

6-1-2009

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Recommended Citation

Srivastava, Shirish C.; Teo, Thompson S.H.; and Subramanian, Annapoornima M. (2009) "Rational versus Institutional Perspectives in Organizational Web Sites," *Communications of the Association for Information Systems*: Vol. 24 , Article 36.

DOI: 10.17705/1CAIS.02436

Available at: <https://aisel.aisnet.org/cais/vol24/iss1/36>

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Communications of the Association for Information Systems



Rational versus Institutional Perspectives in Organizational Web Sites

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Abstract:

Despite the business importance attached to the choice of features in organizational Web sites, most research on the subject is descriptive in nature. To our knowledge, no study has attempted to understand the underlying theoretical rationale explaining firms' choice of Web site features. Adoption of innovative systems by organizations is not always a "rational decision" based on the market innovation perspective; it may be based on the organizations' decision to conform to the "institutionalized norms" within or across the industries. In a similar vein, the underlying rationale for the firms' choice of Web site features may be either predominantly "rational" or "institutional." We use Web content analysis to examine the dominant theoretical perspective guiding the organizational Web sites: rational (differentiation) or institutional (aliveness). For this, we analyze the data recorded from 243 Web sites: 91 information technology firms (IT industry), 67 business schools (education industry) and 85 banks (banking industry). Data pertaining to 20 features of Web sites are classified into information and interactive contents within and across three industries. Results suggest that Web site features are primarily explained by intra-industry norms of aliveness rather than inter-industry similarities, thereby supporting the preponderance of "institutional perspective" for Web site features within each of the three industries examined. In contrast, differences in Web site features across the three industries can be explained using the "rational perspective." Thus, both rational and institutional perspectives serve as useful theoretical lenses for understanding choice of organizational Web site features. The study also delineates a set of implications for research and practice.

Keywords: isomorphism, differentiation, Web sites, institutional theory, rational, imitation, bank, business schools, IT firms, inter-industry, intra-industry

Volume 24. Article 36. pp. 615-638. June 2009

I. INTRODUCTION

Web Site Features as Vehicles of Competitiveness

The ubiquitous nature of the Internet is rapidly and radically transforming how organizations are sharing and using information. Web sites have become potent tools, not only for providing information or conducting transactions, but also for establishing long-term trusted relationships with customers [Gefen and Straub 2004; Stewart 2003; Teo and Liu 2006; van der Heijden 2003]. Firms are able to achieve these desirable business objectives through features and capabilities built into their Web sites [Bai et al. 2006; Ivory and Megraw 2005; Nadkarni and Gupta 2007]. Hence, a careful selection of Web site features may be one of the most important prerequisites for online business.

Despite the importance of the choice of Web site features, there is relatively little research on the topic. Moreover, most research on Web site features are of a descriptive nature, for example, Web sites of specific industries [Ellinger et al. 2003; Henderson and Cowart 2002; Waite and Harrison 2002], Web sites in particular national contexts [Baeza-Yates et al. 2007; Chen and Kuo 2002; Kwon et al. 2002], Web sites of a sample of top firms in an industry for desirable features [Griffith and Krampf 1998; Perry and Bodkin 2000] and content management of Web sites [Vitari et al. 2006]. Key past studies on Web sites and major findings are listed in Table 1. As seen from Table 1 and also to the best of our knowledge, there is no research which examines the underlying rationale guiding the choice of Web site features, aggregated at the industry level that also makes inter-industry comparisons. Through this study, we address this gap in the literature, thereby developing a realistic assessment of the use of Web sites for competitive advantage by firms. We also extend insights from institutional theory into the conceptualization of information technology (IT) use. Specifically, we demonstrate the applicability of institutional theory in providing some explanations for the choice of features in organizational Web sites.

Table 1. Illustrative Past Studies on Organizational Web Sites

Article	Description of the study	Description of Methodology	Key Findings
Methodology: Analysis of Web Site Content			
Bai et al. (2006)	Develops and tests the five-level e-Relationship Marketing Model. The five-levels are Basic, Reactive, Accountable, Proactive and Partnership	Content analysis of 127 hotel Web sites. 29 Web sites features were taken into consideration in measuring the five-levels	Hotel companies in the sample used either basic or reactive features but not higher-level features. The extent of usage of Web site features was positively associated with the size of the hotel company but negatively associated with the number of brands
Ellinger et al. (2003)	To provide an overview of Web site content in motor carrier industry and to assess the progress that motor carrier firms are making in the evolution of their e-commerce processes	Analysis of top 100 motor carrier companies (ranked by revenue by Annual Trucking issue of Inbound Logistics (1999)). The site design, information and interactive contents of the Web sites were analyzed	Many motor carrier firms did not have Web sites. Those with Web sites do not have even rudimentary customer service features. Suggests that motor carrier have to make considerable progress in making the information and interactive content available on their Web sites.



Article	Description of the study	Description of Methodology	Key Findings
Chen and Kuo (2002)	Discusses the content features and maturity of Web sites by different industrial groups	Content analysis of 980 Taiwanese Web sites. The Web site features are classified into information, transaction and entertainment features. The industry groups analyzed in the paper are computer, finance, products, service and information.	Product industry group turned out to be the largest group, while information industry group had the highest maturity.
Okazaki & Rivas (2002)	Evaluates degree of standardization in the online communication strategies of MNC's across differing cultures	Content analysis of 20 Japanese MNC's product based homepages in Japan, Spain and USA	Japanese firms localize online communication strategies in their target markets
Perry & Bodkin (2000)	Analysis of Fortune 100 companies to identify the mix of promotional activities on their Web sites	Content analysis of Web sites of Fortune 100 companies along a range of marketing communication features	Considerable variability in how members of the Fortune 100 used their Web sites. The Web sites ranged from simple ones that focused on basic company information to complex ones that included a mix of promotional elements
Methodology: Analysis of Survey Data			
Teo (2007)	Investigates two modes of Internet adoption and examines if organizational characteristics differ for firms that have basic versus advanced Internet adoption	Analysis of survey data from 159 firms in Singapore	Firms adopting advanced mode tend to invest more in Internet technology, are of larger size, possess proactive business strategy and perceives Internet to be a significant predictor of competitive advantage
Teo & Pian (2004)	Introduces a model for Web adoption and examines the characteristics of different levels of Web sites in terms of their features.	Analysis of survey data from 159 firms in Singapore	The extent of Web site features is classified into 4 levels (email adoption, Web presence, prospecting, business integration and business transformation). The extent of Web site features is observed to increase when the Web adoption progresses from lower to higher level. Two broad Web site categories were identified based on their features: informational and transactional Web sites
Ranganathan & Ganapathy (2002)	To derive the key characteristics of B2C Web site as perceived by online consumers	Analysis of survey data from 214 online shoppers	Four dimensions were identified (1) information content (2) security (3) design (4) privacy, of which security and privacy turned out to have greater influence on the purchase intention of online shoppers
Waite & Harrison (2002)	Explores the factors contributing to satisfaction and dissatisfaction with current online provision by retail banks	Analysis of survey data from 253 Internet users	Seven key consumer expectations of bank Web sites were identified (Transaction technicalities, decision-making convenience, interactive interrogation, specialty information, search efficiency, physical back-up, technology thrill). The features that help in decision making are most preferred by the customer than the features that provide technological entertainment.

Article	Description of the study	Description of Methodology	Key Findings
Kowtha & Choon (2001)	Identifying factors that determine a firm's commitment to E-commerce and subsequently its Web site development.	Quantitative analysis of 135 firms from the travel, financial and IT sectors in Singapore. Factors identified were competitive intensity, firm size, existing competencies of the firm.	Competitive intensity, firm size and existing competencies influenced firm's strategic commitment to E-commerce. Commitment subsequently influenced the actual Web site development
Methodology: Analysis of Survey Data and Web Site Content			
West (2004)	Investigates if e-government is taking advantage of the interactive nature of Web, to improve its service delivery, democratic responsiveness and public outreach so as to win the confidence of citizens.	Analysis of survey data and Web site features in the US (from 50 states)	The findings show that e-government has fallen short of its potential in achieving this.
Earp et al. (2005)	The paper compares the classes of privacy protection goals and vulnerabilities with the consumer privacy values	Quantitative analysis of data from 50 (healthcare) Web sites and survey data from 1,000 Internet users. The privacy statements were studied and categorized into 12 categories of the privacy taxonomy developed by the authors (Access/ Participation, Choice/ Content, Enforcement/ Redress, Integrity/Security, Notice/Awareness, Aggregation, Collection, Monitoring, Personalization, Solicitation, Storage, Transfer). Measures corresponding to the above privacy taxonomy were developed	The Web site privacy policy statements are not aligned with the user privacy values
Griffith & Krampf (1998)	Identifying the Web-based strategic objective of the top 100 U.S. retailers.	Analysis of interview data and Web site features	Three strategic objectives (online sales, communication and customer service) were identified. The Web site analysis indicated that majority of the retailers use Web sites for advertising, public relations and customer service access.
Methodology: Case Study			
Lin (2007)	To study how internal organizational communication shapes the design of organizational Web sites	Case study about Web site design by a Chinese student organization on a US College campus	Suggests that organizations and designers must communicate effectively in the process of identifying and thereafter transforming organizational objectives into effective Web site features

Differentiation and A likeness in Organizational Web Site Features

Rational organizations are profit seekers and are motivated by ways and means that provide them a competitive advantage [Abrahamson 1991]. Many organizations gain a competitive advantage by taking recourse in the market innovation perspective, thereby differentiating their products and services from their competitors [Porter 1980; 1985]. In the current scenario of increasing competition, it becomes all the more important for firms to rationally differentiate themselves from their competitors in order to create a unique value proposition for their customers [Mayhew and Wilkins 2003; Morgan et al. 2003]. Hence, from a rational perspective, the Web site technology provides firms with yet another opportunity to be unique and different from others in a relatively inexpensive way [Bughin 2004].

Most information systems (IS) literature assumes that the decision of “going on the Web” by organizations is driven by a rationalistic orientation guided by goals of technical efficiency [Fruhling and Digman 2000; Poon and Swatman 1999]. However, we also know that technical rational norms of conduct in an organization do not comprehensively account for actions and structures of organizations. Rational actions of managers coupled with irrationalities emerging from the institutional context of organizations are required for a holistic and accurate understanding of organizational initiatives [Avgerou 2001]. It is plausible that organizations design their Web sites not from the rational (differentiation) perspective but for achieving socio-economic and cognitive legitimacy [Aldrich 1999], leading to alikeness in their features as postulated by the institutional theory [DiMaggio and Powell 1983; Meyer and Rowan 1977].

Though research using the institutional perspective is gaining importance in other areas of business studies [Abrahamson 1991; Bonabeau 2004], relatively few studies have examined the role of institutional theory in IS adoption and usage [Teng et al. 2002; Teo et al. 2003; Vitharana and Dharwadkar 2007]. IS scholars have traditionally restricted themselves to the rational technology based perspective. In situations, where the use of technology is complex, business goals are relatively ambiguous, and there is a sense of uncertainty in the environment, the institutional perspective may be useful in explaining many of the organizational actions [DiMaggio and Powell 1983; McKinley et al. 1995]. Acting according to institutionalized norms not only helps firms in anticipating gains similar to other organizations following the norm, but also assists in legitimizing their actions. Through this research, we reinforce the use of institutional theory in IS literature.

Adopting theoretical underpinnings from both rational and institutional theories as contrasting perspectives, we seek to understand the rationale for the choice of Web site features by firms. Web sites, on one hand, are characterized by the technical ease of manipulating features that can be used by firms for differentiating their Web sites from that of others (from a rational perspective) [Moss et al. 2006]. On the other hand, the high universal visibility and easy access to Web sites and their underlying technologies, may propel imitability of Web site features resulting in an observed alikeness of Web site features across firms (from an institutional perspective). It will be interesting to understand what firms actually do for the choice of their Web site features. Do they follow the rational or the institutional perspective? It is imperative to highlight that in a complex business scenario, rational and institutional perspectives are not completely mutually exclusive. Hence, in this study we assume that if the rational perspective is dominant, we will have mostly “differentiated” Web sites and if the institutional perspective is dominant, we will find Web sites that are mostly “alike” to each other. We use Web content analysis to understand the driving force: rational versus institutional, which manifests as differentiation versus alikeness for the choice of Web site features across three industries in the United States (US). The three broad research questions that we examine in this study are:

1. Do Web site features of firms/organizations within the same industry predominantly follow the rational or the institutional perspective?
2. Do Web site features of firms/organizations across different industries predominantly follow the rational or the institutional perspective?
3. What is the extent of alikeness (Web site homogeneity) among Web sites of different industries and is it dependent on the nature of the industry’s performance metrics?

The rest of the paper is organized as follows; we start the next section with a brief discussion and literature review of rational and institutional perspectives, leading to a set of contrasting hypotheses for Web site features. Thereafter, we develop the classification framework and coding scheme for Web sites that we use for analyzing the features of 243 Web sites across three US industries (IT, education and banking). Next, we discuss the results and delineate a set of important implications. Finally, we end the paper with conclusions drawn.

II. THEORY AND HYPOTHESES

Rational Perspective For Web Site Features

The rational perspective conceptualizes the use of IS based on the efficient-choice lens, which states that appropriateness of technical solutions impel the diffusion, rejection, and use of administrative technologies [Abrahamson 1991]. This view is similar to that of Rogers [1983] who had earlier explained the diffusion of innovation, by adopters making independent, rational choice, guided by goals of technical appropriateness. Some recent IS studies e.g. De Marco and Sorrentino [2007] have explored the utility of the rational perspective for understanding IS phenomenon in comparison to other emerging perspectives like the cultivation approach. In their paper, De Marco and Sorrentino describe the rational perspective as that which is concerned with “establishing optimal relations between means and ends” [2007: 184]. Thus, from a rational economic perspective, organizations make use of technologies rationally to achieve their economic goals. This argument makes two major assumptions: first, organizations within a group are free to choose the technology; and second, organizations are certain about their goals and have clear criteria for assessing the technical efficiency [March 1981].

From the rational market-innovation perspective, differentiation has emerged as the prime strategy for achieving a sustainable competitive advantage [Murray 1988; Hill, 1988]. Hence, in a competitive environment, organizations will use available technologies for furthering their efforts towards achieving a greater market share by differentiating themselves and their offerings from their competitors. The concept of differentiation draws from arguments about firm level generic strategies, which has become a dominant theory, in the business policy literature. Porter highlighted that for firms to create a competitive advantage, they should either follow a low cost or a differentiation strategy [Porter 1980; 1985]. Although Porter highlighted two broad level generic strategies, subsequent researchers such as Hill [1988] and Murray [1988] emphasized the importance of differentiation strategy for firms aiming to have a sustainable competitive advantage [Mayhew and Wilkins 2003; Morgan et al. 2003]. The argument for choosing a differentiation strategy is based on the differentiated value offering to the customer. This differentiated value offering to the customer based on non-cost based parameters presents multifarious opportunities to organizations for achieving a competitive advantage e.g., by using information and communication technologies (ICT) for innovative uses [Teo et al. 2006; 2007].

The resource based view (RBV) of the firm is at the base of all such discussions about differentiation and explains the drivers of sustainable competitive advantage for organizations. RBV theory suggests that organizations are different in terms of their resources (tangible or intangible) [Penrose 1959]. Focusing on these special attributes or resources helps organizations derive a competitive advantage [Barney 1991; Dierickx and Cool 1989; Mahoney and Pandian 1992; Wernerfelt 1984]. These unique resources are accumulated and learned over time and for sustaining a competitive advantage, the effort of the organization is to maintain its differentiation with respect to these resources. A firm's competitive advantage is thus derived from its differentiated resources, and the maintenance of uniqueness of the specialized firm resources is essential for sustained competitive advantage [Peteraf 1993; Spender 1993]. The rational-differentiation perspective views IS as systems furthering the market-innovation perspective and aims at providing superior differentiated value to the customer.

Porter's [1980; 1985] idea of market innovation based sustainable competitive advantage was extended by introducing “external and internal outcomes” [Chatterjee 1998]. External outcomes of a firm are the outcomes visible to the end customers of the firm's products. Internal outcomes are the processes (operations) within firms which lead to external outcomes. For achieving sustainable competitive advantage, firms should rationally differentiate in their external outcomes and be cost effective in their internal outcomes [Chatterjee 1998]. This conceptualization also provides a convergence of generic level differentiation and low cost strategies.

The Web sites of business organizations are no doubt their external interface and also one of their most important resources for which the related technology is universally available. This technical ease of customized presentation of information on Web sites, serves as a motivation to firms for providing differentiated and unique structures in their Web sites, for increasing their competitiveness.

Contrasting Arguments from the Institutional Perspective for Web Site Features

In contrast to the rational perspective, the institutional theory offers a diametrically opposite sociological perspective for understanding organizational structures and actions [Haunschild 1993; Haveman 1993; Mezias 1990; Tolbert and Zucker 1983]. It states that, in order to survive, organizations must conform to norms, rules and belief systems prevailing in the environment [DiMaggio and Powell 1983; Meyer and Rowan 1977]. The impact of institutional environments on organizational structures and actions will lead to institutional isomorphism, both structural and procedural, which will be instrumental in their earning the required legitimacy for survival [Dacin 1997; Deephouse 1996; Suchman 1995]. Relatively few studies have been conducted to understand the role of institutional

isomorphism in IS adoption and use by organizations [Braganza and Desouza 2006; Teo et al. 2003; Vitharana and Dharwadkar 2007].

Though RBV states that differentiation in resources helps firms' achieve sustainable competitive advantage [Peteraf 1993], it is common knowledge that firms may make a conscious effort to become similar to the successful or powerful ones [DiMaggio and Powell 1983]. This imitation by firms can be in any aspect of business or organizational activity, such as adoption of new technology and processes, market entry and timing of investment, adoption of managerial methods, implementation of organizational forms or even usage of technologies [Abrahamson 1991]. This imitation by firms may reflect as "observed alikeness" in firms' activities.

DiMaggio and Powell [1983] describe the processes leading to this observed alikeness in organizational structures and processes. According to them, the three isomorphic¹ processes are coercive, mimetic, and normative. Coercive isomorphism stems from the political influence and a desire to gain legitimacy. Organizations compete not only for resources and customers but also vie for political power and institutional legitimacy [Carroll and Delacroix 1982] and hence face pressures to conform to the shared notions of appropriate attributes which are the building blocks of organizational legitimacy. This legitimacy may result in perceived economic benefits like a positive market reputation or signaling of a superior quality and may also help organizations secure resources and social support essential for their functioning [Palley 1995; Scharfstein and Stein 1990; Tolbert 1985]. Thus, legitimacy emerges as one of the major reasons for becoming similar leading to institutional isomorphism of organizational attributes [Meyer and Rowan 1977]. Deephouse [1996] further classifies the organizational legitimacy as regulatory endorsement (evaluation by government or state agencies) and public endorsement (evaluation by general public). Institutional isomorphism serves the purpose of achieving legitimacy through both these means. Further, the imitative behavior of organizations may not always be voluntary. Organizations may often be persuaded, induced or forced to adopt new technologies and imitate practices being followed by early adopters [Contractor and Eisenberg 1990; Markus 1987].

Mimetic isomorphism is the organization's response to the uncertainties prevailing in the environment. Business organizations resort to imitation when they believe that others may have information, superior to what they have and view these others as leaders in the industry [Abrahamson 1996; Bikhchandani et al. 1998]. Past research has also found that innovations diffuse when organizations observe and mimic early adopters to replicate their success [Teo et al. 2003]. Hence, in a scenario of asymmetric information, following successful firms may manifest as isomorphism of organizational forms, structures and practices.

Normative isomorphism is related to the act of following recognized professional practices and norms. A taken for granted or institutionalized social action is adopted by social actors without applying much thought, for legitimizing their actions [March 1981]. Hence, "becoming alike" is more prevalent in uncertain or ambiguous environments, where following norms is more of a "symbolic activity" meant for according legitimacy to other broader organizational actions [DiMaggio and Powell 1983; Meyer and Rowan 1977]. Hence, innovation adoption may not always be a rational decision based on the appropriateness of the technology for the purpose. Its usage may be impelled by prevailing institutional pressures [Teo et al. 2003]

In a similar vein, the use of Web site(s) by organization(s) may not always be guided by objectives of business rationality and competitiveness. It is plausible that Web sites are used as vehicles for attaining social and economic legitimacy. From an institutional perspective, we posit that Web site features across organizations may be alike due to institutional forces operating in the environment [Meyer and Rowan 1977; Abrahamson 1991]. Hence, using the theoretical lens of institutional theory, we argue that multifarious isomorphic pressures impel organizations to adopt and use similar features in their Web sites. The effect of these institutional forces manifests as an 'observed alikeness' in firms' Web site features.

Hypotheses: Web Sites of Organizations within the Same Industry

Firms' online business models are significantly different not only in different industries but also within the same industry [Nicolau 1999]. Hence, sophistication, complexity, and the features of Web sites should depend on the specific strategic priorities of the firm [Angehrn 1997]. Drawing from the discussion on the rational perspective, we posit that firms within the same industry should have differentiated Web sites so as to create a unique value for customers and gain a competitive advantage. Thus, these Web sites should have low levels of alikeness. Hence, we have the following hypothesis:

¹ Processes or dynamics that make organizational structures and processes similar.

H1a: Following the prediction of rational lens, Web sites of organizations within the same industry will show low levels of likeness.

However, from an institutional perspective, in the context of organizational Web sites, the easy accessibility to related technologies and universal visibility of organizational Web sites will facilitate isomorphic processes leading to Web site likeness [Dill et al. 2002]. Further, organizations within the same industry have underlying commonalities in their business rationale, which further impels the institutionalization of Web site features. All these factors increase the likelihood of organizational Web sites becoming alike within the same industry. The above arguments lead to the following competing hypothesis,

H1b: Following the prediction of institutional theory, Web sites of organizations within the same industry will show high levels of likeness.

Hypotheses: Web Sites of Organizations across Different Industries

Continuing the discussion from the rational perspective, firms not only within the same industry but also across different industries have the motivation and opportunity to differentiate their Web sites. Further, when we consider Web sites across industries (like IT, education, and banking), the business rationality, clientele and norms for each of these industries will be different, which is an added reason for their Web sites to be differentiated [Angehrn 1997]. Consequently, these Web sites will have low levels of likeness. This leads to our next hypothesis,

H2a: Following the prediction of rational lens, Web sites of organizations across different industries will show low levels of likeness.

However, firms are continuously scanning their environment (which includes other firms and industries) for new ideas to be incorporated in their business processes. For most organizational processes (excluding the case of Web sites), firms have to deduce from the available information (which might often be incomplete or secret). In contrast, for the case of organizational Web sites, the features are universally visible and may be easily imitable (though there may be some causal ambiguity attached to the backend processes which actualize Web site features). This universal visibility and easy access to Web sites may result in 'institutionalized homogenous Web site structures' not only for firms within the industry but also across industries.

Hence, from an institutional perspective, in addition to isomorphic pressures within the same industry like IT, education, or banking industry, there may be institutional forces operating across industries leading to Web sites across industries becoming alike. Abrahamson [1991] highlighted that the choice of organizational business processes may be guided not only by intra-industry dynamics but also by inter-industry forces. Thus, the choice of organizational Web site features may also be influenced by inter-industry forces, which may make Web sites across industries similar. Hence, we have the following competing hypothesis,

H2b: Following the prediction of institutional theory, Web sites of organizations across different industries will show high levels of likeness.

Ambiguous Performance Metrics and the Institutional Perspective

Not all industries have clearly defined performance metrics. There are industries where the performance metrics are ambiguous, unclear and/or debatable, while other industries have relatively clear performance indicators. In the case of industries with clear performance metrics, it is relatively easy for firms to know what measures of performance they have to focus on. However, in situations of ambiguous performance criteria, firms will have to first understand the significant performance metrics and then deliver value to customers accordingly. In the context of industries chosen for this research, performance metrics differ with respect to the ambiguity attached to them. For example, performance metrics of the education industry are highly subjective and ambiguous. The educational institutions (in this case, business schools) are evaluated based on a number of ambiguous metrics like quality of incoming students, placement of students, quality of faculty, prestige of the institution, and the research output of the institution. In spite of a number of available metrics, there are no universally agreed upon concrete metrics, which assess the performance of educational institutions [Trieschmann 2000]. On the other hand, the banking industry has relatively clearly defined concrete metrics in terms of profitability, and other financial ratios [DiMaggio and Powell, 1983]. Similar to the banking industry, the IT industry also has concrete metrics. However, the dynamic nature of the IT industry adds some elements of uncertainty. For example, innovation may be an additional performance metrics for the IT industry, but it is subjective as it often takes time to assess whether the innovation is successful in the marketplace. Hence, in the context of our research, education industry does have the most ambiguous performance metrics, followed by IT and banking with clearer performance metrics.

Institutional theory enunciates that isomorphism of business processes is observed more in environments of uncertainty, either to achieve legitimacy or in anticipation of future gains [DiMaggio and Powell 1983]. Managers may resort to isomorphic behaviors in situations where they lack information on cause and effect relationships and are not able to assess the full range of outcomes [Milliken 1987]. Building on this argument, we posit that industries that have debatable/ambiguous performance metrics will display greater isomorphism in their business processes as compared to industries, which have relatively clear performance metrics. Organizations in an industry with unclear performance metrics, through their collective rationale, form and constrain themselves within a set of institutional norms. Hence, 'aliqueness' in business processes is more visible in industries that do not have clearly defined performance metrics. In the case of organizations belonging to such industries, compliance to the institutional practices is seen as a measure of performance [DiMaggio and Powell 1983; Meyer and Rowan 1977].

Following from this discussion, Web sites of organizations belonging to an industry with relatively unclear performance metrics (like education) will be subject to greater isomorphism in their structural attributes and features. Hence, Web sites of organizations belonging to such an industry should display greater aliqueness. This leads us to the next hypothesis:

H3: For industries with higher levels of performance measure ambiguity, there will be higher levels of aliqueness among organizational Web sites within that industry.

III. METHOD, DATA, AND ANALYSIS

Web content analysis is the most plausible way for analyzing the Web sites and testing our hypotheses. It offers an objective and systematic research technique suitable for making replicable and valid inferences from data in relation to their context [Kolbe and Burnett 1991]. Content analysis of Web sites has been used by researchers in the past [Ellinger et al. 2003; Ghose and Dou 1998; Perry and Bodkin 2000]. The need for a well-defined sampling design and adequate operational definitions are imperative for getting valid results from content analysis [Kolbe and Burnett 1991].

For analyzing the Web content, we selected industries with different levels of ambiguity of performance metrics. Some of the industries which have ambiguous (debatable) performance metrics are schools (education), R&D units, government bureaucracies whereas industries with relatively clear performance metrics are manufacturing and banking industries [DiMaggio and Powell 1983; Meyer and Rowan 1977; Weick, 1976]. We all know that the criteria for assessing the performance of business school (education) are based on subjective measures and judgments. This leads to a lot of variation in the ranking of business schools by popular press and research output [Trieschmann 2000]. Different criteria are used by different rating agencies leading to divergent rankings (for example, *Business Week*, 2008; *Financial Times*, 2008; *Princeton Review*, 2008; *US News*, 2008). The lack of clear objective measures makes their performance metrics ambiguous and debatable. Banking, a relatively mature industry in terms of age, has well-defined financial metrics, which have emerged over time. Banks, periodically report their performance on these established metrics in a specified format. This makes the performance metrics of the banking industry relatively clear, objective and concrete [Weick 1976; DiMaggio and Powell 1983]. Similar to the banking industry, for the IT industry, the performance metrics are more or less defined. However, the high rate of technological obsolescence makes it a field with dynamically changing performance metrics. The three industries selected in our research have varying levels of ambiguity and uncertainty in their performance metrics. The education industry represented by business schools definitely has debatable and ambiguous performance metrics, followed by IT and banking industries with fairly well defined performance metrics.

The content analysis of Web sites is a tedious process which requires: (1) a comprehensive classification framework consistent with the research questions, (2) a careful choice of Web site features based on the classification framework, and (3) a consistent coding scheme. For having a consistent coding scheme, a clear statement of operational definitions is essential. Past studies have used varied classification frameworks and Web site features depending on their research questions and contexts. For example, Huizingh [2000] classified Web content into three types of features, information (company background, specific products, and non commercial information), transaction (request for proposal and direct ordering), and entertainment, Chen and Kuo [2002] used a similar classification scheme in their study, Ellinger et al. [2003] used a mix of available journal articles, textbooks and the Internet to identify relevant items for evaluating Web page content, whereas Evans and King's [1999] Web site assessment tool categorized the relevant features into categories of overall site design and performance, text content and interaction and involvement. Based on previous studies, we observe that there are two broad functions of organizational Web sites: providing information (push features) and facilitating interaction (pull features). This classification is similar to Teo and Pian (2004), who found Web sites to be having two broad functions: informational and transactional. Since transactional function involves some interaction with the Web site as opposed to informational, we classified Web site features as information and interaction. The information function indicates the Web sites' role in informing users (customers) about the company, its product and services and how it addresses

customers' needs. The interaction function of Web sites goes a step further in functionality and it fulfills specific needs of customers online. The interactive feature of Web sites (in our classification scheme) is not restricted to the final transaction taking place, but it implies any feature that facilitates it. It involves the willful participation of the firm and the customer using Web site as the medium. In this study, the main categories of our analysis for the Web content are informational content and interactive content. We have further classified the information content into: general information, company specific information and product information.

The next step is to identify relevant Web site features based on the classification framework. For this, we adapted Web site features from various past studies and used them to describe the classification framework in our study. The various references that have been used to arrive at Web site features are indicated in the Appendix 1. The Web site features classification framework used in this study is indicated in Figure 1.

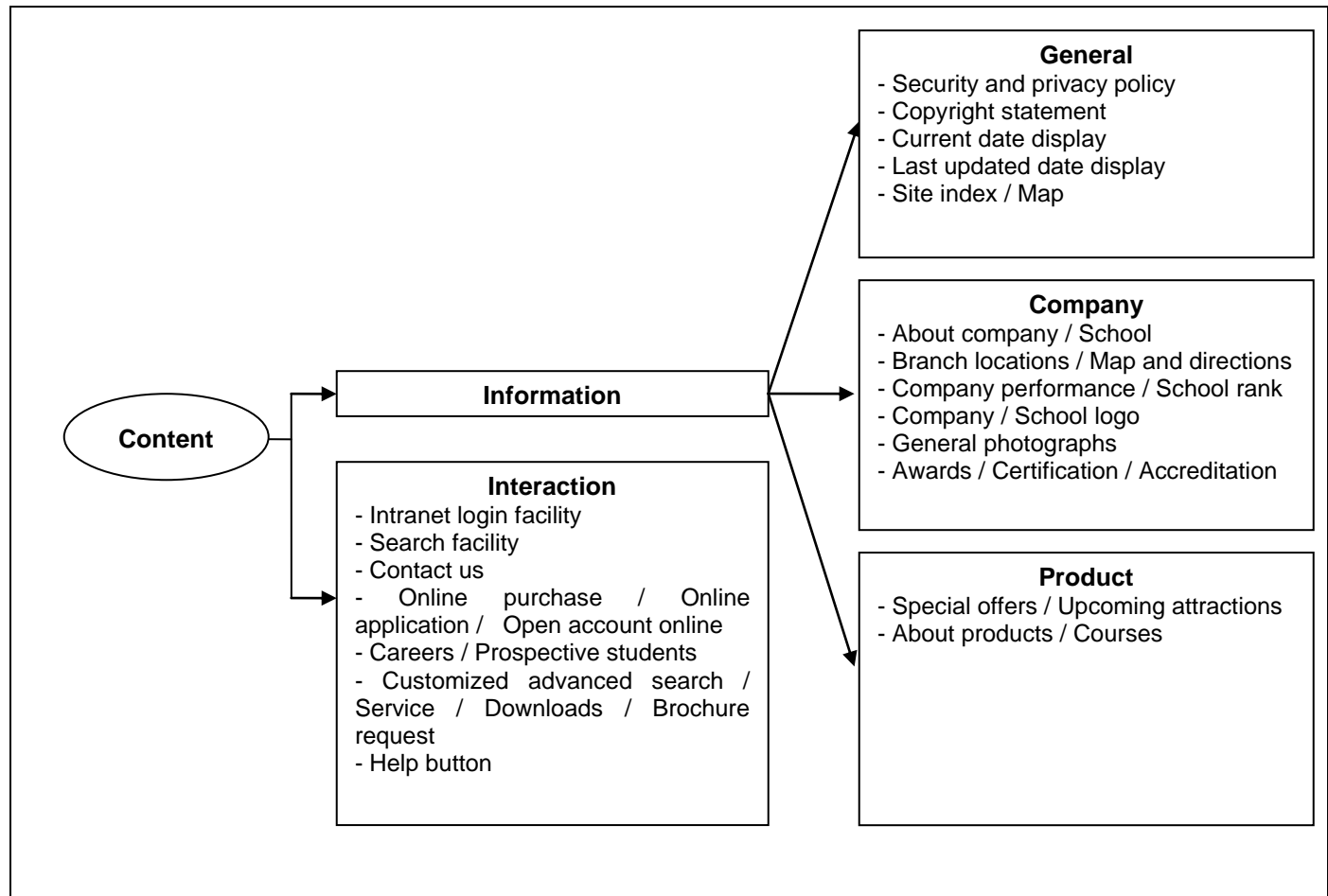


Figure 1. Classification Framework for Web Content Analysis

We adapted Web site features that have been used in past studies, taking into cognizance the objectives of our research. The purpose of our study is to compare and contrast Web site features, not only within the same industry but across three industries: IT firms, business schools, and banks. Hence, while selecting the list of features, we ensured that the identified 20 features are functionally similar across the three industries. This similarity in list of attributes is a prerequisite for any inter-industry analysis on the collected data. Consequently, we did not explicitly include unusual features in our coding as it may be a peculiar characteristic of the firm being coded rather than of its industry. Also, instances of such features may be rare that it is difficult to draw conclusions, especially if it is only present in a few Web sites within or across industries. For example, some Web sites may have flashing words and it is difficult to conclude its effect as it only appears on a few Web sites and may not be dependent on the industries. In fact, coding for common features conveys a clearer story as we can determine whether some common features were less common in a different industry.

Further, after listing out the identified Web site features, we circulated the list among the cohort of doctoral students and a faculty member in the business school. They were asked to comment on two aspects (1) the codifiability and relevance of the Web site feature for the industry; and (2) the functional correspondence of the identified Web site

feature across the three chosen industries. The suggestions given by them in terms of selected features and their functional correspondence across industries were incorporated. Features that did not find a functional correspondence across the three industry Web sites were dropped from the coding list. Specifically, two Web site features were dropped from an initial list of 22 as they did not have an exact functional correspondence/relevance across the three industries. The two dropped Web site features related to the product information were (1) Support/Service (Who helps in the process); and (2) Multimedia Presentation/Webcast (is not a product but facilitator for convenience). Through this process, we suitably refined the Web site attribute list and also ensured face validity for the identified 20 Web site features. Based on this classification scheme for Web site features, we analyzed Web sites of top US IT firms, business schools, and banks.² Web site links for IT firms, business schools, and banks were taken from the ranking Web sites. All the operational Web sites for the three industries were visited and their content (attributes or features) were coded as 0 or 1. If the particular attribute or feature (in the research framework) was available on the site then that site was given a score of 1; otherwise it was given a 0 score.

To ensure reliability, the content analysis was done by two independent coders. Two doctoral students, familiar with the subject performed the coding work for this study. To ensure consistency in results, the operational definitions (where and what to look for) of the various attributes to be identified in the Web sites were understood by the coders before starting the actual coding work. The data for Web sites were recorded for 20 features (Figure 1) grouped into information {subgroups of general information (five features) organizational information (six features) and product information (two features)}, and interactive (seven features). Calculation and reporting of reliabilities are essential to content analysis and it is better to have reliabilities for individual items than pooling results [Kolbe and Burnett 1991]. Kassarijan [1977] recommended that items for which the coefficient of agreement (the total number of agreements divided by total number of evaluations) is below 0.85 be considered to be not reliable. In this study, out of a total of 4,860 observations (20 features for 243 Web sites), there were only 42 instances of dissimilarity. Hence, the coefficient of agreement was 0.991, which is much higher than the prescribed limit. Moreover, these dissimilar instances were discussed and resolved jointly by the coders. This ensured reliability of the recorded data.

For testing hypotheses related to the differentiation and similarity among Web sites (hypotheses 1a, 1b, 2a, and 2b), we used analysis of variance (ANOVA). For testing differentiation and likeness of Web sites within an industry, we split the sampled firms into groups and performed ANOVA to find out if groups are homogeneous or not by examining for significant differences among groups. For testing differentiation and likeness across industries, we performed ANOVA on three groups (considering each industry as a group) to test for significant differences among industry groups. For testing hypothesis related to ambiguity of performance metrics and the extent of Web site homogeneity, we developed a measure called *Web site homogeneity coefficient* and examined the extent of homogeneity of Web site features within each industry. In the following sections, we first test the research hypotheses and then discuss the results according to the three research questions.

IV. RESULTS

As described earlier, for testing the homogeneity of Web site within industries, ANOVA tests were conducted, one for each industry. We found that business schools are homogenous for all 20 features, banks are homogenous for 18 features (not homogeneous for two features) and IT companies are homogenous for 16 features (not homogeneous for four features) as seen in Table 2.

From these results, we conclude that there is homogeneity or likeness in Web sites within industries. The observed likeness in Web sites within all three industries supports the institutional theory argument. Hence, hypothesis H1b from the institutional perspective is supported, i.e., Web sites of organizations within the same industry show high levels of likeness. Competing hypothesis H1a from the rational perspective suggesting low levels of likeness of Web site features within industries is thus not supported.

² The list of top US business schools was taken from <http://www.forbes.com>, the top U.S. banks and top U.S. IT firms was taken from <http://www.netvalley.com>. Note that Forbes only listed the top 67 business schools. In addition, the number of banks and IT firms' Web sites analyzed were less than 100 (85 for banks and 91 for IT firms) because some of the Web links provided were invalid.

Table 2. Intra-Industry ANOVA: Calculated F Values, for Features not Homogenous

Banking Industry		
No.	Feature	Significant F-values
6	About Company / School	3.925 (*)
13	About Products / Courses	6.523 (*)
IT Industry		
No.	Feature	Significant F-values
9	Company / School Logo	2.889(*)
No.	Feature	Significant F-values
14	Intranet login facility	4.045(*)
18	Careers / Prospective students	5.208(*)
19	Customized advanced search / service / Downloads / Brochure request	8.972(*)

* F value is significant at a significance level of 0.05 for testing if the features are different within an industry

In the research design, it has been ensured that all the 20 Web site features being studied in this research are functionally similar across the three industries, which makes comparison of differences across industries meaningful. For testing H2a and H2b, ANOVA was again conducted to examine differences across industries for all 20 Web site features. The results revealed significant differences in Web sites of the three industries. A post-hoc analysis using Scheffe test confirmed the presence of significant differences in Web sites of the three industries in 15 of the 20 features, as shown in Table 3. Thus, there are low levels of alikeness between Web sites of different industries.

Hypotheses H2a and H2b examine the levels of alikeness among organizational Web sites across the three industries. The results show that Web sites of firms across the three industries have low levels of alikeness. Hence H2a, which follows the prediction of rational lens is supported. Thus, competing hypothesis H2b from the institutional perspective is not supported.

Table 3. Inter-Industry: Multiple Comparison (Post-Hoc Analysis) for Mean Differences between Groups

No.	Feature	IT & School	School & Bank	IT & Bank
1	Security and privacy policy	0.559(*)	0.631(*)	ns
2	Copyright statement	0.162(*)	ns	ns
3	Current date display	ns	0.164(*)	ns
5	Site Index/Map	ns	ns	0.195(*)
7	Branch locations / Map and directions	0.336(*)	0.567(*)	0.231(*)
8	Company Performance / Ranking of School	0.495(*)	0.333(*)	0.162(*)
9	Company / School Logo	ns	0.243(*)	ns
10	General photographs	0.199(*)	ns	0.225(*)
11	Awards/Certification / Accreditation	0.277(*)	0.586(*)	0.309(*)
12	Special offers / Upcoming attractions	0.260(*)	ns	ns
14	Intranet login facility	0.300(*)	ns	0.444(*)
15	Search facility	ns	ns	0.182(*)
17	Online Purchase / Online application / Open an account online	0.302(*)	0.601(*)	0.299(*)
19	Customized advanced search / service / Downloads / Brochure request	0.252(*)	0.355(*)	ns
20	Help button	ns	0.282(*)	0.220(*)

* Significant at a significance level of 0.05

H3 seeks to determine Web sites of which industries (IT firms, business schools or banks) display greater likeness. For testing this hypothesis, we developed a measure called *Web site homogeneity coefficient*. For a particular attribute (feature) say “search facility,” Web sites in a particular industry can be said to be completely alike if all Web sites sampled for the study have this feature or all of them do not have this feature. This means for a sample size of N, the case for highest homogeneity is when the number of Web sites having the particular feature n, are either 0 or N (i.e. when n = 0 or N). Developing on this logic, the lowest homogeneity will be when the number of observed Web sites having this feature n = N/2. Let the number of Web site attributes (features) for which the observation is made are f. The *Web site homogeneity coefficient* for a sample size of N, where attribute observed frequency is n for the ith

$$w_i = \frac{|n - N/2|}{N/2}$$

attribute where i ranges from 1 to f is given by the expression $\frac{|n - N/2|}{N/2}$. The value of this expression lies between 0 and 1, where 0 signifies no homogeneity and 1 signifies complete homogeneity of Web sites. For f attributes (all or a subgroup of attributes), the *average Web site homogeneity coefficient* for an industry is given by

$$W_f = \frac{\sum_{i=1}^f w_i}{f}$$

the expression $\frac{\sum_{i=1}^f w_i}{f}$. The *average Web site homogeneity coefficient* (W_i) is 0.643 for business school Web sites, 0.546 for IT firms’ Web sites and 0.609 for bank Web sites, thereby implying greater overall homogeneity for business school Web sites in comparison to bank and IT firms’ Web sites (Table 4).

Attribute Category	Attribute Sub category	IT Firms (W_i)	IT Firms Overall (W_i)	Business Schools Overall (W_i)	Business Schools Overall (W_i)	Banks (W_i)	Banks Overall (W_i)
	General	0.675		0.534		0.680	
	Company	0.487		0.547		0.667	
	Product	0.505		0.776		0.624	
Interaction		0.517	0.517	0.766	0.766	0.506	0.506
	Avg.		0.546		0.643		0.609

The results show that business school Web sites (which represent a high performance measure ambiguity industry viz. education) display the highest likeness among the three chosen industries. Hence, H3 is supported, which states that for industries with higher levels of performance measure ambiguity, there will be higher levels of likeness among the organizational Web sites within that industry.

V. DISCUSSION

Overall Observations of the Sample

The summary of data for Web sites of the three industries, classified as per the content category is given in Table 5.

Content category	No. of features observed	Avg. No. of features per site		
		IT	B' School	Banks
General Information	5	2.374	1.686	2.671
Organization Information	6	4.363	3.284	5.000
Product Information	2	1.505	1.776	1.624
Total Information	13	8.242	6.747	9.294
Interaction	7	4.473	5.299	4.541
Total Interaction	7	4.473	5.299	4.541
Total	20			

From Table 5, we observe that bank Web sites have the highest average number of *general information* and *organizational information* features, whereas business school Web sites have the highest average number of

product information features. The business school Web sites also have the highest average number of *interactive features* per Web site, whereas the IT industry has the least. From our data analysis, we see that the bank Web sites provide highest information and have a reasonable extent of interactive content. This finding is in consonance with the fact that customers require a huge amount of information (especially general information and company information) about the bank, its performance and background to start trusting and using it. The product information is not given as much relative importance by bank Web sites. This is a pointer to the fact that bank Web sites are serving the function of building trust in its customers. It is also interesting to note that the highest interactive content is present in the case of business schools. This is explained by the fact that most interactions through school Web sites are of a non-financial nature. There are relatively less security issues in the case of a non-financial transaction for a business school Web site than financial transactions through the Web sites of banks and IT companies. Another important finding of this research is that the capability of the Internet is being utilized the most by bank Web sites. The results show that the banking industry, which is an industry with well established norms and relatively clear performance metrics has the highest number of Web site features. The business schools, which have ambiguous performance standards, have the lowest number of Web site features.

Hypotheses Testing

This research, which examines structures of Web sites in terms of observable features, exhibits significant differences in the ways features are present in Web sites of firms within the same industry and in Web sites of firms across industries.

Hypotheses H1a and H1b, examining levels of likeness among organizational Web sites within the same industry show that Web sites of firms within each of the three industries have high levels of likeness. This indicates support for the institutional perspective (likeness) and non-support for the rational perspective (differentiation). The fact that Web sites of firms within the same industry have high levels of likeness can be attributed to multiple explanations. But following predictions from the institutional theory, firms within the same industry may be imitating each other for gaining legitimacy in the industry. This indicates that within industries, Web sites are primarily not being used for gaining a competitive advantage (rational perspective); rather they are being used as a means for gaining legitimacy and avoiding uncertainty (institutional perspective). Further, homogeneity of Web sites within the same industry indicates the emergence of industry specific Web site standards or norms, which firms seem to follow. Thus, as an answer to the first research question, the results show that Web site features of organizations within the same industry predominantly follow the institutional perspective.

Hypotheses H2a and H2b, examining levels of likeness among organizational Web sites across the three industries show that Web sites of firms across the three industries have low levels of likeness. This indicates support for the rational perspective (differentiation) and non-support for the institutional perspective (likeness). The fact that Web sites of firms across industries have low levels of likeness can be explained from the rational perspective (differentiation), where Web sites across industries are differentiated according to the industry logic for performing efficiently. This indicates that across industries, Web sites are primarily being used for serving the need for the specific business domain (rational perspective) rather than following some universal standards for Web site features across industries for gaining legitimacy and avoiding uncertainty (institutional perspective).

This is an important finding as it indicates that Web site features tend to be industry specific and depend on requirements of the industry. In other words, in the inter-industry analysis, rational rather than institutional perspective is the guiding force. The reason for this differentiation can be attributed to organizations rationally designing their Web sites as per particular requirements of that industry. Hence, the design of Web sites across industries follows a rational-differentiation perspective and their structures are based on the business rationale rather than inter-industry institutionalization [Abrahamson 1991]. Chen and Kuo [2002] had earlier shown that there are no significant differences between Web sites of different industries, but their analysis was based on a study of only six broad features. Our analysis, which shows significant differences, considers 20 functionally similar features for an in-depth analysis of three industries. This indicates that Web site norms are different for different industries. Thus, as an answer to the second research question, results show that Web site features of organizations across industries predominantly follow the rational perspective, i.e., rationally conforming to particular norms and requirements of that industry.

Past studies on institutional theory contend that for organizational fields (industries), where the performance measures are ambiguous/debatable, compliance to *institutional practices* is seen as a measure of performance [DiMaggio and Powel, 1983; Meyer and Rowan 1977]. While testing Hypothesis 3, we measure the extent of likeness (homogeneity) among Web sites of each of the three industries and examine if the ambiguity in performance metrics of the industry has a role to play in isomorphic processes leading to likeness in Web site structures in terms of observable features. In our dataset, the education industry represents an industry with unclear or ambiguous performance metrics whereas the IT and banking industries represent industries with relatively

concrete performance metrics. Although results broadly indicate that the business school Web sites are more homogenous (alike) within the industry as compared to the banking and IT industry Web sites, a detailed analysis of the homogeneity in different categories of Web site features among industries brings forth some interesting insights as explained below.

As a post-hoc analysis to have a more granular understanding of Web site features, we did a homogeneity coefficient analysis for various categories of Web site features, as highlighted in our classification framework (Figure 1). We found that some categories and subcategories are relatively more homogenous (alike) in banking and IT firms Web sites as compared to business school Web sites. Table 4 shows that bank Web sites have higher homogeneity as compared to business school Web sites in *information* category, especially in *general and company information* sub-categories. This can be explained from the functions that *general and company information* features are performing for banks. These features, in the case of banks, are fulfilling the purpose of creating a sense of trust and reassurance among its customers. Features like security and privacy policy, copyright statement, and organization's logo, which are included in this sub-category, are symbolic means of building trust and confidence among its customers. Banking is an industry which requires customers to have more confidence and trust in comparison to the education industry. These structural features of information are helpful in reassuring customers about the reliability of the bank, which is a necessary condition for customers to use the bank. Hence, isomorphism in informational features of bank Web sites helps banks to gain legitimacy through institutionalization. Similarly, IT firms have higher homogeneity as compared to business school Web sites in *general information* sub-category. IT firms need to provide details about the reliability and currency of the information on the Web site so as to motivate customers for using it. Thus, rather than looking at the ambiguity of performance measures of the industry, it might be more meaningful to examine the functions that the specific Web site feature is fulfilling for firms in that industry.

Thus, as an answer to the third research question, the results in the context of organizational Web sites do support the contention put forth by past researchers that the ambiguity of industry's performance metrics is related to the extent of institutional forces operating in the industry, making firms similar in their business processes. Further analysis also shows that in addition to considering the industry as a whole, it might be prudent to consider the functions served by business processes to assess the extent of institutional forces that operate. Overall, these results suggest that the relationship between performance metric ambiguity and use of Web site features may be more complex than originally conceived. In other words, findings show that on all levels, relationships are more complex than either the institutional or the rational lens would predict.

Results in this section also show that in the context of inter-industry analysis of Web site features, the rational-differentiation perspective does not fully explain the structure of some categories and sub-categories of Web sites. Further, the results indicate that considering an interplay of rational and institutional perspectives may provide a more comprehensive understanding of firms' Web site structures.

VI. IMPLICATIONS

Web sites are emerging as a potent and vital force, which is transforming the rules of business conduct and organizational information transfer. Despite their importance in the present day scenario of Internet impacted business, there is relatively little research on Web site features at the industry level. In this study, we examine Web site features of three industries (IT firms, business schools and banks), from two contrasting perspectives: *rational* and *institutional*, to better understand the dominant perspective explaining the choice of Web site features. Through this research, we seek to understand what firms in different industries are actually doing? Are they using the visibility and technical flexibility of Web sites, to be *different* from Web sites of other firms or are they trying to be *similar*? In understanding these important issues related to organizational Web sites, we make some important contributions that have implications for research as well as practice.

Implications for Research

There are several implications for research that this study facilitates. *First*, though the importance of Web sites and e-commerce is increasing, there is relatively little research on the choice of Web site features by firms. Moreover, most research on Web site features deals with either a particular industry or a group of firms. To our knowledge, there is no research that either examines the underlying rationale explaining the choice of Web site features aggregated at the industry level or makes inter-industry comparisons. Through this research, we address this gap in the literature, which will help us to better understand firms' actions in relation to their organizational Web sites.

Second, though scholars in other disciplines are realizing the importance of institutional theory in explaining "observed likeness" in business processes of organizations in different contexts [Abrahamson 1991; Bonabeau 2004], there is relatively little research utilizing institutional theory in the IS discipline. Most current IS research is driven by the rationalistic orientation guided by goals of technical and business efficiency [Fruhling and Digman

2000; Poon and Swatman 1999]. Although recently there have been a few studies linking the institutional theory with IT adoption [Teo et al. 2003; Vitharana and Dharwadkar 2007], there is no research examining institutional isomorphism in the context of organizational Web sites. Through this paper, we also address this void in IS research and support the use of institutional theory in IS research. Plurality of perspectives is important in IS research for advancing knowledge, as the use of different theoretical lenses contribute to alternative and/or supplementary explanations for the phenomenon being examined.

Third, results indicate that features of organizational Web sites for IT firms, business schools, and banks follow the institutional perspective and are alike within their respective industries. These findings are similar to the adoption of innovative systems by organizations, which is not always a rational decision based on the differentiation perspective but is often dependent on communication and institutionalization [Abrahamson 1991; Avgerou 2001; Poole and Van de Ven 1989]. Early adopters in an industry are usually trendsetters, who forge norms and standards for the industry. Since data for our research were collected at a single point in time, it is important to emphasize the importance of timing for recording the observations in our research. The results may be sensitive to when in the evolution of Web use in an industry that measurement is taken. Future research can examine the mechanism and efficiency of emerging standards for different industries in the context of Web site features.

Fourth, similar to the argument about evolution of Web site structures within industries to become alike, there is a possibility that with time, firms' Web site structures may become alike across industries. Our results highlight this possibility about the adoption of Web site features in the same industry and different industries. DiMaggio and Powell [1983] had highlighted that homogenization is not always an instantaneous process. Early adopters of an innovation may follow the norms of rationality, whereas later adopters may simply imitate the activities of successful early adopters. Web site features can be considered to be in the "middle state" as a technology. Hence, within industry, Web site features have become institutionalized, whereas the features are not alike across industries. Isomorphic pressures may make them alike in due course. This suggests a two-stage adoption model for Web site features, where Web site features first become alike or institutionalized within the industry and later they may be institutionalized across industries.³ Although the results from the current research only point to such a possibility, future research on the subject can explore the evolution of institutionalization of Web site features within and across industries. For exploring this research question, qualitative, process-based longitudinal studies may be more suitable.

Fifth, through inter-industry comparisons of organizational Web sites, this research shows that there are significant differences across the Web sites of the three industries studied. The results indicate the preponderance of rational rather than the institutional perspective determining Web site features across industries. Though Web sites of firms within a particular industry are alike, they are differentiated across industries. Although Web sites across industries are differentiated, the reason for differentiation may not be for gaining a competitive advantage. It may be for following industry-specific norms, rationally. Future research can explore the underlying reasons for similarity of Web sites within industry and differences across industries.

Sixth, past studies comparing the features of Web sites [Ellinger et al. 2003; Chen and Kuo 2002] have either focused on very few broad features (less depth) or have studied only one industry or organization (less width). In contrast, our research compares Web sites of three industries (reasonable width as the choice of industries representing different points in terms of performance metrics) to a reasonable depth of 20 features. This is an empirical contribution in the research on Web site features and may be used by future studies on the subject.

Seventh, in this study, we have developed a measure called *Web site homogeneity coefficient* which can be used by future researchers as well as practitioners for comparing the similarity of features in organizational Web sites of different industries or groups. This is a significant contribution as it provides a convenient and effective way to assess isomorphic processes explaining the choice of Web site features and can be used by future studies.

Implications for Practice

This study also has several implications for practice. First, the results show that Web sites of organizations within the same industry are alike in terms of their Web site features. In our detailed Web content analysis, we have considered Web sites of top U.S. firms belonging to three industries. Hence, the emergent homogeneous Web site features elucidate the current industry specific Web site norms, which can be used by other firms in the industry for benchmarking their Web sites.

³ We thank the associate editor for making this suggestion.

Second, the results from this research exhibit significant differentiation in Web sites across the three industries. This has important implications for Web site design indicating that it is “business rationality rather than technological capability” that drives the Web site content across industries. Thus, firms designing their organizational Web sites should take into account business requirements of that particular industry rather than simply imitating the features.

Third, we observe that ambiguity of performance metrics of an industry does influence the extent of institutionalization of business processes within that industry. Business school Web sites representing the education industry having ambiguous performance metrics have relatively higher overall homogeneity (aliqueness) in their Web sites than IT and banking industries. But for certain functional categories, the Web sites are more alike for IT and banking industries. The results from post hoc analysis exhibit that it is prudent not only to consider the ambiguity of performance metrics of the industry as a whole, but also individual functions which the particular Web site features perform. If the ambiguity of a particular function is more prominent, then that particular Web site feature may exhibit greater homogeneity even for industries with relatively clear performance metrics. In this case, legitimacy and trust become overriding issues for banks and IT firms, which might lead to aliqueness of the relevant Web site features. Hence, Web site designers should note that certain features need to be present in the Web site not for enhancing their functionality but for increasing their trustworthiness. Recent research has also established the importance of trustworthiness of organizational Web sites to be an important factor for their usage [Pavlou 2003; Teo et al. 2009]. Results show that bank and IT Web sites are more alike in comparison to business school Web sites for certain categories like general and company information categories, which help in developing customer trust. This indicates that it may be inappropriate to predict the extent of institutionalization explaining the choice of Web site features for different industries without fully understanding the functional context of Web site features for that particular industry. Hence, Web site designers for firms should take into cognizance the actual intent behind Web site features for that particular industry before incorporating them in the firm’s Web site.

Fourth, since Web sites of firms within the same industry tend to be alike, firms incorporating new features in their Web sites should realize that such features may be copied by competitors within the same industry. However, as Web sites of firms across different industries tend to be differentiated, it implies that firms can adapt relevant features found in other industries in their Web sites. This would help to make their Web sites different relative to their competitors within the same industry, though with time, these differences would decrease due to imitation. Hence, firms need to continue to innovate and take advantage of what new Web technologies have to offer to make their Web sites easy to use, interesting and relevant for customers. The results highlight this possibility about the adoption of Web site features in the same industry and different industries. Individual firms scanning other industries might get ideas for application of standard features that will represent an innovation in their industry. This might be a low cost way to gain some first mover advantage, even if it will be difficult to sustain

VII. CONCLUSIONS

Our study builds on past research on understanding adoption of Web site features by firms and industries. Using contrasting theoretical lenses of rational and institutional theories operationalized respectively by observed differentiation and aliqueness in Web site features, we seek to understand the choice of Web site features by firms. The results broadly indicate that, firms within the same industry have alike Web sites, whereas there is differentiation in Web site structures across industries. This indicates a mix of rational and institutional perspectives explaining the choice of Web site features within and across industries.

Though this paper offers an interesting perspective to organizational Web sites, it has a few limitations. First, our findings are consistent with the institutional theory’s proposed dynamic forces resulting in ‘observed aliqueness’ of Web site features within industries. Given that this is a study at a point in time, we cannot rule out other forces that may have been influential in creating these observations. The contribution of this research lies in analyzing the similarities and differences in Web site features within and across industries. Since our measures are cross-sectional, i.e., at a particular point in time, they do not address mechanisms by which aliqueness is created. Future research can explore the mechanisms by which aliqueness is created in Web site features.

Second, in seeking a contrast of industries, we focused on features likely to be found across industries and based on prior literature. However, it is possible that additional features peculiar to some industries or to individual firms might have been overlooked in assessing aliqueness and differentiation. In other words, we are examining only the common features on Web sites as they provide strong evidence when the tendencies are different (as firms are different even among common features). It is plausible that there may be some idiosyncratic elements as uncommon features within some industries. This represents an interesting avenue for future research.

Third, we have considered differentiation of observable features as a source of competitive advantage, but in the case of Web sites, the underlying functionality or even the quality of service provided through the Web site may be a

source of competitive advantage. This aspect has not been explored in the current study and can be an interesting avenue for future research on Web sites.

Fourth, we have hypothesized from two contrasting perspectives of rationality and institutionalization. It is possible that the two perspectives are not always mutually exclusive. The independence of the two perspectives depends on the level of analysis in this research. For example, when the level of analysis is the firm within the industry, we measure on a scale from highly alike to highly different, whereas when the unit of analysis is the industry, we observe that industries are significantly different from each other. DiMaggio and Powell [1983] also indicate that it is possible that individual rational decisions for each organization may lead to homogeneous and non-optimal states. Future research can investigate rational and institutional perspectives more broadly and investigate the relationship between the two in the context of Web sites.

Fifth, this study deals with organizational Web sites in the U.S. context with only three industries: IT industry, business schools, and banks. The results may not be generalizable to Web sites of organizations in different countries because of cultural differences for two reasons. First, the same industries may differ in how they use Web sites in other countries and second, their positioning on the scale of low to high ambiguity of performance measures may also vary across countries. Future similar studies in other countries can investigate these differences across different contexts.

Sixth, Web sites for top performing firms in an industry may not be representative of the entire field. We chose Web sites of top performing firms because they generally tend to be leaders in the industry. However, to appreciate Web sites of the entire industry, this study can be extended to include firms sampled from the entire industry. Future research can also study Web sites of other industries and make a cross industry comparison of likeness in different industries.

Seventh, in this research, there are no measures of within feature or infrastructure differentiation and also there are no measures of "success" of Web sites (e.g. their use or customer satisfaction with them). All these important issues can be possible avenues that can stimulate future research.

Eighth, although the institutional theory predicts that Web sites of firms in industries with ambiguous performance metrics tend to be relatively similar to each other, there is a possibility for such firms to gain more if there is a greater variation. With more variation, individual firms would emphasize different potential measures (e.g. prestige versus accessibility in the case of business schools) and consequently have a competitive advantage. But this phenomenon is not exhibited by our results. It will be interesting for future researchers to examine the conditions under which such a possibility occurs.

There are also other avenues for future research that this study facilitates. For example, future research can integrate both rational and institutional approaches with the research on diffusion of innovations and adopt a theory building approach to consider the mechanisms through which these theories may together explain the emerging Web site structures. Out of the three industries studied, IT industry has the greatest incentive to innovate in its Web site features as it can innovate to not only differentiate its Web site but also sell its digital products on the Web. Extensions to this research can study the role of innovation of Web site features in relation to similar motivations.

Further, performance metrics of industries may also be dependent on the volatility of the industry and the number of players in that industry. These factors may also contribute to the ambiguity of performance metrics. This research has provided a starting point for the definition of the ambiguity of performance metrics; future research may further extend the concept and link it to the institutionalization of Web site features.

Internet technologies may not only make Web sites alike but may also accelerate isomorphism of "organizational structures" within and across industries due to the virtual reduction of distance and time. Though, in this study, we have considered only institutionalization of "Web site structures," future studies can investigate the impact of Internet technologies on the institutionalization of "organizational structures."

In conclusion, this paper makes three significant contributions to the field of IS in general and Web site research in particular. First, this is one of the first studies that empirically demonstrate high levels of likeness in Web site features of firms within industries and strong differences across industries, indicating the presence of institutionalized industry specific norms for firm Web site features. Second, the findings in this research are consistent with predictions based on the dynamics of institutional theory and we support the use of institutional theory in future IS research. Third, we introduce a measure for Web site homogeneity for use by future researchers.

ACKNOWLEDGEMENTS

The authors would like to thank Cynthia Beath, Sandra Slaughter, G. Prem Premkumar, and Sarv Devaraj for providing valuable insights and suggestions on earlier versions of this paper. The authors would also like to thank the associate editor for the valuable suggestions provided which enhanced the quality of the paper substantially. This study was supported by a research grant from the National University of Singapore (R-314-000-069-112).

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APPENDIX 1: WEB SITE CONTENT FEATURES USED FOR ANALYSIS: IT FIRMS, BUSINESS SCHOOLS, AND BANKS

Web Site Features	References	
Information		
General Information		
1 Security and privacy policy	Earp et al. (2005), Ellinger et al. (2003), Okazaki & Rivas (2002), Perry & Bodkin (2000), Ranganathan & Ganapathy (2002), Wang & Tang (2003), West (2004)	
2 Copyright statement		
3 Current date display		
4 Last updated date display		
5 Site Index/Map		
Company / Organization Specific Information		
6 About Company/School	Chen & Kuo (2002), Ellinger et al. (2003), Henderson & Cowart (2002), Kowtha & Choon (2001), Perry & Bodkin (2000), Wang & Tang (2003), West (2004)	
7 Branch locations/Map and directions		
8 Company Performance/Ranking of School		
9 Company/School Logo		
10 General photographs		
11 Awards/Certification/Accreditation	Chen & Kuo (2002), Ellinger et al. (2003), Griffith & Krampf (1998), Kowtha & Choon (2001), Okazaki & Rivas (2002), Perry & Bodkin (2000), Wang & Tang (2003), West (2004)	
Product Information		
12 Special offers/Upcoming attractions		
13 About Products/Courses		
Interaction		
Interactive		
14 Intranet login facility	Chen & Kuo (2002), Ellinger et al. (2003), Griffith & Krampf (1998), Henderson & Cowart (2002), Kowtha & Choon (2001), Kwon & Lee (2002), Perry & Bodkin (2000), Ranganathan & Ganapathy (2002), Waite & Harrison (2002), Wang & Tang (2003), West (2004)	
15 Search facility		
16 Contact us		
17 Online Purchase/Online application/Open an account online		
18 Careers/Prospective students		
19 Customized advanced search/service/ Downloads / Brochure request		
20 Help button		



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