
WEB 2.0 TECHNOLOGIES: SECURITY CHALLENGES IN BANGLADESH

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Abstract

Data analysis revealed the divergent opinions of employees and customers on the influence Web 2.0 technologies exert on customer attraction and retention. That analysis has shown how, to some extent, Web 2.0 technologies can sometimes impede the customer attraction and retention process. The qualitative data analysis also revealed some possible solutions for overcoming the various drawbacks of the Web 2.0 technologies, which are used to attract and retain customers for a strong business-to-customer (B2C) relationship.

Briefly, and for the practical implications of the results of this research, it can be said that any company planning to use Web 2.0 technologies to attract and retain customers should create a team of employees devoted to monitoring these technologies, in order to ensure the positive influence of relationship strength antecedents (trust, Service Quality Assurance, satisfaction, referrals and loyalty). Such a team would especially ensure the positive influence of Service Quality Assurance to retain existing customers and attract new ones. The reasons for choosing Company X for this research are given later in the article.

The team should also work to prevent the risk of abuse of Web 2.0 technologies, in order to minimize the amount of misleading and outdated information posted, as well as preventing information overload. At the same time, the team should handle any kind of privacy breach issues strictly and address the 'fear of being offended' issues through Web 2.0 technologies. It is expected that Company X would benefit extensively, in retaining existing customers and attracting potential ones, with the help of the team working with the company's Web 2.0 technologies.

Keywords: Web 2.0 technologies, IT security, Bangladesh, mobile phone industry

1. Introduction

A study was recently completed on “How Web 2.0 technologies increase customer attraction and retention” in Bangladesh. An interesting side issue concerning security in Web 2.0 technologies was identified during the research phase of that study.

1.1 Web 2.0 Technologies

Some examples of Web 2.0 technologies are as follows:

- Blogging (the writing and maintaining of a web log, called a blog): Blogs are self-publishing tools that resemble online journals, where a person can periodically post messages. Readers can subscribe to a blog, link to it, share links, post comments in an interactive format and indicate their social relationship to other bloggers or companies who read the particular blog.
- Social networking sites: These are websites that encourage social interaction through profile-based user accounts. This interaction could be between individual users or between individual users and businesses. Popular social networking sites include Facebook, MySpace and Twitter.

The two examples above are the most common Web 2.0 technologies. Other Web 2.0 technologies include Wikis, Social book-marking, Tagging and Really Simple Syndication (RSS), although these are less frequently used by the individual users and businesses (George, 2007).

Web 2.0 technologies provide users with the ability to create a global list of contact details (either in a graphical or text-based format) of people with whom they have strong professional ties; with co-workers, colleagues and people from whom they get business services, and who they trust enough to be associated with and even recommend to others (O’Reilly, 2005). One of the practical functions of Web 2.0 technology is in facilitating customers whilst choosing a product. There is strong evidence, for example, when comparing professional and personal service providers, that customers prefer to be guided by information from friends and other personal contacts than by a company’s formal promotion mix (Harrison-Walker, 2001; Susskind, 2002). Of course, positive word-of-mouth recommendation is generally dependent on customers having good experiences with an organization.

Many companies have embraced Web 2.0 technologies to develop “viral” marketing, in which a message can be spread quickly from one person to a handful of friends, who, in turn, inform a handful of *their* friends (Ferguson, 2008).

In one case, the online marketing firm NewGate distributed advance excerpts of a new children’s book to online forum leaders. When the forum leaders read the pre-released chapters they quickly spread the excitement and anticipation for the book, which ended up being on the New York Times bestseller list. The company had used around 400 discussion boards and message forums, targeting about 11 million people, who in turn reached 55 million consumers by spreading the word (Ferguson, 2008). Web 2.0 technologies are becoming increasingly important to companies, with evidence that influencing customer behaviour by means of traditional marketing media is becoming less effective with the proliferation of social media and the falling readership levels of conventional media (Ferguson, 2008). Gillin (2007) found that messages received through online communities are believable and trusted in most cases; a finding which can be used to build business-to-customer relationships.

Very little information is available on how Bangladeshi companies manage Web 2.0 technologies, or customer attraction and retention. Indeed no research has been conducted in relation to these three features in the B2C environment. In this situation, extensive preliminary work (i.e. in-depth interviews) was necessary in order to gain familiarity with the phenomenon in the Bangladeshi situation, and to understand what is occurring.

1. 2 The Threat

First World countries are already well acquainted with the problems of interference to, or deliberate attacks on, their computer-based communications infrastructure. It would be safe to say that IT security is one of the fastest growing career fields in the industry, and few and far between are the end users who do not have some kind of virus protection on their computers. Even cellular networks are being affected as “smart phones” and computer tablets take on more of the tasks formerly done by laptop and desktop computers.

P.Wang et al. (2009) identified two methods of potential computer virus infection in cellular networks. These involved the infection of phones through Bluetooth apps; or MMS Virus, which can attack through the infected phone’s address book. Much more common are attacks through Web 2.0 technologies, which can increase risk and degrade customer trust. These attacks are most commonly experienced with social networking sites. “Any time there is a new advancement in technology, there is a new set of security problems,” says Williams, an analyst at the research firm Gartner Inc (CIO Insight, 2006).

The common perception is that hackers are primarily based in First World countries, with a few notable exceptions such as India, which has a well-developed information technology industry. There is very little information to be found on this activity in Third World countries. A Google search of the terms “Third World” “Web 2.0 Security” and “hacker” returned no significant results.

Is this lack of information due to (i) lack of research; or, (ii) because the rapid growth of Third World telecommunication systems brought with it cutting edge security? Or (iii) has growth been so rapid that Third World hackers haven’t emerged yet? This research shows that the answer to the first question is “yes”; and to the second two, a firm “no”.

1.3 Bangladesh

One reason for the choice of Bangladesh for this study is the rapid growth of its telecommunications market. The country’s mobile phone industry has experienced particularly rapid growth in recent years. Mobile penetration was 0.2 per cent in 1995, rising to around 40 per cent in the middle of 2010 for a population of roughly 147 million. Bangladesh hosts Asia’s fastest growing mobile network. The impact of mobile services on the economy of Bangladesh is potentially far reaching, and the benefits of mobile telecommunications in improving the welfare of families and society are well recognized.

Bangladesh is currently upgrading its mobile telecommunication infrastructure to the third generation. Compared to the second generation technology, the new technology allows mobile subscribers to browse the internet, send and receive emails, and use many other data applications. This allows for the use of Web 2.0 Technologies as part of both marketing and customer service.

2. The research

The purpose of the primary study was to explore how Web 2.0 technologies influence customer attraction and retention for a strong business-to-customer relationship. The mobile telecommunication industry has become a dynamic key area for economic growth in many countries and has attracted much attention from service marketers (Gerpott et al., 2001). In mobile telecommunication services, the end user's commitment is very important for business success. Maintaining current customers and attracting new ones have always been key objectives of mobile phone companies (or cell phone companies as they might be called in the US).

This research was required to address the lack of empirical investigation in linking Web 2.0 technologies, customer attraction and retention, and the B2C relationships in the low-contact telecommunications service industry. Restaurants, airlines, supermarkets and recreation centres are some of the examples of high-contact service industries in the B2C context. Therefore, the findings from this research could serve as additional evidence to bolster the assertion on the existence of relationships in the mobile telecommunication service industry, which is considered a relatively low-contact service industry in the B2C context. In addition, this research is required because it covers an area that lacks sufficient theoretical and empirical research in the context of business management, specifically regarding Bangladesh.

One company in particular, identified only as Company X, was the focus of the study. This company was chosen because its operational activities in Bangladesh aim to achieve a new and modern corporate identity that is congruent with the dynamic changes taking place in the telecom industry of Bangladesh today. Company X's proclaimed superior products, high quality of services, network, affordability and customer support have enabled it to capture market share from existing market players. Reflecting its new strategy, the company aims to be perceived not only as a telecommunication operator of voice services, but also as a universal provider of comprehensive communications services for both residential and business customers. Hence, all the above criteria for choosing Company X as a case study for this research indicate that the company was suitable and relevant in the context of Bangladesh.

Research Objectives: There were four objectives to the research. Three of these are listed below:

- The first specific objective of this research was to determine how company employees and customers perceive a business relationship through Web 2.0 technologies in the B2C environment.
- The third objective (the second one is omitted here) was to determine the diverse effects of Web 2.0 technologies from both the company's and customers' points of view.
- The fourth objective was to provide some suggestions to address any diverse effects or drawbacks of using Web 2.0 technologies.

3. Methodology

The researcher undertook a qualitative investigation in order to explore the research questions to discover the detailed perception of the company's employees and customers regarding Web 2.0 technologies and their effect on customer attraction and retention.

This research was case-study based, and the data was collected through semi-structured in-depth interviews. This method allowed the researcher to explore the range of views that respondents held with regard to the topics of the study. Management level employees and customers of Company X were selected as research participants for the interviews.

The population for this study comprised 14 managerial level employees who had been with Company X for at least five years, and 22 customers who had been with the company for at least two years. According to Galpin & Herndon (2007), managerial level employees are the best source for discovering a company's strategy. The managerial level employees of Company X represented a suitable population for the study because they had a clear understanding of the business strategy in relation to the use of Web 2.0 technologies for attracting and retaining customers. From the customers' side, 22 general customers also represented a suitable population for generating their detailed perceptions about the Web 2.0 technologies provided by Company X. All the customer participants had a clear idea about Web 2.0 technology and its influence on them. After 36 interviews, no new information was given by the participants and stability was reached.

To fully understand how Web 2.0 technologies influence the customer attraction and retention processes of a company, the researcher subsequently interpreted the participants' words and perceptions. Although this interpretation may not provide definitive answers, it does raise awareness and increases insight into the context of the research setting. Thus, the theory that guided this study was phenomenology. Bodgan and Biklen (1982) state that all qualitative researchers reflect a phenomenological perspective. Further, "Phenomenological analysis is principally concerned with understanding how the everyday, inter-subjective world is constituted" (Schwandt, 2000, p.192).

4. Reliability

It is also important to note that the quality of the data might be assessed in terms of validity and reliability (Perakyla, 1997), as important measurements to ensure "truth in research" (Jackson, 1997), and validity being defined as the extent to which questions produce an accurate representation of the concept/issue under investigation (Kirk and Miller, 1986). This concerns the interpretation of the data. The validity of this research study was assessed mainly by triangulation. By conducting the triangulation it was expected that the generalizability of the research would be obtained even with the relatively small number of respondents (Alasuutari, 1995).

The validity of the findings is a result of the "turn-talk interaction" (Sacks et al., 1974). The nature of the in-depth interviews aided the researcher in summarizing and confirming respondents' statements. Respondents were also able to give some validation at the end of the researcher's summary statement, in case it was not quite as they had said, or had intended to say, in their earlier statement. Finally, the validity of this research was achieved by analysing the transcript to find the apparent validity (Kirk and Miller, 1986). Many answers were straightforward and transparent, in accord with the probing questions.

Reliability is defined as the extent to which the finding is similar whenever and wherever the research is carried out (Kirk and Miller, 1986). Checking the reliability is closely related to the quality of field notes, tapes and transcripts (Silverman, 1993). Reliability was achieved through a serious effort involving the selection of what was recorded, the technical quality of recordings and the adequacy of transcripts.

5. Findings

For the purposes of this paper, only those findings that relate to computer security will be discussed. Some responses (around 15 per cent) by Company X employees and customers illustrated certain possible divergent effects of Web 2.0 technologies on customer attraction and retention that may impede strong B2C relationships between Company X and its customers.

The following possible divergent effects were identified by the company's employees and customers:

- Risk of abuse
- Misleading information
- Outdated information
- Information overload
- Privacy breaches
- Fear of being offended

The issues of risk of abuse, misleading information, privacy breaches and fear of being offended are all effects that could be generated by hostile action. They are the areas that represent security risks to a company using Web 2.0 technologies.

Risk of abuse: Some (around 30 per cent) of Company X employees stated during the interviews that sometimes they were afraid of people abusing the privilege of Web 2.0 technologies (e.g. blogs and social networking sites). The employees explained that anyone can write comments on the company blogs and social networking sites, and sometimes they (Company X employees) found abusive remarks about Company X's products or services that were completely false. These interviewees added how such abuse of Web 2.0 technologies put the company's reputation in jeopardy. It also emerged from the qualitative data analysis that this kind of abuse frustrated Company X's existing customers and negatively affected their level of trust and loyalty; hence weakening business-to-customer relationships. At the same time, the data analysis showed that the abuse of Web 2.0 technologies significantly impeded the referral chances of the company's products and services.

Misleading Information: A small number (around 12 per cent) of Company X employees mentioned they had noticed misleading information about the products and services on the company blogs and social networking sites. According to these employees, such misleading pieces of information sometimes made existing customers confused and sceptical about the quality of the company's products and services. They further added that it took some time to restore the customers' trust.

It also emerged from the data analysis that misleading information on Company X blogs and social networking sites could adversely affect the process of attracting new customers. A couple

(around 12%) of Company X employees mentioned they were aware of misleading information on the blogs and social networking sites, and sometimes found it very difficult to prevent such deceptive information from appearing, as anyone could write anything there. These interviewees also stated that misleading information hindered their efficient service recovery process, adding that in the past, when a few customers (around 10 per cent) failed to renew their contracts with the company, misleading information could have been one of the causes.

Privacy breaches: About 10 per cent of customers voiced their concern during the in-depth interviews about privacy breaches through Company X blogs and social networking sites. According to them, the discussion forums of blogs and social networking sites are free and open to everyone (i.e. existing and potential customers), and sometimes these customer interviewees noticed how other customers, whose service-related issues were being discussed on the forum, had complained that their mobile numbers had been taken from there, which is a serious breach of privacy. These respondents further added that this phenomenon had made the trustworthiness of the company blogs and social networking sites questionable, sometimes leading to dissatisfied existing customers.

Fear of being offended: It emerged from the qualitative data analysis of interview data that a few customers found the open discussions on the blogs and social networking sites uncomfortable and even rather offensive. According to these customers (around 10 per cent); on occasions when an existing or potential customer wrote either positive or negative comments on the blogs or social networking sites about Company X's products or services, others could be abusive in opposing their comments. These customers added that the fear of receiving abuse when using Company X blogs or social networking sites had dampened many existing or potential customers' trust in Web 2.0 technologies.

Based on the above analysis of the interview data with regard to the divergent effects of Web 2.0 technologies on customer attraction and retention for strong B2C relationships, the majority of Company X employees and customers stated that Web 2.0 technologies play an important role both in attracting and retaining customers for strong B2C relationships (i.e. when exploring the findings of the first research question). However, some respondents expressed opinions that were divergent to some extent, showing how Web 2.0 technologies could put both the company's and its customers' interests in jeopardy at times. The data analysis also revealed certain occasions when Web 2.0 technologies may even hinder the development of strong B2C relationships.

6. Participant Suggestions

Risk of abuse and misleading information: To prevent the possible risk of abuse with Web 2.0 technologies (blogs and social networking sites) and to avoid misleading information in order to improve the customer attraction and retention process for a strong B2C relationship, some (around 30 per cent) of Company X employees suggested redesigning the monitoring system of company blogs and social networking sites. According to these respondents, Company X should increase the number of moderators for better surveillance. They further added that the company could introduce a system whereby every comment has to be moderated before being viewed by others (existing or potential customers). They also said that at the time of interviewing, everyone (existing customers, potential customers and any others) was free to use Company X blogs and social networking sites, and in order to reduce the risk of possible abuse and avoid misleading information, the company should make membership mandatory for all. It emerged from the data analysis that putting these suggestions into practice could prevent

Company X blogs and social networking sites from receiving abuse and misleading information. Some relevant comments are as follows:

Privacy breaches: In order to protect customers' personal information from being breached by others, many (around 20 per cent) customers suggested that Company X should use some kind of unique code for each customer rather than using their mobile telephone number to identify them during any discussion on the blogs or social networking sites. These respondents further added that the company could also provide some privacy control options to its customers so that they could restrict others' access to their personal information. The interviewees also suggested that Company X should be very strict in taking necessary steps if they notice any privacy breach by any users of their blogs or social networking sites. To protect customers' privacy, almost all respondents suggested introducing a unique code for every customer, which is undoubtedly the best available option.

It also appeared from the data analysis that existing and potential customers are more likely to be retained by, and attracted to, Company X, if the company could assure customers that their privacy will not be comprised at any cost. This finding strongly suggests that a safe online environment will strengthen Company X's business relationships with its customers.

Fear of being offended (abused): To prevent customers from being offended by others for their positive or negative comments about Company X's products and services, many customers (around 25 per cent) suggested that a thorough surveillance or monitoring by Company X is essential. They added that, a moderator checking company blogs or social networking sites should suspend or ban any users for being rude to others, just as would happen in an online chat room. One customer said that there should be an option to report the offending occurrence to the moderator. Therefore, the data analysis shows that the right for customers to express opinions without fear of being abused or attacked would strengthen Company X's B2C relationships.

Conclusion

With regard to computer security, the researcher identified several divergent opinions or drawbacks of Web 2.0 technologies that were mentioned by Company X employees and customers. The possible divergent effects or drawbacks that emerged through the qualitative data analysis are: risk of abuse, misleading information, privacy breaches and fear of being offended.

The data analysis revealed that some existing and potential customers do abuse the privilege of Web 2.0 technologies, thereby putting Company X's reputation in jeopardy, and frustrating other existing customers. The data analysis also revealed how misleading information could make existing customers confused and could adversely affect the process of attracting new customers. In addition, the data analysis showed that outdated information – and information overload – impede the company's customer attraction and retention process.

It emerged from the data analysis that privacy breaches and fear of being offended (verbally attacked and abused online) by others through Web 2.0 technologies (blogs and social networking sites) considerably obstruct Company X's customer attraction and retention process. Business-to-customer relationships are weakened as a consequence of these divergent effects or drawbacks of Web 2.0 technologies.

Based on the qualitative analysis of the interview data concerning the divergent effects or drawbacks of Web 2.0 technologies on customer attraction and retention for strong B2C relationships, it is noticeable that even though the majority of Company X employees and customers mentioned how Web 2.0 technologies play an important role in attracting and retaining customers (when exploring the findings of the first research question), respondents displayed divergent opinions. In some ways Web 2.0 technologies put both Company X's and its customers' interests in jeopardy, suggesting that the company's customer attraction and retention process can be obstructed, and on some occasions Web 2.0 technologies may even hinder the development of strong B2C relationships.

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