

Dipstick Report on Blogs, Wikis & Workspaces in Singapore

20th June 2008



The term “Dip-Stick report” was coined by the author to describe a quick and concise view of a practice area. As in its analogy of its automobile equivalent, the purpose and function of the use of a dip-stick is to provide a quick gauge of the investigated area. Dipstick reports may suggest or pave the way for follow-on reports and investigations toward observed/ measured phenomena.

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Abstract

This paper presents findings from an informal survey conducted by the Institute of Systems Science (ISS), between September to November 2007. The survey polled participants regarding perceptions and best practices of common Web 2.0 tools and their usage within the enterprise. This survey is preceded by a very similar survey done in the U.S.ⁱ. The American survey focused on three key common Web 2.0 applications: Blogs, Workspaces and Wikis. For the Singapore survey, these same Web 2.0 applications were in scope, with conscious effort made to present similar questions as the U.S. survey so that a truly comparative study could be endeavored. Survey results revealed several interesting insights into corporate adoption of Web 2.0: **Singapore organizations were clearly trailing behind their U.S. counterparts in their adoption of web 2.0 technologies within the enterprise.** Moreover, Singaporean executives largely used Web 2.0 for internal knowledge sharing processes and knowledge retention, unlike Americans who tended to utilize Web 2.0 tools more as a platform for external communication, collaboration and community engagement. These and other key findings will be presented.

Introduction

In a McKinsey-conducted Global survey (McKinsey, 2007), more than three fourths out of 2847 respondents queried (mostly executives in C-level positions) stated that they planned to maintain or increase their investments in technology trends that encourage user collaboration and contribution, such as P2P networking, social networks and web services. Web 2.0, the new-and-improved web, is all about openness, collaboration and ceding control to the collective net community. Corporations have only just begun to tap into the enormous potential of Web 2.0 to make collaboration and peer-sharing the new drivers for their long-term sustenance and success in the 21st Century.

From their immensely successful book *Wikinomics*, Authors Don Tapscottⁱⁱ and Anthony D. Williams proclaimed that ‘openness, peering, sharing, and acting globally would increasingly define how twenty-first-century corporations compete’ (Tapscott & Williams, 2006). More and more organizations have come to realize this and thus found the impetus to turn to Web 2.0 to reinvent their businesses according to the new emerging paradigm. As far as Singapore is concerned, advanced infocomm technology adoption has been a key government and national policy agendaⁱⁱⁱ. The successful implementations in many services sector including government services have won numerous accolades^{iv}.

The small island state of over 4.5 million citizens with 53% internet penetration^v has, within a short space of time, established itself as a world-class knowledge economy, and has been consistently featured in top spots of infocomm global rankings.^{vi} Rising to the top of any world rankings requires many years of technological and infrastructural investments, pro-business policy and support, government attention, and citizen-involvement. To remain a champion in any world-rankings with the rise of new economic powers, Singapore must remain vigilant in monitoring new global technological trends and adoptions, and continually perform pulse checks on our businesses’ and citizens’ adoption of new applications that can impact industry and government competitiveness.

Informal Survey on web 2.0 tools adoption in Singapore

Within the published information on the macro view of web adoption, lesser is known about the specific tools and usage level amongst Singapore's IT users, particularly with what is now popularly termed as Web 2.0 applications. Web 2.0 tools provide a set of new capabilities such as wikis, blogs, mashups to enable mass-scale, instant collaboration between and amongst individuals, groups, and firms. The business activities enabled by web 2.0 technologies can easily be classified into the highest level of the various web/internet adoption models. Given that the level of Internet adoption has a significant positive relationship with competitive advantage,^{vii} we need to be concerned with the new web 2.0 technologies adoption as low adoption level and awareness of web 2.0 technologies may impact the nation's overall competitiveness in years to come.

As there is a dearth of rigorous and systematic benchmarking studies published on web 2.0 technology adoption in Singapore, the Institute of Systems Science recently conducted an informal on-line survey^{viii} on the use of blogs, wikis, and workspaces in Singapore's info-comm community with the objective to provide early glimpse into web 2.0 adoption trends in Singapore. We conducted an on-line questionnaire survey to collect data for this dip-stick report. The sample comprises of previous and current short courses and executive education courses participants, graduate program alumni, current students, IT practitioners and executives from the institute's own extensive internal database. The survey results were then compared to a similar survey compiled in the U.S.^{ix} (published in June 2006) to act as an initial barometer on whether Singapore, one year after the U.S. study, has experienced similar usage patterns and adoption of web 2.0 applications.

We asked our respondents questions in the use of Blogs, Wikis, and Workspaces and asked for their tools preferences. In the interest of sharing best practices, we also probed our respondents for any advice or knowledge in the use of the tools. This dipstick report is an informal survey designed to provide an early assessment of web 2.0 adoption in Singapore. A rigorous research study with a proper frame of reference, hypothesis formation and testing, more formal questionnaire construction, questionnaire pre-tests, and data tested for reliability, generality, and validity should be a follow-on investigation. Nevertheless, this informal survey provided an early indication of possible problem areas in new technology adoption in a nation otherwise known for its sophisticated and advanced use of infocomm technologies.

Technology Adoption Models

Published reports on internet and web adoption in Singapore have focused on mapping the adoption of certain key technological characteristics to progressively advancing models. IS researchers have used various models in the discussion of internet/web adoption. For example, Rayport and Sviokla (Rayport, 1996) in their article published in *The McKinsey Quarterly* described a three level process model – (1) visibility, (2) mirroring capability, and (3) new customer relationships. The four level Layne & Lee model (Layne, 2001) where government e-services ranked against the technological and organizational complexity to the integration level of business and systems is often cited for e-government adoption model. Another useful model for evaluating internet technology adoption is the Teo & Pian (Teo, 2003) four level web adoption model mapping the extent of web site futures to business objectives, where the highest level (4) of web adoption transforms the business model throughout the organization with the focus is on building relationships and seeking new business opportunities. These academic studies provide a high-level view towards internet technology adoption models and offer explanations for their implications to achieving business objectives and firm performance. The framework models seek to establish a definite symbiotic link between technology adoption and organizational capability and effectiveness in the marketplace. Thus it is crucial for us, as a global forerunner in the information era, to gauge levels of adoption of new technologies at home, to provide early indications of down-stream organizational and economic capability developments.

Summary of Web 2.0 tools adoption in Singapore

The findings from the informal survey are revealing. With the exception of wiki adoption, where Singapore and the U.S. respondents exhibit similar rates, Singapore's users are substantially lower in uses of blogs and workspaces. Only 23% of Singapore's respondents run blogs as compared to 60% of the U.S. respondents. The most glaring gap shows up in the external use of blogs. Of the respondents who run blogs in their enterprises, the vast majority of the U.S. respondents' run blogs for public consumption (97%) whereas only 3% of Singapore respondents run external blogs. One possible explanation of this gap can be found in the qualitative comments from the respondents. Most Singapore respondents noted that the use of the blogs is "for knowledge and ideas sharing" while their American counterpart commented that the use of blogs is for "notifying the public about what's going on in the organization", or "to gain the ability to comment quickly from the public audience on activities in the organization". Data and qualitative comments on use of wikis and workspaces follow a similar pattern. American firms were increasingly using blogs and other web 2.0 technologies to enhance their external communications channel, to gain more presence and visibility outside of their business, while Singaporean organizations were still steps behind, mainly using web 2.0 for internal organizational communications and information sharing initiatives.

Comparison of Web 2.0 tools adoption in Singapore versus U.S.

Singapore blog users in our survey seem to prefer Blogger.com and Wordpress mainly due to ease of use. Bloggers from both countries offer similar words of wisdom for launching a blog in the organization – namely, (1) to have a clear purpose for the blog, (2) to be mindful of content you publish, and (3) to have an overarching theme of the blog. The only web 2.0 application where Singapore users and their U.S. exhibit similar adoption rate is the use of wikis. Both communities show one-fourth adopters versus three-quarters non-adopters of this application. However, the interesting difference is in why they chose to adopt wikis. The U.S. user population overwhelmingly cites collaboration as the primary purpose of wiki adoption, while Singapore users adopted wikis primarily for the purpose of a sharing base platform. In terms of tools preference, Singapore users prefer Confluence due to its power plug-ins and enterprise-level features. Tikiwiki was also often mentioned as a good wiki tool by the Singapore users. The use of workspaces is higher for the American users (52%) than for the Singaporean users (38%). The U.S. users use workspaces primarily for project management and coordination purposes whereas the Singapore users use the tools for ease of document/information sharing. Lotus Notes and Sharepoint are the two often-cited workspace tools by Singapore users.

In all three web 2.0 applications, Singapore's users are still in the internal consumption stage, and have not fully exploited the new technologies as an effective channel to connect the enterprise's products, services, information, and/or knowledge with external constituencies as compared to their U.S. counterparts. This is a cause for concern. If web 2.0 is the natural evolution of the World Wide Web and follows a similar path of profound transformation of businesses and citizens from its wide-spread adoption, Singapore maybe at a disadvantage as more sophisticated rich internet applications are deployed globally. Technology adoption is a laddering process. With the myriad of new technological applications exploding on the scene continuously, we need to prepare our enterprises, government agencies, and citizens to be advanced users of technologies with enduring impact so that we can maintain and keep pace with world competitiveness where innovation plays an increasing important role. A deeper analysis of Singapore's uses of web 2.0 technologies can reveal additional insights on where are the barriers to the widespread adoption so that we can collectively offer solutions to win more advanced users in Singapore.

Survey Background

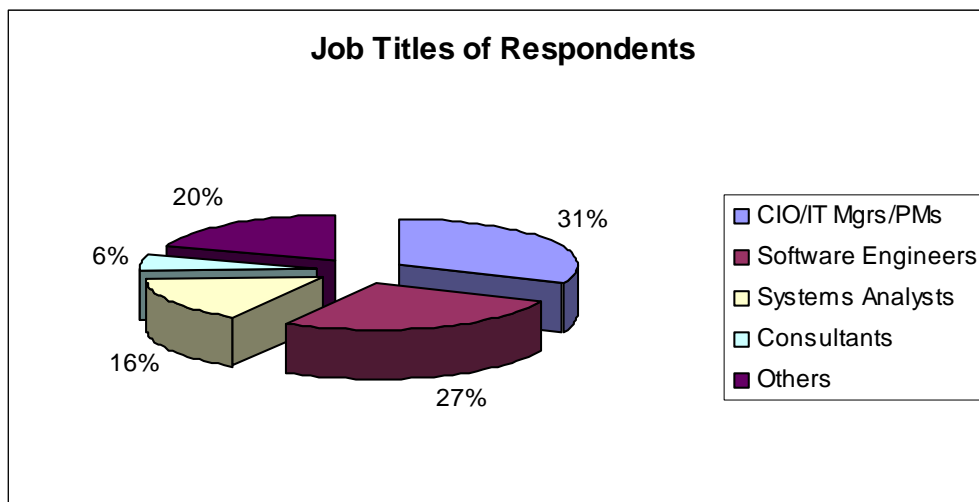
Purposive sampling yielded a sample size of 77 respondents to the Singapore survey.

Figure 1: Survey Respondents Summary

	Singapore	U.S.A.
No. of sent outs	6104	200
No. of responses received	77	72
Percentage of responses	1.26%	36%

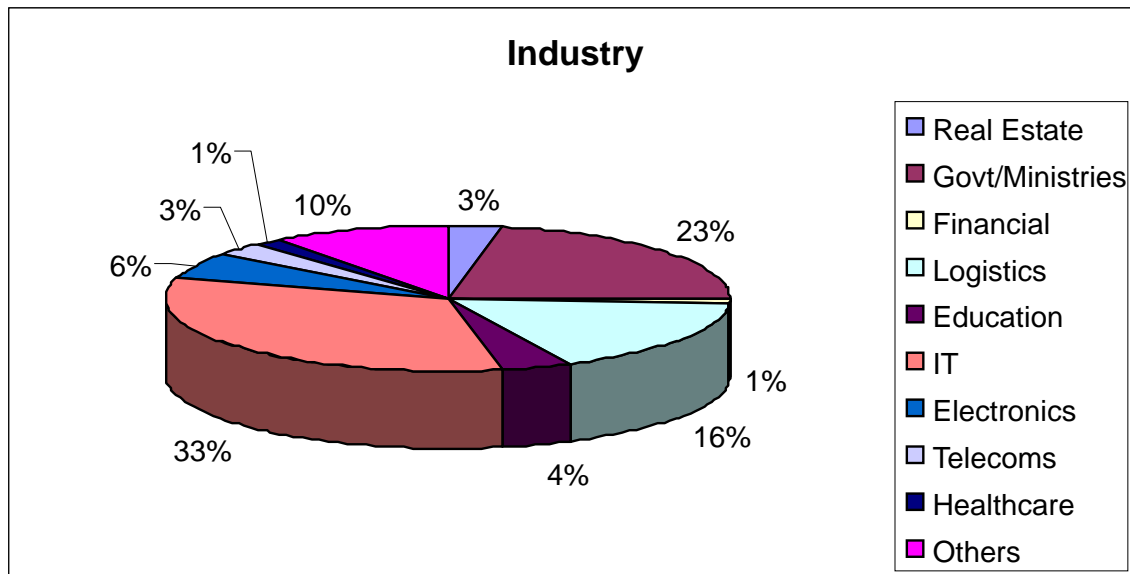
The Singapore survey participants had a fairly even spread in the different job titles ranging from CIO/IT managers to analysts (refer to Table 2) and across a range of industries and public/private sectors (Table 3) and organization size (Table 4).

Figure 2: Vocations breakdown of respondents



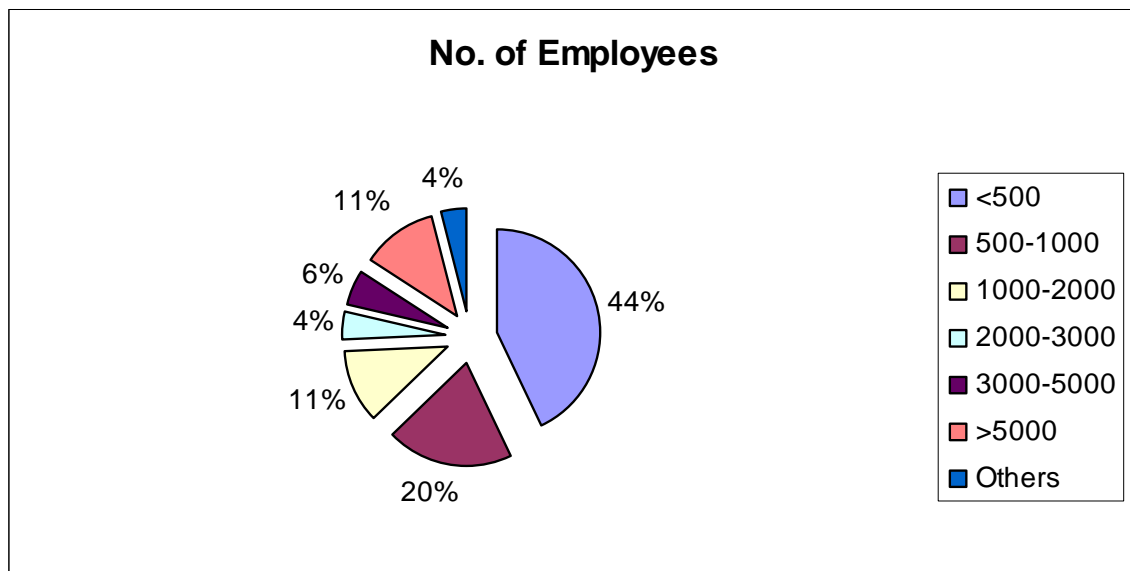
Survey Respondents were IT professionals from various backgrounds ranging from CIOs to System Analysts. 31 percent were in IT leadership positions such as CIOs, IT Managers and Project Managers.

Figure 3: Industry breakdown of respondents



More than half of the 77 professionals surveyed were either from the IT industry or the public sector such as Government agencies or Ministries.

Figure 4: Respondents' respective organizations' size in terms of staff strength

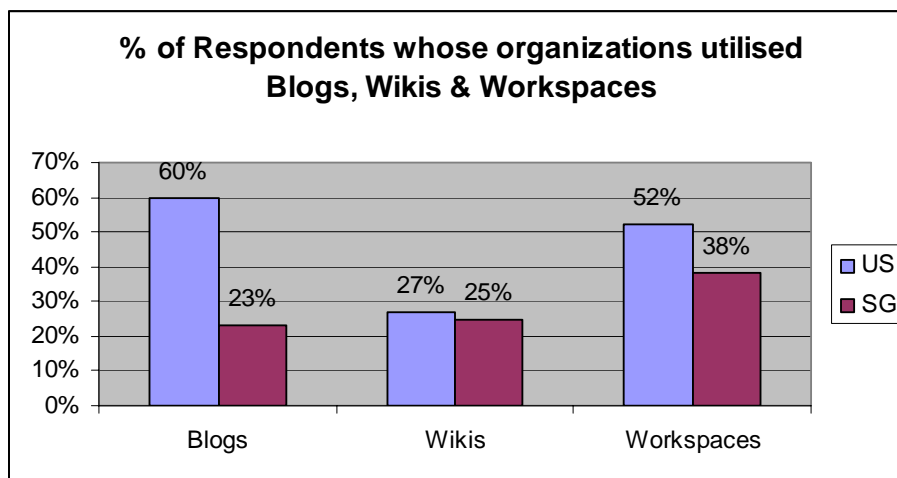


Almost half or 44 percent of respondents worked for fairly small organizations in terms of staff strength, with less than 500 employees.

Key Findings from Survey

The Survey shows a positive take-up rate for web 2.0 applications within organizations, with most organizations in Singapore using workspaces the most. Workspaces have enjoyed the highest adoption rate across local organizations, with wikis taking second place and blogs being the least utilized tool within the enterprise, of the three. In the U.S. Survey conducted, the highest adoption amongst the web 2.0 tools within the workplace was won by Blogs. The figure below shows how these web 2.0 tools varied in user share within Singapore and U.S. organizations.

Figure 5: % of Singapore & U.S. Respondents who utilized web 2.0 tools



Generally looking at the results, wikis were the least popular tool for Americans at the workplace. American respondents rated usage of Blogs quite highly, but in contrast Blogs were the least utilized than Wikis in Singapore.

Singapore Survey

The Questions from the Singapore survey drew many interesting and wide-ranging responses. These respondents' answers were compiled and evaluated, and condensed in these upcoming sections according to each Web 2.0 category.

The questions that each respondent was required to answer were:

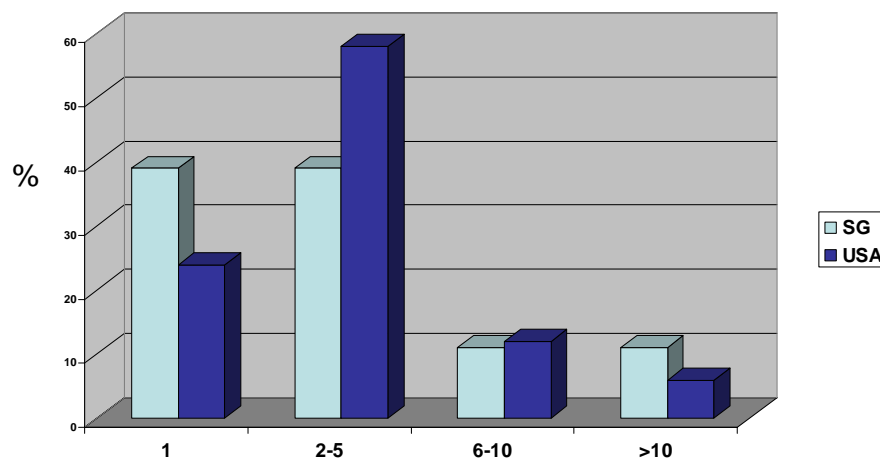
1. Principle advantages to your organization for running Blogs?
2. How many Blogs does your Organization run?
3. Does your Organization provide Blogs for the following?
(To choose any or all of the available 3 options: Internal Staff Consumption, Private external consumption or Public consumption.)
4. Principle costs/ problems to respondents' organizations for running Blogs?
5. Blogging Tools Platforms' Strengths & Weaknesses?
6. Blogging Tools recommendations and reasons?
7. Advice to fellow practitioners intending to implement Blogs in their organization?

Section I: Use of Blogs

Question 1 – Does your organization run any blogs?

	Singapore	U.S.A.
Yes	23%	60%
No	77%	40%

Question 2 – How many blogs does your organization run?



Question 3 - Does your organization provide blogs for the following (check all that apply)?



Key Findings for Blogs

More than half of Singaporean workers responded as having blogs in their organizations. Majority of these organizations seemed to have between 1 to 5 blogs within their environment, and these were intended mainly for Internal Staff Consumption.

Principle advantages to respondents' organizations for running Blogs

Majority of the respondents felt that the principle advantage was facilitating knowledge sharing and some even thought of blogs as a fresh new mode of collaboration, enabling sharing of ideas and feedback in an informal virtual setting.

Respondents' perceived benefits of Blogs are listed below:

- Latest updates
- A common platform to voice out concerns
- Knowledge or Idea sharing
- Informal collaboration to encourage innovation
- Promote communications and collaboration
- Chronological records of events
- Facilitates sharing of formal as well as informal knowledge
- Information flows to blog community quickly
- Ease of update and search
- Additional revenue stream
- Newsfeeds, tracking and reporting
- To keep everyone updated on the new trends and innovation in the global market. It does extend to the global market trend and the company business strategies and directions. Especially, with the blog from the company chairman serving as an effective means of communication.
- To provide a tool for instant feedback anytime anywhere

Principle costs/ problems to respondents' organizations for running Blogs

A significant portion of respondents felt that the key underlying problem for running blogs within the enterprise was the cost of setting up and hosting services.

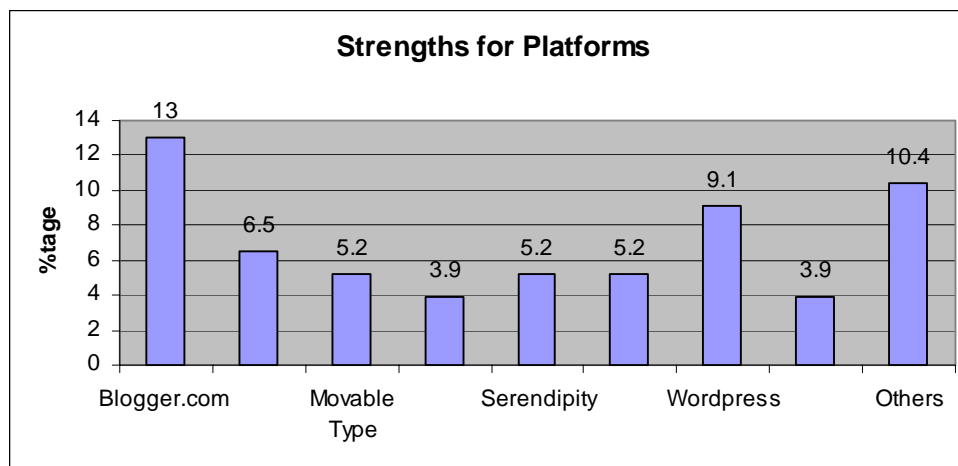
Many were also concerned about the adoption of this new technology at the workplace by the general population. Staff too entrenched in traditional modes of communications such as email might see little benefit in blogs, or just not willing to try out new technologies when there is no perceived immediate tangible benefit.

Major problems highlighted within survey responses were:

- Time/effort needed to keep information published up-to-date;
- resources needed to administer and maintain blogs;
- Initial setup and hosting services;
- cost of hosting and integration with existing enterprise systems;
- Intellectual property rights and customer confidentiality
- Difficulty in getting people to comment
- Resources needed to administer and maintain the blog.
- Difficulty in ensuring accurate information is shared. As information shared in blogs is personal in nature, it may promote personal agendas to be introduced to influence others.
- Very few contributors and low user adoption. Most blogs are dead sites
- As blogs are personal it can have content irrelevant to the organization's productivity so running and maintaining it may have problems. cost on such investment may in a period of time go as waste and moderating the content is one of a big problem; offensive posting need to be reported to the regulatory authorities

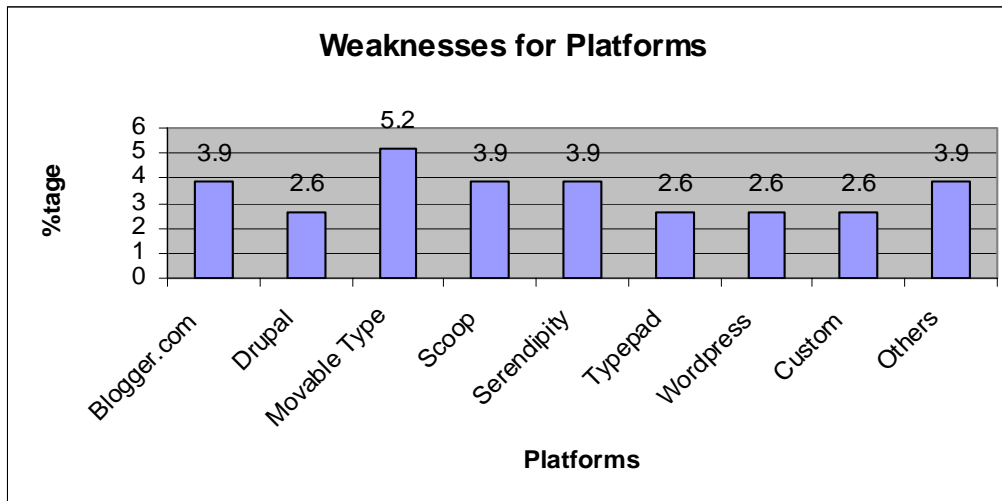
Blogging Tools Platforms' Strengths & Weakness

The Table below shows how platforms were ranked according to users.



This gave an insight into Singapore respondents' high-priority requirements for recommending or rejecting a particular product. Responses received about blogs' strength and minus points:

- ease of use
- security, permission, access control
- functionality
- scope for customization
- popularity and acceptance level among end-users



Singapore respondents noting weaknesses in these tool platforms:

- a) Blogger.com
 - No stats & referrals
- b) Drupal – No comments
- c) Movable Type
 - Members account maintenance is not suitable for enterprise scale, where tight access control is sometimes needed.
- d) Scoop – No comments
- e) Serendipity – No comments
- f) Typepad – No comments
- g) Wordpress
 - no javascript
- h) Others
 - Does not appear to be a blog platform as Confluence is primarily a Wiki product.

Blogging Tools recommendations and reasons

Most respondents had commented on the blogging tool platform that they had working knowledge of, and preferences were understandably varied. Some less popular tools drew a “no comments” answer. Top 3 Blog applications to recommend, based on the number of respondents who vouched for them, were:

1. **Blogger.com** – Replies showed that this particular tool was deemed as the leader of the pack. It was also popular, user-friendly and had many templates available for users.
2. **Wordpress** – Respondents cited user access control, good spam control mechanisms, and the availability to merge content from other blog platforms as its key benefits
3. **Drupal** – Respondents liked its features, functionalities and ease of use

Advice to fellow practitioners intending to implement blogging in their organization

In summary, survey participants advised future implementers to consider the following factors before incorporating Blogs into their organizations:

- Ease of use
- Clearly defined theme / purpose for the Blog
- Ensuring Blog is used for intended purpose
- Security and access control
- Blogging Netiquette
- Having a single point of contact or authority responsible for the blogs' administration

Figure 7: Respondents' recommendations for Blog tools

Platforms	Yes	No	Maybe
Blogger.com	4	2	1
Drupal	2	1	1
Movable Type	1	1	2
Scoop	0	1	2
Serendipity	0	1	2
Typepad	1	1	1
Wordpress	4	1	2
Custom	0	2	2
Others eg			
Confluence	1		
Laofocus.com	1		

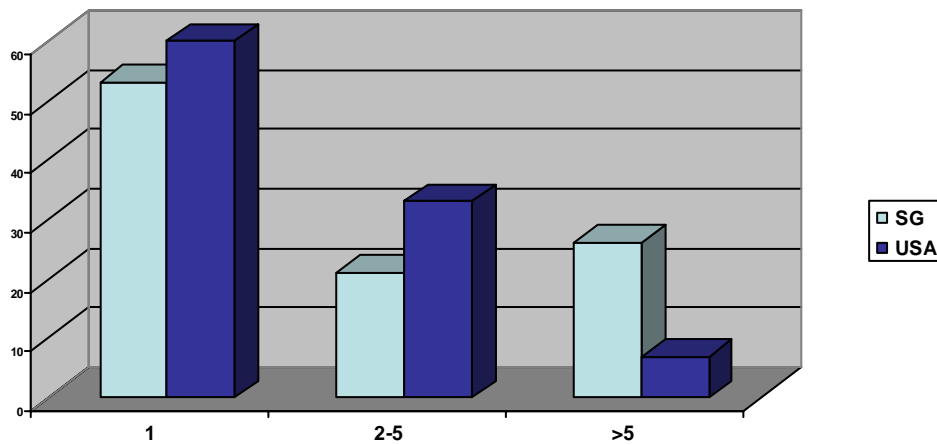
Section II: Use of Wikis

Question 1 – Does your organization run any wikis?

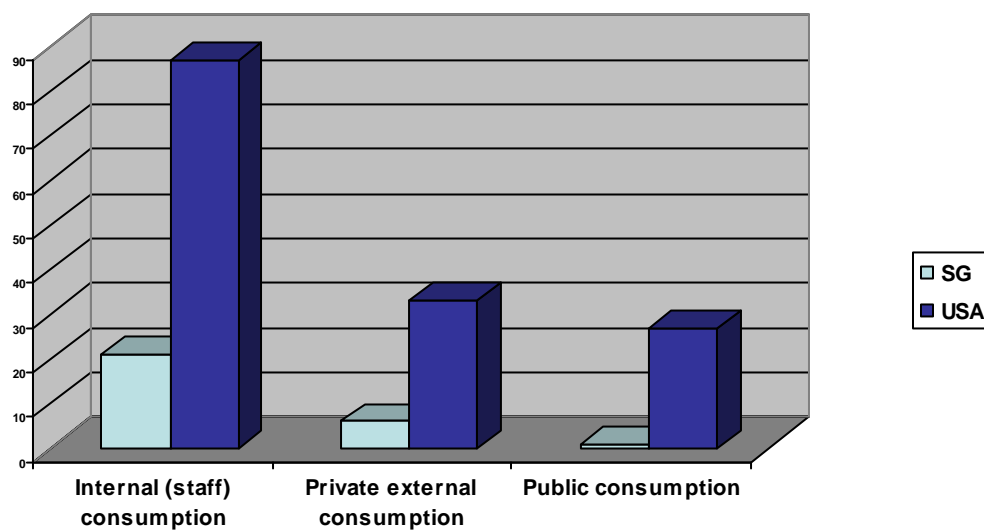
	Singapore	U.S.A.
Yes	25%	27%
No	75%	73%

Question 2 – How many wikis does your organization run?

(% of respondents)



Question 3 - Does your organization provide wikis for the following (check all that apply)?

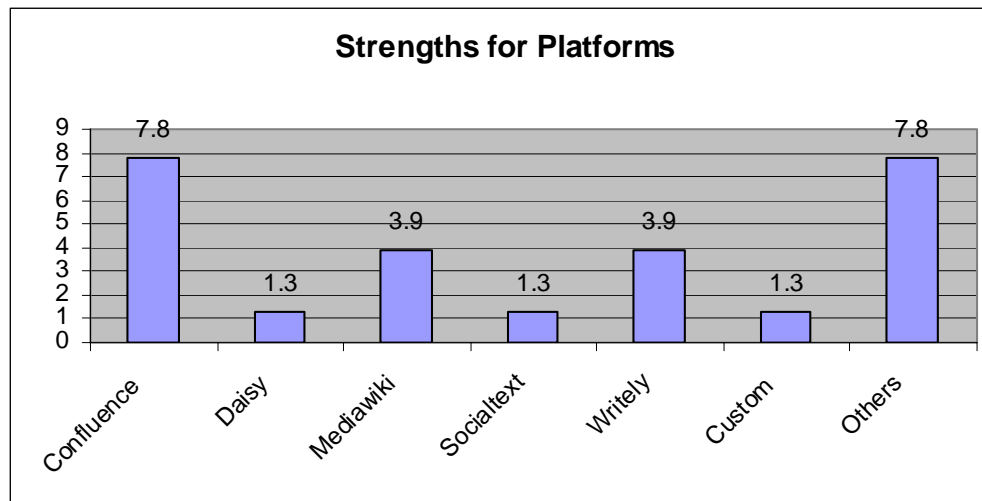


Key Findings for Wikis

25% of the survey participants had at least 1 Wiki running in their organization, and most were catered for Internal Staff consumption. When queried on the purpose of running Wikis in their organizations, respondents cited 'Knowledge Sharing' as the main purpose.

Question 5 – Wiki Tools Platforms and Strengths/Weaknesses

Percentage of Singapore respondents indicating which tools have strengths:



Comments on the tools' strengths:

a) Confluence

- Enterprise level, powerful plug-ins
- Great plug-ins and features with strong developer base and service support. Affordable
- Free

b) Daisy – no comments

c) Mediawiki

- We're used to this; so we use it
- Wikipedia is using it

d) Socialtext – no comments

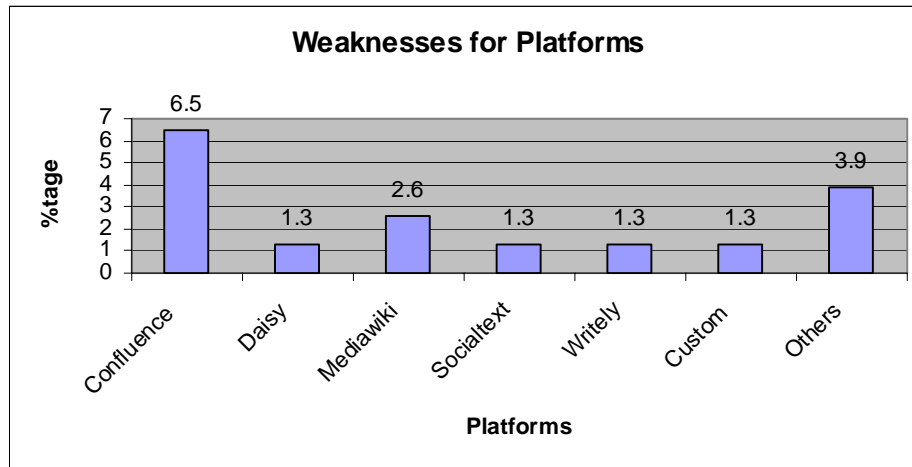
e) Writely - It is not a wiki

f) Custom – no comments

g) Others

- TikiWiki - similar to HTML
- Clearspace - good user interface design
- Expression Engine
- Self-developed application: able to fully customise and control

Percentage of Singapore respondents indicating which tools have weaknesses:



Comments on tools' weaknesses:

a) Confluence

- The Rich text editor, and need to know wiki syntax
- Lack of chat
- Need to know confluence tags to format content

b) Daisy – no comments

c) Mediawiki - Poor CMS; poor UI

d) Socialtext – no comments

e) Writely – no comments

f) Custom – no comments

g) Others

- Deki wiki - slow
- TikiWiki - Not so user friendly. Need to know which tags to use

Respondents' motivations for using wikis at the workplace were:

- Sharing of support documentation and data. Publication of processes and FAQs
- Knowledge Sharing
- A dictionary for the entire ministry, on the various entities & departments
- Customer self help portal
- For open discussion on research topics such as cognitive science, services science, etc.
- For the development of policies
- Project collaboration

Wiki Tools Platforms' Strengths & Weakness

Confluence was deemed to have Enterprise-level functionalities, equipped with powerful plug-ins. The weakness of Confluence, according to respondents was the Rich Text editor, which meant that users needed to know its confluence tags and wiki syntax in order to format content. Mediawiki was another popular tool of choice, and users cited familiarity as its advantage, as Wikipedia was using it. The drawback for this tool according to respondents was the poor User Interface.

Wiki Tools recommendations and reasons

Highest number of participants of the survey cited Confluence as the tool of choice to recommend to others, while offering other choices for wikis which were not specified in the survey questions. Some of the other tools that respondents selected on their own accord were Clearspace, Wikipedia and TikiWiki. The table below shows the results of the respondents' choices:

Figure 8: Would Singapore respondents recommend these wikis

Platforms	Yes	No	Maybe
Confluence	3	0	3
Daisy	0	0	2
Mediawiki	0	0	2
Socialtext	0	0	1
Writely	0	0	1
Custom	0	0	1
Others eg Clearspace, Expression Engine, Wikipedia, TikiWiki	4	1	2

Advice to fellow practitioners intending to implement Wikis in their organization

A lot of sound advice was offered by practitioners for others looking to implement wikis:

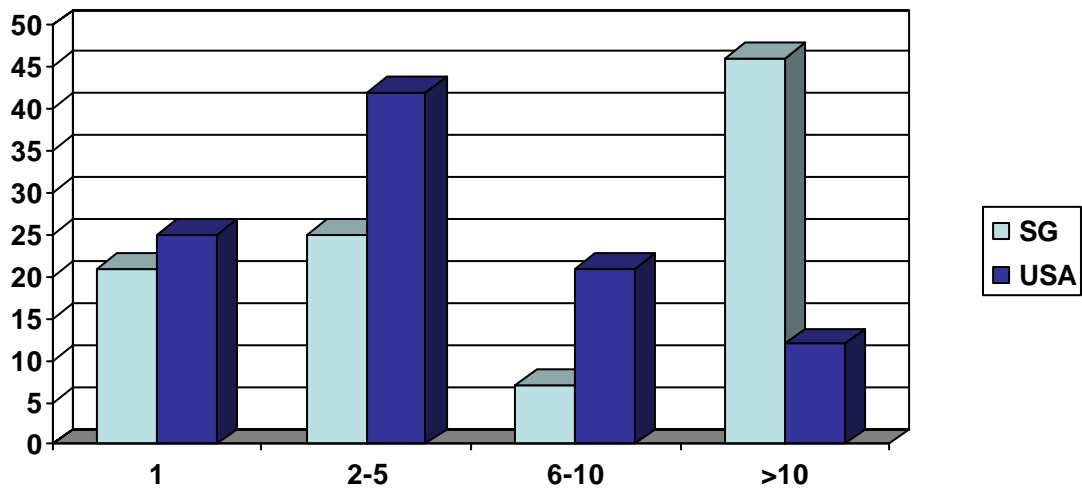
- Ensure proper system and structure in place to run, maintain and administer the wiki.
- Define a clear purpose for implementing the wiki
- Monitor the usage so that wiki is being used for its purpose.
- Ensure ease of use
- Ensure proper framework was in place for control, tracking and moderation

Section III: Use of Workspaces

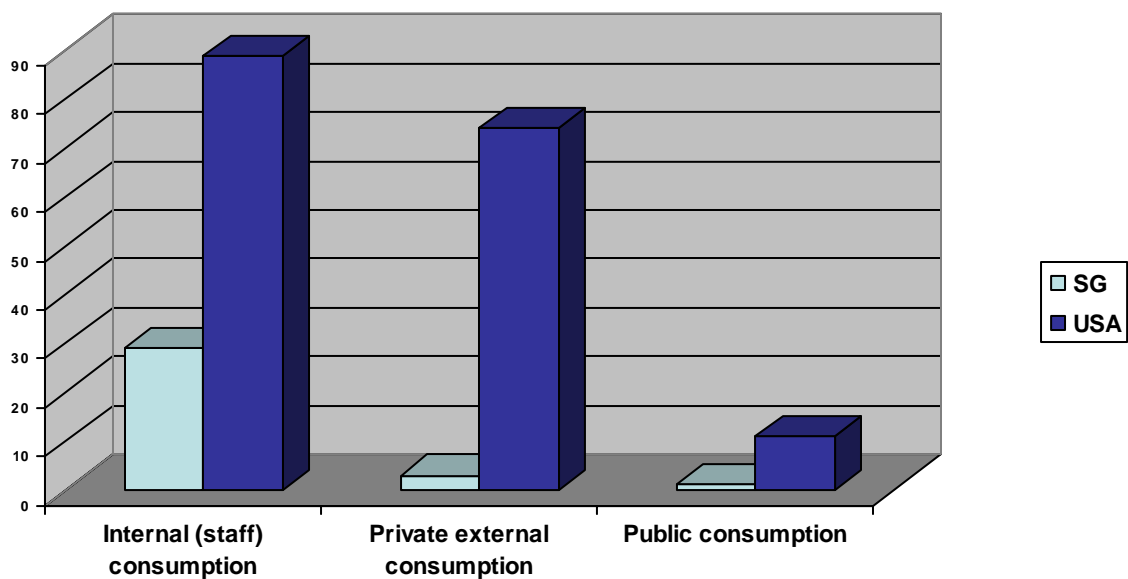
Question 1 – Does your organization run any workspaces?

	Singapore	U.S.A.
Yes	38%	52%
No	62%	48%

Question 2 – How many workspaces does your organization run (%)?



Question 3. Does your organization provide workspaces for the following (check all that apply)?



Question 4: What are the principle advantages to your organization for running workspaces?

Singapore respondents' comments:

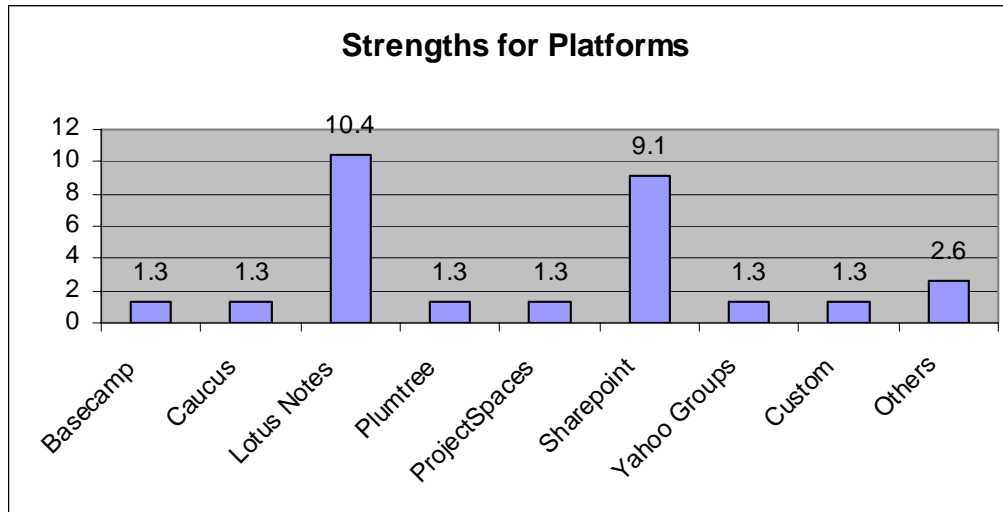
- For sharing information, reduce papers
- Shared hard disk space for common files
- Knowledge sharing
- Collaboration, fast contents searching.
- Consolidation of collaboration and knowledge.
- Easy to share and more flexible than email lists. The workspace archives discussions.
- Dissemination of information
- Easier dissemination of information
- Ease of communication, see calendars and book appointments
- Increased collaboration, cross geographical boundaries
- Project team rooms, bulletin boards, info sharing and publishing
- Facilitates sharing of information.
- Shared directories for sharing files.
- Cheap, easy to use, fast to implement.
- Files are organized in the workspaces. Central place to locate information.
- Good for collaborating, communicating and scheduling of meetings
- Able to work collaboratively on a project
- Support issues can be easily accessed
- Saving staff's data
- Collaboration
- Faster communication, reduction in paperwork, share information
- Easy access for information; easy update

Question 5: What are the principle disadvantages/costs to your organization for running workspaces?

- Management of workspaces
- Difficult to get staff to adopt the usage of sharepoint since they are very used to email for communication.
- Not much. Mostly run by researchers themselves
- Storage space
- Network speed bottleneck, dependence on central server
- Disk space
- Need resources to administer
- If you select and train correctly the right users, problems are few.
- Not enough promotion to usage of workspace. Lots of people still send files via e-mail
- Cost of maintenance and proper training to optimize the use.
- Users are too busy to update the workspace
- Time
- Maintenance, keeping information up to date

Question 6 – Workspace Tools Platforms and Strengths/Weaknesses

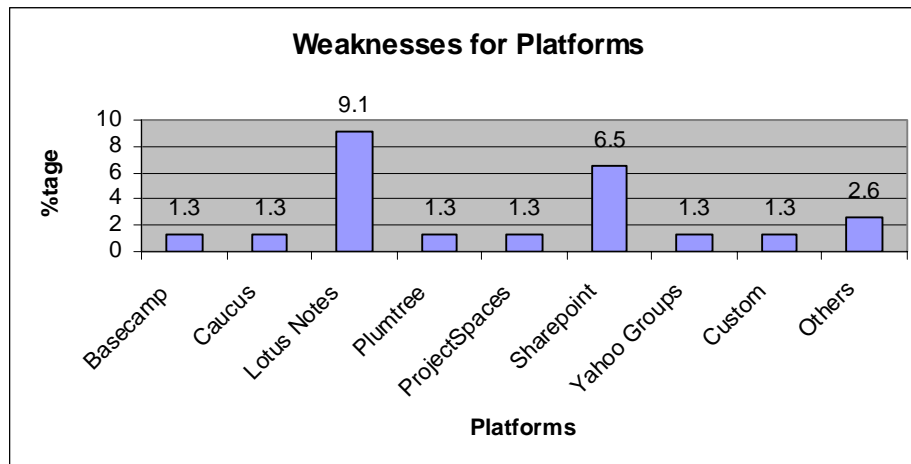
Percentage of Singapore respondents indicating which tools have strengths:



Respondents' comments:

- a) Basecamp – no comments
- b) Caucus – no comments
- c) Lotus Notes
 - Part of our email infrastructure
 - Calendar, memo, stationery
 - Self-developed application on Lotus Notes architecture: able to fully customise and control according to company's needs
 - Quite reliable if organization is using Lotus Notes email system
 - Easy to use; customize to company needs
- d) Plumtree – no comments
- e) ProjectSpaces – no comments
- f) Sharepoint
 - Ease of navigation
 - Centralized content space
 - Flexible
 - Relatively cheap
 - Ease of use, compatible with all other MS products
 - Easy to use and maintain
- g) Yahoo Groups – no comments
- h) Others - Docushare; links works, performance wise ok

Percentage of Singapore respondents indicating which tools have weaknesses



Their comments:

- a) Basecamp – no comments
- b) Caucus – no comments
- c) Lotus Notes
 - Cannot search by keywords through all documents
 - Filtering
 - Not super user friendly
 - High maintenance
 - Certain limited functions
- d) Sharepoint
 - Ease of navigation
 - Access right configuration is not fine grain enough.
 - Administration and Security
 - Not very user friendly, customized apps have to be overhauled with each upgrade
- g) Yahoo Groups – no comments
- h) Custom – no comments

Docushare, interface to manage ACL is confusing, labels and terms used not friendly to layman very technical as though written by engineers for engineers

Figure 9: Would Singapore respondents recommend these workspaces:

Platforms	Yes	No	Maybe
Basecamp	0	0	1
Caucus	0	0	1
Lotus Notes	1	2	5
Plumtree	0	0	1
ProjectSpaces	0	0	2
Sharepoint	4	1	2
Yahoo Groups	0	0	1
Custom	0	0	1
Others eg Docushare	0	0	1

Respondents' advice to colleagues considering launching a workspace in his organization:

- This should be a top-down driven. I work in a company doing System Integration. It is a place where idiots bundle together and try to con the customers. Sucks.
- Need to ensure that they have proper housekeeping procedures in place
- Continue with the tool!
- We are planning to implement MS Sharepoint 2007 in the near future.
- Be prepared to "market" the tool, in other words, change management; Senior management needs to push for the adoption. On the technical aspect, plan for storage expansion.
- It would be meaningful to categorized workspace by project team.
- Know how to checking and checkout. Change of mindset
- Must give people a reason to use the technology
- Understand some basic workflow and collaboration processes within the organization before launching the workspace to maximize the benefits of using workspaces.
- Ensure it is easy to classify and navigate. Need to ensure periodic 'housekeeping', for example every 3 months, 6 months depending on how long and what the size of the project is.
- Ensure a knowledge management system is in place first.
- Do a proper cost/benefit analysis first.
- Select and train correctly the right users. Be aware of which technology do you choose.
- Users must be willing to see the workspace as being useful
- To meet the needs of the organization

Workspaces Tools Platforms' Strengths & Weakness

Lotus Notes and Sharepoint were the 2 most common applications for workspace implementation, from the respondents' feedback. Lotus Notes' strengths lay in its architecture, which allowed it to be highly customizable to suit organizational requirements. Reliability was also its major plus point according to respondents, as some of the respondents cited that Lotus Notes was also the infrastructure upon which their emails were based.. Comments for weaknesses included high maintenance and inability to search keywords through all documents within Lotus Notes. Lotus Notes was also considered quite user-unfriendly by some.

Microsoft SharePoint's benefits cited were ease-of-use, flexibility and low costs. The Graphical User Interface (GUI) of Sharepoint also impressed respondents as they felt that it enabled "ease of navigation". Access control, administration and security were causes for concern, from user feedback. As these workspaces were intended for organizational usage, security and access control were understandably of paramount importance to the corporate executives and decision makers. Many users felt that proper security and permissions administration processes needed to be in place first, to maintain corporate security before implementing workspaces.

Survey Results

A wealth of information can be derived from this study as the survey responses can be viewed as a collective expert analysis of Web 2.0 tools' best practices, provided by 'on-the-ground' people and early adaptors of Web 2.0. The survey respondents, all of whom are IT professionals and experts in their own domains, shared their own views, opinions and thoughts about web 2.0 tools and their pros and cons. Some participants who had experience using a particular tool, even delved into the finer details as to why they would have chosen or rejected a specific product for implementing a Blog, Wiki or Workspace within the enterprise, and whether they would recommend it to others seeking to do the same. Most participants demonstrated their fluency with the subject matter at hand and offered crucial insights based on their first hand experience of having using the tools themselves. We could also ascertain from respondents the barriers to adoption of technologies like Web 2.0 at the common workplace.

Users too entrenched in traditional modes of communications such as email would see little benefit in 'crossing the chasm' to Web 2.0. Before implementing some of the social networking and communication tools into the enterprise, it would be prudent to carry out ground studies on the employee perceptions and demand for such a technology. As the survey results reflected, it is of paramount importance to establish a clear goal and value proposition before implementing these tools in the workplace. Web 2.0 applications in Singapore organizations are still viewed as a 'nice to have' rather than a 'need to have', so organizations should advocate open sharing, collaboration and networking as part of their corporate culture to derive optimal benefits from their Web 2.0 Infrastructure, and to avoid any staff misconceptions about the their value.

Major problems Highlighted within survey responses were:

- Time/effort needed to keep information published up-to-date;
- Resources needed to implement, administer and maintain web 2.0 technologies
- Initial setup and hosting services
- Cost of hosting and integration with existing enterprise systems
- Staff adoption level
- Insufficient perceived benefits

The Survey also highlighted Singapore respondents' criteria for recommending/ rejecting a particular web 2.0 product, based on majority sentiments. The most common criteria for consideration seemed to be ease of use, cost, functionality, level of customization and security.

Conclusion

While Web 2.0 is proving its potential for phenomenal growth, organizations would need to realize and develop new ways of bringing these technologies into their own business models and market strategies. This survey would help implementers be mindful, as early adopters, of the common perceptions of web 2.0 tools, and make informed decisions as to which technologies would best meet their specific organizational needs, and how to introduce them into the enterprise to meet their business goals.

One evident trend is that organizations are taking the more traditional, valued approach to assessing the benefits of these applications, such as those based on ROI and total costs of ownership to evaluate the extent of success/failure of web 2.0 tools. Some of the respondents' answers seem to be hinting at this. A few replies, for example cited cost and resources required to setup the web 2.0 applications as the deterrent factor for the 'Principle disadvantages/costs to your organization' question. Thus it's up to key decision makers to come up with clearly defined objectives, re-evaluate their strategies, gauge acceptance levels and determine the overall benefit to the enterprise, while introducing Web 2.0 technologies.

Singapore's long-standing practice of being an advanced user of Infocomm technologies does not appear to be repeated in the web 2.0 collaborative/interaction applications for enterprises. What would be an interesting follow-up research study is to conduct two different surveys in parallel:

- (1) To survey the younger generation, particularly those in the Y-generation, on their personal uses of web 2.0 technologies and their expectations of continued uses when they enter the workforce, and
- (2) To conduct a follow up survey to organizations in Singapore to find out the reasons why they have not adopted the new technologies, and to find out what the perceived barriers to adoption is.

While there's still debate on whether investing in new technologies such as web 2.0 would yield the promise of increasing competitive advantage, one glaring fact has emerged from this survey when compared to the U.S. survey – that Singapore's enterprises appear to be lagging behind in the adoption of web 2.0 technologies and in the advanced application of online collaboration between enterprises and their external audiences. Perhaps the age of collaboration has not yet arrived in Singapore. If innovations from collaboration and crowd-sourcing are the wave of the future, then Singapore would fall behind in competitiveness in this new future.

Endnotes

- i. Survey conducted by Forum One Communications in June 2006. Details of this survey are published online at: <http://onlinecommunityreport.com/uploads/blogs.pdf>
- ii. Don Tapscott's strategic consultancy and think-tank, NGenera, is in collaboration with ISS in researching topics in Government 2.0 for Singapore. Refer to: <http://www.egl.sg>
- iii. Background information on Singapore's national IT master plans are available on IDA's (Singapore Infocomm Development Authority) website www.ida.gov.sg. Academically-inclined readers can find numerous articles on the Singapore e-Government implementation. A good summary article is Chan, C. M. L., et al., E-government implementation: A macro analysis of Singapore's e-government initiatives, *Government Information Quarterly* (2007).
- iv. Singapore is ranked world leader no. 1 in Accenture's 2007 rating of e-government customer service maturity and e-government leadership ranking. Singapore also scores in the top 3 in many of the other e-government rankings in recent years: Waseda University E-Government Ranking, Brown University Global E-Government Survey, etc. Singapore is also ranked no. 2, closely behind the U.S., in IMD's 2007 World Competitiveness Study.
- v. Source: [Internet World Stats](#) Asia Internet Usage stats and population statistics
- vi. World Economic Forum Global IT Report placed Singapore 2nd & 3rd in 2006 & 2007 respectively, while IMD's World Competitiveness Report Technology Infrastructure ranking of Singapore was 2nd.
- vii. Teo, T.S.H., & Pian, Y. (2003a). A contingency perspective of internet adoption and competitive advantage. *European Journal of Information Systems*, Vol. 12 (1), pp 78-92.
- viii. Online survey was conducted by the Institute of Systems Science, National University of Singapore, between September-November 2007 via a survey invitation direct-mailed to over 6,000 IT professionals.
- ix. U.S. June 2006 survey results published by Forum One Communications, Inc. The survey is available online at <http://onlinecommunityreport.com/uploads/blogs.pdf>

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