promise fulfillment, receptivity
Cook and Wall [6]	Trustworthy intentions, ability
Dasgupta [9]	Credible threat of punishment, credibility of promises
Deutsch [10]	Ability, intention to produce
Farris, Senner and Butterfield [13]	Openness, ownership of feelings, experimentation with new behavior, group norms
Frost, Stimpson and Maughan [15]	Dependence on trustee, altruism
Gabarro [17]	Openness, previous outcomes
Giffin [19]	Expertness, reliability as information source, intentions, dynamism, personal attraction, reputation
Good [20]	Ability, intention, trustees' claims about how (they) will behave
Hart et al. [23]	Openness / congruity, shared values, autonomy/feedback
Hovland, Janis and Kelley [24]	Expertise, motivation to lie
Johnson George and Swap [25]	Reliability
Jones, James and Bruni [26]	Ability, behavior is relevant to the individual's needs and desires
Kee and Knox [28]	Competence, motives
Kini and Choobineh [30]	Personality, environment, risk
Larzelere and Huston [34]	Benevolence, honesty
Lieberman [35]	Competence, integrity
Mayer, Davis and Schoorman [38]	Ability, Benevolence, Integrity
Ring and Van de Ven [43]	Moral integrity, goodwill
Rosen and Jerdee [44]	Judgment or competence, group goals
Sitkin and Roth [47]	Ability, value congruence
Solomon [48]	Benevolence
Strickland [49]	Benevolence

Source: Modified from Mayer, Davis and Schoorman [38]

TRUST ISSUES BETWEEN E-BUSINESS: SCM

Many enterprises try to identify their own competencies, and collaborate with others to outsource other operation to whomever are excel in those business activities. Supply chain management can be a very good example of such coordinated business cooperation. Wal-Mart's continuous replenish systems is one of the successful cases in this area. In comparison to traditional communications channel, such as face-to-face communication, the information richness is lower in the context of Internet. Therefore how to maintain a trustful relationship between supply chain members is a critical issue. E-trust is the indispensable invisible platform for SCM.

A strategic alliance is a long-term cooperative arrangement between two or more independent firms (buyers and suppliers) that combine their individual strengths and engage in reduce nonprofit activities to improve performance. In order to keep the commitment of these companies, win-win solutions must exist [52][46][54]. Relationships between organizations are based on an invisible platform: mutual trust. Ganesan suggested that mutual trust in one of the main factors that will affect the long-term relationship between buyer and seller [18].

The weakest link in most supply chain is not technology, but people. Lack of trust between companies will affect the results of cooperative and collaborative atmosphere [37]. Whipple and Frankel found that trust is one of the key factors that will affect the strategic alliance success [54]. Fram also have similar opinion, the results of his study indicated that when business consider buyer-supplier alliance, price in not the main concern. Instead, it is the trust relationship that plays the decisive role [14]. With trust, business can reduce cost and risk to cooperate with other companies rather than replying on formal contract.

In international SCM, those differences in trust can be the key point in the international alliances [39]. Managers from different culture may have different values and different viewpoints of view toward trust. This will be a great challenge to coordinate them together to share the same vision and to form international strategic alliances. Therefore, Parkhe indicated that trust is the key to successful international strategic alliances. Three kind of trust are needed in the partnership, they are (1) processed-based trust, (2) characteristic-based trust, and (3) institutional-based trust. Processed-based trust will arise form past or future interaction; characteristic-based trust may arise form attributes of a partner, and institutional-based trust will arise upon formal mechanisms, such as intermediary mechanisms and implicit guarantees [39][40]. Kasper-Fuehrer and Ashkanasy indicated that trust is an integral feature for sustaining the virtual organizational [27]. Trust between businesses can facilitate the agreement and execution of transactions and reduce transaction cost. Especially it can help organizations to set up their mutual goals and share information in order to reduce cost.

Based on above discussions, we propose some issues for further studies: (1) how to develop trust between organizations, (2) how to trust partners in a worthy alliance, (3) how to evaluate the trust between organizations, (4) how to build trust over Internet, and finally, (5) how to overcome different cultural aspect of trust when business establish international supply chain with international alliances?

TRUST ISSUES WITHIN THE E-BUSINESS: KM

Today's managers need to access to corporate repository of knowledge in order to deal with the challenging environment. They have to shift business operation form "prediction of future" to "anticipation of surprise" [36]. Knowledge management treat organizational knowledge as a strategic corporate asset that needs to be garnered, retained, updated, disseminated and applied to future organizational problems [36].

A crucial of knowledge in organizational setting resides within the individual employees who enter and exit the workplace each day [8]. The critical successful factor of knowledge management is the employees' willingness to share knowledge within the organization [51]. From empirical investigation of some KM projects, Gupta and Grovindarajan found that in most cases the actual knowledge sharing do fall below executives' expectations. They identified common pathologies and challenges in knowledge accumulating and sharing and found that "Knowledge is power" and "How does it help me?" syndromes are two barriers for successful knowledge sharing [21]. In additions, Quinn et al. analyzed the benefits of knowledge sharing and found that the professionals usually are the most beneficial group of the KM projects, but they are also the group who resist sharing their knowledge [41].

Kramer et al. suggested that knowledge sharing with other organizational members is one of the collective action pervade organizational life [32]. Individuals are expected to contribute their time, attention and knowledge toward the achievement of collective goals of the organization. Organizations cannot recognize and reword every cooperative act, nor can detect and punish every failure to cooperate, for the reason of limited organizational resources. Consequently, successful cooperation depends on the willingness of individuals to engage voluntarily in behaviors for collective aims. Although most people recognize that failure to cooperate with others can lead the collective undesirable outcomes, they also realize that isolated acts of cooperation are not likely to have much impact on the collective outcome. Moreover, unilateral knowledge sharing can be quite costly, because the person who contributed his knowledge will bear all of the burdens while the benefits are enjoy by others. In the absence of some trust basis for thinking the others will reciprocate, therefore, individuals may find it hard to justify the decision to knowledge sharing. As the competitive nature of organizational life increases greatly the costs of misplaced trust, it can be fatal to one's career. As a result, it is often difficult for collective trust to obtain even a toehold, let alone flourish. Therefore, Kramer et al. argued that the willingness of individuals to engage in trust behavior in situations requiring collective action, such as knowledge sharing, is tied to the salience and strength of trust with an organization and its members [32]. Koenig and Srikantaiah also pointed out that in the practice of business downsizing where the sense of job insecurity is high, the word being mentioned most often simultaneously with KM is "trust." Effective communication and extensive knowledge sharing are not likely to happen unless there is an atmosphere of trust. In the business context, trust is treated as an effective mechanism that lower transaction costs and enable cooperation [31].

Therefore, in order to promote effective KM, the roles of manager should at least incorporates the following:

(1) Knowledge buyer: To purchase knowledge of employee's and transfer it to the knowledge repository of the organization for further usage.

(2) Knowledge broker: To facilitate knowledge exchange among the employees.

(3) Knowledge market maker: To build up the infrastructure of knowledge collection, storage and access.

(4) Knowledge market clearer: To compensate the price differential for the knowledge exchange transaction with the reward system of the organization.

The most critical issues of an organization to act in this area are: (1) how to balance the trust and control mechanisms within the organizational information access, (2) how to foster the trust culture within an organization for facilitating knowledge sharing among organization members, and (3) how to persuade employees that the organization is trustworthy for contribute their knowledge and loyalty?

TRUST ISSUES BETWEEN CUSTOMERS AND E-BUSINESS: CRM

E-business is now using information technology as an important interface to interact with their customers. IT has enabled the business to utilize the customer data fully and make one-to-one marketing, database marketing, computer integrated call center service possible. It's already rewritten the rules of competition in industries such as securities trading, travel reservations and sales, PCs, book and music retailing. With IT, nowadays business can have closer interaction with their customers: to identify, interact, differentiate, track and customize [1]. IT can also assist managers to better understand their customers, retain their loyalty and maximize the profit potentials with key customers. Furthermore, with data mining to find market clusters, a business can identify market segment and predict the behavior pattern of its customers.

In order to build up a closer relationship with customers, to increase customer retention rate and customer profit, CRM enables a business to fulfill the need of the following marketing management: (1) analysis & refinement through learning, (2) knowledge discovery of customer, (3) market planning and then take action, and (4) interaction with customer [50]. The findings of a multi-industries empirical survey by Reichheld and Teal pointed out that "customer retention" and "customer loyalty" are the two most important factors that explain the difference of business performance [42]. These two factors are more important than cost advantage, business size, quality management and market share. Consequently, all business activities should be done to support the core of customer value. Falque also postulated that the goal of CRM is to utilize customer knowledge to order to increase customer retention rate, and such high retention will finally increase business profit [12].

Nevertheless, Clarke warned that overuse or even abuse of customer data would hurt the trust relationship between business and its customers with backfire [5]. With IT, business now can merge different sources of customer data and then analyze the integrated customer database efficiently and cheaply. With search engine of Spider programs on the Internet, a business even can merge the open source customer data with their own database to uncover hidden private customer information. Under the power assault of advanced technology the traditional mechanisms of customer privacy protection are not complete safe. The individual consumers are the helpless victims, thus they may distrust the business if they suspect that the business abuse their personal data. Observing the seriously worrisome mood of the consumers about the abuse of customer personal data in business context, Clarke indicated that invasion of customer privacy is a trust crisis in public confidence [5].

Why dose the trust crisis happen? The most obvious reason is most of current application of IT on CRM focused on the technical capabilities, such as the development of cookie, data warehouse, data mining, and customer profiling technologies, and the general lack of managerial and strategic perspective on the impacts of the CRM on customers. Arguably, the implicit assumptions of CRM, such as (1) closer relationship with customers is better customer relationship and (2) more understanding of customer behavior pattern will reach higher customer loyalty, may not hold true if there is no trust between customers and business. It is imperative that business does its utmost effort to protect their customer's personal data privacy in order to foster a harmonious trust relationship between customer and business. If a business neglects the increasing privacy concerns of customer information, it will deteriorate the customer trust and will have difficulty to maintain the customer loyalty and retain the old customers. In other words, using advanced IT without concerning the human issues will negatively affect a company's profitability in the long run.

Wang et al. warned the IT application on marketing activities may bleach customer privacy, and thus may have potential negative impact on customer trust and confidence [53]. These marketing applications included unsolicited e-mail marketing, spamming, uninformed personal data collection - such as cookies, user identification features -

such as Intel processor serial number, or unauthorized cross marketing. They categorized the privacy invasion activities as follows: (1) improper acquisition, such as improper access, improper collection, and improper monitoring; (2) improper use, such as improper analysis and improper transfer; (3) improper invasion or unwanted solicitation; and (4) improper storage.

Customers are very upset about personal data privacy caused by the personal data transfer without consent of customers [5]. Privacy survey conducted by Harris & Westin found 81% of Net users are concerned about threats to their privacy [22]. Cranor et al. and Harris & Westin found that privacy concerns is an ongoing issue [7][22]. Keen et al. estimated that around 60% of online service users would either log off or lie if asked to give private information [29]. It can take many years to build trust bond, whether in personal or business, but it can take a mere second to destroy it. Brzezinski pointed out that the correct and updated consumer database is the critical successful factor of CRM [3]. However, customers will reject to provide their personal data, or simply fill in false data without trust on the business. Such negative responses of customers will make CRM ineffective.

The trust has to build upon the protection of customer privacy and confidentiality, only on the important attributes of product or service, but also on the whole process of transaction and even the after-sale services. Therefore, the successful IT application on CRM should not simply focus on technical issues alone, but also require managers to examine the impact of IT on privacy invasion.

The issues of trust relationship between organizations and its customers are: (1) how to balance the risk and trust on customer, (2) how to manage the rights of customer information access of organizational systems with the extent that customer trustworthy, (3) how to built a company' s customer trust relationship strategically, (4) how can an organization act as a trustworthy partner to customers, (5) how do our customer value the trust relationship, (6) how to retain the trust relationship with failure recovery activities, (7) how to align our strategy and practice for customer data protection?

CONCLUSION

Based on literature review, we proposed that trust is the most important invisible platform for the internal operation and collaboration with business partners and customers of an e-business. In this article, we discuss three aspects of trust relationship of the e-business operation: (1) the trust for effective knowledge management (KM) within an organization; (2) the trust between organization and customer for effective customer relationship management (CRM); and (3) the trust between organizations for supply chain management (SCM). Based on our discussions, we found that we still do not have a full-spectrum well-developed theory that can be used to understand the role of trust in developing a successful e-business. Therefore, further studies need to be conducted.

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