ABSTRACT

The Internet has brought about a phenomenal change in business environments and has been adopted by organizations for varied purposes. Organizations have been undergoing a major transformation in the way they conduct business and in the way they communicate with their partners, buyers and suppliers, after the advent of the Internet. The late nineties witnessed adoption of the Internet by several organizations. However, organizations varied in their level of penetration of the Internet. There were few pure plays that were entirely running on the Internet and others that had a mix of the online world and the physical world often referred to as the bricks & clicks business model. This boom era was followed by the dot-com bust. Several pure plays survived and several others collapsed soon after they emerged. There were numerous such failures for each success considered. Many e-business ventures failed because too many promises were made without appropriate infrastructure and a firm foundation – in terms of organizational processes, human resources, legal frameworks and the underlying technology. More often than not, the technology that was adopted was never put to effective use.

Companies today need to embrace e-business, as the advantages are many, but only if they are aware of what they have to do. The success of an e-business initiative depends on the successful implementation and the desired use of the web applications developed for the organization. The website is the most prevalent application that is seen as part of an e-business strategy. It is often the user interface for the technology infrastructure in the background. The use of a website as intended is an important determinant of the success of an electronic business initiative. Hence, it becomes important to understand the different factors behind the use of a website by its intended users.

A Business-to-Business website is primarily developed by most firms to coordinate with supply chain participants like suppliers and customers, and sometimes other partners. The extent of use of the website varies from simple information exchange to buy/sell transactions and online payments. It is one of the prevalent technologies under the inter-organizational systems (IOS) umbrella. Electronic Data Interchange (EDI), websites and web services have been prominent inter-organizational systems so far, of which web services is a current phenomenon.

This study proposes a theoretical framework for understanding the factors that determine the character and nature of use of a business-to-business website by a customer-supplier dyad. Most

of the B2B websites can be classified as vertical specific, organization specific or niche sites. This study concentrates only on organization specific websites particularly for stakeholders like suppliers and customers. The intent of this research is to suggest a descriptive framework with diagnostic, prescriptive and predictive capabilities for organizations, to ensure use of their B2B websites.

IT adoption and use has been a thrust area of research in the IS community. The electronic business era also calls for similar research. Researchers have studied the phenomena of organizational adoption and use of the Internet and the associated success factors. However, the available literature is fragmented and lacks a comprehensive framework to explain the phenomenon of website implementation, particularly its 'use' after 'adoption'.

While the individual causal factors influencing the actual website use are quite well understood, the highly fragmented state of the literature cannot yield concrete guidelines to manage the phenomenon better. A comprehensive understanding and an integrated view is necessary. A major portion of the research in the area of website use and design has been focused on one aspect - online shopping and purchase over B2C (business-to-consumer) electronic commerce websites. Sufficient attention has not been given for B2B (business-to-business) electronic commerce websites. Several B2B Internet business models and their characteristics have been discussed in the literature but, organizations often witness a significant gap between the intended or planned use of B2B electronic commerce websites and the actual use of the system once it is implemented. Studying a website from the users' perspective helps organizations recognize the facilitators and drivers of their website use and know how to manage it, so that the initiative yields the desired benefits.

Researchers have attempted to study the behavior of website users/visitors in both B2C and B2B context, but a review of the literature showed that research has been carried out extensively in the B2C segment. Further, while the causal factors influencing the actual use are quite well understood, the relationships and the nature of influence between these factors and use are still in the formative stages. User characteristics, processes supported by websites and other technicalities are different in B2B and B2C. B2B involves interaction between organizations and buying and selling mechanisms are likely to be better planned. Measures of use like frequency and duration of use do not have any relevance in a B2B scenario where prolonged use of the application does not necessarily help to derive benefits. Hence, there is a need for a comprehensive and practicable measure of B2B website use.

Gaps emerge from the literature review in four aspects. First, there is a lack of proper classification of B2B Internet commerce organization specific websites in the literature. Second, there is also a need to study website acceptance and use and describe suitable measures more concretely. Third, several researchers have worked on B2C website use but not many detailed studies exist on B2B Internet commerce adoption and use, other than EDI and older forms of IOS. Internet is a low-cost, easy to use global platform, the implications of which are considerably different. Lastly, considerable research has gone into addressing issues related to B2B market structures, but the research has been fragmented with no resultant conceptual framework to explain the phenomenon. Successful use of a B2B website can be achieved only when both the primary and user organizations participate in use.

In this study, we investigate the factors facilitating and inhibiting the use of B2B websites. This study draws insights from technology diffusion, acceptance and use literature as well as the emergent field of Internet commerce. We also introduce the concepts at the organization dyad level, how a pair of buyer-supplier organizations together determines use of a B2B website. The contributions of this framework are three-fold. One, the framework highlights four constructs, viz., the Scope to use the website; System Pressures (SP) which depicts pressures to use the website by the primary organization and user organization; System Inclination (SI) which integrates inclination to use the website by the primary organization and user organization; and Management Mechanisms. This dissertation also discusses the factors contributing to each construct and suggests operational measures. Scope to use the website is defined by the information intensity of inter-organizational processes between the primary/host and user organization. The complexity, uncertainty and ambiguity of these customer-facing and supplier-facing activities in the value chain describe the opportunities that exist for the use of such a website. SP describes the overall pressure on the dyad to use the particular website. This pressure stems from within the group or from the organization of which the user group is a part. Often there are external pressures from the partners as well, to use the website. SI is the overall inclination among the dyad members towards the website. This is influenced by the e-commerce inclination and IT drive of the two organizations. The perceived value of using the system also influences the inclination to use the website. Two, the framework discusses the level of use of a B2B website and the volume of use of the business website. These contribute to the outcome variable called Website Use. Website Use is explained with the help of two dimensions, sophistication of use and scale of use. The sophistication of use is described in terms of features and the scale of use is defined as the number of times tasks are done using the website compared

to alternative media. Three, the framework finally describes the nature and extent of influence of the factors individually and collectively on the outcome variable.

An exploratory survey of twenty organizations was conducted in order to gain empirical insights into the phenomenon. The framework, described above, built in this dissertation, is based on the exploratory survey and an in-depth review of the literature in the area. The thesis also presents in detail six case studies of eight dyads to illustrate the conceptual framework. The prescriptive contribution of the thesis is a set of guidelines in the form of management mechanisms which suggest what can be done to suitably enhance the sophistication and scale of website use. These management mechanisms define the processes, roles and structures that provide support for and control of the use of such an application.

We believe the framework is the unique contribution of this thesis as such an integrated comprehensive view of the phenomenon has not been attempted thus far in the literature. The use of the organizational dyad as the primary unit of analysis is also a significant contribution of this thesis. While prior literature has attempted to use individuals, groups, individual organizations and networks of organizations to understand B2B electronic commerce, use of dyads has been rare. The thesis thus represents a significant enhancement over existing understanding of the phenomenon of website use.