Preface: Overview of Emerging Web 2.0–Based Business Models and Web 2.0 Applications in Businesses: An Ecological Viewpoint

ABSTRACT

Web 2.0 offers business organizations an array of new ways to interact with customers and partners. Web 2.0 is continuously evolving and offers new business models and support business processes, customer relationship management, and partner relationship management. This study reviews some of the major business applications of Web 2.0, and identifies Web 2.0-based business models. Six emerging Web 2.0-based business models were identified: (1) Broad Online Community, (2) Focused Online Community, (3) Social Shopping, (4) Content Intermediary, (5) Virtual World, and (6) Shared Web 2.0 Services. Along with these new Web 2.0-based business models, this study presents theories related to the evolution of Web 2.0 and discusses Web 2.0 applications used to support the activities of traditional businesses in the areas of customers, value networking, capability, and sustainability. Finally, the interaction dynamics between emerging Web 2.0-based businesses, existing businesses, and the Web 2.0 tool and application development industry are analyzed from an ecological viewpoint.

1. INTRODUCTION

Recently, the Web paradigm shifted from a business-centered focus to user-centered one. This paradigm shift has become known as “Web 2.0,” coined by Tim O’Reilly in 2004 (O’Reilly, 2007). The great interest in Web 2.0 is intertwined with the rapid growth of Internet usage. Web 2.0 refers to a website that has evolved beyond Web 1.0 and features user-created-content and online communities that allow website visitors to interact dynamically with the site. While technological distinctions between Web 1.0 and Web 2.0 are often not clear in some areas, the social and technological environment for positive user participation and interactivity epitomizes Web 2.0.

Web 2.0 is continuously evolving and offers new business models and support business processes, knowledge management, customer relationship management, and partner relationship management. Despite the lack of a comprehensive framework for the use of Web 2.0 applications, businesses are eager to use them. Managers are already active users of the various Web 2.0 technologies such as social networks and blogs. Managers are realizing that Web 2.0 affects a wide spectrum of business activities from building product or brand awareness to after-sales services. Investing in Web 2.0 applications will enhance relationships with customers and provide the opportunity to better understand the customer needs. Therefore, it is crucial for companies to analyze their Web 2.0 activities, develop a plan to continually monitor their activities, and quickly respond to the needs of Web 2.0 users. For example, a
routine analysis of Web 2.0 deployments will most likely lead to new ideas for improving overall user site experience and improving conversion rates.

The main purposes of this study are to explore emerging Web 2.0-based business models, to discuss Web 2.0 applications in businesses and to analyze the interaction dynamics in business organizations. This study proceeds as follows: Section 2 presents a literature review on Web 2.0. Section 3 explores emerging Web 2.0-based business models. Section 4 presents various theories to explain the evolution of Web 2.0 and the growth of the Web 2.0 business models. Section 5 discusses Web 2.0 applications used to support the activities of traditional business models. Section 6 investigates the interaction dynamics between emerging Web 2.0-based businesses, traditional business organizations, and the Web 2.0 tool and application development industry. Finally, Section 6 concludes with managerial implications.

2. LITERATURE REVIEW

Web 2.0 refers to the multitude of new ways that the Internet is used as a platform for developing and hosting software applications and developing and exchanging digital contents by the businesses and users. Due to the easy publication and editing of online content, Web 2.0 has already had great impacts on the ways that people interact and businesses operate. A global survey conducted by McKinsey in 2007 finds that the popularity of Web 2.0-based applications is growing among businesses (McKinsey Survey on Internet Technologies, 2007). While most companies surveyed have so far integrated a limited number of these applications into their business strategies, the large majority have indicated that Web 2.0 integration is important for maintaining the company’s market position, providing a competitive edge, and addressing customer demand. Other studies on Web 2.0 adoption indicate that the benefits of the Web 2.0 applications come from knowledge management initiatives (Cayzer, 2004; Wagner, 2004), project management efforts (Miller, 2006), and social networks that connect employees (Middleton, 2008). Businesses can leverage Web 2.0 technologies in order to dynamically cooperate with customers and partners in efforts to generate new design innovations (Brown, 2008).

McAfee (2006) coined the term “enterprise 2.0” to describe the application of Web 2.0 to the enterprise utilizing wikis and social networking software to support and enhance the continuously changing and emergent collaborative structures of knowledge work across the enterprise. Organizations need to invest in Web 2.0 technologies differently from the way they invested in Information Technology (IT) projects in the past. Organizations will have to find new ways of management to respect the freedom, openness, and sociality inherent to Web 2.0 technologies (De Hertogh & Viaene, 2010).

The most important contribution of Web 2.0 is not in the software but in the information provided on the websites (van Iwaarden, van der Wiele, Williams, & Eldridge, 2010). The tremendous increase in User-Generated Content (UGC) on the Internet has important consequences for Web users, as well as companies. While most studies argue that Web 2.0 is a healthy phenomenon, as it is promoting free expression and democracy and is becoming the new source of consumer influence and empowerment, critics argue that Web 2.0 also promotes low quality amateur journalism, threatens intellectual property rights, and blurs the boundaries between fact and fiction. Objections about UGC have also to do with issues of privacy and the lack of responsibility for online publications (Constantinides, 2010). Web 2.0 also emphasizes communication via the e-social networking, occurring on so-called e-community platforms. Therefore, interaction between users is the utmost importance. Interaction is easily conceivable for private as well as for commercial purposes (Kollmann & Lomberg, 2010).
Web 2.0 has contributed to an unprecedented growth of information volume, new forms of networking, customer empowerment, and new business models (Constantinides & Fountain, 2008). The following discusses major Web 2.0 applications including social networking sites, blogs, folksonomies, wikis, and integrated services.

**Social Networking Sites**

Social Networking Sites (SNS) allow individuals to form or maintain online social connections and share their skills, talents, knowledge, and/or preferences with other members. While every social networking site requires its members to create a profile, each site has different purposes and targets specific user populations. For example, Facebook focuses on friend networks, LinkedIn focuses on business networks, and MySpace focuses on special interest topics such as movies and hobbies. Recently, these SNS have expanded their business models and have begun competing with each other.

**Blogs**

Blogs (short for weblogs) are online journals that are characterized by short entries and regular updates. Blogs are inherently flexible and can be used for a variety of purposes, ranging from personal opinions to knowledge management initiatives and customer relation tools (Ives & Watlington, 2005). One of the most useful features of blogs is the functionality that allows readers to comment on each entry (Kolbitsch & Maurer, 2006; Rosenbloom, 2004). The collective comments and links on blogs form a clustered online network termed the blogosphere (Schmidt, 2007). A variety of public blogging services are available to individuals and firms. For example, Twitter is the most popular social networking and microblogging service, which thrives on constant change and updates. Tweets are text-based posts of up to 140 characters displayed on the author’s profile page and delivered to the author’s subscribers, known as followers. Authors can restrict delivery to those in their circle of friends or allow open access. Recently, blogs have demonstrated the sheer power of information sharing and dissemination in areas of politics, natural phenomena, and celebrity activities.

**Collectively Arranged Metadata: Folksonomies and Tags**

Collectively arranged metadata are the result of user participation in the classification of digital objects. Collectively arranged metadata become more useful as more users participate in the creation. The process of individually assigning metadata about objects such as URLs, images, videos, and texts is called folksonomy or tagging. The process of assigning tags or labels to websites is also often referred to as social bookmarking. The primary benefit is that users will find information more easily and accurately. Folksonomies have become part of social software applications such as photograph annotation and bookmarking, and have become an important alternative to search engines or other instruments for surfing the Web. An empirical analysis of the complex dynamics of tagging systems has shown that consensus around stable distributions and shared vocabularies emerge, even in the absence of a centrally controlled vocabulary (Halpin, Robu, & Shepherd, 2007). Some popular tagging sites include del.icio.us: a social bookmarking system, Digg: a story sharing community in which submissions are voted upon by users, and Flickr: a photo publishing / sharing site.
Wikis

Wikis are easy-to-use, browser-operated platforms that enable collaborative publication on the Internet (Ebersbach & Glaser, 2005). Wikis also embody a specific mindset towards collective intelligence. They allow many individual participants to contribute to an online discussion, usually via centrally managed content management systems. Wikis are designed to make it easy to correct mistakes and track changes. In contrast to blogs, the content of wikis tends to be more unbiased, as the author allows the readers to co-edit the original content. Through multiple revisions of a document by a group of co-editors, the content becomes more credible (Kolbitsch & Maurer, 2006). A number of validity checks are implemented to the contributions made to a given wiki topic. One of the most successful applications of wikis is Wikipedia, a popular online encyclopedia for which any member can contribute and edit contents.

Integrated Services

Integrated services utilize Web services. A number of Web applications are based on Web services and service integration among businesses and users. Mashups are aggregations of services from different online sources to create a new service. One example includes pulling store locations from a database and displaying them on Google maps to show where the stores are located. Salesforce.com is an example of companies hosting and integrating corporate mashups. A podcast is a series of digital media files (either audio or video) that are released episodically and often downloaded through Web feed. They are often distributed through an aggregator, such as an iPod. Many businesses are leveraging podcasting to their customers. A Web feed is a data format used for allowing people to subscribe to online distribution of news, blogs, podcasts, or other information. Content distributors syndicate a Web feed, thereby allowing users to subscribe to it.

E-Commerce Business Models

A business model is a framework of how an organization generates revenue and involves a series of planned activities or business processes. The literature on business models has been abundant. Timmers (1999) proposes his definition of business models that is applicable for e-commerce environments: “A business model is defined as the organization of product, service, and information flows, and the sources of revenues and benefits for suppliers and customers.” Afuah and Tucci (2003) suggest that a business model is “the method by which a firm builds and uses its resources to offer its customers better value than its competitors and to make money doing so.” They note that business models are designed to make money for long term. Rappa (2004) stated that “a business model is the method of doing business by which a company can sustain itself—that is, generate revenue; the business model spells out how a company makes money by specifying where it is positioned in the value chain.”

In summary, all of these definitions share a common idea: it concerns what to produce and sell, and how to sell and to whom. The business model also addresses the value proposition of the product or service and earnings logic behind the profit making. The business model is a representation of management thinking and practice that helps companies to see, understand, and run their activities in a distinct and specific way (Chararbaghi, Fendt, & Willis, 2003). Based on that management thinking and practice,
each firm is likely to develop a unique business model. Afuah and Tucci (2003) suggest the following eight components of a business model:

1. **Customer value:** The description of target customer value. How can the firm deliver value to customers? Will the firm offer differentiated or lower-cost products/services?
2. **Scope:** Target the right market segments with products or services that have the appropriate value mix to customers.
3. **Pricing:** The development of proper pricing strategies.
4. **Revenue sources:** The determination of all revenue sources
5. **Connected activities:** The determination and timing of activities that underpin customer value
6. **Implementation:** The determination of organizational structure, systems, people, and environment needed to carry out the activities and deliver customer value
7. **Capabilities:** The existing capabilities and the desired capabilities needed to execute the value-adding activities, and the capability gaps needed to be filled.
8. **Sustainability:** The strategies that help the firm sustain competitive advantages and make it difficult for competitors to imitate the sustainability.

The term “e-commerce business model” has been widely used by researchers and practitioners to loosely describe a unique aspect of a particular electronic commerce business. E-commerce business models use the Web to carry out their activities and generate revenue. E-commerce business models are important for companies to survive in the global economy and are a fertile ground for innovation (Amit & Zott, 2000). E-commerce business models constantly evolve to adapt to changing consumer demands. For example, Amazon.com was launched as an online bookseller in 1995, but today it sells practically everything. Priceline.com started as a “name-your-own-price” site hosting travel bidding services, but later expanded its business to fixed-price products as a regular online travel agency.

A number of researchers have presented high-level e-commerce business models that have been influential in shaping strategy development and implementation of many online businesses. Their list of the e-commerce business models is not exhaustive. As shown below, their differing views on e-commerce business models are complementary with each other. Weill and Vitale (2001) identify the following eight e-commerce business models.

1. **Content Provider:** Provides content (information, digital products, and services). Examples include America Online (AOL) and accuweather.com.
2. **Direct to Customer:** Provides goods or services directly to the customer, often bypassing traditional channel members. An example is Dell.
3. **Full Service Provider:** Provides a full range of services in one domain (e.g. financial, health, application services). Examples include E*TRADE and Scottrade.
4. **Intermediary:** Brings together buyers and sellers by concentrating information. Examples include Expedia.com and eBay.
5. **Shared Infrastructure:** Brings together multiple competitors to cooperate by sharing common IT infrastructure. An example is CourseSmart, which is a venture supported by the leading publishers in North American higher education.
6. **Value Net Integrator:** Coordinates activities across the value net by gathering, synthesizing, and distributing information. An example is Cisco, which designs, manufactures, and sells networking equipment. Cisco utilizes resellers to install and support the configurator to reduce errors and collect market information.

7. **Virtual Community:** Creates and facilitates an online community of people with a common interest enabling interaction and service provision. Examples include Facebook and LinkedIn.

8. **Whole of Enterprise:** Provides a firm-wide single point of contact, consolidating all services/business models provided by a large multi-unit organization.

Rappa (2004) presents a collection of nine e-commerce business models:

1. **Brokerage:** Brokers are market-makers: they bring buyers and sellers together and facilitate transactions. Brokers play a catalyst role in business-to-business (B2B), business-to-consumer (B2C), or consumer-to-consumer (C2C) markets. Examples include marketplace exchanges (Orbitz, ChemConnect), auction brokers (eBay), and transaction brokers (PayPal, Escrow.com).

2. **Advertising:** The Web advertising model is an extension of the traditional media broadcast model. The advertising website provides content and services (such as email, instant messaging, blogs) mixed with advertising messages. Examples include portals (Yahoo!), classifieds (Craigslist), and content-targeted advertising (Google).

3. **Infomediary:** Data about consumers and their consumption habits are valuable, especially when that information is carefully analyzed and used to develop targeted marketing campaigns. Examples include advertising networks (DoubleClick) and metamediaries (Edmunds).

4. **Merchant:** Wholesalers and retailers of goods and services. Sales may be made based on list prices or through auction. Examples include online merchants (Amazon.com) and bricks-and-clicks (Barnes and Noble).

5. **Manufacturer (Direct):** The power of the Web allows a manufacturer to reach consumers directly and thereby compress the distribution channel. Dell Computer is a well-known direct manufacturer.

6. **Affiliate:** In contrast to the generalized portal, which seeks to drive a high volume of traffic to one site, the affiliate model provides purchase opportunities wherever people may be surfing. The affiliate model is inherently well suited to the Web. Examples include banner exchanges and revenue sharing programs (Barnes and Noble, Amazon.com, Target)

7. **Community:** An online community is an electronically supported social network. It can be seen as a group of people who have regular social interaction, independent of time and space, because of a common interest such as a problem, task, or feeling exchange. Examples of online communities are Internet forums, where users can gather to share information.

8. **Subscription:** Users are charged a periodic—daily, monthly, or annual—fee to subscribe to a service. Subscription and advertising models are frequently combined. Examples include content services (Netflix), internet services providers (America Online), and treasure hunting games (Geocaching).

9. **Utility:** The utility or “on-demand” model is based on metering usage, or a “pay as you go” approach. Unlike subscriber services, metered services are based on actual usage rates. Examples include metered usage (utility computing by Hewlett Packard).
As Web technologies advances, new e-commerce business models continue to emerge. From the previous discussion, field studies, and examples, it is easy to conclude that at present many businesses explore and utilize Web 2.0. However, Web 2.0-based business models have not been fully investigated. In order to help businesses to utilize Web 2.0, the next section explores a basic classification of the Web 2.0-based business models.

3. EMERGING WEB 2.0-BASED BUSINESS MODELS

Web 2.0 is moving beyond the early diffusion stage and best practices emerge. Many new pure-play Web 2.0 business models arise by leveraging Web 2.0 technologies such as wikis and blogs. In addition, bricks-and-clicks organizations try to leverage Web 2.0 technologies to improve their business processes. Organizations must understand the impacts of Web 2.0 technologies on their existing business model in order to be competitive in this fast-paced environment. In this section, we investigate the emergence of new Web 2.0-based business models in which the use of Web 2.0 is the primary driver of revenue and corporate existence. Based on the analysis of popular Web 2.0-based organizations, we identified the following six Web 2.0-based business models.

1. **Broad Online Community**: A broad online community is an electronically supported social network of a wide range of user groups. It can be seen as a group of people who have regular social interaction but without any specific idiosyncratic group characteristics. The broad online community allows individuals to form or maintain online social connections and share their skills, talents, knowledge, and/or preferences with other members. The viability of this community model is based on user loyalty, since users need to invest both time and emotion to the community. Revenue can come from the sale of products, information services and/or advertising. A large community may expect revenue from subscriptions for premium services. Examples include Twitter, Facebook, Bebo, and Friendster.

2. **Focused Online Community**: A focused online community is a niche/specialty online community dedicated to people with a common interests and needs such as professions or hobbies. One of the major distinctions is in professional and private users (e.g., business social network services as LinkedIn and private social networking services as Blackplanet targeted at African American users). Users add their profile and portfolio to the community and become part of a common interest such as a problem, task, hobby, or business. Revenue can be based on the sale of specialty advertising, premium services, specialty-related products and services or contributions. Shopping communities bring like-minded people together to discuss, share, and shop. Using the wisdom of crowds, users communicate and aggregate information about products, prices, and promotions. An example of a focused online community is an Internet car forum, such as NASIOC (North American Subaru Impreza Owners Club, forums.nasioc.com). In this forum, members of the community can gather to share information such as car pricing, purchasing tips, technical details/troubleshooting, and events the community may hold in their region. They can also post products for sale or trade with other members. Like most focused online communities, forums.nasioc.com is funded through banner advertisements, as well as sponsors who sell their products on the forum.
3. **Social Shopping:** Social shopping, also called social commerce, brings buyers and sellers together and facilitates transactions by providing a method of e-commerce where shoppers’ social interactions are emphasized in the shopping experience (Wikipedia, 2010). Social shopping attempts use technology to mimic the social interactions found in physical malls and stores. Social shopping can largely be divided into two categories: (1) Group shopping sites and (2) Social shopping marketplaces. Group shopping sites group individual consumers to purchase products and services together from merchants at discount prices. Examples include Groupon, Gilt City, LivingSocial, and BuyWithMe. Shopping marketplaces bring social shopping sites, merchants, and consumers together to connect and transact. The marketplace brings together independent buyers and sellers and creates a forum for them to conduct business transactions. Examples include Sttorenvy and Jasmere. Social shopping also encourages people to exchange information about products and services. The revenue sources include sales commission and advertising. Social shopping sites develop Android and iPhone-based mobile apps to provide location-based services. The success of the social shopping sites depends on the customer satisfaction, customer loyalty, partner management, and quality policy, including refund policy. As the number of the social shopping sites grows rapidly, the competition intensifies and social shoppers’ complaints increase about overbooking, poor product/service quality, and stockout. Participating companies usually pay a high rate of commission to social shopping sites. Many social shoppers are bargain hunters.

4. **Content Intermediary:** Content intermediaries are businesses that function as a third party between content generators and content users. Sometimes, users serve as both content generators and content users. Content intermediaries aggregate content and deliver it to users. In addition to written content, content generators often contribute to the sites with video, audio, or other types of rich media. Product reviews, comments, recommendations, and news or information posted on the sites represent high quality market information and an unbiased customer voice. Three types of content intermediaries are (1) blog sites, (2) collective intelligence sites, and (3) content aggregating/sharing sites.

- **Blogs** are online journals that are characterized by short entries and regular updates. Blogs are inherently flexible and can be used for a variety of purposes, ranging from personal opinions of the contributor to knowledge management initiatives and customer relation tools. Personal or public blog sites are used to host blogs and the posted messages can be distributed to other sites or readers via RSS. Examples include political blog sites, such as HuffingtonPost.com, consumer electronics blog sites, such as engadget.com, and entertainment blog sites, such as perezhilton.com.

- **Collective Intelligence** is formed out of massive user participation and collaboration via the Web. Innovative Web business models such as social bookmarking and online encyclopedias take advantage of the network effects: the more people participate in generating and refining content, the more useful they become to the users. The ease of content generation and the speed of content sharing are critical to the success of collective intelligence sites. Another innovative collective intelligence business is an online reputation system. Online reputation systems are based on intelligence of crowds. People provide opinions of the products, services, or users they have experienced in the form of scores, rankings, and comments. The reputation systems collect and publish reputation scores and comments to a community or general public. While most
reputation systems are product review systems, the objects of the reputation system used by eBay are transaction participants who provide ratings of the transaction party after they conduct a transaction. eBay’s reputation system is designed to reward good behavior and punish bad behavior. Examples of collective intelligence sites include online encyclopedias, such as Wikipedia, social bookmarking/tagging sites, such as del.icio.us and Digg, and online reputation systems, such as Epinions, Bizrate, and Yelp.

- Content gathering/sharing sites gather Web content (and/or sometimes applications) from users. The value of the sites depends on the quality and quantity of the content contributed by the users. This content is in the form of video, audio, music, images, and text. Compared to the blog sites, the journalistic function is limited. Examples include video-sharing sites, such as YouTube, event sharing sites, such as Upcoming, and photo publishing/sharing sites, such as Flickr.

5. **Virtual World:** Virtual worlds are persistent virtual reality spaces (Schroeder, 2008). Virtual world enables users to interact with each other without geographical barriers. In virtual worlds or games, it is possible for users to interact using avatars. Avatars are the representations of users in virtual worlds, often graphically displayed as 3-dimensional characters and completely customized according to the user’s preferences. These worlds are available 24/7—users can explore, socialize, and solve collaborative challenges. Virtual world technologies have affected education, information, and gaming industries. From a marketing perspective, virtual worlds create opportunities for a new form of commerce—virtual or v-commerce (Nasco, Boostrom, & Coker, 2010). V-commerce is an alternative and/or supplement to traditional forms of commerce. Virtual commerce is a viable type of commerce in which products are created with infinite virtual resources and exchanged for real world money.

One of the more successful virtual worlds is 3-dimensional Second Life, created by Linden Lab in 2003. Avatars are central to the way that users interact with people and objects in virtual spaces. Second Life centers on socializing within communities, the sale and resale of goods, and the advancement of its virtual economy. Virtual characters known as Residents run businesses, own land, travel, and buy and sell goods and services with the Linden Dollar. Virtual worlds represent a significant Web 2.0 business model due to its business potential. The worldwide virtual world economy is valued at approximately $1.8 billion (Dibbell, 2007). Other virtual worlds include Smallworlds, Zwinktopia, ActiveWorlds, and Twinity.

6. **Shared Web 2.0 Services:** Shared Web 2.0 Services facilitate the growth of Web 2.0 populations by providing sharable services in the form of software and hardware. Using the shared Web 2.0 services, users/groups can develop their own Web 2.0 applications at minimum costs and technical skills. For example, users/groups may set up their own wiki sites using wiki development tools provided by wiki hosting sites such as Wikispaces and Wetpaint. WordPress is a popular blog hosting site available to individuals and firms. The revenue sources include advertising, premium services, and subscription fees. Examples of shared Web 2.0 services include social networking host services for private specialty social networking, mashup platform vendors, Widgets, wiki host services, Google apps for social networking and collaborations, blog host services, and collaborative host services.
4. THEORETICAL ASPECTS OF THE WEB 2.0 BUSINESS MODELS

This section discusses various motivational factors for User Generated Contents (UGC) in Web 2.0 and theoretical aspects of social shopping business models.

Motivational Factors for User Generated Contents

As UGC become a pillar of the Web 2.0, to understand what motivate users to contribute UGC becomes increasingly important. Daugherty et al. (2008) explored the application of Katz’s (1960) work on functional theory to understand the user’s participations in the content generations on the Web. Functional theory states that attitudes serve various motivations, depending on the purpose, such that one’s behavior becomes a function of their attitude toward that behavior (O’Keefe, 2002). Understanding motivational sources that influence consumer attitudes toward UGC also leads to a more reliable predictive model of user behavior, which is increasingly important to both researchers and industry practitioners. Katz (1960) suggests that any given attitude serves one or more of four distinct personality functions: utilitarian, knowledge, ego-defensive, and value-expressive functions. The utilitarian function recognizes that people are motivated to gain rewards and avoid punishment from their environment. The knowledge function demonstrates that people are driven by the need to gain information to organize and understand their environment. That is, people are motivated by the need to understand and make sense of their experiences. The value-expressive function deals with attitudes that allow people to express or relate their self-concepts and values, which enhance one’s image in the eyes of the world through matching moral beliefs. Finally, the ego-defensive function represents motivations designed to protect people from internal insecurities or external threats, which serve the internal function of defending one’s self-image. These four functions have been the core constructs for understanding attitudinal motivations. In addition, researchers continue to clarify and explore additional attitudinal motivators. Smith (1973) explores a social function to explain the motivation for social adjustment, in which people express attitudes or behavior that are agreeable to others. The function also has evolved to include motivations derived from relationships with others. The social function suggests that people seek opportunities to interact with friends or participate in activities perceived favorably by important others (Clary, et al., 1998).

Daugherty et al. (2008) showed that the ego-defensive and social functional sources contribute significantly to attitudes formulated about the creation of UGC. The ego-defensive function specifically compels people to protect themselves from internal insecurities and external threats, and the creation of UGC in this sense helps consumers minimize their self-doubts and feel a sense of community. The social function assists consumers in seeking out activities that are perceived as favorable by important others and gives them the opportunity to associate with friends. In relation to the creation of UGC, consumers engage in such actions to connect with others and feel important.

Social Shopping Theories

Among the theories relevant to the growth of social shopping, four theoretical perspectives are reviewed in the following: information asymmetry, advertising, price discrimination, and network externality.

Information asymmetry is the difference in the information between two parties (Ba & Pavlou, 2002). Information asymmetry occurs in transactions where one party has more or better information than the other. In the case of social shopping, we can consider the following example: since merchants
have better information over Groupon in terms of what their variable costs may be. This may allow the merchant to have more freedom in determining what kind of discount price to give. Since Groupon takes commission based on the price, this can be substantial. Information asymmetry may also give rise to opportunistic behavior such as misrepresentation of product quality (Akerlof, 1970). Since consumers usually cannot determine the quality of a product/service prior to consumption, merchants may attempt to defraud consumers of experience goods and services, such as wine, healthcare services, and software. Many consumers may even avoid purchasing the product/service altogether in fear of getting ripped off or at least be very cautious when purchasing such goods. The issue of information asymmetry may become more severe when there is no face-to-face contact between merchants and consumers before the consumption of the goods/services. In economics, the concept of “signaling” was proposed to explain how two parties can get around the issue of asymmetric information. One party would send a signal that would reveal some piece of relevant information to the other party (Spence, 1973). The other party would then interpret the signal and adjust his/her purchasing behavior accordingly. For example, in the case of social shopping, our study has found that a high number of customer reviews on Yelp seems to signal to the consumer the popularity or quality of the merchant, making the Groupon purchase a more reasonable buy for the consumer.

Online intermediaries are known to narrow the information asymmetry between merchants and consumers since online intermediaries have expert knowledge on products and have product information widely available online. As an extension of online intermediaries, social shopping intermediaries can reduce the information asymmetry between merchants and consumers. Social shopping intermediaries make efforts to filter out misrepresented information and maintain information quality. Social shopping intermediaries allow consumers to acquire information otherwise unavailable, such as information on merchant reputation. Social networking, discussion sections, and product review sections of merchant reputation sites allow consumers to conduct pre-purchase research and help reduce the information asymmetry between merchants and consumers. In this way, products and services listed on social shopping sites turn into a search good, which is a product or service with features and characteristics easily evaluated before purchase. As mentioned, a high number of reviews or high review score can send potential customers a signal of high product/service quality on behalf of the merchant. Since social shopping intermediaries conduct preliminary quality control of merchants before listing merchants’ products/services, listing on a social shopping site can also act as a signal for credible product/service quality. Consumers can trust the merchants on a social shopping site with the belief that social shopping intermediaries will make an effort to bring reliable, trustworthy merchants in order to remain in the business.

Price discrimination is a marketing method of differentiating price sensitive consumer groups from less sensitive customer groups and offering different prices for the products and services to each group. Price discrimination is common in practice, and has received careful analysis in the field of economics (Lewis & Sappington, 1994). Price discrimination allows firms to increase their revenue above what may be obtained from uniform pricing (Leslie, 2004) by reaching new customers who are currently not buying the product. However, since there is a difficulty in differentiating between loyal and new customers, social shopping can be used as a means of inducing voluntary price discrimination (Ben-Zion, Hibshoosh, & Spiegel, 1999).

Under the social shopping environment, the merchant’s incentive and ability to price discriminate will continue to grow. Social shopping intermediaries naturally identify more price sensitive groups. Members of the social shopping sites signal their price sensitivity voluntarily when they apply for the membership and actually purchase the discount deals. An individual-level analysis of the frequency and
size of discount deals can further identify the core price sensitive groups. It is expected that a certain percentage of social shoppers become repeat customers if the product or service satisfies them, while others remain in the same price-sensitive group regardless. However, it would be challenging to accurately estimate the percentage of social shoppers who will actually become repeat customers. Considering that many of the members of social shopping sites are of a more price sensitive group, merchants can expect the conversion to be relatively low.

Advertising is an important part of the business logic of social shopping intermediaries. The major revenue sources of social shopping intermediaries are commission and advertising fees paid by the participating merchants. Traditional approaches to advertising implicitly assume that advertising is something the firm does to attract the consumer (Pavlou & Stewart, 2000). Advertising on the Web is typically a form of interactive advertising which extends the traditional approaches of advertising. In Web-based interactive advertising, the reasons consumers seek information, self-select information for attention, process and use information, and respond to information are critical for understanding the effects of advertising and for designing effective advertising (Pavlou & Stewart, 2000). The majority of studies attempt to identify the relationship between the characteristics of Web advertising and consumers’ behavioral responses (Briggs & Hollis, 1997; Cho, 2003; Eighmey, 1997; Yoo & Kim, 2005).

For merchants, social shopping sites are an alternative to or can complement traditional advertising media such as newspaper, magazine, radio, and TV. Social shopping intermediaries inform consumers of a merchant’s existence and the availability of the products/services, increase brand awareness, and ascertain the quality of the merchant. Social shopping intermediaries employ a variety of advertising schemes. Social shopping promotes viral marketing via social networks and referrals. To maximize the effect of viral marketing, the time limits and quantity thresholds of the deals are enforced. E-mails are sent to subscribers for ‘deals of the day’ and other special promotions. A variety of deals are posted on social shopping sites with different pricing schemes in visually stimulating ways to grab the attention of potential customers, and possibly lead to actual purchases. All of these real-time interactive characteristics of social shopping advertising go beyond the capability of traditional advertising. Additionally, while traditional advertising media demands a fixed advertising fee regardless of the outcome, typical social shopping intermediaries receive commission only for successfully completed deals. If the deal does not reach a threshold purchase quantity, all of the advertising efforts are of no cost to the merchant. Very few studies exist on the advertising aspects of social shopping intermediaries.

Network externality theory was used to explain the increased value of telecommunication adoption by a large number of subscribers in the 1970s (Rohlfs, 1974), and the theory has been developed and refined over time to model many organizational technology adoption decisions (Economides, 1996). Network externality describes the increase in the value of a product or service to a user, not because of the inherent quality of the product or service, but because of increasing numbers of other users adopting it (Katz & Shapiro, 1985). The basic premises of the theory are 1) that the value to a user from joining the network is an increasing function of the total number of users who join the network, 2) that users perceive this value, and 3) that they make their joining decision based on this perceived value. Online social networking sites such as Facebook and LinkedIn are good examples of the network externality since the more members that join the site, the more beneficial the sites will be to the members.

Network externality applies to social shopping for both merchants and consumers. Merchants have the incentive of using social shopping sites that have many members, and members have the incentive of using a social shopping site where many merchants are providing deals. As the size of the social shopping site increases, benefits to both merchants and consumers grow significantly because they have a better
chance of passing the threshold quantity of sales, enjoying a variety of deals, and acquiring accurate information on products/services. Since social shopping intermediaries are a relatively new business model, few studies on network externality of social shopping sites exist.

5. ENTERPRISE WEB 2.0 APPLICATIONS FOR SUPPORTING EXISTING BUSINESS MODELS

Many businesses utilize Web 2.0 to strengthen their existing business models. This extension of Web 2.0 to the industries is dubbed as “enterprise 2.0” (McAfee, 2006). Along with the consumer social media, companies are adopting Web 2.0 applications either for internal or external collaboration with suppliers and customers (Bughin, 2010). Both e-commerce and traditional businesses must understand how to respond to and capitalize on the changing Internet environment to sustain competitive advantage in the Web 2.0 era (Dinger & Grover, 2010).

In this section, we analyze how Web 2.0 can enhance the value of existing traditional businesses. While the above-mentioned Web 2.0 business models utilize Web 2.0 applications as the core revenue sources, traditional businesses have used Web 2.0 applications mainly to support their business processes. Based on an in-depth analysis of the body of literature about business models, four components of business models were identified for further analysis: customer, value network, capability, and sustainability. The following discusses how Web 2.0 affects the four components of a business model in traditional business organizations.

Customer

The customer component is concerned about the definition of customers, identification of customer value, and the delivery mechanism of value to the customers. Firms can deliver values to customers by offering differentiated or lower-cost products/services. Web 2.0 is changing the interaction dynamics between the firm and customers. Customer-centric Web 2.0 enhances the firm’s ability to offer better valued products/services by engaging customers in the value generation process as well as in the value consumption process. As many customers are adopting Web 2.0, they have more bargaining power against sellers than before. They are equipped with various online social networking applications and investigative knowledge and tools about products and services. Furthermore, customers’ expectations for better services are ever increasing due to increased competition among sellers. The relationship dynamics between employees and customers are changing, too. By using Web 2.0 as a marketing tool, firms signal to their employees the importance of networking with customers. To meet the expectation of their employer, more and more employees are engaging in Web 2.0-based communications with customers. The communication is more interactive and synchronous.

Companies are utilizing Web 2.0 to implement customer-centric marketing. In enhancing service to customers, companies began to use Social Networking Sites (SNS) in a variety of ways. For example, social networking sites are used to solicit feedback on customers’ product experiences and assess their preferences. By creating a social network with customers and seeking ideas about the company’s products, a company can retain a customer group who show strong loyalty and spread positive word-of-mouth. Social networks connect employees with customers for the collaborative works. According to Lynch (2009), Texas Instruments (TI) noticed a problem in its customer service department in 2004, the main
customers of which are customers (engineers) who buy and use some of the company’s most technical products. To respond to customer questions more effectively, TI decided to build “E2E,” which stands for engineers to engineers. Launched in 2008, E2E is a private social community where TI’s staff interacts with engineering customers. E2E proved to be a transparent portal where customers and TI engineers can share best practices that help solve common technical challenges. In 2008, travel agency Connections launched a social networking site enabling its employees to digitally share travel experiences. The company was convinced that sharing such experiences would enrich employees’ support to customers (De Hertogh & Viaene, 2010). In addition, virtual world applications are used to enhance marketing efforts. For example, Coca-Cola has developed a section of the virtual world There.com called MyCoke. This site features large promotional displays, Coke-branded virtual clothing, and activities for consumers (Nasco, Boostrom, & Coker, 2010).

Multiple Web 2.0 platforms enable employees to interact dynamically with their consumers and engage in dialogues with them. In addition to public and private social networking sites, companies use public and private blog sites to publicize corporate news and new product developments. Companies can use a corporate blog in order to provide a communication channel to customers (Lee, Hwan, & Lee, 2006). For example, in 2006, to respond to the public complaints and concerns of bloggers, Dell created a blog to interact directly with consumers (Jarvis, 2007). By allowing customers to use a corporate blog, an organization may be viewed as more customer-centric (Singh, Veron-Jackson, & Culinane, 2008).

To enhance customer loyalty, companies have to invest in the content creation and in the design/implementation of other Web 2.0 tools to encourage the active customer interaction and involvement. Companies can keep their consumers informed of their products or services via tools such as RSS, video sharing, product review sites, mashups, and Podcasting. An increasing number of companies use videos and pictures to enhance public relations. Consumers’ product reviews are solicited, analyzed regularly, and integrated into improvement programs. Benefits of customer-centric Web 2.0 include consumer loyalty (Freed, 2007) and increased consumer satisfaction (Fleck, von Kaenel, & Meckel, 2010), customer relationship management, leverage of custom-tailored experiences, and utilization of consumer generated data (Bughin, Chui, & Johnson, 2008).

Value Network

Value networks are concerned about information sharing and relationship management among suppliers, partners, distributors, and retailers, and improvement of any network activities along the network that add value to products/services. Value networks are designed to be private and open only to business partners. The significance and weight of value network members are measured based on the magnitude of their value addition to products/services in different stages towards the final products. That is, the higher value the member generates, the greater role the member played in the network. The difficulty of the value network management lies in the fact that it is heavily focused externally with little visibility and control of the external processes. Web 2.0 enabled value network members to share information in a timely, interactive, and visible manner. Therefore, the process visibility increases and network process control is better managed. Web 2.0 facilitates information sharing on experiences, problems, and ideas about products and services among network members, so that firms can take rapid and proactive measures to problems and opportunities arising from their partner sides.
While the customer element of the business model focuses on the business-to-consumer (B2C) relationships, the value network element is concerned about multiple business-to-business (B2B) relationships. The B2B relationship management is typically a higher dimension than the B2C relationship management. Web 2.0 communication and collaboration applications are expected to strengthen the relationship between business partners by enhancing information sharing capability among partners. Furthermore, Web 2.0 is more human-centric than previous value network applications. Web 2.0 adds a human element to the value networks by engaging employees from multiple businesses in a more interactive manner. A company-owned private blog site enables the firm to interact directly with partners, enhancing the power of the human element in the processes.

Web 2.0 enables the value network to extend its boundaries. For example, Netflix and Facebook are integrating their platforms for inter-firm information sharing. Facebook users can post their movie reviews from the Netflix account onto their Facebook page (www.facebook.com/netflix). Groupon is also partnering with multiple product/service review sites such as Yelp and Citysearch. By expanding the value network with the strategic partnerships and affiliation marketing, their sales potentials increase significantly. Web 2.0 also brings Small and Medium-Sized Enterprises (SMEs) into the value network, which would have otherwise not been possible without Web 2.0. Easy-to-access Web 2.0 tools lowered technological and resource barriers for many SMEs, and their activities in the value network have become more visible. The visibility of global value networks is also more enhanced as Web 2.0 enhances global communications and information sharing.

**Capability**

Web 2.0 enables businesses to complement existing company capabilities by integrating multiple Web 2.0 platforms. Some of these platforms include knowledge management initiatives (Cayzer, 2004; Wagner, 2004; Shimazu & Koike, 2007), project management efforts (Miller, 2006), and social networks that connect employees (Middleton, 2008). Businesses can play a central role in the internal capability growth by consciously designing Web 2.0 tools, creating and managing contents, supporting the active employee-to-employee interaction and innovativeness, and analyzing employee generated contents. Information sharing Web 2.0 facilitates creating, storing, refining, and sharing information between employees. Information sharing can support social and active learning among employees. These Web 2.0 applications use secure Internet or intranet-based secure space. It is expected that the enhanced internal communication and collaboration contributes to the capability growth.

Companies should establish an internal Web 2.0 portal as a gateway to all corporate Web 2.0 tools, and set the strategic direction for future Web 2.0 investments. Internal blogs are used to share corporate news and events, and internal wikis are used to conduct group works and manage organizational knowledge. Senior management uses internal blogs to publicize initiatives within companies (Schwartz, 2005). Wikis are an excellent knowledge management tool due to their ease of use and update capability. Wikis are increasingly used internally by companies such as Adobe Systems, Amazon.com, Intel, IBM, HP, Corning, Eli Lilly, and Pfizer. Web 2.0 enhances the capability in sales and marketing, training, ERP, SCM, CRM, research and development, and human resources. Senior management needs to support employee empowerment (De Hertogh & Viaene, 2010) and employee participation to strengthen capability.
Sustainability

Sustainability is concerned with the development of the ways the company can gain a sustainable competitive advantage in the market. Many companies increase the strategic roles of Web 2.0 to achieve sustainable competitive advantage. Web 2.0 enhances sustainability through partnership relationship management, collaboration and communication, enhanced business intelligence, innovation (McAfee, 2006), and enhanced knowledge management (Boughzala & Limayem, 2010). For example, Nokia hosts a corporate wiki forum where users are free to express their views about Nokia products. Nokia uses the ideas contributed by consumers in developing their next generation products (http://wiki.forum.nokia.com/index.php/wiki_Home). Companies also surf public social networking sites and blogs to gather business intelligence about new trends, and product developments. Public social networking sites also facilitate recruiting and connecting potential contributors for distributed innovation processes (Cash, Earl, & Morison, 2008). Opening the innovation process to final customers is a new variant of Open Innovation (Chesbrough, 2003) and a potential source of competitive advantage. The customer functioning as an innovator can fulfill a number of different roles; product conceptualizer, product designer, product tester, product support specialist, and product marketer (Nambisan & Nambisan, 2008).

Research and development, enterprise planning and execution, and strategic partnerships are some of the areas to benefit from collaboration. Collaboration with extended stakeholders is a key to the success of today’s sustainable competitive advantage. Web 2.0 supports and enhances the collaborative works on the Internet, and, therefore, the participation is boundless and asynchronous as well as synchronous. Collaboration Web 2.0 helps facilitate goal-oriented teams in the process of problem solving and group decision-making. According to Bughin et al. (2008), one in ten of the participants in the online community Second Life are already involved in co-creating with companies in different ways (testing prototypes or participating in design of new products); 60% of the participants of this community say that they are willing to experiment with co-creation.

IBM’s Blade.org is a collaborative organization and developer community focused on accelerating the development and adoption of open blade server platforms (http://blade.org/aboutblade.cfm). With contributions from hardware and software vendors, the collaborative environment of Blade.org is forging the next generation in blade technology for developers, investors, and end-users looking for the best way to do business. SAP, HP, NOKIA, and AMD invite developers to join their developers support communities. Sun Microsystems operates a developers’ community called Sun Developer Network and NOKIA operates a complete online platform dedicated to its developer community with a discussion forum, blogs, and a wiki application. All of these excellent companies demonstrate the successful use of extended collaboration including customers, public, and professionals.

6. INTERACTION DYNAMICS BETWEEN EMERGING WEB 2.0-BASED BUSINESSES AND EXISTING BUSINESSES: AN ECOLOGICAL VIEWPOINT

The dynamic interactions between emerging Web 2.0-based businesses, existing businesses, and Web 2.0 tools and application development industry are depicted in Figure 1. All of these new models and traditional enterprises utilize various Web 2.0 tools and applications. Figure 1 shows the ecological nature of these components. There are strong interactions between emerging Web 2.0-based businesses and existing businesses. The relationship is neither competitive nor win-lose—they are symbiotic. The
survival of emerging Web 2.0-based business models depend on attracting existing businesses as customers, contributors, and users. For example, the value of major online communities such as Facebook and LinkedIn depends on how many business organizations they retain in their community. The major business customers of social shopping sites such as LivingSocial and Groupon are local merchants, which are mostly SMEs. Major revenue sources of virtual world, content intermediaries, and shared Web 2.0 services are all business customers as well. The success of the emerging Web 2.0-based businesses positively affects the business customers, since these businesses will funnel the consumers to the business customers.

Figure 1 shows that a variety of Web 2.0 applications are used by existing businesses. While the above-mentioned emerging Web 2.0-based businesses are public and third party in nature, these existing businesses are also developing private Web 2.0 applications to interact with their stakeholders. The in-house development of some of these private Web 2.0 applications, such as wikis, blogs, and social

Figure 1. Interaction dynamics between emerging Web 2.0-based businesses, business customers, and Web 2.0 tool and application development industry
networks, requires significant investment and technical resources which were within the domain of large companies. However, SMEs can relatively easily integrate some Web 2.0 applications such as RSS and Google mashups. It is expected that SMEs will become more effective in adopting Web 2.0 applications in the future. The Web 2.0 tool and application development industry lowers the technological and financial barriers of SMEs.

It is also shown that the advances of the Web 2.0 tool and application development industry depend on the growth of the emerging Web 2.0-based businesses and existing business. The advancement of the Web 2.0 tool and application development industry will facilitate the emergence of new Web 2.0-based business models and the growth of existing businesses. While we did not extend our analysis into the macro environment including general public and government, it is evident that the Web 2.0 tool and application development industry benefits the society and in turn the society pushes the advances of the Web 2.0 tool and application development industry.

7. CONCLUSION

In this chapter, we discussed major Web 2.0 applications including social networking sites, blogs, folksonomies, wikis, and integrated services. We also identified six Web 2.0-based business models: (1) broad online communities; (2) focused online communities; (3) social shopping; (4) content intermediaries; (5) virtual worlds, and (6) shared Web 2.0 services. These Web 2.0-based business models continue to grow in size and number through the interaction with individual users and business customers. We also discussed various motivational factors for User Generated Contents (UGC) in Web 2.0 and theoretical aspects of social shopping business models.

Web 2.0 has not only engendered Web 2.0-based businesses, but has also affected the other existing businesses. This study provides managers with the guidelines to invest in and manage Web 2.0 technologies in the areas of customer management, value chain, capability, and sustainability. Existing businesses must understand the impacts of Web 2.0 technologies on their existing business models in order to be competitive in this fast-paced environment. Managers should clearly identify and prioritize their business model components that require Web 2.0 technologies to improve organizational performance. For instance, certain organizations may decide to incorporate Web 2.0 only as part of their information sharing and collaboration initiatives with partners whereas others may use it as a means to network with their customers. The overall business strategy will help determine Web 2.0 initiatives and implement them.

This study also analyzed from an ecological perspective the interaction dynamics between Web 2.0-based businesses, their business customers, and the Web 2.0 tool and application development industry. Our analysis demonstrated that these three-way relationships are not competitive but are symbiotic. Therefore, it is expected that new business models will emerge as the Web 2.0 tool and application development industry advances. In turn, the growth of the new businesses will spur the advances of the Web 2.0 tool and application development industry. Likewise, the same symbiotic growth will continue in existing businesses due to the positive interactions with new business models and the Web 2.0 tool and application development industry.

In Lee
Western Illinois University, USA
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