

8-5-2011

# Impact of Institutional Pressures on Absorptive Capacity of a Firm and Web 2.0 Assimilation

Pratyush Bharati

*University of Massachusetts Boston, pratyush.bharati@umb.edu*

Abhijit Chaudhury

*Bryant University RI, achaudhu@bryant.edu*

Follow this and additional works at: [http://aisel.aisnet.org/amcis2011\\_submissions](http://aisel.aisnet.org/amcis2011_submissions)

---

## Recommended Citation

Bharati, Pratyush and Chaudhury, Abhijit, "Impact of Institutional Pressures on Absorptive Capacity of a Firm and Web 2.0 Assimilation" (2011). *AMCIS 2011 Proceedings - All Submissions*. 106.  
[http://aisel.aisnet.org/amcis2011\\_submissions/106](http://aisel.aisnet.org/amcis2011_submissions/106)

This material is brought to you by AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2011 Proceedings - All Submissions by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# **Impact of Institutional Pressures on Absorptive Capacity of a Firm and Web 2.0 Assimilation**

**Pratyush Bharati**

**University of Massachusetts Boston**

[Pratyush.Bharati@umb.edu](mailto:Pratyush.Bharati@umb.edu)

**Abhijit Chaudhury**

**Bryant University RI**

[achaudhu@bryant.edu](mailto:achaudhu@bryant.edu)

## **ABSTRACT**

We investigate a theoretical model that combines two streams of research in IT adoption. The first is the institutional theory perspective, which provides the institutional pressures that induce a firm to align itself with the members of the institution of which it is a part. The second is the learning perspective on organization, which has been used to study firm characteristics that promote technology assimilation; it provides the mediating factor of absorptive capacity. In this study we empirically study the role of institutional factors as they are mediated by absorptive capacity in the assimilation of Web 2.0 technologies. Linear structural equation model using formative constructs are developed. Preliminary results are promising. Full results will be discussed at the conference.

## **Keywords**

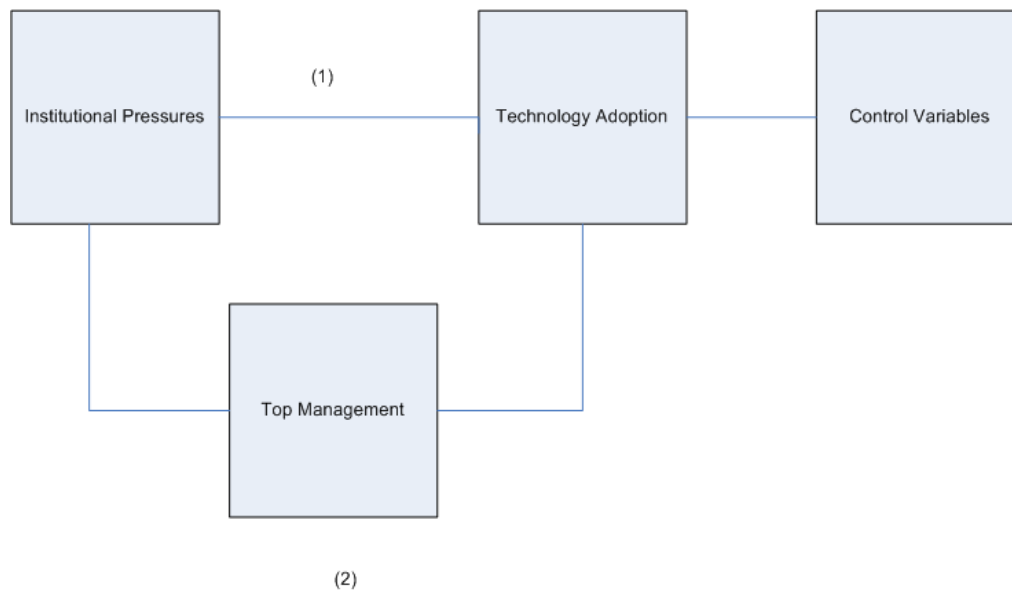
Innovation, adoption, assimilation, institutional theory, absorptive capacity.

## **INTRODUCTION**

Web 2.0 technologies such as social networks, wikis, and blogs are much in the news and have been identified as one of the major technology trends of 2010[3]. In just over two years, Facebook has developed into a network of over 500 million users and has been valued at over 50 billion dollars[2]. McKinsey Consultants, in a December 2010 technology survey, found that more than two-thirds of large companies surveyed reported using Web 2.0 in their organizations and that a majority claimed to have measurable gains from using these technologies[4].

This paper is part of the research stream that studies IT assimilation at the firm level. Enterprise-wide technologies such as electronic data interchange [46], telecommunications technology [18], and smart card payment systems [45] have been used to study antecedents to assimilation at the firm level. The factors studied were primarily related to organizational characteristics. Fichman [27] studied the relationship between knowledge acquired by a firm, as measured in terms of specialization and related knowledge, and the assimilation of advanced software technologies. A steady stream of research has established the roles of firm size, top management support, and IT budgets [23] as important determinants in IT assimilation.

Zhu et al. [61] used a technology, organization, and environment framework (TOE) to establish the roles of consumer readiness and competitive pressures as significant determinants of IT adoption at the firm level; their study was one of the earliest studies to investigate the role of environmental factors on a firm. More recently, focus on the environment has become theory driven. Institutional theory by DiMaggio and Powell [11] has provided a framework for studying the impact of institutional factors and has been used by Teo et al. [52] to study the adoption of electronic data interchange (figure 1- link (1)). Liang et al. [33] extended that research to include the role of top management as a mediating factor between institutional pressures and the firm to investigate the adoption of enterprise resource systems in China (figure 1- link (2)). This research extends Liang et al.'s model of studying institutional pressures by including the role of absorptive capacity as a factor that mediates the effects of institutional pressures on IT assimilation (figure 2).



**Figure 1:** Existing Research on using Institutional Theory to explain IT adoption and assimilation

The paper focuses on the question, "Do institutional pressures from vendors, competitors, and suppliers affect assimilation of Web 2.0 technologies in a firm, and is this mediated by absorptive capacity of a firm?" It is one of the first papers to use a sociological theory about institutions to investigate the assimilation of Web 2.0 technologies. It extends current research on such theories into IT adoption by focusing on the mechanism of absorption capacity acting as a mediator between institutional pressures and the adoption actions taken by a firm. It integrates two separate streams of IS research: one focusing on internal factors in an organization, using the learning perspective on organizations, and the other focusing on factors external to the organization, using institutional theory to explain adoption decisions by a firm.

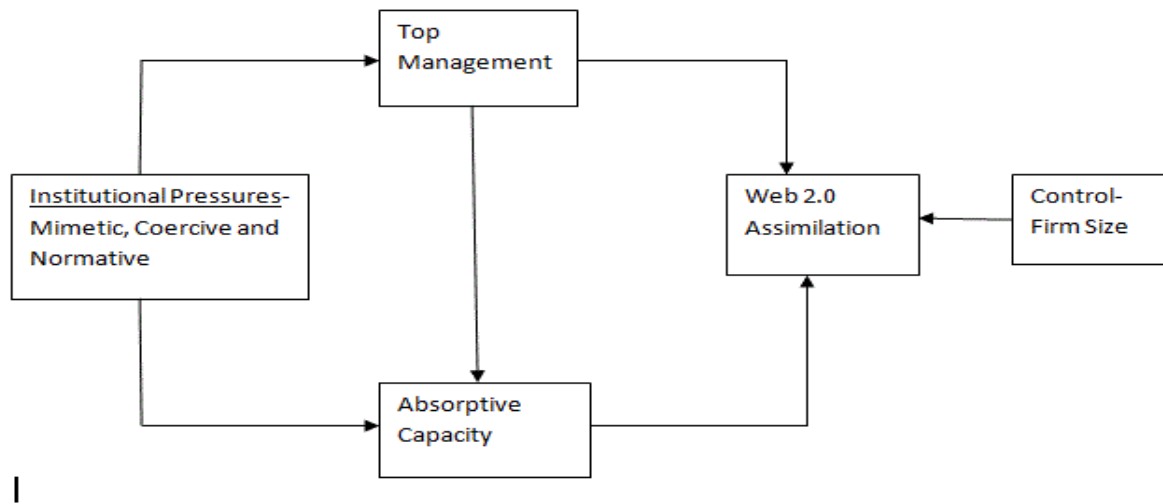


Figure 2: Conceptual Framework for Current Research

## RESEARCH MODEL

### Institutional Theory

Bughin and Chui [4] describe the emergence of networked enterprises through the use of Web 2.0 technologies. The most prominent uses of these technologies found in their survey were linked to establishing new channels of communication and commerce between a firm and its business partners, such as customers and suppliers. Institutional theory describes how individual entities in the context of their environment face pressures to conform to shared behavior and norms and how that shapes their decisions, over time leading to a certain isomorphism in behavior and structure. DiMaggio and Powell [11] distinguish between three types of isomorphic pressures that act on a firm and originate in the institutional environment: coercive, mimetic, and normative. Coercive isomorphism arises when firms conform to external pressures exerted upon them by other organizations upon which they are dependent; these may arise from government, industry associations, professional networks, and powerful clients and suppliers. Mimetic isomorphism results when firms mimic other organizations in order to cope with uncertainty and save on search and other learning costs. It is often associated with the bandwagon effect as described by Staw and Epstein [50]. Normative isomorphism arises through professionalization that leads to members of a certain profession sharing a common set of norms, values, and cognitive models [11]. Following Liang et al. [33] and Teo et al. [52], who used institutional theory constructs as their independent variables in their study of IT adoption and assimilation, this paper uses mimetic, coercive, and normative pressures as the primary set of independent variables (figure 3).

### Absorptive Capacity

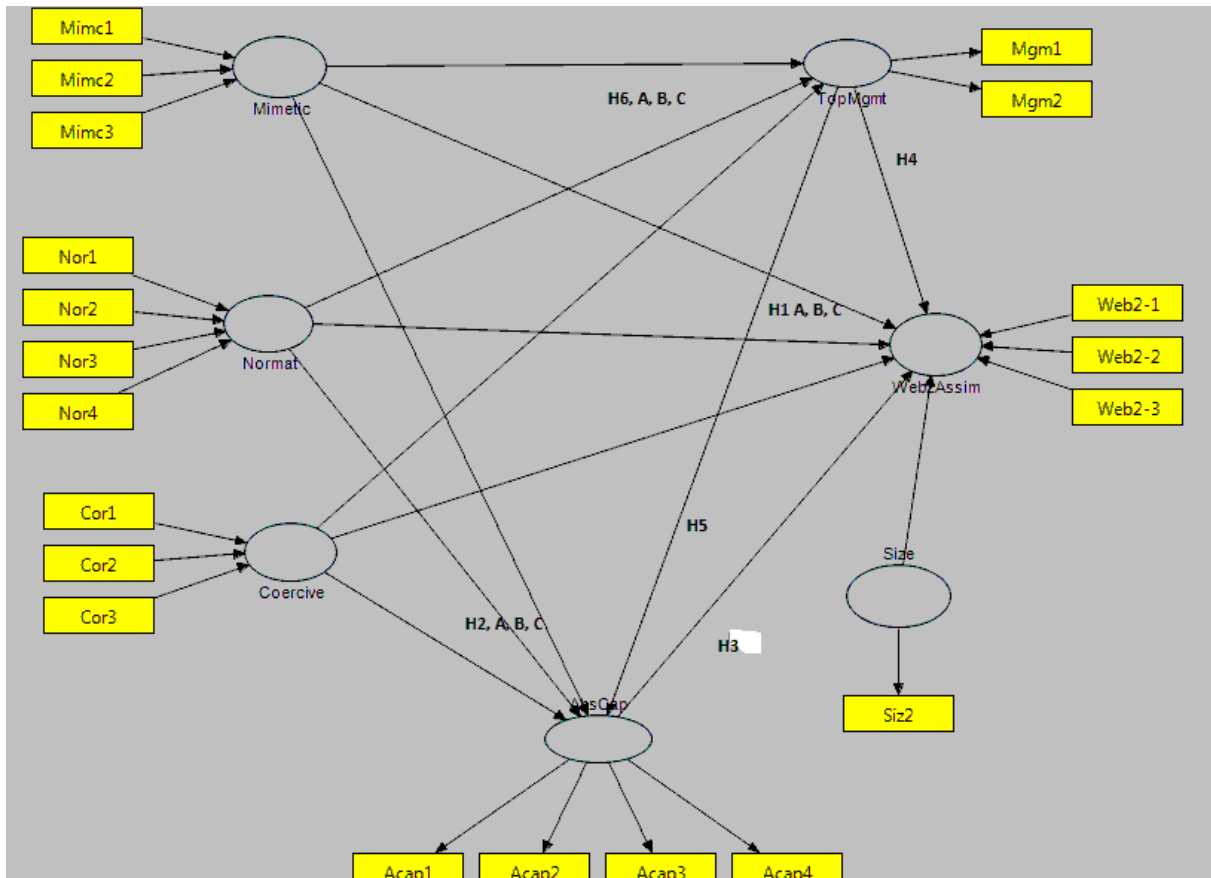


Figure 3: Research Model

There is an extensive literature on institutions and innovations in several fields, such as public policy, industrial studies, and administrative studies. The focus in this literature is on knowledge dynamics [40]—on how knowledge is created and moves and transforms. This is mostly a horizontal view of the movement of knowledge. There is also interest in national and macro-level systems of innovation, which is more of a vertical perspective on how policy at the public and national levels impacts innovation at the firm and individual levels [42] [19]. The linking concept used to tie in innovation processes at the national and industry levels to that of the firm is the idea of absorptive capacity [9].

According to Cohen and Levinthal [9], the absorptive capacity of a firm is its ability to identify, assimilate, and exploit knowledge from the environment. Malhotra et al. [36] suggest that firms use absorptive capacity to sense changes in their environment and respond to these changes. Lane et al. [29] provide a process-based definition of absorptive capacity through the sequential processes of exploration, transformation, and exploitation. Exploratory learning refers to knowledge acquisition from the environment [60], exploitative knowledge refers to applying the acquired knowledge [60], and transformative learning links the two processes together to help maintain knowledge over time [17] [34].

Since absorptive capacity is identified as an ability, it is not subject to direct measurement but is measured through popular proxies such as R&D activity [30] and organizational structures, routines, and human management practices [10]. In the field of IS research, the popular proxies for measurement of absorptive capacity have been related prior knowledge in the firm [33], factors such as managerial proclivity to change and technology policy [51], and the ability to identify and integrate

external knowledge [14]. Given the role of this concept in explaining innovation in the IT field at the firm level, we have chosen to use absorptive capacity as a factor that mediates the effect between pressures at the institutional level and firm-level decisions relating to IT innovation (figure 3).

*Mimetic Pressures → Technology Assimilation*

According to DiMaggio and Powell [11], mimetic pressures force an organization to change and become more like others. According to Haveman [20], such pressures are manifested through the success of organizations and their practices in the environment of which the firm is a part. A firm will economize on search and experimentation costs by adopting solutions that are presumably working in other firms [35]. Liang et al. [33] established the role of mimetic pressures in ERP assimilation. Teo et al. [52] showed that mimetic pressures promote the adoption of financial electronic data interchange.

*H1-A: A higher level of mimetic pressure will lead to greater assimilation of Web 2.0 technologies.*

*Normative Pressures → Technology Assimilation*

Normative pressures work through relational channels among members of a network (DiMaggio & Powell, 1983). These pressures are exerted through channels between a firm and its suppliers and between a firm and its customers (Burt, 1982). They are also communicated through professional, trade, and other business channels. Wide use of a business practice serves as an indicator that the practice is valuable and tends to quickly become a norm in the institutional network. Liang et al. [33] showed that normative pressures work through top management in ERP assimilation. Teo et al. [52] observed that normative pressures work to assist in the adoption of financial electronic data interchange.

*H1-B: A higher level of normative pressure will lead to greater assimilation of Web 2.0 technologies.*

*Coercive Pressures → Technology Assimilation*

Firms can be subject to coercive pressures from their customers, from their parent companies, and from government and regulatory bodies [11]. A dominant organization that controls scarce resources may demand that dependent firms adopt business practices that are to its benefit and not to the firms' benefit [44]. Liang et al. [33] established that coercive pressures work through top management in ERP assimilation. Teo et al. [52] observed that coercive pressures work to assist in the adoption of financial electronic data interchange.

*H1-C: A higher level of coercive pressure will lead to greater assimilation of Web 2.0 technologies.*

*Mimetic Pressures → Absorptive Capacity*

Sherer et al. [48] show that prestigious law firms have led innovation in human resources practices in the field of legal services. Organizations with prestige have the legitimacy to act as initial adopters [47]. Moreover, market feedback about successful firms and their modes of operation shapes managers' cognitive premises directly through exposure and indirectly through other intermediaries such as consultant firms and authors, thus providing the necessary mimetic and normative forces for conformity to star performers [32].

*H2-A: A higher level of mimetic pressure will lead to greater absorptive capacity.*

*Normative Pressures → Absorptive Capacity*

According to Kondra and Hinings [27], firms that perform well above institutional norms are often the source of new norms. They may include new firms that are able to have novel operational models because they have not been subject to the forces of isomorphism for long. They could also be existing firms that have deviated from norms knowingly (active agency) or unknowingly (passive agency). Over time, according to Fligstein [16], these firms become new sources of legitimacy and new norms. Legitimacy is contagious, and spreads even more when the organizational field is tightly integrated. Hinings and Greenwood [21] suggest that these firms establish themselves over time as “leading organizations” in the field.

In terms of structuration, DiMaggio [12] lists factors such as (i) creation of a body of knowledge, (ii) organizations of professional associations, and (iii) consolidation of a professional elite. He uses these factors to demonstrate how the Carnegie Corporation facilitated the development of the organizational field of U.S. art museums. The Carnegie Corporation made grants to colleges and universities to facilitate art scholarship and the application of scientific techniques to art analysis. It helped the American Association of Museums get established and also supported its publication and research activities, encouraging the association to investigate the efficacy of different exhibition methods and develop training schemes that produced a cadre of experts in museum administration. More recently ([http://www.mgt.ncsu.edu/news/2006/mba\\_ssme.php](http://www.mgt.ncsu.edu/news/2006/mba_ssme.php), dated January 15, 2010), IBM helped consolidate the subject of computer science in the 1960s by supporting professional associations and encouraging universities to provide degrees in the subject, thus populating the professional world of computer science (above reference). This professionalization helped legitimize the subject and its subsequent widespread application in the science, business, and engineering fields.<sup>1</sup> New norms in an organization lead to newer modes of decision-making and new processes, thus in effect enhancing the learning or absorptive capacity of the firm. Thus:

*H2-B: A higher level of normative pressure will lead to greater absorptive capacity.*

#### *Coercive Pressures → Absorptive Capacity*

Shocks in the environment often trigger involuntary organizational learning by firms [24]. These triggers can be viewed as jolts that can stimulate innovation. Such a jolt appears disruptive, but without it there is no coercion to abandon existing practices and routines. There can be many kinds of triggers. Foreign ownership of firms may compel them to adopt the corporate structures and routines of the parent firm [13]. Social movements by Greenpeace compelled Royal Dutch Shell to decentralize decision-making to a Nigerian subsidiary and evolve into an organization that was sensitive to the needs of the local population [24]. Since modes of decision-making, changing organizational structures, and acquiring skills such as agility are all taken as proxies for measuring absorptive capacity, we posit:

*H2-C: A higher level of coercive pressure will lead to greater absorptive capacity.*

#### *Absorptive Capacity → Technology Assimilation*

According to Cohen and Levinthal [9], the innovation capacity of a firm is determined by its absorptive capacity because a firm with high absorptive capacity is better able to search for, adopt, and implement an innovation. Malhotra et al. [36] argue that firms use absorptive capacity to sense changes in their environment and respond to these changes. A firm with higher absorptive capacity is better able to sense changes in its environment, explore available alternatives, adapt solutions that are

---

<sup>1</sup> [http://www.mgt.ncsu.edu/news/2006/mba\\_ssme.php](http://www.mgt.ncsu.edu/news/2006/mba_ssme.php), dated January 31, 2006.

available, and thus exploit innovation to meet its needs [60]. In the field of IS research, Liang et al. [33] related a firm's absorptive capacity to its success in implementing ERP. Teo et al. [52] have shown a positive relationship between a firm's absorptive capacity and its adoption of financial electronic data interchange, an inter-organizational technology. Therefore, considering that we are concerned with Web 2.0, which is a tool for networking between a firm and its partners, we hypothesize:

*H3: A higher level of absorptive capacity will lead to greater assimilation of Web 2.0 technologies.*

*Top Management Support → Technology Assimilation:*

The IS research literature is replete with evidence that top management's support is crucial for technology adoption. Chatterjee et al. [6] have established the role of senior management. More specifically, in the case of small businesses, the importance of the role of top management and the CEO has been verified by Thong [53], in the case of the owner-CEO, who is often the top management for a small firm. Thong et al. [54] provided an extensive list of references showing the positive relationship between top management support and IT adoption.

*H4: A higher level top management support will lead to greater assimilation of Web 2.0 technologies.*

*Top Management Support → Absorptive Capacity*

Absorptive capacity is an firm level ability and is observed or measured through innovation related outcomes such as product innovation, changes in business model, acquisition of new markets, new organizational structures and processes [10][30]. The business media is usually full of news relating to top managers including the CEO leading efforts towards innovation in a firm. For instance, in a single issue of Business Week (week January 24-January 31, 2011), we have articles relating to Steve Jobs leading product innovation at Apple, the top managers at GM remaking the culture at the firm, the CEO of EMC helping the firm to become a service oriented company and the Netflix CEO moving towards a different business model. Therefore, we can hypothesize:

*H5: A higher level top management support will lead to enhanced absorptive capacity*

*Institutional Pressures → Top Management Support*

In Liang, et al[33], the principal hypothesis was the impact of mimetic, normative and coercive institutional pressures on top management in the context of technology assimilation. They grounded their arguments that as top managers were the decision-makers, they provided the micro link between two macro level phenomenon of institutional pressures and firm level behavior. Following Liang et al.[33], we posit that

*H6 A,B, C: A higher level of institutional pressures of mimetic, normative and coercive kind will lead to top management support for technology assimilation*

## **VARIABLES AND MEASURES**

In this section, we describe the motivation and sources for our dependent, mediating, and independent variables.

### **Dependent Variable**



This research focuses on the assimilation of Web 2.0 related technologies. Our interest is in the whole assimilation life cycle, and our measure was developed using suggestions from Rogers [47] and Fichman [15]. For IT software systems, Fichman [15] used the Guttman scale having six assimilation stages: not aware, aware, interest, evaluation/trial, commitment, limited deployment, and general deployment. A similar scale was adopted for this research, including the following stages: no current activity; aware; interested; evaluated; committed; limited installation; general installation; acquired, evaluated, and rejected; and do not know/other. This technology cluster adoption and assimilation model maps to the theory of Rogers [60]; however, the research model employs a more granular scale by mapping “no current activity” and “aware” to Rogers’s knowledge phase, “interest,” “evaluation,” and “commitment” to the persuasion and decision phase, and “limited deployment” and “general deployment” to the implementation phase.

#### **Independent Variable—Mimetic, Normative, and Coercive Pressures**

These constructs were borrowed from Teo et al. [62], Liang et al. [33], and Rui et al. [7]. These are all first-order formative constructs.

#### **Mediating Variable—Absorptive Capacity & Top Management Support**

We adopted the measure used by Ettlie and Pavlou [14] because the items they used were most closely associated with the notion of absorptive capacity that we are using in this research. This is a first-order reflective construct. For top management we adopted the measure from Liang et al. (2007)

#### **Control Variables**

To date, there has been considerable research in the information systems field into the antecedents of technology adoption for large firms. In order to isolate the effects of social influences from the factors that are known to be heavily correlated with technology adoption, the control variable of firm size was chosen..

*Firm Size:* According to Rogers [47], size is one of the most critical determinants of innovator profile. It has been well established in the innovation diffusion literature that firm size is often a proxy for resource slack and infrastructure, which promote innovativeness [41] [56].

#### **Table 1: Measures, Variables, and Their Sources**

Latent Variables	Individual Measures	Variable Description	References
<i>Independent variables</i>  INSTITUTIONAL PRESSURES	Mimetic	3-item formative construct	[33] [52]
	Normative	5-item formative construct	[7] [33] [59]
	Coercive	3-item formative construct	[31] [52] [58]
<i>Control variables</i>	Firm size	Actual size of the firm	[33]
<i>Mediating variable</i>  Top Management Support	Top management	2-item reflective construct	[33]
<i>Mediating variable</i>  Absorptive capacity	Absorptive capacity	4-item reflective construct	[14]
<i>Dependent variable</i>  SOFTWARE ASSIMILATION	Assimilation of Web 2.0 technologies	4-item formative construct, each using Guttman scale	[15] [47]

**DATA COLLECTION**

A market research firm- researchnow.com was used to obtain sample data. The firm has over 6 million members across various industry verticals and professions. Mostly IT professionals and managers from a wide range of industries and firm sizes participated and 300 usable responses were obtained. Over 60% had more than ten years of professional experience.

**PRELIMINARY CONCLUSIONS**

Analysis was done on the measurement model and high Cronbach alpha values (> .8) were obtained for the two reflective latent variables- absorptive capacity and top management. The factor loadings on the two construct items were also very high. Bootstrapping analysis was done for the structural model and the result is shown in figure 5. Table below provides a list of hypothesis that were supported.

**Table 2: Hypothesis Support**

Hypothesis	H1-A	H1-B	H1-C	H2-A	H2-B	H2-C	H-3	H-4	H-5	H6-A	H6-B	H6-C
Conclusion	yes	no	yes	yes	no	yes	no	no	yes	no	yes	yes

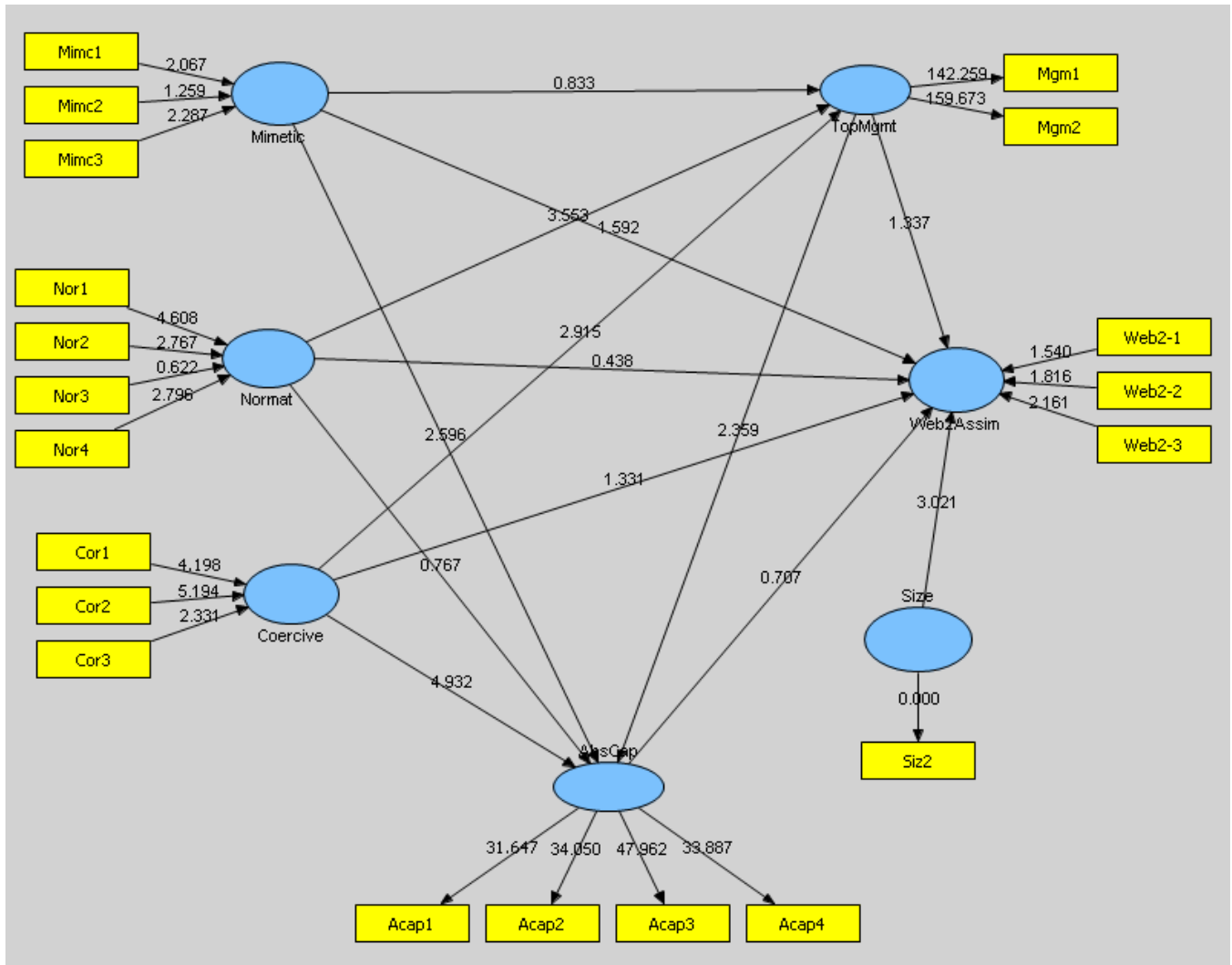


Figure 4: Preliminary Results of Boot-strapping analysis

The results of PLS analysis are shown in figure 5 where we have significant R-square values for absorptive capacity (.35), top management support(.23) and Web 2.0 assimilation(.14).

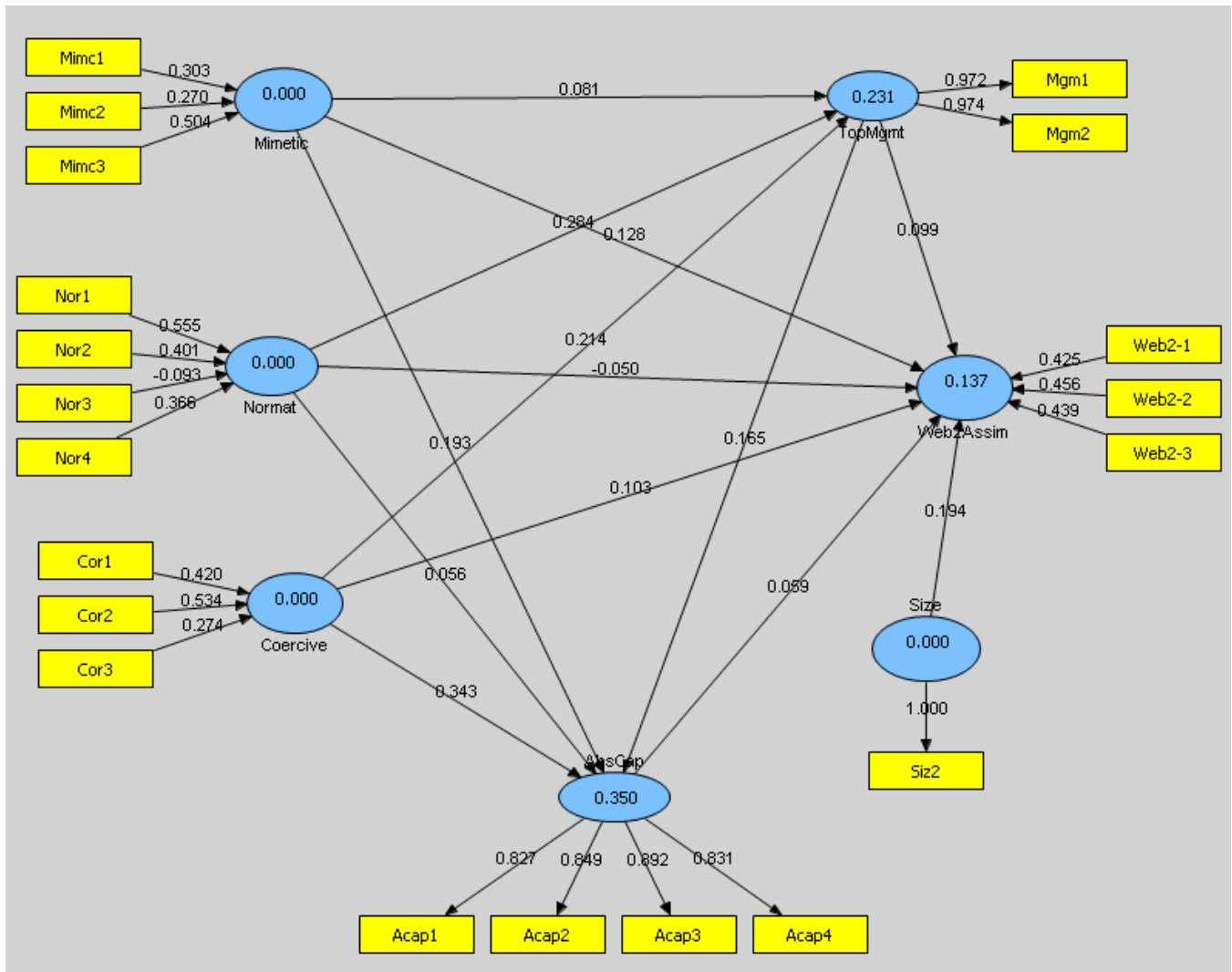


Figure 5: Preliminary Results of PLS analysis

## DISCUSSION

To the best of our knowledge this is the first paper that uses institutional theory as an antecedent to study assimilation of Web 2.0 technologies. In terms of theoretical contribution, it extends work by Teo et al. (2003) and Liang et al. (2007) by investigating the role of absorptive capacity of a firm acting as a mediating factor between institutional pressures and IT assimilation.

## REFERENCES

- [1] Alpar, P. and Reeves, S. (1990) Predictors of MS/OR applications in small businesses, *Interfaces*, 20,2, 2-11.
- [2] Bankers to venture-backed clients- You're not a Facebook, January 10, 2010, Wall Street Journal.
- [3] Bughin, Jacques, Michael Chui and James Manyika. (2010) Clouds, big data, and smart assets, Ten tech-enabled business trends to watch, *McKinsey Quarterly*, August.
- [4] Bughin, Jacques and Michael Chui (2010) The rise of the networked enterprise: Web 2.0 finds its payday, *McKinsey Quarterly*.
- [5] Burt, R. S. (1982) *Toward a Structural Theory of Action: Network Models of Social Structure, Perception, and Action*, Academic Press, New York, 1982.
- [6] Chatterjee, Debabroto, Grewal, Rajdeep and Sambhamurthy, V. (2002) Shaping up for E-Commerce: Institution Enablers of the Organizational Assimilation of Web Technologies," *MIS Quarterly*, 26, 2, 65-89.
- [7] Chen, Rui, Jingguo Wang, Tejaswini Herath, and H Raghav Rao. (2011) An Investigation of Email Processing from a Risky Decision Making Perspective, forthcoming in *Decision Support Systems*.
- [8] Clemons, E. K. (1990) MAC-Philadelphia National Bank's Strategic Adventure in Shared AMT Networks," *Journal of Management Information Systems*, (7:1), 1990, 5-25.
- [9] Cohen WM, Levinthal DA. 1990. Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly* 35: 128-152.
- [10] Daghfous A. 2004. Absorptive capacity and the implementation of knowledge-intensive best practices. *SAM Advanced Management Journal* 69: 21-27.
- [11] DiMaggio, P. and Powell. W. W.(1983) "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* (8:2). 1983, pp.147-160.
- [12] DiMaggio, Paul J. (1991). "Constructing an Organizational Field as a Professional Project: U.S. Art Museums, 1920-40," in *The New Institutionalism in Organizational Analysis*, edited by Walter Powell and Paul DiMaggio, University of Chicago Press, Chicago.
- [13] Dorr, G. and Kessel, T. (1996) Transformation as a Learning Process: Experiences with Joint Ventures in the Czech Republic and an Example of New Modern Forms of Organizing Production, *Emergo*, 3:2, pp. 44-57
- [14] Ettl, J. E. and Pavlou, P. A. (2006). Technology-based new product development partnerships, *Decision Sciences*, 37:2, 117-147.
- [15] Fichman, Robert. (2001) The role of Aggregation in the Measurement of IT-Related Organizational Innovations, *MIS Quarterly*, 25, 4, 401-429.
- [16] Fligstein, Neil. (1991). "The Structural transformation of American industry: an institutional account of the cause of diversification of large firms, 1919-1979," in *The New Institutionalism in Organizational Analysis*, edited by Walter Powell and Paul J. DiMaggio, pp. 311-336, University of Chicago Press, Chicago.
- [17] Garud, R., & Nayyar, P. R. 1994. Transformative capacity: Continual structuring by intertemporal technology transfer. *Strategic Management Journal*, 15: 365-385.
- [18] Grover, V. and Goslar, M.D. (1993). The Initiation, Adoption, and Implementation of Telecommunications Technologies in U.S. Organizations, *Journal of Management Information Systems* 10(1): 141-163.
- [19] Hage, J. and Hollingsworth, J. R. (2000). A Strategy of Analysis of Idea Innovation Networks and Institutions, *Organization Studies*, 21:971-1004.
- [20] Haveman, H. A. (1993) Follow the Leader: Mimetic Isomorphism and Entry into Markets," *Administrative Science Quarterly*, 38, 4, 593-627.
- [21] Hinings, Bob and Greenwood, Royston. (1988). "The normative prescription of organizations," in *Institutional Patterns and Organizations: Culture and Environment*, edited by L. G. Zucker, 53-70, Ballinger, Cambridge, MA.
- [22] Hirt, S. G., and Swanson, E. B. "Emergent Maintenance of ERP: New Roles and Relationships," *Journal of Software Maintenance: Research and Practice* (13:6), 2001, pp. 373-397.

- [23] Jeyaraj, Anand , Joseph W Rottman and Mary C Lacity (2006) A review of the predictors, linkages and biases in IT innovation research, *Journal of Information Technology*, 1, pp. 1-21
- [24] Kadtlar, Jurgen (2001) Social Movements and Interest Groups as Triggers for Organizational Learning, in *Handbook of Organizational Learning and Knowledge*, ed. By, Meinolf Dierkes, Ariane Berthoinantal, John Child and Ikujiro Nonaka, Oxford University Press, Oxford.
- [25] Kishore, R. and McLean, E. R. (2007) Reconceptualizing innovation compatibility as organizational alignment in secondary IT adoption contexts: an investigation of software reuse infusion, *IEEE Transactions on Engineering Management* , 54, 4, 756-775.
- [26] Knudsen, S. E., Walton II, J. K., and Young, F. M. (1994) Business-to-Business Payments and the role of Financial Electronic Data Interchange, *Federal Reserve Bulletin*, 80, 4, 269-278.
- [27] Kondra, Alex Z. and Hinings, C. R. (1998). "Organizational Diversity and Change in Institutional Theory," *Organization Studies*, 19, 5, pp. 743-767.
- [28] Kulviwat, Songpol, Gordon C. Bruner II and Obaid Al-Shuridah, (2009) The role of social influence on adoption of high tech innovations: The moderating effect of public/ private consumption, *Journal of Business Research*, 62, 706-712.
- [29] Lane, P. J., Koka, B., & Pathak, S. 2006. The reification of absorptive capacity: A critical review and rejuvenation of the construct. *Academy of Management Review*, 31: 833–863
- [30] Leahy D, and Neary JP. 2007. Absorptive capacity, R&D spillovers and public policy. *International Journal of Industrial Organisation* 25: 1089–1108
- [31] Leana, Carrie, R., and Frits K. Pil (2006) Social Capital and Organizational Performance: Evidence from Urban Public Schools, *Organization Science*, 17:3, 353-366
- [32] Lee, Kyongmook and Pennings, Johannes. (2002). "Mimcry and the Market: Adoption of a New Organizational Form," *Academy of Management Journal*, 45, 1.
- [33] Liang, Huang , Nilesh Saraf, Quing Hu and Yajiong Xue (2007) Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management, *MIS Quarterly*, 31(1), pp. 59-87.
- [34] Lichtenthaler, Ulrich (2009) Absorptive Capacity, Environmental Turbulence, and the Complementarity of Organizational Processes, *Academy of Management Journal*, 52:4, 822-846.
- [35] Lieberman, M., and Montgomery, D. (1988) "First-Mover Advantages." *Strategic Management Journal*, (9:1), pp. 41-58.
- [36] Malhotra, A., Gosain, S., and Sawy, O. A. E. (2005) Absorptive capability configurations in supply chains: Gearing for partner-enabled market knowledge creation, *MIS Quarterly*, 29(1), 145-187.
- [37] Marcus, A. A. and Weber, M. J. (1989) Externally Induced Innovation, in A. H. Van de Ven, H. L. Angle, M. S. Poole (eds), *Research on the Management of Innovation: The Minnesota Studies*, Harper & Row, NY.
- [38] Markus, M. L. (1987) Toward a Critical Mass Theory of Interactive Media: Universal Access, Interdependence, and Diffusion, *Communication Research* , 14, 5, 491-511.
- [39] Mathiassen, L. and Pries-Heje, J. (2006) Business Agility and Diffusion of Information Technology, *European Journal of Information Systems*, 15, 116–119.
- [40] Meeus, Marius T. H. and Jerald Hage. (2006) Product and Process Innovation, Scientific Research, Knowledge Dynamics, and Institutional Change: An Introduction in *Innovation Science and Institutional Change: A Research Handbook*, edited by Jerald Hage and Marius Meeus, Oxford University Press, Oxford.
- [41] Mohr, M. K., and Morse, E. V. (1977) Size, Centralization and Organizational Adoption of Innovations," *American Sociological Review*, 42, 5, 716-725.
- [42] Narula R. 2004. Understanding absorptive capacity in an 'innovation system' context: consequences for economic and employment growth. MERIT-Infonomics Research, Memorandum Series no. 3, Maastricht
- [43] Petter, Stacie, Detmar Straub and Arun Rai. (2003) Specification and Validation of Formative Constructs in IS

Research, Working Paper, Georgia State University.

- [44] Pfeffer, J., and Salancik, G. (1978) *External Control of Organizations: A Resource Dependence Perspective*, Harper and Row, New York. 1978.
- [45] Plouffe, C.R., Hulland, J.H. and Vandenbosch, M. (2001). Research Report: Richness versus parsimony in modeling technology adoption decisions –understanding merchant adoption of a smart card-based payment system, *Information Systems Research* 12(2): 208–222.
- [46] Premkumar, G., Ramamurthy, K. and Nilakanta, S. (1994). Implementation of Electronic Data Interchange: An innovation diffusion perspective, *Journal of Management Information Systems* 11(2): 157–186.
- [47] Rogers, E. M. (2005) *Diffusion of Innovations*, Free Press, New York.
- [48] Sherer, Peter D., and Lee, Kyungmook. (2002). “Institutional Change in Law Firms: A Resource Dependency and Institutional Perspective,” *Academy of Management Journal*, 45, 1, pp. 102-119.
- [49] Somers, T. M., and Nelson, K. “A Taxonomy of Players and Activities Across the ERP Project Life Cycle,” *Information & Management* (41:3), 2004, pp. 257-278.
- [50] Staw, B. M., and Epstein, L. D. “What Bandwagons Bring—Effects of Popular Management Techniques on Corporate Performance, Reputation and CEO Pay,” *Administrative Science Quarterly* (45:3), 2000, pp. 523-556.
- [51] Teo, H. H., Wan, W., Wang, X., and Wei, K. K. “Effects of Absorptive Capacity on Organization Predisposition Towards Information Systems,” in *Proceedings of the 24th International Conference on Information Systems*, S. T. March, A. Massey, and J. I. DeGross (eds.), Seattle, WA, 2003a, pp. 121-133.
- [52] Teo, H. H. , K. K. Wei and I. Benbasat (2003) Predicting Intention to Adopt Inter-organizational Linkages: An Institutional Perspective, *MIS Quarterly*, 27(1), pp. 19-47
- [53] Thong, James Y. L., Yap, C. S., and Raman, K. S. (1996) Top Management Support, External Expertise and Information Systems Implementation in Small Businesses, *Information Systems Research*, 7, 2, 248-267.
- [54] Thong, James Y. L. (1999) An Integrated Model of Information Systems Adoption in Small Businesses,” *Journal of Management Information Systems*, 15, 4, 187-214.
- [55] Tsai, Wenpin and Sumantra Ghoshal (1998) Social Capital and Value Creation: The Role of Intrafirm Networks, *Academy of Management Journal*, 41:4, 454-476.
- [56] Utterback, J. M. (1974) Innovation in Industry and the Diffusion of Technology, *Science*, 183, 620-626.
- [57] Webster, J. (1995) Networks of Collaboration or Conflict? Electronic Data Interchange and Power in the Supply Chain, *The Journal of Strategic Information Systems*, 4, 1, 31-42.
- [58] Wincent, Joakim (2006) On Building Competitive Strategic Networks, Doctoral Thesis, Lulea University of Technology.
- [59] Yli-Renko, Helena, Erko Autio and Harry Sapienza (2001) Social Capital, Knowledge Acquisition, and Knowledge Exploitation in Young Technology-Based Firms, *Strategic Management Journal*, 22, 587-613.
- [60] Zahra, S. A., & George, G. 2002. Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27: 185–203.
- [61] Zhu, Kevin, Kraemer, Kenneth, and Xu, Sean Kenneth (2003) Electronic business adoption by European firms: cross-country assessment of the facilitators and inhibitors, *European Journal of Information Systems*, 12(4), p251-268
- [62] “MBA services science concentration announced as part of IBM-NC State SSME curriculum initiative”-  
[http://www.mgt.ncsu.edu/news/2006/mba\\_ssme.php](http://www.mgt.ncsu.edu/news/2006/mba_ssme.php)-- January 15, 2010