

The New Imperative for Creating and Profiting from Network Technology Under Open Innovation: Evidences from Taiwan and USA

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Abstract In the rapidly changing Web 2.0 era innovation has become a key focus in organizations around the world. Innovation can be described as the creation of new products that take advantage of changing markets and improved technology, but innovation also means the ability to adapt to new technologies and create new networks. In this paper we focus on organizations in different fields that attempt to adapt to advances in network technology. The fields we examine are online web stores. With regards to social media, we will examine how the design and allowance of user feedback affects the success of E-stores. In addition we also compare the studies done on these fields from Taiwan and America in order to understand how regional cultural biases affect research style and direction. This paper will study the effects of being innovative in the three fields described above as well as the different views of being innovative in America and Taiwan.

Keywords Web 2.0 · Open innovation · E-stores · Network technology

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Introduction

The amount of people using the internet to communicate, search for information, and create new web pages has grown tremendously in the past 20 years. Not only has the user base for the internet grown, its capabilities and purposes have expanded greatly as well. With such an explosive growth in users over the past twenty, no organization in the world can ignore the importance of integrating themselves to the online network. Older functions of the internet included looking up information and communication via IRC channels. Now in the Web 2.0 the internet provides cloud storage capabilities, e-commerce, and gigantic social media community sites such as Facebook. Companies must be adaptable to the growth of the internet user base and to the creation of new platforms of internet usage. Organizations achieve this by being innovative and taking the initiative to understand each new internet application before it becomes widespread.

The rapid improvement in network technologies has made it possible for over two billion users to access the internet. In addition the internet now processes over 21 exabytes of information per month. Organizations are eager to integrate themselves with the digital world but there is still a lack of research regarding the most efficient ways to use web 2.0 network technologies. Companies are looking for the best ways to design their online store websites; they want to understand which features promote user connectivity and make communication easier. Successful E-stores need to be quick and simple, as well as having the platforms necessary to form user communities that will help promote brand products (Fig. 1).

Organizations have also begun focusing their attention on popular social media sites such as Facebook to serve as a new advertising and marketing platform. With over 873 million users (<http://www.checkfacebook.com/>), Facebook is by far the largest social media site. Companies and other independent organizations see great potential in the Facebook fan page application, a page which allows Facebook users to show they “like” a brand name or cause. Companies can upload pictures and videos, provide updates, and create special Facebook apps in order to build rapport with customers and improve their brand image. Fan pages are free and represent an efficient minimal cost advertising technique. Fan pages save companies money and raise brand name visibility, increasing profits.

The ability to store data online via cloud storage is a boon to institutions such as hospitals. With thousands of patient files, hospitals can benefit tremendously from online data storage, as long as they are able to keep that information secure. One such application by hospitals is the use of balance score cards as a feedback tool to inspect the efficiency level of internal operation. These score cards are costly and time consuming evaluations that could become more efficient if the process of collecting and sorting data became online-based. If these score cards could be shared online, low scoring hospitals could study higher rated hospitals and adapt their management techniques and fund allocations.

Adverse drug event (ADE) is an injury resulting from the use of a drug. Hospitals need to be careful of the drug being used in the institution. Although the medications

ANNUAL U.S. E-COMMERCE SALES GROWTH FROM 2002

U.S. e-commerce sales growth from 2002 to 2011 (in billion U.S. dollars)

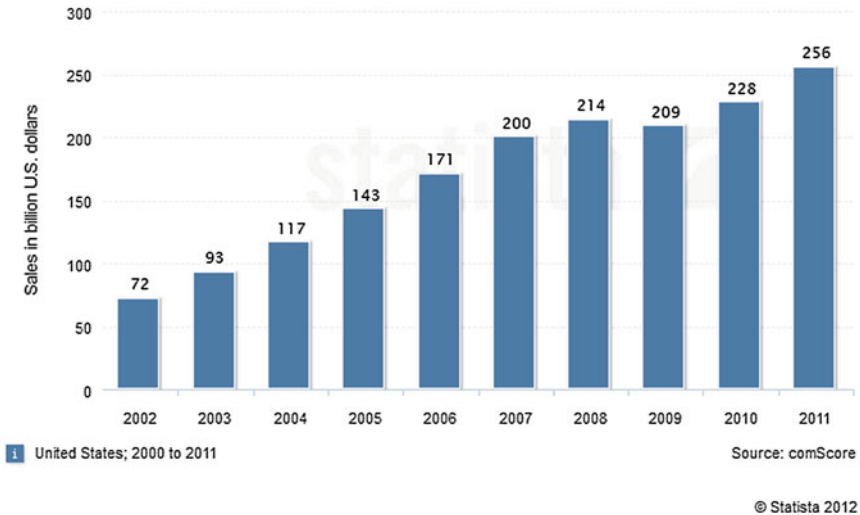


Fig. 1 The trend toward e-commerce in America

being used are tested, constant monitoring to insure safety is still required. Hence, hospitals are also dependent on online database collect and monitor patients with drug usage. Prior to 2007, adverse drug event is under recognized and underreported within the U.S. Department of Veterans Affairs. Two methods for extracting and collating ADEs into national databases were developed in years 2007. They are the Adverse Reaction Tracking package and Veteran Affairs Adverse Drug Event Reporting System. It is necessary to conduct multiple studies on how to achieve the most efficient usage of all this Web 2.0 technology. We intend to examine research done in Taiwan and the United States in order to gain two different perspectives on how innovation can be best achieved. Researchers from each country will have their own cultural backgrounds that affect how their study will be designed and what conclusions they will draw from their datasets. By examining the work of two different countries, we hope that our conclusions will show how to profit from the global future of network technologies.

Literatures Reviews

E-commerce refers to a broad range of online business activities for products and services. Using private network, Electronic Data Interchange (EDI), to transact business between companies was the early form of e-commerce. As defined by

Kestenbaum and Straight [1], e-mail, electronic fund transfer, electronic data interchange, and any related technological integration could be identified as elements of a business system. However, different definitions to technological network has brought up by Kalakota and Whinston [2]. Consolidating the principles of e-commerce can be described as four types: business to business, business to consumer, consumer to consumer, and consumer to business, which are all usually associated with conducting any commercial transaction through the Internet.

With a rapid change in network technology, firms are vigorously seeking innovative strategies to advance performance and it has aroused numerous researchers' interests to study this phenomenon. Many researchers focus their studying on how corporations' existing business model influences by innovation and how they adapt these changes and integrate with old business model to form new marketing strategies. According to lots of research papers, utilizing Internet technology to expand business has more pros than cons. And also most of reports have pointed out the common reasons that corporations have chosen to launch online service are based on the factors of transaction costs, consumer behaviors, and services improvement.

The marketing strategies that the majority of companies utilize for e-business have listed out in the studies as well; such strategies are as auction, point collection, and lottery. Auction is the process of sale in which goods are sold to the highest bidder. Reward point is a program for customers to redeem points they accumulated from purchasing. And lottery involves the drawing of lots for a prize. The reward programs are powerful mechanisms for raising sales or brand loyalty [3] and the two mechanisms that make positive sales impact are "points pressure" and "rewarded behavior" [4]. Effort to earn a reward by increasing purchase is a short term impact, described as points pressure, and the long term impact whereby customers rise their purchase rate after obtaining the reward, can be defined as rewarded behavior.

Opening an e-business market can acquire profitability by offering businesses the opportunity to reduce their costs dramatically. Companies are realized that their online systems are more valuable than the companies themselves. And this could be happened is because of the innovative technology assisting corporations to maximize the benefit of transactional cost, which it always refers to the six transactional sigma identified by Downes and Mui [5]. The six types of transaction costs are search costs, information costs, bargaining costs, decision costs, policing costs, enforcement costs and IT costs. Firms can less depend on broker dealer to sell products and have fully control on the quality of products and services. Additionally, it trims down the cost on time and money to find responsible suppliers and developing new customers. Via the Web, companies can directly interact with their customers to strengthen consumer relationship and also attract more new customers who are relying on online shopping by sharing digital content. Virtual stores can provide fastest and recent updates of new products and user experiences than physical stores as well. Widespread Internet marketing has certainly opened many various unique possibilities for firms and helps to expand the

corporate image. Innovative technologies can improve different aspects for a corporation and has presented an optimistic outlook of the e-business market.

The Research Framework

The topics of innovative web design, targeted Facebook fan page marketing and maximizing hospital efficiency are all centered about the usage of network technology and the importance of organizations being innovative. However, each topic designs its own research methodology as a study designed to research hospital efficiency lacks the tools necessary to understand why consumers prefer Starbuck's fan page over Subway's fan page. In this section we examine our three different research methodologies. Hypothesis: H1: User interaction affects purchase intention; H2: Brand image affects purchase intention; H3: Event creation affects user participation; H4: Consumer attitude affects purchase intention; H5: Heuristic Information Processing is a driving force behind purchase intention; H6: Network technology usage increases profits.

Comparative methodology will be using in this research to compare and analyze the companies in manufacturing sector, 3 M and Procter and Gamble (P&G), between US and Taiwan. Both of 3 M and Procter and Gamble are multinational manufacturers and sell from home and leisure products to health care products. As attributions of markets in diverse regions, these two companies in US and Taiwan would operate on different tactics of online marketing to compete domestically. Since the online order center of 3 M in US is only open for the channel partners and other business customers, the virtual store for daily consumers have no longer existed, Procter and Gamble as a supportive sample in the comparison.

3 M in Taiwan has opened an online shopping site to serve its customers directly and conveniently which customers can purchase various 3 M products from displays and graphics, health care, to home and leisure. Since virtual store has helped 3 M sell products without broker, 3 M have fully control to promote its products in low prices irregularly to raise sells. There are different tactics can be seen on online web site of 3 M Taiwan, (1) Auction: 3 M sets a \$1 in New Taiwan dollar reserve price by offering consumers up for bid. (2) Reward point: Customers can obtain points when they purchase products from 3 M online and which customers can use these collected points to exchange 3 M products; (3) Lottery: Once customers have become members online, they will receive a lottery number while logging into the Web. Customers will win a prize when his/her numbers are drawn (Fig. 2).

The listed marketing strategies are as allures to attract more shoppers and also can help 3 M to understand consumer behavior. From studying consumer behavior, 3 M can implement dynamic product adjustment to correspond with market trend and can acquire immediate responses from customers when new products are released.

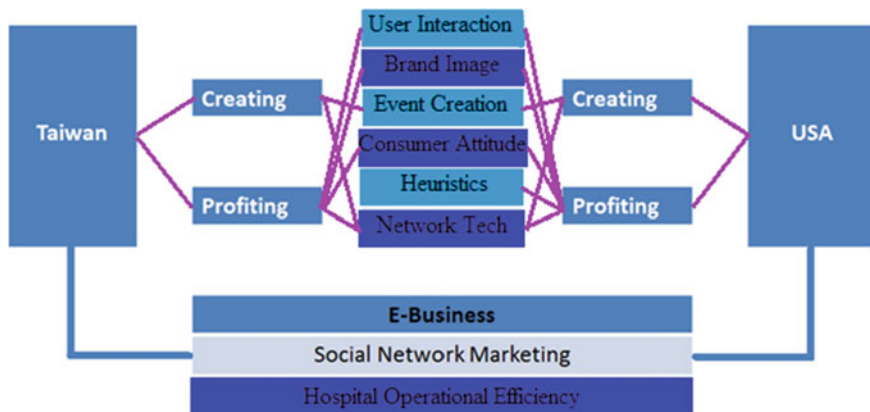


Fig. 2 The framework of this research

Additionally, 3 M has created a forum and fan page on Facebook to have live interaction with consumers. This has given a platform for consumers to share their experiences using 3 M products and for 3 M to share and update its recent news and new products vividly and instantly by uploading audios or pictures. Either social media or virtual store, innovations exponentially grow consumer affinity for the brand and mutually raise sales for 3 M and its retail partners.

As shown from the comparisons, 3 M and Procter and Gamble are vigorously seeking advance network technologies to strengthen their business. Since consumers move based on the development of the market and their shopping habits, e-business continues to grow faster than traditional retail. Percentage of e-business revenue is expected to more than double in next few years even now e-business total revenue is only 6–12 % of a traditional retailer’s total revenue. Figure 1 indicates the future outlook of online shopping market is optimistic, therefore; 3 M and Procter and Gamble should gradually shift their concentration from traditional retail to e-business. 3 M and Procter and Gamble must adjust their marketing strategies as attributions in diverse regions and operate on different ideals of network technology to compete domestically.

Results and Discussions

Posts on 3 M Taiwan Facebook and individual brands of Procter and Gamble US show different atmospheres to online users. The tactic that Procter and Gamble used in social media is to partner with celebrities and it would lead to a creation of commercial polished environment which shopping decisions of some customers will influence by the celebrities. 23 % of the respondents strongly agree celebrity endorsement is a method of persuasion. Sales and brand visibility will tend to react

with media exposures and reputation of celebrities positively because a high-status endorser can facilitate reassure the true quality of a product to consumers [6]. 50.7 % of the respondents agree that using celebrity endorsement will make the brand stand out in the clutter. Economic value of celebrity endorsement is profitable. As the statement from P&G India, the effect of celebrity endorsement helped one of the major brands of P&G to rank as the market leader with over 45 % market share. Different than what Procter and Gamble US approach, 3 M Taiwan provides a simple platform for consumers to share experiences and reviews. Certainly, the simplicity builds an intimate friendship between 3 M Taiwan and consumers.

Conversely, 3 M Taiwan shows creativity on its online shopping store than Procter and Gamble US. 3 M Taiwan offers a loyalty program including reward point, lottery and auction, to optimize its sales and also establish an unique way to interact with shoppers. Reward program is a promotional tool to incentivize consumers on basis of cumulative purchases from a firm [7]. From a case study, a consumer will spend between 20 and 25 % more per visit in a well-constructed loyalty program. As Lottery, shoppers require to log into 3 M virtual store in order to receive a daily lottery number. Lottery acts as a temptation to consumers for visiting 3 M virtual store everyday and it successfully increases chances of customers to purchase products even customers are not planning to. E-Store, name of Procter and Gamble’s virtual store which is partnership with PFS Web, does not offer any reward programs and it makes E-Store less competitive to the market (Fig. 3).

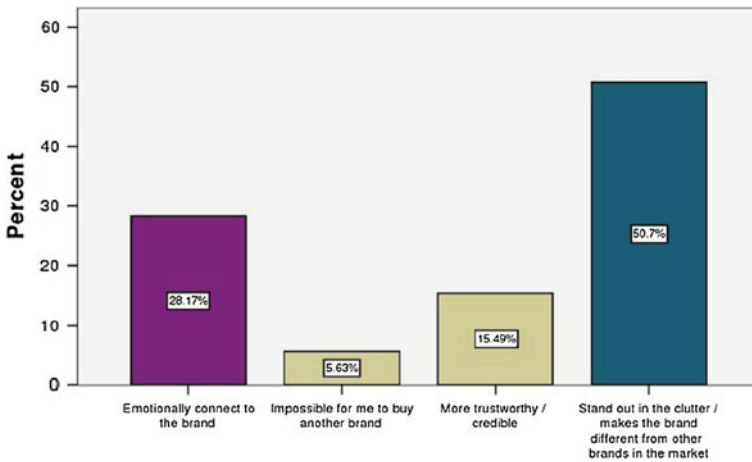


Fig. 3 The result of this research

Conclusions and Suggestions

More similar characteristics of companies will start an online shopping business to emulate and for advancing their services and the existed virtual stores should be out with the old to make way for the new in order to strive for success. The suggestions will be: (1) Strengthen relationship with online consumers. Companies must divide up the market serves to prioritize the primary target markets they will focus on, which the segments will facilitate companies to profoundly comprehend market characteristics and types of consumers. From the analysis, companies can release different kinds of discounts for distinct customers and update to keep websites continuously fresh. (2) Partnership with other firms in different industries. Companies can cooperate with other types of reward programs to reinforce services. For example, if Procter and Gamble signed an agreement with Air Miles (Air Miles is a Canada based reward program offering flight mileage on a multiplicity of products and services, which was launched in the United States in 1992): (a) Members can also earn Air Mile points when they purchase products from any brands of Procter and Gamble; (b) Members can transfer their points or flight miles between both reward programs; (c) Members can redeem Air Miles points for Procter and Gamble products.

Advantages of partnership are attracting more prospective customers and customers can enjoy a variety services from two or more companies. Either 3 M or Procter and Gamble can consider forming partnership with other firms in different industries to expand their businesses. Additionally, 3 M or Procter and Gamble can complement with its partners to better allocate their business. Besides, firms can design customer satisfaction surveys and questionnaire for existing and prospective customers to obtain information about: (1) Appealing of web pages atmosphere; (2) How good selection of products was present; (3) How satisfied consumers are with their purchases via virtual store; (4) Age range; (5) What kind of goods consumers usually buy online; (6) Online purchase intention.

Surveys and questionnaire quantify firms' strengths in growth opportunities, area for improvement, and competitive threats. Furthermore, firms are able to view their performances objectively and adjust business model and target market on the right track. As attributions of markets in diverse regions, 3 M and Procter and Gamble in US and Taiwan would operate different ideals of network technology to compete domestically and internationally. If 3 M or Procter and Gamble and other loyalty programs collaborate on rewarding, it will enhance brand visibility in multiple countries and consumers will acquire diversifies services. Besides, they can mutually help one another in business. Network technology brings professional and creativity to the business market and convenience to either firms or consumers. Innovation is inevitable.

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