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WEB ASSIMILATION AND CORPORATE CULTURE: ASSESSING THE CHATTERJEE, GREWAL, AND SAMBAMURTHY MODEL

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Abstract

This study demonstrates the usefulness of the Web assimilation model to understand the factors that might contribute to enhancing organizational performance with e-business technologies. In this paper, the Chatterjee et al. model of Web Assimilation is used to provide the foundation for investigation of the relationships of interest that would enhance the effectiveness of Web-based technologies in organizations. The impact of three variables (top management championship, extent of coordination, and strategic investment rationale) are discussed in relation to Web assimilation. Organizational culture is introduced as a way of measuring shared enterprise-wide beliefs and assumptions as they relate to the variables in the original model. The extended model of Web Assimilation investigates the way organizational culture interacts with Web assimilation and provides another reference point for future researchers and practicing managers.

Keywords: E-business, culture, technology assimilation, budgeting, strategy, integration

Introduction

Organizations are adopting new e-business strategies to compete in the fast moving marketplace of the 21st century. e-Business is growing in today's market and it has many advantages for organizations. Organizations are adopting Web-based technologies every day in the effort to keep up with market demands and stay competitive. Realization of benefits associated with these complex technologies is weak, if non-existent. Not all organizations have been successful in the assimilation of type 3 technologies, specifically Web-based, and therefore have had difficulty in shaping their e-commerce initiatives (Brews 2000). Assimilation of Web-based technologies to enable organizations to more effectively conduct business using this type 3 innovation (Swanson 1994) requires an enterprise-wide coordination among all levels and organizational units.

This study demonstrates the usefulness of the Web assimilation model to understand the factors that might contribute to enhancing organizational performance with e-business technologies. e-Business for the purposes of this study is defined as the processes and structures used to conduct business on the Web, including e-commerce, content management, communities, and other forms of business interaction using the Internet. This means strategies for managing processes to acquire supplies, sell to customers and provide needed support. Many e-business opportunities are readily available; it is just a matter of time before organizations in the 21st century assimilate Web-based technologies.

In this paper, the Chatterjee et al. model of Web Assimilation is used to provide the foundation for investigation of the relationships of interest that would enhance the effectiveness of Web-based technologies in organizations. The impact of three variables (top management championship, extent of coordination, and strategic investment rationale) are discussed in relation to Web assimilation. Organizational culture is introduced as a way of measuring shared enterprise-wide beliefs and assumptions as they related to the variables in the original model. The extended model of Web Assimilation investigates the way organizational culture interacts with the Web assimilation and provides another reference point for future researchers and practicing managers.

Literature Review

Technology Assimilation

Assimilation is defined as the extent to which the use of a technology diffuses across organizational processes and becomes an integral part of the tasks associated with those processes (Cooper and Zmud 1990; Fichman and Kemerer 1997). Many researchers have focused on the importance of the causality between the organizational adoption of an information technology and its impacts on business performance (DeLone and McLean 1992; Jarvenpaa and Ives 1991; Sethi and King 1994). The focus of this study is to ascertain the extent to which e-business strategies and initiatives are integrated into an organization's processes. Further, we wish to study the relationship between organizational culture and other factors which would influence the adoption of e-business technologies in an organization.

There have been numerous studies in the past twenty years on the adoption and assimilation of information technologies. Fichman and Kemerer (1999) suggest that information technologies exhibit an assimilation gap, where their rates of organizational assimilation trail behind their rates of organizational adoption. Swanson (1994) purported a taxonomy of IS innovations where he suggests that information technologies follow three different pathways of organizational adoption: type 1 innovations (to enhance the efficiency of the IS function), type 2 innovations (to enhance the efficiency of administrative functions in the organization), and type 3 innovations (to enhance the competitiveness of the organization). Chatterjee et al. (2002) suggest that the majority of IS research has sought to examine the predecessors and associated relationships of type 1 and type 2 innovations (for example, Purvis et al. 2001; Karahanna 2000; Taylor and Todd 1995). It is particularly more difficult to study type 3 innovations predominantly due to the more sophisticated and complex set of organizational relationships and environment, rather than the IS functional leaders (type 1 innovations) or members of a workgroup or department (type 2 innovations). Agarwal and Sambamurthy (2002) suggest that the assimilation of type 3 innovations, such as e-business initiatives, appears to be guided by a distributed leadership model consisting of senior management, business executives, and IS executives collectively responsible for decision making for IS initiatives.

Consistent with Chatterjee et al. (2002) and Purvis et al., it seems reasonable to consider organizational culture with respect to the assimilation of type 3 innovations since decision making is a result of the "cumulative consequence of the actions of managers and departments across the organization." Van de Ven (1986) stated that organizations can foster higher levels of technological assimilation by shaping, influencing, and motivating individual management attention, cognition, and behaviors toward more assimilations initiatives across the enterprise. "Whereas assimilation itself is the cumulative result of actions by individuals and units within the firm, these actions are stimulated by an organization milieu of norms, values, and rules."

Structuration Theory

Orlikowski et al. (1995) propose a structuration theory of technology assimilation that describes how organizations act as institutions in shaping behaviors and cognitions. They identify three ways in which the organization influences individual cognition and behaviors: (1) structures of signification (where institutional structures yield meaning and understanding to individuals seeking how to act), (2) structures of legitimation (where institutional structures validate specific behaviors as being appropriate in the organization and consistent with goals), and (3) structures of domination (where institutional structures regulate individual actions and behaviors). Orlikowski et al. argue that individuals utilize these structures to make sense of emerging technologies and integrate them into the work processes and strategies of the organization. Chatterjee et al. propose that assimilation is the outcome of individual structuring actions where three metastructuring actions (top management championship, strategic investment rationale, and extent of coordination) and are considered institutional enablers of the technology structuring action of individuals which, in turn, affect the assimilation of e-business technologies. They argue that the theoretical connection between the metastructuring actions and the individual structuring actions provide the rationale for the effect pathways (Chatterjee et al. 2002).

Web Assimilation Conceptual Model

Chatterjee et al. propose a conceptual model that focuses on the relative success of organizations in incorporating the Web technology into its e-business strategies and processes. This level of assimilation of type 3 innovations is considered to be one of the visible results of the flow of structuring actions integrated throughout the organization. The conceptual model (see Figure 1)

outlines the relationships Chatterjee et al. developed and tested in their study. This model was derived in foundation from structuration theory.

According to the authors, *web assimilation* has two components: (1) e-commerce strategies and (2) e-commerce activities. e-Commerce strategy assimilation is defined as a “visible consequence of structuring behaviors to utilize the web technologies for attracting new customers, creating new distribution channels, and offering value-added customer services. e-Commerce activity assimilation is defined as the “use of web technologies for enabling customer-facing activities, including product or service sales, distribution, and after-sales support, and product testing, and market research.”

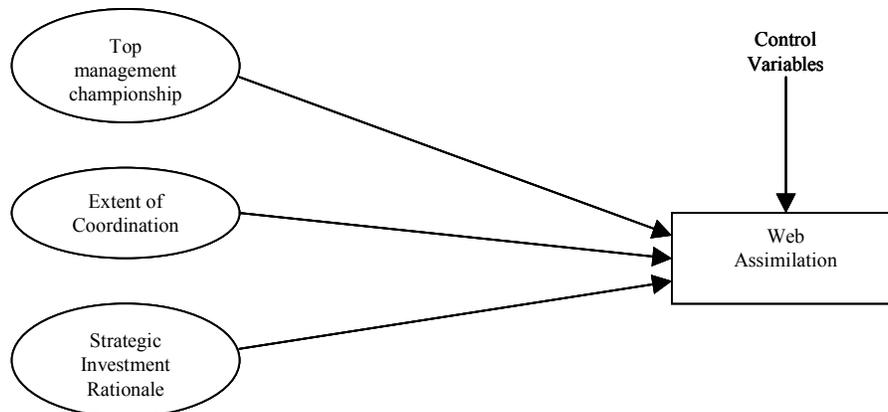


Figure 1. Chatterjee, Grewal, and Sambamurthy Model of Web Assimilation

Top management championship is defined in terms of managerial beliefs about web initiatives and participation in those initiatives. The authors characterize it as “a metastructuring action because it defines institutional norms and values regarding how managers should engage in structuring actions related to the Web technology.” Top managers send signals to the rest of the organization about the importance of e-business initiatives and how the organization should use Web-based technologies in their everyday work processes. Their belief system is disseminated throughout the organization to justify organizational expenditures in e-business initiatives as well as in shaping organizational visions and strategies for the future direction of e-business applications once developed.

Extent of coordination addresses the theory that managerial actions and initiatives across an organization can be linked together to shape the direction of projects and processes. Chatterjee et al. suggest that the coordination of integration mechanisms should be considered to be metastructuring actions because their use promotes organizational values of collaboration the sharing of ideas. In the area of Web assimilation, it can be argued that coordination is vital to the eventual success of type 3 innovations as they affect organizational processes and ultimately competitive advantage as viewed in the market, as well as with customers. Coordination mechanisms include organizational technologies, as well as cross-functional teams, partnering relationships, and planning processes. Many Web-based applications rely on an overall organizational integration of technologies into a working infrastructure. The team-based approach was found to be vital with respect to managing organizational innovations (Cronin, 1996; Van De Ven, 1986).

The *strategic investment rationale* is defined as “value propositions that will guide the identification of promising organizational opportunities and justification of resource commitments toward the implementation of those projects.” The existence of strategic-level investment guidelines provides the framework for leveraging e-business initiatives directly into the daily workflow of each major organizational process and justifies the significance of e-business into the way work is defined throughout the organization. Sambamurthy and Zmud (1996) found that a strategic foundation for spending on information technology projects enables firms to more effectively assimilate technological innovations. Van De Ven (1986) states that “strategic value creation in the context of building organizational culture” supports innovative efforts.

All of the hypotheses as set forth by Chatterjee et al. were found to be supported by their causal modeling effort (using partial least squares for their hypotheses testing), as stated:

- Hypothesis #1: *Top management championship will positively influence the extent of organizational assimilation of Web technologies in e-commerce strategies and activities* (supported $b=0.39$, $p<0.01$).
- Hypothesis #2: *A well-developed explicit strategic investment rationale will positively influence extent of Web technologies in e-commerce strategies and activities* (supported $b=0.18$, $p<0.10$).
- Hypothesis #3: *Extent of use of coordination mechanisms will positively influence the extent of organizational assimilation of Web technologies in e-commerce strategies and activities* (supported $b=0.27$, $p<0.01$).

The authors found support for two antecedents to type 3 innovations not previously examined empirically in prior research, namely strategic investment rationale and the extent of coordination. The estimated R^2 value of 0.54 ($p<0.01$) showed a significant amount of explained variance of the overall model in explaining Web assimilation through primarily the three metastructure actions using an institution perspective for type 3 innovations.

Organizational Culture

Culture is defined as the man-made part of the human environment (Herskovits, 1955). A widely used definition of culture is derived from Hofstede (1991) where “every person carries within him or herself patterns of thinking, feeling, and potential acting which were learned throughout their lifetime.” Hofstede calls such patterns mental programs or “software of the mind.” He states that culture is always a collective phenomenon, because it is at least partly shared with people who live or lived within the same social environment. Simon (2001) stated that sociologists have long argued that socially shared meanings may be culture-specific grounded in language, geographical proximity, and history. Hofstede found that shared qualities may include common norms, beliefs, and values as well as particular ways of categorizing shared experiences.

Hofstede’s development of his model of culture derived five distinct cultural dimensions (1991). The Power Distance dimension addresses the extent to which a society accepts unequal distribution of power in institutions and organizations. The Uncertainty Avoidance dimension deals with how societies accommodate high levels of uncertainty and ambiguity in their environment. The Masculinity-Femininity dimension addresses the ways that sex roles are differentiated in the cultural environment. The dimension of Individualism-Collectivism focuses on the individual within the culture and his/her interaction with other individuals. The Uncertainty Avoidance dimension deals with how cultures accommodate high levels of uncertainty and ambiguity in the environment. Based upon these dimensions of culture, Robertson and Hoffman (2000) developed a model to investigate the attitudes of individuals in the workplace environment. Maznerowski and DiStefano (1995) measured cultural influences at the individual level across international environments.

In information systems research, there are a number of studies that investigate the role of culture in the use of technology-based systems. Watson and Raman (1994) state that information systems should be sensitive to culture in a study of group support systems. IS studies discovered variances across cultural differences in the attitudes of users (Harris and Davison 1999; Igbaria and Zviran 1991), usage characteristics (Igbaria and Zviran 1996), perceptions of system usability (Yeo et al. 1998), and effects on e-commerce buying behavior (Pereria 1998). The marketing literature also has studies that have focused on cultural impacts. Steinwachs (1999) used Hofstede’s cultural model to identify differences in information processing behavior among various cultural groups which were found to impact the interpretation of intended information. Long-Chuan, et al. (1999) found that Hofstede’s dimensions (collectivism and individualism) were valid indicators for identifying differences in decision making between managers of two different cultures.

Organizational culture is a construct that has evolved in the literature from the organization and the “climate” that results from the interaction of an organization and related environmental variables (Hofstede et al. 1990). Following the study by Peters and Waterman (1982), Hofstede, et al. found that shared values represent the core of a corporate culture. Specifically Hofstede et al. (1990) showed that shared perceptions of daily practices were central to defining organizational culture in terms of “customs” or “usages.” Schein (1986) described three levels of cultural phenomena in organizations as: (1) artifacts and creations (surface/overt behaviors), (2) values (sense of what ought to be), and (3) basic assumptions (deepest level of things that are taken for granted). Based upon Schein’s aggregate categorization, Gordon (1991) defines corporate culture as an organization-specific system of widely shared assumptions and values that give rise to typical behavior patterns. Gordon found that industry environment factors, such as customer requirements, competitiveness of the environment, and societal expectations directly impact the assumptions of the organizational culture. This culture, in turn, would impact organizational outcomes such as performance measures. Marcoulides and Heck (1993) tested a structural model concerning how aspects of an organization’s culture may affect

organizational performance. They found that effective organizations share a variety of attributes involving their cultures, specifically with respect to their processes and organizational performance measures. Denison and Mishra (1995) found that culture may have a significant positive impact on effectiveness. The authors found that culture can be studied as an integral part of the adaptation process of organizations and that specific cultural traits may be useful predictors of performance and effectiveness. It is proposed for this study therefore that organizational culture may impact the degree of Web assimilation, in terms of e-commerce activities and strategies

Model and Variable Operationalization

The Chatterjee et al. model of Web Assimilation was expanded for this study in order to consider the impacts that organizational culture has on the ability of firms to assimilate type 3 innovations, specifically Web technologies. The literature suggests that *top management championship*, *coordination*, and *strategic investment rationale* all help to shape the organizational culture. It is argued therefore that organizational culture could be an important antecedent and potential predictor for understanding Web assimilation (see Appendix for variable operationalizations).

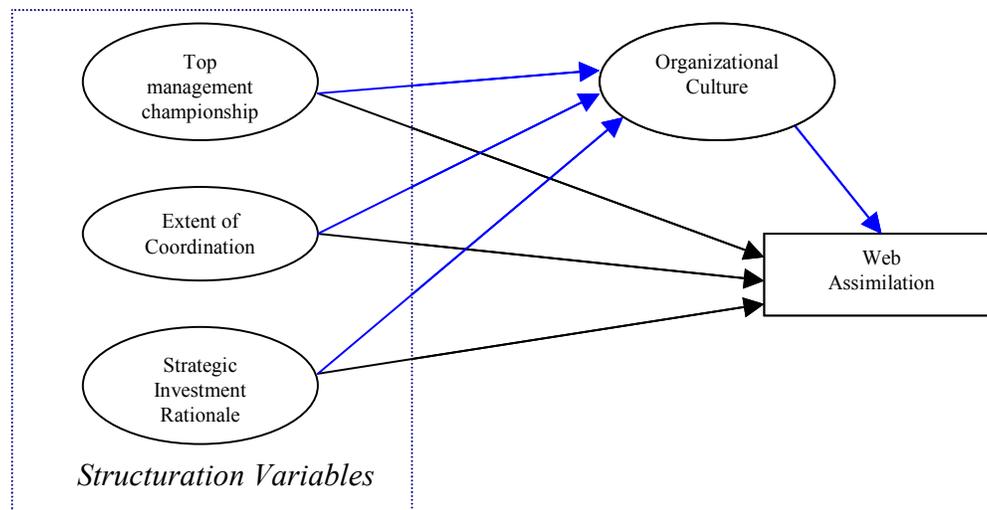


Figure 2. Extension of the Chatterjee, Grewal, and Sambamurthy Model of Web Assimilation

Web assimilation is defined as a combination of strategies and activities that allow more utilization and focus on achieving strategies that translate into direct, measurable value. Corporate performance measures that senior managers found were crucial indicators of the Web assimilation (Amoroso 2002) were:

- Increases in customer attraction
- Increases in customer retention
- Increases in customer satisfaction
- Incremental revenue growth
- Lower costs of sales
- Lower operating costs due to business processes
- Increases in market share
- Reduction in cycle time

The e-commerce activities dimension examined the degree to which customers were taking advantage of Web-based applications given their need for e-business goods and services. Specific applications related to customer interest, utilization, and needs included (in a partial listing): transaction engines, electronic billing, online communities, electronic auctions, electronic catalogs, order management systems, customer service systems, content management, online data warehouses, and fulfillment systems.

The *top management championship* construct can be operationalized, as in the original study, by a combination of executive beliefs and participation in the processes associated with developing and delivering e-business applications to customers. The greater willingness of the senior management team to take advantage of e-business opportunities, the more they championed the beliefs that Web-based applications would realize operational and strategic benefits. Executives would be asked to quantify their beliefs in the ability of Web-based technologies to enhance the overall performance in the organization as well as to contribute to changes in the organizational culture. Participation can be operationalized by not only setting organizational direction for e-business initiatives, but also in participating in the project by setting goals, putting in place measures for project success, and enabling the organization to more effectively select e-business technologies that, when developed, would contribute to its eventual assimilation and success. The involvement of top management in the selection of Web-based technologies represents a level of participation by establishing goals, functionality, and mapping those to organizational outcomes. Web technologies are complex and it is difficult for companies to effectively adopt and assimilate. Not many firms are successful in orchestrating the co-evolutionary changes to their technologies-in-use, organizational structures, processes, and incentive and reward systems to successfully implement new technologies into their e-commerce initiatives without top management championship.

As in the Chatterjee et al. study, the *extent of coordination* can be operationalized in terms of the different types of coordination mechanisms used to manage e-business initiatives taking the form of processes, roles, or structures. The degree to which e-business applications are integrated within the technology infrastructure of the organization represents a form of a technology structure arrangement. Likewise the use of processes to manage the methodology and management of e-business projects across the organization or within a department or unit is a formal process-based arrangement. The integration of e-business staffing into project teams to develop and monitor Web efforts is an example of formal role-based mechanisms. Part of the equation related to the extent of coordination is putting in place metrics and tracking success of e-business initiatives. According to Barua, et al., many companies do not track e-business measures, such as the percentage of an organization's total business that can be transacted online, number of new customers acquired online, the percentage of goods purchased online from suppliers, the number of existing customers using online services, and the percentage of customer-service requests handled online. Organizations that are most successful with their e-business initiatives actively look for ways to integrate emerging technologies in the Internet environment yielding a greater degree of ability to move faster to market (Barua et al. 2001).

Strategic investment rationale can be operationalized by looking for economic and non-economic indicators for justifying IT investments (Sambamurthy and Zmud 1996). Web-based expenses demonstrate the commitment of the organization for the outcome of assimilation in terms of the dollars spent for e-business initiatives and the percentage of total revenue spent in pursuit of Web-based applications. Similar to the Chatterjee et al. study, the operationalization of the strategic investment rationale construct can be found in the overall budgeting process targeted at taking advantage of new e-business opportunities and the potential realized cost savings, as related to the extent of the importance placed in justifying Web-related expenses in the organization. Technology development is the greatest area of expense because of the complexities inherent in the number of software, vendors, and partners required for e-business application realization (Srinivasan et al. 2002). A company's budgeting process has an effect on the organizations success of completing e-business initiatives and potentially the degree of assimilation. According to Butler, traditional companies are slower to allocate new money for e-business ventures; rather they simply take the money from other departments within the organization. As a result, the e-teams must anticipate the costs of development and have to jump over bureaucratic hurdles to retain the money (Butler 2000). The formality of e-business strategy in the corporate planning process differs among organizations and is a critical element for success.

Organizational culture should reflect the organization-specific system of widely shared assumptions and values that give rise to typical behavior patterns and formalized through centralized mechanisms, such as strategy creation and execution. According to Butler (2000), "organizations must create strategy, build business and technical architectures, and develop new cultures, skills, and measures simultaneously." Operationally, this construct could be measured in terms of the usefulness of formal organizational guidelines and procedures toward e-business initiatives. Measuring culture should have elements of artifacts, values, and assumptions that contribute the right thrust toward accomplishing organizational goals of Web assimilation. The organization should demonstrate the willingness to deliver e-business applications within the organization and to its customers, as evidence of the pervasiveness of Web-based technologies throughout the organizational culture. The e-commerce environment "enables managers to rapidly try new approaches, quickly share success and failures, and monitor what is new and useful. E-commerce will enable managers to become quicker in how they gather, synthesize, utilize, and disseminate information, and those that are willing to experiment with new product and service offerings will be positioned to compete most effectively (Kickul and Gundry 2001)." Managers can use the changing nature of the environment to their advantage if they use their imaginative skills to come up with creative solutions to complexity related to changing industry variables. In the study conducted by Kickul and Gundry, they found that managerial creativity would moderate the influence of functional diversity, thereby allowing diversity to enhance the assessment of e-commerce opportunities. In addition, top management must function with creativity that fosters an open

atmosphere of discussion and debate to allow new ideas to surface. CEOs that demonstrate certain characteristics such as: openness, honesty, and supportive communication, careful listening skills, consideration of new ideas and opinions, will enhance a creative and open organizational culture (Kickul and Gundry 2001). An understanding of the resistance to change within the organization can give insight as to shared beliefs about adopting a technological innovation (Denison and Mishra 1995). The adaptability for change in response to technologies, it was hypothesized by Denison and Mishra, is a cultural trait that positively impacts effectiveness. The operationalization of organizational culture is proposed as collective perceptions of organizational units rather than individuals (Hofstede et al. 1990).

Discussion

The potential relationships between the hypothesized metastructure actions (top management championship, extent of coordination, and strategic investment rationale) and organizational culture need further investigation and could contribute to higher explanation of overall Web assimilation. Denison and Mishra (1995) argue that involvement by top management in the form of input and collaboration significantly affected subjective performance measures of quality of product/service being delivered and overall performance of the organization. They found significant correlations ($p < 0.01$) between involvement of top management and overall performance ($r = 0.16$), while also finding a stronger relationship to change management factors within the organizational culture ($r = 0.24$). This finding argues the existence of a potential relationship between top management championship and certain cultural measures, such as the degree of change management or resistance to change. They also found a significant relationship ($p < 0.01$) between the involvement of top management and support of the direction and vision of corporate initiatives as measured by the direction ($r = 0.22$) and the formally stated vision related to initiatives ($r = 0.28$). Chatterjee et al. state, "by articulating their views about the risks and benefits of an information technology, senior management can legitimize assimilation behaviors toward a new information technology." It can be assumed therefore that top management can, in fact, help shape organizational culture, as well as assimilation behaviors. Gordon (1991) found that management not only impacts the formulation of organizational culture, as operationalized by measuring assumptions and values of the collective enterprise, but that assumptions embedded within the overall culture have a "controlling" influence on management decisions. Gordon argues that organizational culture is founded on the basis of assumptions that are formed by customers, competitors and society and that from these assumptions, certain values develop concerning the "right things to do," and that consistent with these values management develops the strategies, structures, and processes.

The potential relationship between the strategic investment rationale and organizational culture can be observed in a study by Sambamurthy and Zmud (1996) where they found project champions of innovative information technology applications selling their projects by linking them to specific strategic drivers found in the culture. Van de Ven (1986) found that strategic value creation, as measured by the degree of investment in organizational initiatives was found to build organizational culture. These findings show the potential relationship existing between organizational dollars being spent on technology innovations at an enterprise level (type 3 innovations) and the shaping of organizational culture. Chatterjee et al. found that a well-formulated rationale that is articulated throughout the organization is a means for setting the organizational culture by "directing the attention of the rest of the managerial community." Dougherty and Heller (1994) found that organizations that assign corporate dollars to innovative initiatives are more likely to succeed in managing their innovation process.

The extent of coordination, as operationalized by an organization's coordination mechanisms (goals, planning processes, teams, and projects) was found by Chatterjee et al. to have a potential relationship to organizational culture in that it promotes organizational values of collaboration and the sharing of risks and ideas. Structures of signification (Orlikowski 1992) yield "shared" meaning and understanding as individuals apply these structures to understanding how they are to act with respect to new technology assimilation. As Orlikowski argues that individuals utilize institutional structures to make sense of the technology in order to integrate their understanding collectively into work processes, business activities and strategies, it seems reasonable to assume a potential relationship between the extent of coordination, as proposed and tested by Chatterjee et al., and organizational culture.

Marcoulides and Heck (1993) tested a relationship between organizational climate and organizational performance. Using LISREL to test the overall model, they found a strong overall goodness of fit (0.86) where there was a predictive relationship between organizational climate ($b = .34$, $p < 0.01$) where organizational climate was operationalized as the perceptions of the qualities of interaction across the enterprise and, most importantly, the awareness among employees of the organization's use of available technologies and adoption of new ideas. Organizational performance reflected the extent of goal achievement in the organization's workforce in terms of sales fulfillment, potential customer base, and the extent of revenue for initiatives over expenses related to organizational operations.

Conclusion

The objective of this research is to provide a framework for investigation into the variables that impact the assimilation of e-business technologies in organizations. e-Business applications are, by definition, enterprise-level innovations of the type 3 magnitude and therefore demand a higher level of investigation within the organization. The Chatterjee et al. model provides good initial framework for investigation but leaves gaps regarding the potential impacts of organizational culture on the level of technological assimilation of Web-based technologies. This article attempts to extend the Chatterjee et al. model of Web assimilation by including organizational culture as a construct for investigation.

Assimilation (organizational adoption) of technologies is an important variable that has been found to predict the impacts on business and performance. Swanson argued that there are three different types of IS innovations and it is suggested here, as well as Chatterjee et al., that Web-based technologies should be considered type 3 innovations because of the organizational levels and enterprise-reach of these technologies to enhance the competitiveness of the organization as a whole. Web-based technologies have been found to change the processes and structures within the organization for fulfilling sales, attracting new customers, offering value-added services, advertising and distributing new products, and enhancing an organization's image. Structuration theory of technology assimilation (Orlikowski et al. 1995) provided the original model developers with the foundation for understanding how organizational factors influence technology initiatives and ultimately the assimilation of Web technologies. The theoretical foundations are based in institutional theory which describes how organizations behave (Scott 1995). Organizational culture research (Hofstede 1990, 1991; Marznerski and DiStefano 1995; Schein 1986; Gordon 1991; Marcoulides and Heck 1993; and Denison and Mishra 1995) provided the foundation for describing the cultural phenomena that takes place within organizations, such as shared values and belief structures.

Each of the constructs is defined in this paper, mostly utilizing the Chatterjee et al. operationalizations with additional literature adding to the richness of each of the variable definitions. *Web assimilation* is defined in terms of the degree to which customers were taking advantage of Web-based applications given their subjective need for e-business goods and services. Additionally, strategies that describe the performance measures that organizational managers expected to see occur with Web-based technologies. It is suggested that the *top management championship* construct be operationalized by a combination of executive beliefs and participation in the processes associated with developing and delivering e-business applications within the organization. Chatterjee et al. investigated top management championship as a combination of participation and beliefs. It is suggested here that top management willingness to take advantage of Web-based technologies, their readiness to move into more sophisticated technologies, and their support for e-business initiatives also are part of their championship of Web-based technologies. The *extent of coordination* construct is defined as the ability of organizations to take advantage of different types of coordination mechanisms used to manage e-business initiatives in terms of processes, roles or structures. The coordination mechanisms proposed for operationalization in this paper include integration of strategies, goals, processes, teams, and project methodologies for managing Web-based initiatives. The *strategic investment rationale* is defined as a set of value propositions that guide the identification and development of Web-based technology applications and the justification of corporate resources toward the implementation of these projects. The operationalization of this rationale comes in the form of investigation of the organization's budgeting process, the committed resources for e-business projects, and Web-based initiatives planned for investment. *Organizational culture* is discussed in the context of specifying an enterprise-wide system of shared assumptions and values that give rise to typical behavior patterns through formalized mechanisms. The organization's adaptability to change and perceived usefulness toward newly embedded Web-based processes and structures is a component of the operationalization of organization culture in studying e-business initiatives.

In putting forth an extended model for investigation, the original relationships as tested by Chatterjee et al. are maintained, while adding the organizational culture variable with proposed relationships between top management championship, extent of coordination, and strategic investment rationale with organizational culture and then to Web assimilation. In putting forth these relationships, Denison and Mishra (1995) found support for the interaction of top management with certain organizational culture variables, such as change and support of direction. Gordon (1991) purports interactions between assumptions and managers' actions as well as with belief systems. Van de Ven (1986) found that as the degree of investment in organizational initiatives increases, enterprises were building organizational cultures that enabled them to more effectively manage these initiatives. The extent of coordination creates shared values or collaboration and shared ideas contributing to building organizational culture. Finally, organizational culture was found in several studies to positively impact the performance measures of an organization, and ultimately innovative initiatives.

Further research in this area would include testing this expanded model of Web assimilation in order to ascertain which factors are likely to facilitate higher levels of assimilation of Web technologies. In turn, these findings would help shape e-commerce

activities in organizations. Ultimately, practicing managers would be interested in this research in order to understand how to enhance the assimilation of Web-based technologies in their organization as well as how to shape the organizational culture relative to the introduction and implementation of these type 3 innovations within their organization.

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Appendix: Variable Operationalizations

Construct	Variables	Definition
<i>Web Assimilation</i>	<i>Strategy</i>	The organization's translation of e-business benefits into direct, measurable value
	<i>Performance</i>	The organization's enhancement of performance as attributed by e-business
	<i>Need</i>	Need for e-business goods and services
	<i>Applications</i>	Specific e-business applications that customers are interested in and/or demand
<i>Top Management Championship</i>	<i>Willingness</i>	The organization's willingness to take advantage of e-business opportunities
	<i>Understanding</i>	Ability to understand how e-business can be used to capitalize on opportunities
	<i>Readiness</i>	Top management's readiness to move into sophisticated e-business applications
	<i>Support</i>	Top management's degree of support for its e-business initiatives
	<i>Selection</i>	Top management's involvement in the selection process of e-business technologies
<i>Extent of Coordination</i>	<i>Strategy</i>	The organization's integration of its e-business strategy in the corporate planning process
	<i>Goals</i>	e-Business goals integrated with overall business strategy
	<i>Processes</i>	Role e-business projects play in company's process reengineering and streamlining processes
	<i>Teams</i>	Integration of e-business teams with development and user efforts
	<i>Project</i>	Organization using development and project management methodologies throughout
<i>Strategic Investment Rationale</i>	<i>Budgeting Process</i>	The organization's effectiveness of the budgeting process
	<i>e-Business Budget</i>	Current organizational dollars going into e-business initiatives
	<i>Initiatives Planned</i>	e-Business activities or initiatives that the organization is planning for investment
<i>Organizational Culture</i>	<i>Usefulness</i>	Usefulness of formal organizational guidelines and procedures toward e-business initiatives
	<i>Formality</i>	Formal e-business strategy in the corporate planning process
	<i>Beliefs</i>	Ability to deliver e-business initiatives related to shared beliefs
	<i>Resistance</i>	The organization's resistance to change in implementing e-business initiatives
	<i>Assumptions</i>	Assumptions that support the integration of e-business initiatives into the organizational processes and daily work

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