# Challenges in Thailand Employing Web 2.0 Technologies for SCM

**Andrew P. Ciganek[1], Suprasith Jarupathirun[2]**

[1]Jacksonville State Univeristy, U.S.A. Email aciganek@jsu.edu

[2]Ramkhamhaeng University, Thailand Email jarupat2@gmail.com

## ABSTRACT

Web 2.0 technologies, such as blogs, social networking sites, wikis, and Web services, are increasingly being used to facilitate information sharing amongst supply chain partners, from obtaining richer customer information to linking disparate business partners' information systems. There are unique cultural challenges for organizations in Thailand, however, that may prevent the full utilization of these technologies for supply chain management purposes and thus impact their overall competitiveness in the global marketplace. This research will discuss these challenges and propose various ways that Thai organizations can reap the benefits that Web 2.0 technologies offer.

## 1. INTRODUCTION

There are many innovative technologies today that are available in which organizations across the world are actively utilizing for their advantage. For some firms, business need drives their pursuit for technology while others actively scour the hundreds of new software applications that become available each year in pursuit for that one technology that will lead to efficiencies and/or competitive advantage. Web 2.0 technologies are a relatively new set of Internet-based applications that can provide such efficiencies and advantage indiscriminant of an organizations worldwide presence.

Web 2.0 technologies are described as those that utilize the Internet and Web interface design to enhance creativity, information sharing, and collaboration among users ("Web 2.0", 2008). Many of these Web 2.0 applications have been used by innovative organizations to add value to all participants in their supply chain. Some of the more notable applications include Web services standards which offer the ability for organizations to link together isolated and proprietary software systems from either within the firm or with their external business partners. Using Web services therefore allows both a scalable and cost effective way to for participants in a supply chain to be linked together leveraging their existing information systems and business processes.

Another popular way that these Web 2.0 technologies have been used to add value for firms is to allow customers to drive the supply chain processes. By promoting creativity, information sharing, and collaboration between an organization and its customers, this relationship has allowed the customer to forge an unprecedented bond with an organization while affording them unique influence to an organization's supply chain. As a result, managers are now able to capture much

better information about the preferences and characteristics of their customers which they can leverage to generate much more accurate forecasts resulting in a much more efficient supply chain.

With these few examples of the opportunities that Web 2.0 technologies have to offer, one might think that organizations across the world would be actively pursing them.  As we have seen with relatively new usage of Web services in the United States nearly five years ago, there were many challenges that existed that limited its widespread usage among organizations (Ciganek, Haines, & Haseman, 2005, 2006).  Some of these challenges were a lack of financial justification to invest in Web services, no proven examples of organizations successfully using Web services, as well as a lack of available technical skills to make use of Web services.  While Web services usage is commonplace and widespread among organizations in the United States today, Asian countries like Thailand are lagging several years behind.  The objective of this research is to discuss the possible cultural causes for why Thailand has lagged behind and reveal ways in which Thai organizations can reap the benefits that Web 2.0 technologies offer to improve their supply chains. We next present a literature review for this research followed by a discussion with specific implications for Thai organizations.  We then discuss some concluding remarks.

## 2. LITERATURE REVIEW

### 2.1 Web Services

Web services, which are the most common standards used for developing a service-oriented architecture (SOA), are a way to support disparate systems to interact with one another over a network like the Internet.  Disparate systems interact with Web services in a way prescribed by using SOAP1 messages, which are typically sent over a network using Hypertext Transfer Protocol (HTTP) in conjunction with other Web-related standards.  A service registry based on the Universal Description Discovery & Integration (UDDI) standard can be used to publish and discover Web services.  A service-oriented architecture, on the other hand, is way to build entire software applications that use available services, which may be found using UDDI, in a network (Mahmoud, 2005; Papazoglou & Georgakopoulos, 2003).  Service orientation is frequently viewed as the best approach to achieve a flexible, adaptive, and reliable underlying IT architecture (Hagel & Brown, 2001).

### 2.2 Web Logs ("Blogs")

Blogs, which are a specific type of Web site, are a frequent, reverse-chronological publication of personal thoughts and/or Web links (Kumar, Novak, Raghavan, & Tomkins, 2004). The primary aspect that distinguishes blogs from traditional Web sites is that they allow authors to focus on content rather than on the HTML.  Consequently, this lowers the barriers of entry to publish

---

[1] SOAP originally was an acronym for *Simple Object Access Protocol*, but the acronym was dropped in Version 1.2 of the SOAP specification.

a blog for non-Web savvy individuals to nearly zero as they are very simple to use (Blood, 2004). This has led to several different and interesting ways in which both individuals and organizations alike have pursed this technology for their own advantage.

Blogs provide a means to reach others and relate in ways never before realized with traditional Web sites. For example, the vice chairman and chief operating officer of General Motors launched a blog in January of 2005 as a way for leadership to stay connected with the General Motors workforce. Consequently, the blog has been a hit, has given a face to the company's senior leadership, and created a level of personalization for employees that that hasn't always existed in the past (Melcrum, 2005). In another example, Southwest airlines established a corporate blog in April of 2006 in an attempt to give employees an opportunity to engage with customers outside of the typical formal transactional relationship (Vargo, 2006). Further, senior management and employees at other American-based companies such as Accenture, Microsoft, IBM, and Sun Microsystems are all maintaining blogs to share opinions, stimulate discussion, garner ideas, and provide insights into corporate strategies. These examples are just a small sampling of the ways that corporate blogs are being used as an informal means of communication which is a unique way for firms to build relationships with key stakeholders while promoting a perception of responsiveness, trustworthiness, and innovativeness. These particular qualities are among those most desired by organizations today (Semple 2006).

2.3 Culture

Culture is theorized to shape the behavior of a collection of individuals (Hofstede & Hofstede, 2004) and has been shown to have a significant impact on decision making processes (Ciganek, Mao, & Srite, 2008). Culture is defined as the "interactive aggregate of common characteristics that influence a human group's response to its environment" (Hofstede & Hofstede, 2004, p. 10). Culture establishes social norms and values, which in turn affect individual behaviors and beliefs. Hofstede and Hofstede (2004) identify five different dimensions of national culture that explain the similarities as well as differences of behavior and belief among individuals in different societies; high/low power distance, individualism/collectivism, masculinity/femininity, high/low uncertainty avoidance, and long-/short-term orientation. Each of these dimensions, with respect to the United States and Thailand, are summarized in

Table 1.

Table 1: Summary of National Culture Dimensions (Adapted from Hofstede, 2007)

| | |
|---|---|
| **Power Distance: Extent less powerful members of organizations accept and expect power distributed unequally** | |
| United States: | Thailand: |
| Greater equality between societal level | High level of inequality of power and wealth, |
| Cooperative interaction across power levels | not necessarily forced upon the population, but |
| More stable cultural environment | accepted by the society as a part of their |
| | cultural heritage |
| **Individualism/Collectivism: Degree to which individuals are integrated into groups** | |
| United States: | Thailand: |
| More individualistic attitude | Close, long-term commitment to the member |
| Relatively loose bonds with others | 'group' |
| Self-reliant | Loyalty is paramount |
| | Strong relationships; everyone takes |
| | responsibility for others |
| **Masculinity/Femininity: The distribution of roles between the genders** | |
| United States: | Thailand: |
| High degree of gender differentiation of roles | Less assertiveness and competitiveness |
| The male dominates a significant portion of the | |
| society and power structure | |
| **Uncertainty Avoidance: Tolerance for uncertainty and ambiguity** | |
| United States: | Thailand: |
| Fewer rules | Strict rules, laws, policies, and regulations are |
| Does not attempt to control all outcomes and | adopted |
| results | Goal is to control everything to avoid the |
| Tolerance for a variety of ideas, thoughts, and | unexpected |

| beliefs | Does not readily accept change, very risk adverse |
| --- | --- |
| Long-/Short-Term Orientation: Concern with virtue regardless of truth | |
| United States: | Thailand: |
| Fulfills its obligations | Emphasis on thriftiness and perseverance |
| Appreciation for cultural traditions | |

Since the United States and Thailand are on the opposite ends of every national culture dimension, and in some instances, the most extreme ends (Hofstede, 2007), we anticipate that there are many insights specific to the usage of Web 2.0 technologies in Thailand that can be gained. For example, Thailand is characterized as having a low tolerance for uncertainty, which should have an impact on the specific organizational policies and procedures in place. Similar dichotomies exist among both cultures in each of the other national culture dimensions and have been shown to significantly influence differences in perceptions (Ciganek, Jarupathirun, & Zo, 2004). The usage of Web 2.0 technologies by Thai organizations, while facing the same competitive threats as the United States by participating in the global economy, should lead to some key insights for future research directions and opportunities for practice for Thai firms.

### 3. DISCUSSION

A recent Springboard Research survey indicated that barely 20% of organizations in the Asia Pacific region were aware of SOA, and of those that were aware of SOA, there was a wide range in understanding of what SOA means and does (Shekhar & Anderson, 2007). Additional findings from this survey indicated that for those Asia Pacific organizations that have not implemented a SOA, they were unsure of the benefits that SOA could deliver which has made it difficult to convince management to pursue this technology. These are the same challenges that many American organizations faced and have overcome several years earlier (Ciganek, Haines, & Haseman, 2005, 2006), which is a lifetime in how quickly such innovative technologies are diffused and utilized among industry leaders.

The hesitation to pursue a Web 2.0 technology like Web services and SOA has significant supply chain implications for Thai organizations. If the competitors to Thai organizations on the global market are years ahead in refining their supply chains, making them more efficient by allowing them relatively easy access to link together any supply chain participant, Thai firms will have difficulties in competing effectively in the world market. If Thai organizations are unable to connect their supply chain with global partners with the same ease that other organizations across the world are able to, this will put them at a distinct competitive disadvantage, one that would be difficult to overcome.

So if the challenges for implementing a SOA are not unique and there are such strong incentives to implement that technology, why hasn't Asia Pacific organizations like those in Thailand,

been so slow to respond?  If we consider the cultural dimension individualism-collectivism, which refers to the degree that individuals are integrated into groups and is high in Thailand, this may shed some insight.  In Thailand, which is characterized as a collectivist culture, there are strong, close, long-term commitments to relationships that exist for members belonging to the same member group.  Loyalty is paramount and is the ruling guide in the society.  This cultural dimension suggests that it is not the nature of Thai organizations to be so willing and easy to expand their relationships to prospective external partners outside of their "group".  Further, that when it comes to implementing new technologies, for example, that they look to their existing partners for guidance first before pursuing external advice.  This may suggest why Asia Pacific organizations are facing the same challenges that have already been resolved elsewhere, simply because their referent pool of knowledge and wisdom lies within their close business partners that are also faced with the same challenges.  There may be no simple solution to this scenario except to recommend that Thai organizations broaden their knowledge-base beyond their business partners to the global market

Also reported in the Springboard Research survey was that the investment cycles in SOA for Asia Pacific organizations tend to be slow (Shekhar & Anderson, 2007).  This slow response may also be indicative of a cultural response associated with Thailand – uncertainty avoidance.  Uncertainty avoidance describes the tolerance for uncertainty and ambiguity that is considered acceptable in one country over another.  This suggests that Asia Pacific companies, like those in Thailand, is true to its characterization as a culture that is very risk adverse or does not readily accept change.  These companies are years behind their global competitors and are taking a conservative or cautious approach to investment in these technologies.  As a result, these organizations suffer while competing on a global scale that requires agility and speed.  Though there is promise as Thailand is working with technology vendors to improve the visibility and maturity of SOA in the country ("Thailand and IBM to Create Nationwide SOA Center of Excellence", 2006).

With these substantial cultural obstacles to overcome, how can Thai organizations improve their supply chain processes with Web 2.0 technologies to compete globally?  Surely one possibility is for Thai organizations to take a much more aggressive approach to implementing SOA and Web services, but there are other options as well.  Blogs provide a means to reach participants within a supply chain in ways never before realized with traditional Web sites (Ciganek & Jarupathirun, 2007).  For example, an online Thai newspaper (manager.co.th) uses a blog so that their customers can share ideas about news or incidents.  An online Thai publishing company (www.pc-bookclub.com) uses a blog to promote books and allows their customers to provide feedback.  Yet another example of a Thai organization with a blog is a Thai software developer and services company (www.globalsolution.co.th) that uses its blog to promote their offerings and to distribute news about the company.  Blogs are becoming a much more popular way for Thai organizations to create an intimate relationship with their supply chain partners, which can include their suppliers, distributors, retailers, and as shown in the examples listed above, their customers.

Thai organizations that utilize blogs create a forum where their supply chain partners can communicate their preferences and provide feedback that can help direct the supply chain decisions of management.  A revolution in supply chain management strategy was the success of a "pull" supply chain strategy in which the customer requests a specific product and "pulls" it through the supply chain delivery channel.  Previous data for making supply chain forecasts and decisions were solely based raw sales transactions, but now, organizations have been able to incorporate customer feedback and preferences, thorough online profiles, to improve the accuracy and efficiency of their supply chain process.  Since blogs provide a means for customers and other supply chain partners to communicate preferences and provide feedback, a logical progression would be incorporating this data into the supply chain.  To the authors' knowledge, this progression has yet to occur and provides a prospect for Thai organizations to be the innovators in utilizing this Web 2.0 technology to improve supply chain processes.  As blogs are increasingly being utilized by Thai organizations, this offers an opportunity for Thai firms in their supply chain.

## 4. CONCLUSION

There are several Web 2.0 technologies that are increasingly being used to facilitate information sharing amongst supply chain partners.  As such, there are unique cultural challenges for organizations in Thailand that may prevent the full utilization of these technologies and thus impact their overall competitiveness in the global marketplace.  This research discussed a few of these Web 2.0 technologies in greater detail, the cultural challenges that Thai organizations face, and the supply chain opportunities that these technologies create for Thai organizations.  The discussion also presented practical ways that Thai organizations can take advantage of Web 2.0 technologies and compete in the global marketplace.  Although there are cultural challenges that Thai organizations face that may dispose them to a competitive disadvantage in the global economy, Web 2.0 technologies provide a means for improving supply chain efficiency and effectiveness.

## REFERENCES

[1]    Blood, R. (2004). How Blogging Software Reshapes the Online Community. Communications of the ACM, 47, 12, 53-55.

[2]    Ciganek, A. P., Haines, M. N., & Haseman, W. (2005). Challenges of Adopting Web Services: Experiences from the Financial Industry. Paper presented at the Proceedings of the 38th Annual Hawaii International Conference on System Sciences, Kona, HI.

[3]    Ciganek, A. P., Haines, M. N., & Haseman, W. (2006). Horizontal and Vertical Factors Influencing the Adoption of Web Services. Paper presented at the Proceedings of the 39th Annual Hawaii International Conference on System Sciences, Poipu, Kauai, HI.

[4]     Ciganek, A. P., & Jarupathirun, S. (2007). "The Application of Corporate Blogs for Strategic Advantage," Proceedings of the Third Conference on Digital Environments, Bangkok, Thailand.

[5]     Ciganek, A. P., Jarupathirun, S., & Zo, H. (2004). The Role of National Culture and Gender on Information Elements in e-Commerce: A Pilot Study on Trust. Paper presented at the Tenth Americas Conference on Information Systems (AMCIS), New York, New York.

[6]     Ciganek, A. P., Mao, E., & Srite, M. (2008). Organizational Culture for Knowledge Management Systems: A Study of Corporate Users. International Journal of Knowledge Management, 4(1), 1-16.

[7]     Hagel, J., & Brown, J. S. (2001). Your Next IT Strategy. Harvard Business Review, 79(9), 105-113.

[8]     Hofstede, G.  (2007). Geert Hofstede Cultural Dimensions. Retrieved October 10, 2007 from www.geert-hofstede.com

[9]     Hofstede, G., & Hofstede, G.-J. (2004). Cultures and Organizations: Software of the Mind. New York, New York: McGraw-Hill.

[10]    Kumar, R., Novak, J., Raghavan, R. & Tomkins, A. (2004). Structure and Evolution of Blogspace. Communications of the ACM, 47, 12, 35-39.

[11]    Mahmoud, Q. H. (2005). Service-Oriented Architecture (SOA) and Web Services: The Road to Enterprise Application Integration (EAI). Sun Developer Network.

[12]    Melcrum (2005). Why GM's Leadership Blog is a Hit. Strategic Communication Management, 9, 4, 3.

[13]    Papazoglou, M. P., & Georgakopoulos, D. (2003). Service-Oriented Computing. Communications of the ACM, 46(10), 24-28.

[14]    Semple, E. (2006). The Quiet Revolution. Strategic Communication Management, 10, 6, 5.

[15]    Shekhar, R. & Anderson, D. (2007). Service Oriented Architecture in Asia Pacific: Towards More Business Friendly IT. Retrieved July 21, 2008 from www.springboardresearch.com/content/pdfs/soa_asia.pdf

[[16]   "Thailand and IBM to Create Nationwide SOA Center of Excellence" (2006, September 15). IBM.  Retrieved July 28, 2008 from www-03.ibm.com/press/us/en/pressrelease/20266.wss

[17]    Vargo, A. (2006). Chatting to Customers at Southwest. Strategic Communication Management, 10, 4, 3.

[18]    Web 2.0. (2008, August 5). Wikipedia. Retrieved August 5, 2008 from en.wikipedia.org/wiki/Web_2.0