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Completed Research Paper

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Abstract

The arrival of social and collaborative software applications (e.g. Facebook, Hyves, and LinkedIn), known as Web 2.0 applications, has provided an opportunity for customers to express their opinions and share their knowledge and thoughts with others. While customers use Web 2.0 applications on daily basis, companies are struggling to embrace fully functioning Web 2.0 applications for their business. An organization that is able to successfully select, facilitate, and utilize appropriate Web 2.0 technologies and applications is called Enterprise 2.0. There is an enormous social pressure on organizations to adopt Web 2.0 technologies and become Enterprise 2.0 as quickly as possible if not now. Based on six cases, the paper as an exploratory research will provide immediate actions organizations can take to move toward Enterprise 2.0 by recommending Web 2.0 tools they can adopt and some aspects they should consider in changing organizational internal conditions to support Web 2.0 activities.

Keywords: Web 2.0, Enterprise 2.0, Organizational change

Introduction

In the 1990s, organizations used Internet to present content (information) they wanted to make public (Henning 2009). At the time, the role of Internet users was passive as information consumers. It was before Web 2.0 technologies emerged in the early 2000s. Since then, Internet has gone through a tremendous transformation. It has become the interactive domain for the public. The arrival of social and collaborative software applications, better known as Web 2.0 technologies, has provided an opportunity for Internet users to be active through creating and sharing their own content (Rogers and Smith, 2008). People create blogs about a large variety of topics including their personal experiences and opinions regarding commercial products and services. They share their knowledge and thoughts with others through wiki and forum websites. Furthermore, they mobilize and organize to form professional and personal online social networks such as Facebook, Hyves, and LinkedIn. In social perspective, people use Web 2.0 applications on daily basis, at least in nations that have high Internet activities. As more Internet users express their opinions and participate in discussions about products and services, external and internal pressures have grown on organizations, especially, those in the consumer market, to fully adopt Web 2.0 technologies.

Recently, more companies show their interests in implementing Web 2.0 technologies due to the mentioned social trend. In addition, some of Web 2.0 characteristics such as collaboration and two-way communication capabilities open new opportunities for companies to gain competitive advantages (Cook, 2008; Tapscott, 2006), because collaboration becomes more significant to improve productivity and to accelerate innovation at individual, group, enterprise, and business levels, as market globalization and competition increase (Cañas, Hierro, Lizcano, Reyes and Soriano, 2007). For these reasons, companies want to embrace fully functioning Web 2.0 applications. The organizations that actively and successfully facilitate Web 2.0 applications are called Enterprise 2.0 (Cook 2008, Jedd, 2008). More detailed definitions and characteristics of Web 2.0 and Enterprise 2.0 will be explained in the following sections.

Moving toward Enterprise 2.0, some organizations are faster and more successful than others even though they have adopted the same Web 2.0 technologies. This observation raises a question: does simply adopting Web 2.0 technologies make an organization Enterprise 2.0? Many organizations have invested their financial and other resources in Web 2.0 technologies without fruitful results (Chui, Miller and Roberts, 2009). Based on the six cases we will present in this paper, we find that organizations reach different levels of Enterprise 2.0-ness even if they adopt the same Web 2.0 technologies.

This preliminary finding is coincided with one of five views, the ***Ensemble view*** of information technology (IT) that Orlikowski and Iacono (2001) suggest. Other four views are the tool view, the proxy view, the computational view, and the nominal view. The ***Ensemble view*** refers to a perspective that sees technology as one of elements within an organization in performing socio-economic activity (Orlikowski and Iacono, 2001). Therefore, simply adopting an information technology does not make an organization more effective and efficient. Applying this concept in this research, simply adopting Web 2.0 technologies does not mean that a company can become Enterprise 2.0. For this reason, the ***Ensemble view*** is adopted to analyze organizations Web 2.0-ness and Enterprise 2.0-ness.

In the environment of Web 1.0 and Enterprise 1.0, organizations are accustomed to one-way communication with customers. Due to the fact that certain internal conditions are required for an organization to be an Enterprise 2.0, it is difficult for the organization to gain a customer-centric perspective (Kreitzberg, 2009) in a short period of time. In other words, it is almost impossible for organizations to engage in an open, collaborative, and two-way communication relationship with their customers without changing their internal conditions such as structure and culture.

For an organization to be a complete Enterprise 2.0, some researchers (e.g. Bennet, 2008; Duhon, 2008; Jedd, 2008; Kreitzberg, 2009) suggest that the organization can change its internal conditions before adopting Web 2.0 technologies so that it can successfully utilize Web 2.0 applications. Although this suggestion is correct, there is a problem. It takes a significant amount of time for the organization to change its internal conditions. However, customers are already living in the Web 2.0 society and want to interact with organizations in a Web 2.0 way.

It is not new that organizations have issues about developing and implementing information systems such as Decision Support Systems (DSS) and Enterprise Resource Planning (ERP). If Web 2.0 is considered as one of traditional Information Systems (IS), someone can argue that there is a lot of research about implementing different types of IS. However, one significant difference of Web 2.0 is that it has been widely adopted and used by

consumers first, as mentioned. Web 2.0 is one of **grassroots** information systems. **Grassroots** IS mean the information systems that are widely used by common and ordinary people first. Consequently, this phenomenon pushes organizations to adopt these IS. It is considered as a bottom-up way to disseminate IS. Therefore, there is an enormous social pressure on organizations to adopt Web 2.0 technologies and become an Enterprise 2.0 as quickly as possible if not now (Cook, 2008; Riegner, 2007; Tapscott 2006). Organizations are used to review new types of IS, choose one or more to implement for their business, and deliver products or services to customers through the implemented IS. This is a traditional top-down way to disseminate IS. Organizations are not accustomed to receive a great social pressure from customers to adopt certain technologies or applications and to be a certain form of enterprise.

This is definitely a new and challenging situation for organizations. Organizations are used to educate customers before they release new products and services. In a Web 2.0 dominant world, many customers want to communicate with organizations through Web 2.0 applications and expect organizations to be Enterprise 2.0. In this way, the organizations can also respond and satisfy customers' needs. This is an emergent situation for organizations, because it will take substantial time for them to become Enterprise 2.0 if they do not already have the necessary internal conditions to facilitate Web 2.0 technologies and applications (van Doremaele, de Koning, and van der Sleen, 2009). Customers are not patient and expect organizations to respond immediately.

Considering this circumstance, the paper will provide ***immediate actions organizations can take to move toward Enterprise 2.0 by recommending Web 2.0 tools and some aspects they should consider in changing their internal conditions***. The research focuses on Web 2.0 activities toward customers across industries, because this is the area that organizations should take immediate actions to cope with customers' needs, even though Web 2.0 technologies can be used in many areas. Web 2.0 activities toward customers include customer relationship management, marketing and sales activities, interacting with customers, and inviting customers to participate in product and service developments. This research also contributes to the IS literature by opening new areas to study, for example, 1) the impact of grassroots information systems (e.g. Web 2.0 applications) on market competition and organizational evolution, 2) the social and cultural changes influenced by the grassroots IS, and 3) the emergence and management of Enterprise 2.0.

Web 1.0 versus Web 2.0

It is important to understand differences between Web 1.0 and Web 2.0 before Enterprise 2.0 is introduced.

Although Tim Berners-Lee, the founder of World Wide Web (WWW), intended for websites to be a two-way communication medium for reading and writing (Henning, 2009), it was mostly used for organizations to disseminate information before 2003. One major reason was that the available web applications at the time mainly supported one-way communication. Therefore, WWW was a platform to push information to relatively passive readers. It was similar to a traditional way to publish newspapers and books (Castelluccio, 2008). The content of websites was written, edited, and published by a selected group of people (Baumann, 2006). This type of website is called as Web 1.0. Below are the characteristics of Web 1.0.

- Web 1.0 sites are static and mainly provide information by the owners of websites (Henning, 2009).

- Web 1.0 sites are not interactive but simply to be read, so visitors cannot contribute to these websites (Henning, 2009).

- Web 1.0 applications tend to be proprietary. For example, users can download a software application, but they are limited to change it.

Since 2003, World Wide Web started to change drastically with new web-related technologies and applications. Many websites began to implement more interactive applications that could offer different ways for readers to participate in the websites. These kinds of websites are referred to 'Web 2.0' sites. Tim O'Reilly, the founder of O'Reilly Media started to use the term, *Web 2.0* in 2004 (Rogers and Smith, 2008). Although there is no universal agreement on the definition of Web 2.0, a relatively short and understandable definition that most users would agree is below:

> *Web 2.0 is the term given to describe a second generation of the World Wide Web that is focused on the ability for people to collaborate and share information online. Web 2.0 basically refers to the transition from static HTML Web pages to a more dynamic Web that is more organized and is based*

> *on serving Web applications to users. Other improved functionality of Web 2.0 includes open communication with an emphasis on Web-based communities of users, and more open sharing of information* (Cronin, 2009: p. 66).

As shown in the definition, Web 2.0 enables people to collaborate through adding or changing content. Web 2.0 is driven by users and enabled by various technology applications (Rogers and Smith, 2008). Therefore, Web 2.0 goes beyond the simple provision of technologies. It allows people to easily collaborate and share knowledge (Gould, 2009).

Cook (2008) provides four primary functions to identify Web 2.0 sites. If a website facilitates one or more of the below functions, it can be called a Web 2.0 site.

- Communication: this function allows people to communicate with others, either by text, image, voice, video, or a combination of them. Examples include discussion forum, blog, instant messaging, social presence, and virtual world.

- Cooperation: it enables people to share content with others in structured and unstructured ways, for instance, image and video sharing.

- Collaboration: collaboration tools encourage people to directly or indirectly work together on particular problems in both central and distributed ways. Examples include wikis and human-based computing.

- Connection: it enables people to network each other through websites that provide this function. A social networking website is the most prevalent example of connection. (Cook, 2008).

Many websites that started with Web 1.0 technologies have evolved toward Web 2.0 sites. For example, Amazon that started its business on Web 1.0 sites as an online bookseller has moved its business on Web 2.0 sites through adding blogs, chatting, ratings, and others.

Table 1 compares the characteristics of Web 1.0 and Web 2.0. This comparison can be used to distinguish them. It is obvious that Web 2.0 provides much more dynamic and active environments for users than Web 1.0 does.

| Table 1. Characteristic comparison of Web 1.0 versus Web 2.0		
	Web 1.0	**Web 2.0**
Status	Static	Dynamic
Users	Passive	Active
Communications	One-way	Two-way
Openness to modify content	Closed	Collaborative
Content providers	Companies	Communities
Structure to create content	Top down	Bottom up

Enterprise 2.0

One of first people who started to use "Enterprise 2.0" is Andrew McAfee (Cook, 2008). McAfee used the term, *Enterprise 2.0* paralleled with Web 2.0 in his article "Enterprise 2.0: The Dawn of Emergent Collaboration" that was published in 2006 from *MIT SLOAN Management Review*. However, he defined Enterprise 2.0 as a part of Web 2.0. The difference from Web 2.0 was that it could be bought and built by a company for their knowledge workers (Cook, 2008; Jedd, 2008). He described it as an emerging, low-cost form of collaborative knowledge management that could significantly improve collaborative works among employees (Woodward, 2008). McAfee (2006) provided the six components of Enterprise 2.0 – Search, Links, Authoring, Tags, Extensions, and Signals – and called them SLATES using the acronyms. According to his analysis, an Enterprise 2.0 website enables users to find content they are looking for (Search), to contribute through writing (Authoring), and to categorize content (Tags). In addition, the website should be built with an appropriate structure so that users can navigate easily (Links) and

recommend related information by analyzing tags (Extensions). The structure should also be able to signal users when relevant and interesting content appears (signals).

However, McAfee's Enterprise 2.0 definition and components are limited to the technical aspect, which is not even different from Web 2.0 except that it is mainly for employees (Cook, 2008; Keldsen, 2008b). Dion Hinchcliffe (2007) argued that SLATES did not capture the essential parts of Enterprise 2.0 – social, emergent, and freedom aspects, so he added Freedom, Network-oriented, Social, and Emergence parts (Cook, 2008). Although he did not explain what each added component meant and how they could be checked and measured, he emphasized that an enterprise was not just a bundle of Web 2.0 applications. It implies that organizations should change their internal conditions (e.g. organizational structure and culture) to fully facilitate Web 2.0 if they want to be Enterprise 2.0. This is why some organizations are more successful to become Enterprise 2.0 than others. The inherited or adapted internal conditions of them support Web 2.0 better than those of others. For these reasons, we define Enterprise 2.0 as ***an organization who can fully embrace Web 2.0 technologies and applications***. It means an organization whose internal conditions can fully facilitate Web 2.0 technologies and applications to utilize all Web 2.0 functions.

Four quadrants of Web and Enterprise

Reviewing the mentioned literature, it is necessary to distinguish between Web 1.0/2.0 and Enterprise 1.0/2.0. Web 1.0/2.0 implies websites supported by related technologies and applications (technological perspective), while Enterprise 1.0/2.0 refers to organizations that are able to fully facilitate corresponding (Web 1.0 or Web 2.0) websites (organizational perspective). However, it is essential to combine two dimensions (technical and organizational perspectives) to analyze organizations' Web 2.0-ness and Enterprise 2.0-ness. As mentioned, according to the ***Ensemble view*** by Orlikowski and Iacono (2001), a Web technology is consider one of elements within an organization in performing its activities, so the organization should change its internal conditions to fully facilitate the technology. Therefore, it is significant to combine technological and organizational dimensions to analyze whether organizations develop their internal conditions matching with the evolution of web technologies. Based on the ***Ensemble view***, two perspectives (technological and organizational) are combined and four quadrants are developed to assess organizations' Web 2.0-ness and Enterprise 2.0-ness (see Figure 1).

Figure 1. Web / Enterprise Quadrants
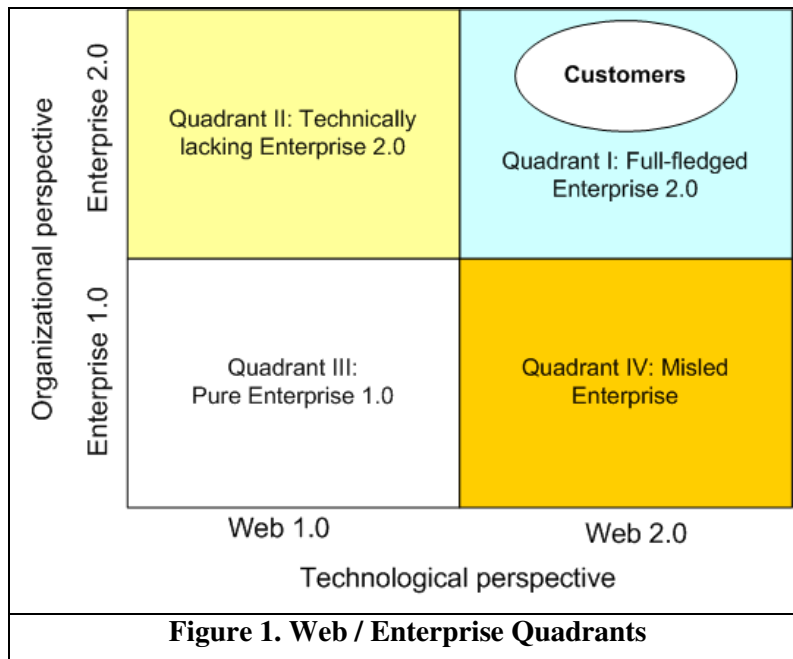
Quadrant I: full-fledged Enterprise 2.0

An organization in Quadrant I is a full-fledged Enterprise 2.0. It has successfully reorganized its internal conditions to be open, flexible, and agile so that it can fully facilitate and utilize Web 2.0 technologies and applications for its business (Cook, 2008). It means that organization's internal conditions can support the characteristics of Web 2.0

mentioned in Table 1 such as encouraging two-way communication between and among customers and employees, stimulating them to actively participate in discussions, and providing a way for customers to contribute in building content. Therefore, the internal conditions that should be aligned with the characteristics of Web 2.0 include more democratic and less hierarchical structure, participative and collaborative culture, trustful and transparent environments, and interactive atmosphere for communications and networking (Bennet, 2008; Cook, 2008; Duhon, 2008; Jedd, 2008; Keldsen, 2008a; Woodward, 2008). These characteristics of Web 1.0/2.0 and Enterprise 2.0 provide general notions to identify the organization's position on the quadrants. Through this research, more pertinent conditions that organizations should consider will be identified. Thus, organizations that have these internal conditions and actively implement and utilize appropriate Web 2.0 technologies and applications for their business can be called full-fledged Enterprise 2.0.

The most noticeable point is the existence of customers in this quadrant. This is where most customers are technologically and socially active, so they are waiting for organizations to join in this quadrant. The use of social networking applications is already embedded in customers' personal lives and they expect to be able to interact with organizations in a Web 2.0 way. This is the quadrant organizations must strive to gain competitive advantages in term of retaining and attracting customers.

Quadrant II: Technologically lacking Enterprise 2.0

Organizations in Quadrant II inherently have the necessary internal conditions to implement and operate Web 2.0 technologies and applications. They need to find appropriate Web 2.0 technologies and applications for their websites. This requires business analysis and technical expert, but it should not take long for organizations to evolve to be full-fledged Enterprise 2.0. In addition, the internal conditions of an organization in the quadrant can be further improved during Web 2.0 developments. For example, some .com organizations such as Google, eBay, and Amazon who formed their unique business models based on building creative communications with customers through Internet are in this quadrant. Due to their foundation histories, their organizational structures and cultures are open, bottom-up, and explorative to new technologies. Consequently, they are more suitable to support Web 2.0 technologies. However, as any organizations' internal conditions can change over time, theirs can be changed as well as they become more incumbents.

Quadrant III: Pure Enterprise 1.0

Most traditional organizations find themselves situated somewhere in Quadrant III if they have not implemented Web 2.0 technologies and applications. They are used to facilitate and utilize Web 1.0 sites, so their internal conditions are geared toward the ways to operate Web 1.0 sites such as a hierarchical and top-down approach, one-way formal communications with customers, and an asymmetrical distribution of information.

Some researchers (e.g. Doremaele, de Koning, and van der Sleen, 2009) suggest that organizations can move to "Quadrant II: Technologically lacking Enterprise 2.0" before adopting Web 2.0 technologies and applications when there is enough time. However, as mentioned, customers are already on Quadrant I and look forward to communicating with organizations in a Web 2.0 way. It means that there is no time left for organizations to move to Quadrant I through Quadrant II. Instead, they have to move directly to Quadrant I from Quadrant III. For this reason, they have to change their internal conditions while adopting Web 2.0 technologies and applications. Then, what kinds of aspects organizations should consider in changing their internal conditions? How can they move to Quadrant I in a speedy manner? These are questions that will be answered in this research.

Quadrant IV: Misled Enterprise 1.0

Organizations in Quadrant IV have focused too much on the implementations of Web 2.0 technologies and applications. They are aware of customers' demands and social changes and able to notice and implement necessary Web 2.0 technologies and applications. However, they have neglected the reorganization of their internal conditions to support Web 2.0 activities. Consequently, their Web 2.0 sites become ghost houses, because their internal conditions such as organizational structure, culture, and communications manner do not support to efficiently and effectively utilize the websites. Although sophisticated Web 2.0 applications are available, their employees tend to use Web 1.0 applications in a traditional way.

One dangerous problem organizations in Quadrant IV can have is that they are likely to think themselves as an Enterprise 2.0, because they have the latest and advanced Web 2.0 sites. It is not easy for these misled organizations to realize that having Web 2.0 sites does not make themselves Enterprise 2.0. For example, Telfort have used YouTube for advertising their services and products, but it has not allowed people to leave comments on their videos. It means that they have used YouTube as a Web 1.0 tool (one-way communication) instead of as a Web 2.0 tool (two-way communication). This is one of typical examples that companies in this quadrant behave. Although they adopt many Web 2.0 tools, they use them as Web 1.0 tools or discourage people to participate either deliberately or not.

One advantage these organizations have is that they acknowledge the importance of Web 2.0 technologies and are willing to adopt them. However, they should realize their positions on the quadrants and begin to improve their internal conditions for Web 2.0 activities.

Method

There are two steps to assess and position organizations on the quadrants in the context of their Web 2.0 activities toward customers. First, we can observe and analyze the Web 2.0 sites of an organization whether it use appropriate types of Web 2.0 applications; whether those websites are updated with relevant and attracting content; and how many customers and employees participate in building the content. Second, we can identify the internal conditions of an organization through examining organizational structure, culture, and working atmosphere in supporting Web 2.0 activities.

For this research, six companies (RaboBank, Telfort, Vodafone, UPC, Grolsch, and KLM) in The Netherlands were selected and investigated. First, their websites were analyzed through content analysis. Second, in-depth interviews were conducted to comprehend organizations' internal conditions.

To analyze organizations' Web 2.0 sites, the characteristics of Web 2.0 (Table 1) that are retrieved from literature (e.g. Cook, 2008) are adopted to identify and analyze Web 2.0 tools. These criteria are objective and clear for researchers to easily identify Web 2.0 tools. For example, adopting YouTube site is building a two-way communication channel between a company and customers through posting videos and exchanging comments. To analyze the internal conditions of organizations, we adopt five criteria: structure, culture, leadership, communication, and human relation from the literature of organization behaviour and preliminarily interviewing researchers and companies. These criteria provide standard to measure organizations' internal conditions. For example, a company can have different structures from strictly hierarchical to flat and bottom-up structure. It means that information and idea can flow only from top managers to regular employees or they can also flow in the other way. These clear criteria provide objective ways to analyze organizations' Web 2.0-ness and Enterprise 2.0-ness so that we can increase the internal validity of our study.

The six organizations were selected based on the following criteria. First, they had Web 2.0 activities in interacting with customers. Second, in The Netherlands, they were representative companies in the consumer market. Although these companies come from different industries, all of them are in the consumer market to provide services or products. One of sharing goals among them is identifying customers' needs, tastes, and trends to maintain and attract more customers. For this reason, the selected companies are representatives that do business directly toward customers in the Netherlands. These cases across industries will also increase the external validity of this research.

Due to the exploratory nature of this research, the interviews were semi structured. The questions were about organizations' internal conditions (structure, culture, communication ways, etc.) and their Web 2.0 activities toward customers. The interviews were ended with open questions so that the interviewees could add things that he or she found important to share. In addition, all their Web 2.0 sites were observed and analyzed. The study of six cases is conducted in-depth and longitudinal investigations suggested by Yin (2003). All interviews were recorded and transcribed. Interviews were categorized by five mentioned criteria (structure, culture, leadership, communication, and human relation) and sent to interviewers for their approvals and comments. To increase the internal validity of the data categorization, three researchers were independently categorized the interviews. Their categorizations were coincided with the original categorization about 80%, which was fairly valid.

Result

Table 2 provides general information about six organizations in this study. RaboBank is one of the largest banks in The Netherlands. Telfort and Vodafone are mobile communications service providers. UPC is an international cable and media organization that operates in eleven European countries. Grolsch is one of the famous Dutch breweries. KLM is the national airline of The Netherlands and is a part of Air France-KLM.

Table 2. Six organizations		
Organization	**Industry**	**Number of employees in The Netherlands (World)**
RaboBank	Banking	6,200 (59,000)
UPC	Internet/TV/Telecom	450 (15,000)
Vodafone	Mobile Telecom	2,800 (+/-79,000)
KLM	Airline	32,555
Grolsch	Brewery	+/- 805
Telfort	Mobile Telecom/Internet	500+

Web 2.0 Tools

Table 3 illustrates Web 2.0 tools that six organizations currently use toward their customers. It was formulated by the content analysis of websites. The tools are categorized by functions. Customer relationship management (CRM) refers to Web 2.0 activities regarding brand and reputation management. Customer service is about answering questions and managing complaints. Marketing and sales include all activities about promoting and selling products and services. Customer participation in development is about Web 2.0 activities that encourage and provide customers Web 2.0 platforms so that they can take part in developing potential products and services. The remaining paragraphs in this section describe the various Web 2.0 tools utilized by functions and the results by the websites content analysis.

RaboBank is the company who most actively uses various Web 2.0 tools among the six companies (see Table 3). RaboBank is present in many online communities such as Hyves, Facebook, LinkedIn, and Twitter. In addition, it utilizes an online avatar community (e.g. Whyrobbierocks.com) aiming at young people between fifteen and twenty-four years old. In this virtual world, RaboBank offers a banking service through 'Minitix' (online wallet) and answers questions. RaboBank uses Web 2.0 communities including YouTube and Wikipedia to create more engagement with their current and potential customers. Furthermore, it invites consumers to suggest new products and services for RaboMobile on the online marketing platform, CreateAd. This is one way of crowd sourcing. Another way is using battle of concepts that is one of the crowd sourcing sites. Organizations post battles that consist of questions or problems they have and ask students and young graduates to think of serious possible solutions. RaboBank monitors Internet on what people say about RaboBank and reacts to those conversations if necessary. To be more active, RaboBank shares information on websites, for example, Twitter, Marketingfacts, and Slideshare. It also operates its own 'Chatbot' to answer questions and to advise consumers.

UPC has many Web 2.0 activities toward customers, especially, in customer relationship management and marketing, even though it is not as active as RaboBank. For marketing purposes, UPC posts its commercials on YouTube to reach more customers and to receive their opinions about them. Customers tend to overlook instruction manuals about products. To effectively instruct customers about the products, UPC wants to post short demonstration and instruction videos on YouTube in future. Additionally, UPC has its own Flickr page to post all kinds of photos related to UPC such as its products and the events it sponsors. Each photo has a short commentary with a link to its website. UPC develops and uses online games to attract customers to visit its websites. For example, a racing game on its website brought more than 300,000 people in two months. When UPC noticed that customers asked questions and complained about their products on Twitter, it started its own Twitter page to manage customers' questions and complaints. As a result, UPC is a leading company on Twitter and most customers (91%) are satisfied with its management on Twitter.

Vodafone is the third active organizations in Web 2.0 activities after RaboBank and UPC. For example, Vodafone posts promotional and informational videos about the company and its products on YouTube. It has its own Hyves page where people can talk to each other about their experiences with Vodafone. Furthermore, it uses its own Twitter to offer advice and information about newly launched products and services. Vodafone has introduced Vodafone 360. Vodafone 360 (www.360.com) provides Internet services for their mobile phone users. Customers can store all their contacts and share photos from their phones, social networking websites (e.g. Facebook, Hyves, and Twitter), and e-mail and chat accounts to their personal accounts on Vodafone 360. Vodafone also runs a forum on its websites where people can ask and discuss about the technical related problems of its services or products.

KLM is as active as Vodafone in using Web 2.0 tools. KLM similarly uses Twitter, Slideshare, and YouTube as others do. One thing to notice is that KLM utilizes a KLM Bluelab for customers to participate in developing potential products and services. KLM Bluelab as a community was established to get in touch with customers of Small and Medium Enterprises (SME) who often flied for business purposes. To find out the special needs of these customers, KLM makes the online community, Bluelab live three times per year for three weeks. In these specific periods, the responsible employees of KLM answer questions and remarks on a daily basis. The information collected from the Bluelab helps KLM to improve their products and services. KLM keeps the members of KLM Bluelab informed about what suggestions are being taken into account. KLM has collected 1,539 members with 1,500 ideas, suggestions, and experiences through this community since established in 2007. As a result, the total number of customers' inputs through the Bluelab has exceeded the estimated five percent of all innovative inputs and dozens of these inputs have been developed so far.

Grolsch and Telfort show that their Web 2.0 activities are somewhat limited than other four organizations. They use YouTube as others do. One thing to notice about Grolsch is that its Web 2.0 activities are focused on music festivals and events. It uses several online communities such as Twitter and Hyves to promote the festivals and events it sponsors. Grolsch also posts pictures of the festivals and events on Flickr.

Due to the negative public opinion about Telfort's Internet products, Telfort started a Weblog on Telfort.nl. To improve its services, Telfort updates and communicates with its customers about on-going taskforce activities through the Weblog. Telfort has also used Twitter to communicate with customers and to provide special offers.

Table 3. Web 2.0 tools that organizations utilized by functions				
	CRM (Customer Relationship Management)	**Customer Service**	**Marketing and Sales**	**Customer participation in development**
Rabobank	You Tube Wikipedia Online communities Online social networks Slideshare/Marketingfacts	Online communities Online social networks Chatbot	You Tube Online communities Online social networks Crowd-sourcing	Crowd-sourcing
UPC	Online communities Online panel Slideshare	Twitter	You Tube Flickr Online games	Online panel
Vodafone	Slideshare Web Relations team Vodafone 360	Forum	YouTube Twitter Online social networks	
KLM	Twitter Slideshare		YouTube	Online community
Grolsch	Online communities Slideshare/Marketingfacts Flickr		Online communities Platform YouTube	
Telfort	Weblog	Twitter	You Tube Twitter	

The current internal conditions of six organizations

Table 4 shows the current internal conditions of six organizations regarding Web 2.0 activities. It was formulated based on the interview data. As RaboBank is most active in using Web 2.0 tools toward customers, its internal conditions are also noticeable. The organizational structure and leadership of RaboBank are more aligned with the characteristics of Web 2.0 (bottom-up, cooperative, and informal) than those of other organizations. These internal conditions allow each local office to independently and freely participate in Web 2.0 activities. The innovation management team of RaboBank is also responsible in Web 2.0 activities. It indicates that RaboBank is willing to explore all possibilities in developing and adopting Web 2.0 tools.

Although UPC and Vodafone keep their traditional organizational structure, some of their internal conditions are more moving toward Web 2.0. Especially, their leadership and communication environments are closer to the characteristics of Web 2.0 (informal, open, motivation, etc.). Another interesting characteristic of these two organizations is that both of them have a separated team to support Web 2.0 activities. For example, the Webcare team of UPC monitors all the online conversations among customers about its products and services. If necessary, the Webcare team responds to conversations by providing factual information. It also runs an online panel through inviting about 40,000 customers to express their opinions. Vodafone has a designated Web Relations team that mainly has a monitoring function. This team monitors what customers discuss about Vodafone through newsletter, social networking, and other websites and makes a report once in a while as a result of monitoring. Under Vodafone's policy, this team does not steer a forum nor actively participate in online conversations.

The three remaining organizations (KLM, Grolsch, and Telfort) have some Web 2.0 characteristics (e.g. flexibility) in organizational culture, but their other internal conditions are not aligned with the Web 2.0 characteristics. They do not have a separated team to manage Web 2.0 activities. For example, different departments in KLM are involved in various Web 2.0 activities, while Telfort has a committee of people from several departments to oversee Web 2.0 activities. When the most internal conditions are not aligned with the characteristics of Web 2.0, not having one responsible team to manage Web 2.0 activities implies that there are lack of leadership and consistent strategies and tactics.

	Table 4. Organizations' internal conditions					
	Responsible team for Web 2.0 activities	**Structure**	**Culture**	**Leadership**	**Communication**	**Human Relation**
Rabobank	Local offices and innovation management	• Cooperative society • Bottom-up • Little hierarchical	• Much autonomous • Open • Trust	• Informal • Bottom-up	• Transparent • Informal	• Employees that are keen on the use of Web 2.0 applications • Young employees
UPC	Webcare team	• Classically divided by department	• Open • Agile • Collaborative	• Recognizing the value of Web 2.0 • Motivating	• Informal • Horizontal • Open • Transparent • Short communication lines	• Young employees
Vodafone	Online service unit	• Classically divided by department • Independently operating online service unit • Hierarchical	• Much autonomous • Flexible • Agile • Trust • Open • Simple	• Balances between control and empowerment • Open	• Open • Informal • Fast	• Employees that are accustomed to working online • Young employees
KLM	Different departments depending on activities	• Classically divided by department	• Flexible • Entrepreneurial • Innovative • Collaborative			
Grolsch			• Professional • Flexible • Innovative • Collaborative • Entrepreneurial • Opportunistic			
Telfort	Committee of people from various departments	• Classically divided by department	• Flexible • Fast decision making • Simple		• Short communication lines	• Young employees

Analysis and Discussion

Based on the above result of six organizations' usage of Web 2.0 tools and internal conditions for Web 2.0 activities, we can position the organizations on the Web/Enterprise quadrants (see Figure 2). Moreover, Figure 2 shows organizations' evolutions from the Web 1.0 and Enterprise 1.0 period.

It is important to notice that no organization is on "Quadrant II: Technologically lacking Enterprise." It means that no company has the perfect internal conditions for Web 2.0 activities. It is because all selected companies used to have so called, "***brick and mortar***" business model, which referred to have a traditional business model (face-to-face consumer experiences) before the era of Internet.

Before the emergence of Web 2.0 technologies and applications, all companies were on "Quadrant III: Pure Enterprise 1.0." Among them, some had less hierarchical organizational structure, more collaborative culture, and more informal and open communication environment, even though they all positioned on the same Quadrant III. This small difference in each condition can provide advantage for organizations to move toward Enterprise 2.0, especially, when the differences are accumulated over various conditions. For example, RaboBank's less hierarchical structure and more flexible and open culture made it move toward Enterprise 2.0 more successfully than others.

Although UPC and Vodafone did not have as good internal conditions as RaboBank had, they were able to move toward Enterprise 2.0 through the leadership and the independent teams they formed for Web 2.0 activities.

Similar to the case of KLM, if organizations try to engage in many Web 2.0 activities without or with little changing their internal conditions, it is likely that they will move to "Quadrant IV: Misled Enterprise 1.0" instead of evolving toward Enterprise 2.0. This is the most dangerous case, because they tend to waist their investments if organizations do not realize this path.

As the Web 2.0 tools that Grolsch and Telfort implemented are limited, their initiations in changing the internal conditions for the Web 2.0 activities are not visible. Although they have inherited positive elements in their organizational culture (e.g. flexibility), they have to change other internal conditions and adopt more Web 2.0 tools.

As it is a beginning stage for many organizations to move toward Enterprise 2.0, it is early to say that KLM, Grolsch, and Telfort tend to fall into the quadrant of ***Misled Enterprise 1.0***. Instead, in the following ***Recommendation and Conclusion*** section, we will suggest some aspects and factors that organizations should consider to move toward Enterprise 2.0 in a rapid way.

Figure 2. Evolutions of six organizations toward Enterprise 2.0
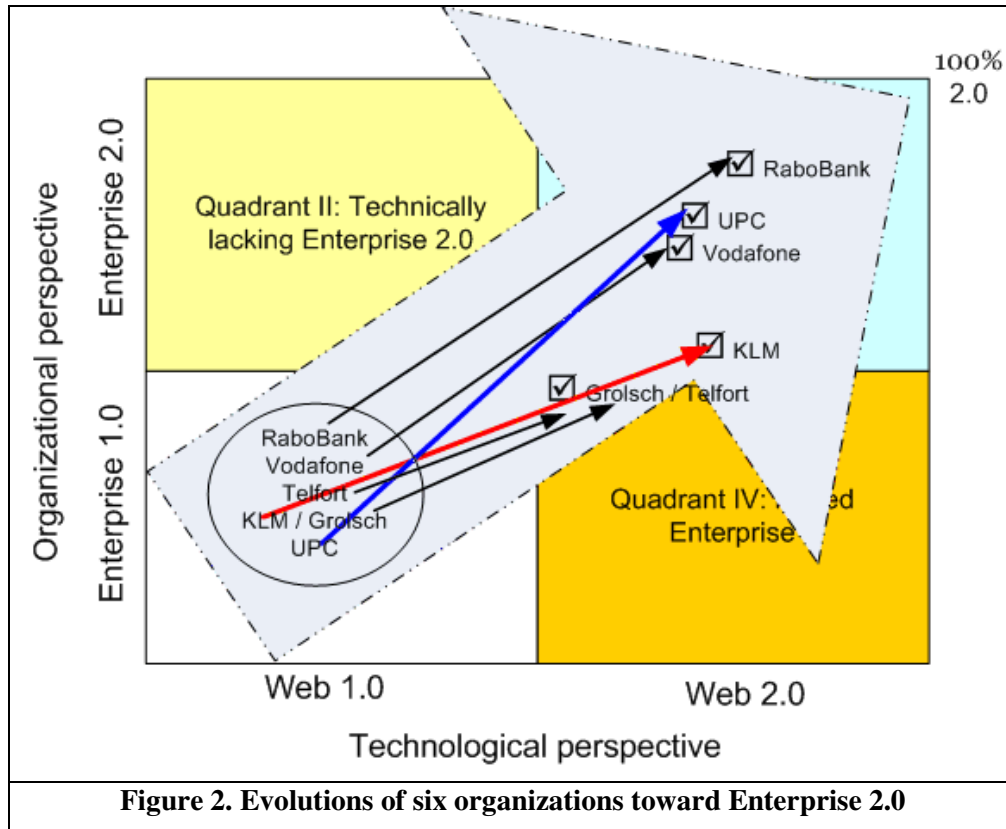
One noticeable thing in Figure 2 is about organizations' evolution slopes. Although it is impossible to exactly measure the Web 2.0-ness and Enterprise 2.0-ness of an organization, the evolution slope can be used symbolically to check the balance between the adoption of Web 2.0 tools and the change of organizational internal conditions. For example, assuming that the slope of RaboBank is considered a recommended slope, the steeper slope (UPC's slope) means that the change of the organization's internal conditions is rapid so that it has extra capacity to adopt more Web 2.0 tools. In opposite to the steeper slope, more gradual the slope is, more likely organizations fall into "Quadrant IV: Misled Enterprise 1.0," for instance, the slope of KLM has a little tendency to fall into Quadrant IV, even though it has not exactly been in Quadrant IV. The slope cannot be the absolute measurement, but it can be used to assess the evolution path of an organization toward Enterprise 2.0 as a relative measurement.

Recommendation and Conclusion

Based on the six cases, recommendations can be suggested by two aspects – technological and organizational perspectives.

Technological perspective: recommendations to adopt Web 2.0 tools

Organizations can start Web 2.0 activities toward customers focussing on the creation of customer engagement and customer loyalty. These can be reinforced by functional activities such as customer relationship management, customer service, and marketing and sales.

Customer Relationship Management – The first step organizations can take is monitoring online conversations concerning their reputation, products and services. The collected information from the online conversations can be a great source of feedback from customers. An organization can take one step further from being a passive monitor to be an active participant by joining in conversations and by starting discussions about specific issues related to the organization and its goods. For this purpose, organizations can adopt Web 2.0 tools such as online communities,

online social networks, forums, etc. Examples include Weblog, Wikipedia, online forums, Slideshare, Marketingfacts, Flickr, and YouTube.

Customer Service – Beyond the traditional media (e.g. mail, telephone, fax, and email), customers in the arena of Web 2.0 want more immediate and easier ways to contact organizations. Twitter is one of Web 2.0 tools that meets this kind of customers' need. Due to the fact that messages (tweets) should be short and direct in real time, reactions from organizations are faster. In addition, other customers can answer the posted questions. If applications like Twitter are used with other Web 2.0 tools such as forums, online communities, and online social networks for customer services, they will bring synergic effects in serving customers.

Marketing and Sales – For marketing and sales purposes, one difference of Web 2.0 tools from Web 1.0 is that organizations can categorize mass customers into many small target groups. Many online forums and communities are formed by a group of people who share the same interest. For this reason, organizations can analyze these groups and launch different marketing and sales campaigns according to the needs of target groups through individual group's preferable Web 2.0 tools instead of deploying one marketing and sales campaign for all customers. Another difference of Web 2.0 tools is that online marketing and sales campaigns can bring a bandwagon effect. For instance, once customers recognize the content of a campaign is funny and interesting, they are likely to post the campaign videos, pictures, and sounds on their YouTube, Flickr, social networking websites, and online communities.

Customer participation in development – Although few organizations (RaboBank, UPC, and KLM) have tried to utilize Web 2.0 tools for customers to participate in developing products or services, Web 2.0 tools have not been proficiently used in product and service developments. The cases of RaboBank, UPC, and KLM revealed that their trials increased customer engagement and loyalty, but how much it actually helped them to develop goods was unknown. Nevertheless, organizations keep exploring Web 2.0 tools such as online panels and communities to use for this functional area.

The Web 2.0 tools that organizations can adopt are introduced by four functions. Some tools (e.g. YouTube and social networking websites) can be used across various functions, while other tools (e.g. Twitter) are more beneficial to certain functions (e.g. customer service). Therefore, organizations should select appropriate Web 2.0 tools in accordance with their business needs.

Organizational perspective: recommendations to change organizational internal conditions

Before suggesting recommendations for organizations to improve their internal conditions for Web 2.0 activities, it is significant for organizations to acknowledge some fundamental norms to interact with Web 2.0 users. Organizations should:

- Carefully identify their target groups and customize their activities to the groups.

- Put time and effort in their activities.

- Frequently update the websites that they are involved in.

- Quickly respond customers' questions and comments.

- Be open and honest in interacting with customers.

- Be realistic in making promises

- Keep the promises they have made.

These norms are essential to organizations. For instance, an organization shall frequently and honestly respond to customers if it wants customers to keep participating in a discussion, panel, or forum that it organizes.

For employees to carry these norms, the internal conditions of an organization should support and encourage employees' Web 2.0 activities. Based on the analyses of the six cases, four aspects (organizational structure, culture, communication environment, and leadership) of recommendations are provided to improve organizational internal conditions.

Organizational structure – An ideal organizational structure would be least hierarchical and more cooperative. However, many organizations, especially large and traditional companies, keep hierarchical structure with many

rules. For this reason, it is extremely difficult for organizations to change their structure in a short time period for Web 2.0 activities. One solution for this problem is that an organization can create a separated and independent team to be responsible for Web 2.0 activities as UPC and Vodafone did. This separated and autonomous team should have less hierarchical, more cooperative, and open structure to conduct Web 2.0 activities toward customers.

Organizational culture – Changing organizational culture takes a long time. If organizational culture does not allow employees to be open, trust, flexible, and collaborative, it is recommended that an organization forms a separated and independent team for its Web 2.0 activities as mentioned above. The Web 2.0 team should build a flexible, trust, open, collaborative culture to transparently and spontaneously interact with customers. Without this kind of cultural support, it is impossible for employees to build a deep and trustful relationship with customers, which leads to strong customer engagement and loyalty. It turns out that all six organizations have some positive cultural elements for Web 2.0 activities. However, they can improve the cultural aspect more.

Communication environment – The communication environment within the Web 2.0 team and with customers should be informal, open, and transparent. The communication environment is developed over a period affected by organizational structure and culture. Therefore, if organizational structure and culture support informal, open, and transparent communications, it is easy to make the positive communication environment for Web 2.0 activities. However, only three organizations (RaboBank, UPC, and Vodafone) have desirable communication environments, even though all six organizations have certain cultural elements. Having positive cultural elements does not guarantee to have a good communication environment. Therefore, organizations should pay extra attention to it, because Web 2.0 tools host different types of communications among people.

Leadership – Organizational leadership is significant factor to move a company toward Enterprise 2.0 in a short period. When it takes time to change the internal conditions of an organization, a strong leadership can expedite the changing process. It is ironic that an organization tries to build less hierarchical and bottom-up working environment through leadership, a top-bottom approach. The Web 2.0 activities become more effective and efficient when the focus of management is on coordinating rather than on checking and controlling. Nonetheless, organizations (e.g. RaboBank, UPC, and Vodafone) are able to move toward Enterprise 2.0 more successfully when they have the commitment from managers.

These four aspects of organizational internal conditions are not independent from each other. As mentioned, they are related to each other. No matter which aspect an organization initiates to change, it must make sure that each aspect positively influences and reinforces each other. One of the fastest ways for organizations to stimulate this virtuous cycle among four aspects is showing a strong leadership in changing the internal conditions for Web 2.0 activities. Then, this leadership will influence other internal conditions to change.

This paper defines and clarifies Web 1.0, Web 2.0, Enterprise 1.0, and Enterprise 2.0. Based on the definitions and clarifications, we find that Web versions indicate the technological evolution and that Enterprise versions imply the organizational evolution. From these technological and organizational perspectives, four quadrants are developed to assess organizations' positions. Through studying the six cases, the available Web 2.0 tools that organizations can adopt and the four aspects for the internal conditions that organizations should consider in moving toward Enterprise 2.0 are identified. We also recommend the ways for organizations to be involved in Web 2.0 activities and to become Enterprise 2.0. For instance, an organization can 1) start a separated and independent team to be responsible to all Web 2.0 activities; 2) provide the necessary internal conditions to the Web 2.0 team if it cannot change the internal conditions for its whole company in a timely manner; 3) define business needs and identify essential Web 2.0 tools to fulfil the needs [this can be done simultaneously with step 1) and 2)]; 4) adopt the identified Web 2.0 tools and initiate Web 2.0 activities through the newly formed team; and 5) gradually spill over the established internal conditions of the team to the entire company and encourage other employees to participate in Web 2.0 activities.

As an exploratory research, it has limitations. First, there is a measuring issue related to grading organizations' Web 2.0-ness and Enterprise 2.0-ness. Second, the case companies are from the consumer market. Future research should overcome these limitations through developing a quantitative method to precisely position organizations on the quadrants and a mechanical way to investigate many more organizations from other markets.

In spite of these limitations, this research provides a useful guide for organizations to become Enterprise 2.0. In addition, the study confirms that facilitating Web technologies in organizational context should be analyzed in the ***Ensemble view***, especially, identifying and evaluating organizations' Web 2.0-ness and Enterprise 2.0-ness. It also

opens new avenue for researchers to study the grassroots IS (Web 2.0 technologies and applications), the relationship between the grassroots IS and organizations, and topics related to Enterprise 2.0-ness and Web 2.0-ness.

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