Enhancing User Engagement in Electronic Commerce Through the Transition to a Digital Ecosystem

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Abstract

Electronic Commerce (EC) companies are faced with a highly competitive environment today. Strengthening user engagement in digital ecosystems is a promising approach to increasing value co-creation. However, enterprise-oriented user engagement strategies examined in previous studies are relatively inadequate to meet today’s expectations. This paper looks to answer the question, “how to effectively strengthen user engagement to acquire a sustainable value co-creation system in EC.” A plausible user engagement strategy was revealed by analyzing a single case study in the music sector based on details of a digital ecosystem. Semi-structured interviews performed with company Xiami along with their users, show that the recognition of user-oriented needs and the expansion of user-driven demands are two key aspects for EC companies to maintain a sustainable growth of value co-creation.

Keywords: Electronic Commerce, User engagement, Digital ecosystem, User need, Value co-creation, Value analysis.

1. Introduction

An increasing number of companies have realized the power of the Internet, for instance, it is cost-effective, time-saving and allows direct interactions with customers, and by utilizing its power companies stands to gain profits. As such, EC can play a constructive role in business development. Specifically, EC can enable an electronic transaction performance analysis by companies and customers through computer networks (Cronin, 1994; Harrington & Reed, 1996). To customers, the potential benefit from EC can be huge. Web services are convenient and time saving; customers can easily compare prices, product features and feedback across suppliers. In other words, suppliers are able to deliver material goods, offline services, and digital contents to customers via the Internet at any time and any place (Collis, Bane, & Bradley 1997; Rust & Oliver 2000). Through this approach, companies can spread their brand to reach global users and enlarge their user scale.

It is critical for any and all efforts in EC to successfully integrate with other systems. Systems such as: travel, health, payment and other innovations are all critical to people’s daily lives. However, there exist difficulties that hinder EC companies to maintain the growth of value co-creation. On the one hand, companies keep enlarging business scopes to increase brand awareness or enhance brand image for their customers. The argument “marketing is branding” is recognized as a criteria accepted by many companies whereas they can choose one or several appropriate brand strategies depending on the company’s own characteristics (Al & Laura, 1998; Laforet & Saunders, 1994). As a result, companies that run different businesses may become direct competitors by implementing distinctive brand strategies. In accordance with diversification of brand strategies (Si & Kapoor, 2014), cosmetic companies can extend their
business to clothing, also, logistics companies can allocate their business to the field of online shopping. On the other hand, the evolving concept of value co-creation now involves user value. In light of customer behavior evolution in the EC age (Hernández, Jiménez, and Martín, 2010), previous studies on conventional retail environment are not suitable for online shopping behaviors anymore (Peterson, Balasubramanian, & Bronnenberg, 1997). Likewise, traditional value detecting methods within an industrial field have also lost power for EC due to the fact that products and services become dematerialized and the value chain no longer has any physical dimension (Peppard, & Rylander, 2006). It has led to a situation that numerous scholars (Nylén, Holmström, & Lyttinen, 2014; Prahalad & Ramaswamy, 2004; Thomke & von Hippel, 2002; Rönnbäck, Holmström, & Hanseth, 2007; Monteiro & Hanseth, 1996) have recognized the necessity of strengthening the co-creation of value with customers. A commonly shared belief is that failure of engaging users equals no sales and no transmission of information on EC sites (O’Brien, & Toms, 2008). Moreover, in the process of customer decision making, user engagement is considered as a crucial element (Batra & Kazmi, 2004; O’Brien, & Toms, 2008). User engagement has continuously gained great attention from marketers and researchers due to the important role it played in promoting customer perception of service quality (Bitner, Faranda, Hubbert, & Zeithaml, 1997; Claycomb, Lengnick-Hall, & Inks, 2001; Ennew & Binks, 1999), customer satisfaction (Bitner, et al, 1997; Cermak, File, & Prince, 1994; Ennew & Binks, 1999), and positive word of mouth and referrals of customers (File, Judd, & Prince, 1992). User engagement also shows its influence on a lower customer price sensitivity (Hsieh & Chang, 2004), a tight relationship with service provider (Youngdahl, Kellogg, Nie, & Bowen, 2003) and eventually towards high quality services and abundant reward with low maintenance costs and operating expenses. However, it is a great challenge to effectively engage with customers in EC. In traditional EC organizations, they engage users generally from internal value activities basing on users’ buying needs, such as triggering users’ buying decision, providing individualized products and completing post-purchase services (Hsia, Wu & Li, 2008; De-ling & Hai-bin, 2010). Against this backdrop, we realized that there exists a research gap which concerns the literature as improving user engagement from an interactive standpoint. Therefore, our research question is how to effectively strengthen user engagement to acquire a sustainable value co-creation in an EC system?

The goal of this paper is to detect an interactive user engagement framework which progresses development on user value co-creation. In consideration of user participation and interaction, they are generally associated with the term ‘digital ecosystem’ (Selander, Henfridsson & Svahn, 2013; Uden, Wangsa, & Damiani, 2007; Boley & Chang, 2007). In the following section, we review the literature on user engagement to recognize and how to create value from the process of user engagement. We then present the findings of a case study. Finally we conclude by articulating implications for EC organizations.
2. Related Research on User Engagement

In this section we review prior studies on user engagement and value co-creation. Despite the fact that user engagement is widely discussed in various fields, it is still a challenge for EC organizations to effectively strengthen it. Hence, we focus on how to detect a suitable platform for EC to plant user engagement and how to create value from user engagement.

2.1 User Engagement

Engagement is considered as “a desirable even essential human response to computer-mediated activities” (Laurel, 1993, p. 112). Based on this instinctive human reaction, numerous practitioners (Brown & Cairns, 2004; Chapman, 1997; Skelly, Fries, Linnett, Nass, & Reeves, 1994) have struggled to understand, define and construct user engagement, which consists of system feedback, user control, attention, motivation and individual stimulating. Brodie et al. (2011) epitomizes user engagement into five conceptual domains as follows:

- user engagement is a reflection of a psychological state which occurs through interactive user experiences with organization within specific service relationships;
- user engagement states occur within a dynamic, iterative process of service relationships that co-create value;
- user engagement plays a central role within a homological network of service relationships;
- user engagement is a multidimensional concept subject to a context- and/or stakeholder-specific expression of relevant cognitive, emotional and behavioral dimensions;
- user engagement occurs within a specific set of situational conditions generating differing user engagement levels.

On the basis of empirical studies on user engagement, an E-marketing related opinion (Prahalad & Ramaswamy, 2004; Sashi, 2012) affirms that engagement between or among users and organization decorates a dynamic space for value co-creation by generating user contents, providing feedback for both sides, diffusing information and promoting advocacy sensitivity of users.

2.2 Detect User Engagement Platform

User engagement from traditional EC perspective has always concentrated on the term product innovation. It can be easily traced in the process of product design, product testing and product introduction. In this situation, organizations solicit user input in order to have a better or faster product update or iteration (Sawhney, Verona, & Prandelli, 2005). However, this traditional perspective tends to force users to a passive position as recipients of information. Information flows in a one-way direction from customer to organizations and value co-creation is simply an enterprise-centric activity (Prahalad & Ramaswamy, 2004). Digital ecosystems by contrast are considered as the next generation of collaborative environment. They evolve the traditional organisms of the digital world from centralized, dispersed, or hybrid forms into an “open, flexible, domain cluster, demand-driven, interactive environment” (Boley & Chang, 2007, p. 1).
There is no centralized control structure, no preconfigured architecture and no fixed role assignment inside digital ecosystems. Instead, a digital ecosystem is an open community by virtue of the convergence of information and communications technology (ICT) networks, social networks, and knowledge networks (Nachira, Dini & Nicolai, 2007). It refers to a self-organizing digital infrastructure aimed at creating a digital environment enabling network transactions and cooperation, knowledge sharing, open and adaptive technologies and rich evolutionary domain knowledge environment (Nachira, Dini & Nicolai, 2007; Uden, Wangsa, & Damiani, 2007; Boley & Chang, 2007). Such an open community is enabling its communication and collaboration through swarm intelligence, which means the clusters that have common characteristics can interact and engage directly or indirectly with each other (Boley & Chang, 2007). The direction of interaction evolves from one-way information import to an interactive or even a multidimensional dialogue. Information diffuses among all the actors including users, organizations and sometimes third parties. As mentioned above, a digital ecosystem is a self-organizing digital infrastructure; all the participants involved will enlarge the probability space of high-efficiency cooperation under the circumstances that they show an autonomous, highly interrelated and dynamic attitude. User engagement represents the value that a participant in an interaction attributes to the goal of being together with the other participants and continuing the interaction (Poggi, 2007), as a consequence, digital ecosystems is an ideal platform to expand user engagement.

2.3 User Engagement Value Network

User engagement contributes to organizational value co-creation by involving users and expanding potential space. Sashi (2012) held the view that this activity enables a deep integration between marketing orientation with user knowledge management and thus forms a marketing relationship. Namely, marketing relationships provide a plausible solution for a long-term sustainable profitability growth by regarding user needs as core issues and continuously satisfying them. The process of value co-creation is shifting from a physical, enterprise-centered perspective towards a user-generated intelligence point.

2.3.1 The Impact of User-generated Contents (UGC)

On the basis of this inspiration, many organizations have recognized the potential benefits brought by engaging users to co-create value through UGC (Di Gangi & Wasko, 2009). UGC refers to general public’s media content input instead of paid professionals and mainly distributed on the Internet (Daugherty, Eastin & Bright, 2008). It represents an information repository where users reveal their individualized needs, desires or any other emotions. Considering that user engagement expands the customer’s role by means of immersing them in the value adding process as co-creators of value (Sashi, 2012). In an Internet-based environment, those intangible assets created by users primarily exist in the form of UGC. The more users engage, the more valuable it becomes to the organization and users. A digital ecosystem increases the capability of stimulating UGC creation as an open community. From an ICT
network perspective, digital ecosystems determine the direction, magnitude and scope of co-created value by promoting the ability to integrate content, the flexibility of implication features and the success ability to meet users’ need. Coming to a social network term, digital ecosystems facilitate positive UGC by providing an open and transparent communication environment, fulfilling user needs for individual attention and enhancing the intimacy with users. As for knowledge network, users create and share knowledge with each other or organizations when they produce, retrieve, and exploit UGC (Kankanhalli, Tan, & Wei, 2005; Li & Bernoff, 2008; Karakas 2009). Hence, an optimized utilization of UGC is beneficial for organizations to understand user behavior and result in excavating potential value co-creation.

2.3.2 Value Co-creation Analysis of User Engagement

In order to successfully co-create value, it is essential to capture the value flow between both the users and the organizations. Digital ecosystems are an open community surrounded by numerous users and organizations, it enables them to interact and create value networks at an interlinked level (Nachira, Dini, & Nicolai, 2007). Allee (2000) believed that value exchange is the core interactivity of a value network and generated the forms of exchange into two types, tangible exchanges and intangible exchanges. For tangible exchanges, organizations provide any goods or services to users and users reciprocate in the form of monetary value. This exchange follows a traditional EC value co-creation logic which focuses on the transactional perspective. Coming to intangible terms, it includes information and knowledge exchanges that organizations engage in personalized offerings and psychological contributions such as sense of community to delight or fulfill user needs, and conversely gain UGC and users loyalty as reward. All the actors in value networks either individually or collectively utilize their tangible and intangible sources that can be delivered to other actors through the execution of a transaction. It enables value networks to perform in an interlinked fashion. However, only understanding how the value flows is not enough, in order to strengthen user engagement to co-create value with users, a more meaningful issue is to understand how to create value from intangibles. On the basis of preceding findings, Allee (2008) proposed an accessible approach to convert intangible assets into negotiable values by focusing on asset utilization, output of each role and their impacts on other participants. This approach covers both tangible and intangible assets and exploits value co-creation in five dimensions:

- **Asset utilization**: aims to determine the effectiveness of leveraging financial and non-financial assets to create each value output;
- **Value conversion**: assets are transferred into value outputs, for instance, when users contribute their knowledge as an intangible asset into website, then website spreads it to cover a wider audience and finally generate revenue;
- **Value enhancements**: intends to make value output unique, like an expert commentary or distributing a basically unchanged knowledge output to other participants;
Recipient perceived value: estimates the extent of recipient’s perceived value, it represents the expected result from value recipients to judge the value output from value creators;

Social value: assesses what accrues to indirect recipients of the value outputs.

How user engagement co-creates value especially from intangible perspective should not just treat them as assets but capture how those value flows and launch into particular interactions and relationships.

### 2.4 User Engagement Cycle

The user engagement cycle usually behaves as a central role in many marketing strategies which helps in measuring the effectiveness of a user's journey from awareness to loyalty (Ertell, 2010). It is generally constituted by the process of building user engagement. A popular model consists of five levels including awareness, consideration, inquiry, purchase and retention (Ertell, 2010). Sashi (2012) recognized this process as one approach to build emotional bonds in relational exchanges with users. The notion of user engagement cycle refers to connection, interaction, satisfaction, retention, commitment, advocacy, and engagement (ibid). By establishing connections to motivate users, companies interact with users to understand their needs or provide information to them. Through satisfying users to continue the engagement progress, it retains highly positive emotions or long-term relationships over time which will lead to a higher level of trust or germinate user loyalty. Advocating for their users and stimulating users to advocate for them eventually results in strong emotional bonds with users along with user delight and user loyalty. However, the previous thoughts appear to solely represent an affirmative status that once organizations succeed in engaging users, users will never release those emotional bonds.

On the basis of the preceding theoretical foundation, O’Brien and Toms (2008) explored a unique insight for constructing the process of user engagement. They considered a whole user engagement process should contain a circulation and generalize various elements related to user engagement into four distinct stages: 1) point of engagement, 2) period of engagement, 3) disengagement, and 4) re-engagement. They believed a further comprehensive user engagement initiated from the resonance between the aesthetic or informational composition of the system interface with users, then entered the period of sustained engagement developed by maintaining user's attention and interest in the interaction. Next, experiencing a disengagement with a break due to any user's internal or external factors, companies finally implemented a re-engagement by re-motivating users back to the initiated stage based on utilizing users’ positive past experience before they truly decided to abandon.
Figure 2.1 User Engagement Cycle

Figure 2.1 shows a straightforward user engagement process. In light of EC emerges a highly competitive environment, users are extremely likely to get disengagement by cause of the end of purchase behavior, connection with other websites after a horizontal service or price comparison or lack of novelty in this website. Hence, re-engagement is an essential element to embed in the cycle in order to achieve a sustainable user engagement.

3. Research Methodology

In this section we conducted our field research to observe how users are engaged and how to create value through those engagement activities. This study is designed as an exploratory analysis of a single in-depth case study in which we gathered data from a research site in the music sector: Xiami (http://www.xiami.com), a leading digital music streaming site in China. The motivation of this study is to provide insights for positively engaged users in an EC system to obtain a sustainable value co-creation growth framework.

3.1 Case Study

Case study research has gained considerable attention over the past decade in the Information System (IS) field (Orlikowski & Baroudi, 1991). Meanwhile a growing tendency of IS research exploits this advantage by conducting a qualitative research method to study IT phenomena within the business field in particular (Reich & Benbasat, 2000). In order to have in depth understanding of how to engage users, a single case study was considered as an intense yet detailed approach to analyze a specific or unclear phenomenon (Daymon & Holloway, 2010). The sole case study is rooted in a single organization, and it will be beneficial to understand how
organization engages their users, form the relationship and conversely recognize the revenue stream that an organization receives from their users.

3.1.1 Case Selection
There remains a large opportunity for value co-creation in the Chinese EC market today, which can be attributed to the huge population. However, as long as numerous threats from competitors exist, it will lead to unaffordable competitive costs and user loss. In this study, Xiami, a leading digital music streaming platform which has one of the most extensive user age segmentation and largest number of visitors, is selected in order to observe how they leverage user value through engaging users. Xiami was founded in 2007 with a mission to develop into a professional music community, marketing platform and service provider. In the past few years, Xiami has successfully attracted billions of users in the highly competitive digital music environment. All the while Xiami is battling with strong competitors who struggled to cross border from the outer field to music category like NetEase, a famous web portal and QQ, the leader of Chinese instant messaging. It drives an interesting motivation for researchers to understand how they maintain competitive advantage to continuously reach new users and engage current members. Moreover, Xiami has implemented a unique system, X-model, by means of integrating certain diverse functional traits which are community-oriented in Peer-to-Peer (P2P), social network services, music sharing, virtual currency and EC. In Xiami’s community, the organization, users, and musicians form the three main actors and exist in an interlinked level at the same dimension. A digital ecosystem is the convergence of ICT networks, social networks, and knowledge networks to contribute to an open community; it will bring cognitive insights to recognize how Xiami evolved from EC to digital ecosystem and how Xiami users have become engaged.

3.2 Data Collection
This study commences with a list of prepared questions for a clear direction. We use primary data from eight interviews to assess how users are engaged to stimulate value co-creation in a digital ecosystem. We first interviewed one respondent who works in Xiami Operations Department, and this respondent was interviewed four times in total. We performed the other four interviews with Xiami’s users. As mentioned above, we contacted five respondents in total, which consisted of both Xiami staff and Xiami users; none of them were selected randomly. Due to the fact that our questions are mainly focused on the process of user engagement, an operation manager was the preferable selection as they are in charge of resources revolved in the process of delivering services or producing goods (Greasley, 2007). The main reason why we solely chose one employee is that it will help us to concentrate on individual’s opinion. By means of focusing on an individual respondent, it enabled us to delve deeper into respondent’s thoughts, behaviors, and feelings, as well as gather detailed information. Additionally, we selected Xiami users who had at least two years of experience because those targets, to a certain extent, are more familiar with Xiami system and accomplished interactions than new users.
Furthermore, those experienced users exist exactly as a reflection of successful user engagement. Consequently they will have high tendency to provide valuable and related information for us to consider. Our respondents are kept anonymous for the reason that they may not fully be open if they perceived that the information given may expose them in a negative sense. All the interviews were conducted through instant messaging tools due to geographic distance. We used a semi-structured design and shaped the interview template with diverse questions towards Xiami staff and users (See appendix 1 and 2 respectively). The interviews with Xiami staff lasted for 50 minutes on average. There were no time limitations on the interview which led this respondent to donate sufficient time and energy and allowed us to gather as much information as we required. However, it was relatively time consuming in contrast to the interviews conducted with the users. Compared to Xiami staff, interview questions prepared for users are far more straightforward and simplistic. We considered that users may lack relevant knowledge in the domain of user engagement and so they will stray from main point. Hence the information gathered from users focused more on their personal experience and feelings and we traced those indications to detect their actual effects from Xiami websites.

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Role</th>
<th>Interview time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent A</td>
<td>Operations Manager</td>
<td>50 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 mins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 mins</td>
</tr>
<tr>
<td>Respondent B</td>
<td>User</td>
<td>30 mins</td>
</tr>
<tr>
<td>Respondent C</td>
<td>User</td>
<td>25 mins</td>
</tr>
<tr>
<td>Respondent D</td>
<td>User</td>
<td>15 mins</td>
</tr>
<tr>
<td>Respondent E</td>
<td>User</td>
<td>45 mins</td>
</tr>
</tbody>
</table>

Table 3.1 Overview of interviews

3.3 Data Analysis

On the basis of the preceding theoretical foundation, we treat user engagement cycle as the explicit conceptual framework. By following its logic, this cycle is beneficial for us to smooth mixed information into a sorted order. In particular, the focus of this study is on the process of user engagement embedded in Xiami systems and detects the value flow. Hence we have utilized user engagement cycle to understand the procedures of how Xiami implemented their user engagement strategy. Subsequently, we have approached value co-creation analysis as a contingent analysis process. As long as we understand the process of user engagement involved in the Xiami system, such a value co-creation analysis will guide us to evaluate how user engagement affects values flow inside the system. To do the analysis, all participants are interviewed separately in order to avoid each single respondent being affected by others. We built on and theorized around the concepts drawn from related research of user engagement. In addition, we followed the suggested procedures for qualitative research and grounded theory
Data analysis was based on three coding steps: open, axial and selective coding which were recommended by Strauss & Corbin (1990) and Charmaz (2006). We identified the emerging concepts and focused on identifying the activities existing or behaving among three main actors of system during the open coding stage. We then distinguish those codes into two main fields: value co-creation and user engagement and we look for evidence of a linked relationship during the axial coding stage. Because those links are crucial for us to glean better understanding of user engagement and value flow. Consequently, many codes are displayed several times due to the different field of relationship between user engagement and value co-creation. In last step, we guide selective coding by means of levels of user engagement and dimensions of value co-creation. Considering that respondents may not be aware of user engagement cycle, and value co-creation containing different stages, we then classify categories on the basis of each stage after all the questions are accomplished. Table 3.2 and table 3.3 manifests an example of the analysis.

<table>
<thead>
<tr>
<th>Role</th>
<th>Narrative</th>
<th>Open codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations Manager</td>
<td>User data is an indispensable resource that will help Xiami analyze user behavior and preferences, and then applied to the daily operational work which will provide better service for users.</td>
<td>user data, data analyze, user behavior, user preference, data application, service provider.</td>
</tr>
<tr>
<td>Operations Manager</td>
<td>Any activities should be driven by users and user needs should be regarded as the trigger. Although currently we may encounter many user needs that we cannot meet, we record them in a prioritized list and begin with high priorities.</td>
<td>user need, user-led, unsolved needs, prioritized list.</td>
</tr>
<tr>
<td>Respondent A</td>
<td>I am attracted by Xiami’s user interface and complete music database. And it makes me feel good to share songs with a bunch of people who are also into indie music.</td>
<td>user interface, music database, enrich music resources, user satisfaction, music share, common taste.</td>
</tr>
<tr>
<td>Respondent D</td>
<td>I am a Xiami fan since 5 years ago, and I am still happy and lucky for owning the well-established relationship with other Xiami friends, even nowadays we are still in close touch.</td>
<td>user loyalty, user delight, sustainable friendship.</td>
</tr>
</tbody>
</table>

**Table 3.2 Examples of open coding**

<table>
<thead>
<tr>
<th>Open codes</th>
<th>Axial codes</th>
<th>Selective codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>music database, music share, data analyze, data application, user data</td>
<td>collect user data, enable IT function,</td>
<td>connection &amp; interaction</td>
</tr>
<tr>
<td>user data, data analyze, data application, prioritized list, music database, music share.</td>
<td>use asset resources, implement asset applications,</td>
<td>asset utilization</td>
</tr>
<tr>
<td>user preference, user satisfaction, user delight, user loyalty, sustainable friendship.</td>
<td>user feedbacks, user relationship, emotional bonds,</td>
<td>commitment</td>
</tr>
<tr>
<td>user-led, sustainable friendship, music share, common taste, user loyalty, user</td>
<td>user value output, socialize user value,</td>
<td>social value</td>
</tr>
</tbody>
</table>
3.4 Limitations of the Study

Despite respondent’s great efforts, this study reveals several constraints. To start with, the sample size in this research is rather narrow so our ability to generalize is limited. Compared to the total amount of users in our case website, sample consists of only four users are too limited to reflect the opinion of Xiami users. In addition, we only interviewed one single employee in the operating department. Hence, the insights from other sites such as marketing and technical developers are not reflected upon this study.

Further, interviews through instant messaging tools might limit the depth of discussion and interpretation. We constructed our interviews through online approaches due to geographic distance. However, online interviews will miss great amount of facial expression from respondents without camera recording. In addition, online interviews are more likely to set relationship barriers to establish full trust and openness compared to face to face interviews. Therefore, it affects the accuracy of data gathered that we may not catch true and deep thoughts of respondents.

Moreover, time cost of user engagement is not analyzed in this research. Time cost indicates the efficiency of user engagement process. However, in our research, there is no time cost estimation on each stage of user engagement. In addition, this issue is not considered in user engagement management either. It might disturb the final result if time cost on user engagement implementation is longer than user lifecycle. And so it might reveal more traits by comparing user lifecycle with the user engagement cycle to adjust the strategy on controlling the progress of user engagement implementation.

4 Case study

As an overview, our case study includes a description of user engagement environment and progress of related services innovations in the strategic orientation in terms of the organization’s resources excavation and utilization. In the first part, we describe the environment in Xiami’s system. In the second part, we introduce the interactivities between users, organizations and musicians inside the website. And in the last part we select several representative products and services to observe Xiami’s strategy for user resources utilization.

4.1 Individualized Service Orientation

To ensure a user-engagement-friendly environment, the initial step that Xiami took was to build up an enhanced individualized service network. Which means, for most of users, the original motivation is to listen and download music. Xiami expanded this initiative via two aspects, music self-cognition and individualized music recommendation. “Our first mission is to make sure every audience can reach their favorite music repositories easily.” (Respondent A) Driven
by this idea, Xiami contributed to a high-accuracy rate of music genre classification and linked attributes. In total, all the available music resources are divided into more than 20 various types of music styles and over 100 subcategories. Inside each category and subcategory demonstrates detailed introduction of selected music style, related music resources (songs, albums and artists) and their valid links (See Figure 4.1).

Figure 4.1 Classified music style category

A detailed music genre classification performs more or less as an instructive guide, which shows its convenience for users to have a basic self-cognition towards their music tastes. Through this approach, Xiami is able to input its recommendations in every single song, artist and album or even user collection page. Even if users who barely have previous knowledge on music areas, can find a way to expand music inventories. As for users, they can easily receive interesting audio tracks to enlarge their collections. A detailed music genre classification is also essential for Xiami since it constructs the foundation for individualized music recommendation. “There is no bad product but bad user experience.” (Respondent A). Xiami considers user experience as an important factor which affects their strategy by adventuring innovative answers to promote recommended song accuracies. They guide users to recognize their musical taste as an initial stage, and further stimulate users to keep searching for a preferred music library. As long as Xiami receives sufficient user data, they generate more informative data based on user behavior through an established user model.

“We found that users who like the same singer usually have diverse favorite songs since usually music artists may try composing in different music genres. And sometimes, a single song may not match with the artist’s original genre. In order to help our users to find similar songs with their favorites, we determine whether a recommended song is a match depend on three conditions (between original artist with target artist, original song with target artist and original artist with target song) to finally make a comprehensive decision.” (Respondent A)

Consequently, Xiami assorts users relying on their listening behavior, for instance, some users are willing to mark many favorites that they encountered while others may only prefer to be a
silent listener. On the basis of user model analysis outcomes, ‘Xiami guess’ and ‘song roaming’ are two creative services that were implemented to enhance user listening experience. ‘Xiami guess’ refreshes fifty songs every day under accurate calculation to guess users’ favorites, whereas ‘song roaming’ extends the space of each favorite available by virtue of roaming any songs from users’ choices and then listen to similar recommendations below in the playlist (See Figure 4.2).

According to Respondent B’s commentary, he/she shows an immensely positive attitude on this service which was described by him/her as “part and parcel of everything I do on a daily basis”. User behavior and Xiami services are entangled in an interlinked and interactive relationship. Xiami provides high-quality individualized service by analyzing user behaviors and as such users correspondingly adapt to those changes in a friendly and comfortable reaction.

![Xiami music player](image)

**Figure 4.2** Xiami music player

### 4.2 User Interaction Intensity

In Xiami’s system, user data is generally considered as a crucial precondition to make systematic recommendation. Respondent A believed that user data existed in the form of UGC and Xiami manages to create rich amounts of UGC through engaging user interactions with both the organization and musicians. Through connections between musicians, users and platform, Xiami dedicated to improve musicians income and copyrights with providing professional services, and this further facilitates user consumption. The advantage to engage user interactions will lead to a tremendous value co-creation space in several directions:
• interactions within users stimulate users adhesiveness of website, produce great amounts of UGC and promote user daily activities;
• interactions between users and organizations help operators discover service weakness, optimized products and services, clean website spam messages and inform operators user needs and user preferences;
• interactions between users and musicians bring a beneficial brand awareness to musicians to increase the amount of fans and eventually enhance revenue in both tangible and intangible patterns.

Specifically, to start with, interactions between users rely heavily on information diffusion. On one hand, users generate their thoughts, feeling or narratives into user data by collecting certain music songs into a customized music collection, sharing music with current feelings, and updating musician, albums or community (forums, groups, personal pages) information. On the other hand, these user behaviors’ outputs decorate an open platform for other users to display their impression as well as contribute advanced knowledge so as to complete the whole music knowledge system.

Further, Xiami interacts with users by relating user data with IT-enabled services. Xiami encourages users to actively participant in various internal activities, for instance, weekly theme of music collections, daily login check and hot topic discussions. By offering exchanges, Xiami rewards active users with virtual currencies which allow users to download music, buy properties and enjoy VIP services. Further, Xiami regards core users as a precious resource to expand their influence and advocate their efforts. Those outstanding users or their music collections will be recommended on the homepage, usually musicians are also included and considered as unusual users to get spread among potential fans. Additionally, Xiami encourages users to bond their Xiami account with other social accounts and by doing so Xiami is able to match already existed friendship in other platforms to extend their relationship through IT-based recommendation function. Due to the reason that we use translation tools to translate web pages, the word Xiami in the picture is automatically translated into the word ‘Shrimp’ (See Appendix 4.1).

Lastly, interaction between musicians and their fans generally act as an information provider and receiver. Xiami brings an open platform for musicians to enter after an identity verification process. In Xiami’s system, it enables musicians to own and manage their music page, mark song’ prices, and analyze related data. It is worth pointing out that musicians have the right to determine whether users can download their music by virtual currencies awarded by Xiami or only available for entity currencies. As a result, entered musicians can upload their demo or albums and set prices for users to download. They can also have conversation with their fans through comments on their musicians’ page or detailed song pages. Appendix 3 shows an echo accepted among audiences to express the contentment when fans discover a new song or musician.
Generally, users contribute data by making music collections, music sharing, community activities (forums, messages boards) and artist information updates. Respondent A interpreted the importance regarding user data as

“An indispensable resource that will help Xiami analyze user behavior and preferences, and then applied to the daily operational work which will provide better service for users.” (Respondent A)

In Xiami’s relationship network, value exchanges follow the flow of UGC. It is transformed from user data and further recognized as a carrier of potential user needs which delivers insights for operators to promote services and brand awareness to musicians (See Figure 4.3).

![Figure 4.3 Example of value exchanges](image-url)

Apart from any official user interactions such as event planning and feedback gathering, a concealed tendency unveils an increasing intention of user-led interactions. Respondent D said that he/she “participated in a user-led organization”. This organization is responsible for designing a weekly music publication to colorize Xiami’s content. Team members are highly self-motivated including the planners, designers and copywriters etc. Respondent A found such kind of self-organized user groups had reached certain scale and penetrated into various fields, for instance, ACG (Anime, Comics & Games)-oriented weekly publication, foreign lyrics translation and correction, high-quality resources replacement and so on. Meanwhile, Xiami operators were solely responsible for content verification or official approval and diffusion in response to avoid any forbidden or sensitive information complications.

### 4.3 User-dominant Innovation

Inspired by self-organized user groups, Xiami took a step forward to engage users through transferring users to dominating positions. It shows a customized and individualized characteristic according to the strategic logic that:
“Any activities should be driven by users and user needs should be regarded as the trigger. Although currently we may encounter many user needs that we cannot meet, we record them in a prioritized list and begin with high priorities.” (Respondent A).

Therefore, users can develop their idea, release their ardent in the platform and communicate with each other in a smooth way. Conversely, Xiami empowered users by giving them authorization to add artist information, upload missing lyrics and even become a musician to share their artistic talent. In the meantime, Xiami attempts many revolutionary innovations to increase user-dominant senses. According to user’s response, they mentioned two striking products, ‘Xiami Loop’ and ‘Xiami Host’, which captured their great attention.

Xiami Loop is centered on virtual studios where up to five users can act as DJ (as what is called “looper” by Xiami users) and mix tracks in turns. For loopers, their aim is to impress the gathered audience and collect experience points as well as gain new fans (See Figure 4.4).

**Figure 4.4 Xiami Loop interface**

In this virtual studio, Xiami decorates a free and unique space for users to share music and stimulate interactions. With the emphasis on being social, Loop enables loopers and audience to chat and mark the music mix as ‘weak’ and ‘strong’. Further, the monetary strategy mainly entails in the form of virtual goods, including clothing and accessories for avatars which can only be purchased through experience points that was gained through audience participation. Respondent C shared his/her opinion that he/she “used to listen in certain rooms because usually he/she had common interest or motivation with other members”. For example, a room which was called ‘listening while typing thesis’ might easily catch students’ sights, while ‘moments for designer times’ tends to be more interesting for designers. By means of a directional room title, Xiami Loop, this interactive sharing movement incites subconscious
desire of users’ socialized sense and extends its social features from music taste sharing towards interest-based clustering.

If Xiami Loop is considered as a social interactive action towards different audience clusters, by contrast, Xiami Host focuses more on exploring individual’s social value. As illustrated in Figure 4.5, Xiami Host offers an open space for users to share their current music playlist where other participants may send flowers to the host as a representation of their preference or request a song to hold a music taste seminar.

![Xiami Host interface](image)

**Figure 4.5 Xiami Host interface**

Differing from Xiami Loop where users take charge in turns, Xiami Host shifts its concern towards a better display of individual user’s music tastes and understanding by reduction of loopers into one person—the room host. An essential difference distinguishes Xiami Host from Xiami Loop is that Xiami Host roots its space inside every user’ domain and clusters audience depending on host’s personal characteristics instead of common interests.

In addition, Xiami managed to evolve user engagement level by crossing border from online streaming services towards an online and offline combined direction and individualized user needs with a user-dominant manner. By these means, Xiami took a leap to hold a concert and left the feasibility to user's discretion. Users are encouraged to pay in advance for any alternative service such as request specific songs of invited musicians, enjoy live shows and watch from online streaming platform according to intensity of users’ self-needs and economic conditions. The concert ownership was transferred from official agent companies to users’ hands. As final results showed, Xiami was enabled to gather abundant funds through users’ pre-orders. Aside from common needs between Xiami and users, other stakeholders including record
companies, or independent musicians are all invited to join this unconventional business model. Moreover, Xiami attempted to release an Internet-based record, ‘Pursue Lights’, which contained two parts, ‘Pursue’ and ‘Light’. A total of nineteen musicians were selected by the “Xiami family”. Xiami invited ten new generation musicians to release their representative works to produce ‘Pursue’. While for ‘Lights’, nine musicians with a large appeal revealed their latest creations. This album was available for both online streaming and downloading, as well as offline disk sales. In appendix 4.2, it shows a reflection of its attractive position among audiences. Respondent A described Xiami’s role as “a gear to coordinate stakeholder’s requirement and motivate them to meet user needs”. An interactive innovation depends on user insights and organization’s ingenuities to flexibly exploit, utilize and interlink resources. And Xiami still maintains a craving attitude for sustainable interactive innovation.

4.4 Ongoing Challenge

Despite the fierce competition Xiami encounters with other cross-border competitors, Xiami suffers from threats which might cause user disengagement. For instance, music copyright privacy, since pirating problems used to be a serious development barrier in Chinese music industry (Liu, 2010). Respondent A confirmed that Xiami did provide a path for users to upload music resources by themselves. With the high attention in mind, Xiami arranges a comprehensive screening process on all music repositories to cut off any illegal music resources. As a double-sided effect, users realized that dramatic amount of their music collections have lost validity (See Figure 4.6).

**Figure 4.6 Xiami Copyright Piracy Issue**
Although the existed UGC are still completely remained in system and IT-based function also enables users to continuously contribute to the contents, they cannot cover user’s basic needs of listening and downloading music which inevitably force their users to switch channels to other websites. Regarding Respondent C’s answer, the invalidity of music songs act as a disincentive to stimulating their participation, many times they have to shift their mind towards other alternatives to attain wanted music resources.

5. Discussion

In this section, our consideration is on the process of Xiami’s user engagement cycle and five dimensions of value co-creation analysis. Specifically, as far as a user engagement network is founded, we have drawn on the notion of a digital ecosystem to analyze how to manage this network through three network dimensions of a digital ecosystem. As a result, we contribute to recognize user needs through user data and behaviors during the user engagement process; and by adapting digital ecosystem terms to the research, we present a model of managing user engagement network.

5.1 An Integrated Use Engagement Framework

On the basis of the preceding theoretical foundation and practical user interaction performance, we analyze narratives gathered from respondents and related information from case website. The framework of the user engagement cycle helped us to understand user engagement as a progressive and circular process. It indicates the diversity of effects that the user might go through during each stage and how he/she completes the emotional journey through the utilization of the digital ecosystem. Our analyses demonstrate how Xiami engages their users as well as how value flows among three main actors by means of implementing the analytical framework of five dimensions of value co-creation analysis. The main strategy that we analyzed is to recognize UGC as a crucial factor to detect its influence during the process of user engagement. We recognize that Xiami’s user engagement process is at the same dimension as the one we mentioned above in related research part, which contains user engagement, disengagement and re-engagement as three main steps. We summarize these analyses by observing and identifying each specific stage in a user engagement cycle. In appendix 5, it demonstrates the outcomes by sorting gathered information into each engagement stage. The strategic idea of engaging users is to understand user needs, fulfill them and treat users as value co-creators so as to empower them to release their deep desires. It also reveals a solution to deal with disengagement by intensifying the uniqueness of core business resources. As a further step, we analyze those processes through value co-creation analysis to bring out explicit statements about how to calculate value co-creation during the process of user engagement (see Table 5.1).

| Asset utilization | In Xiami’s case, the major utilization of assets relies on IT architectures, which increases the possibilities to create value output from actors. IT-based |
functions establish an open platform for users to input their knowledge and time resources and for musicians to upload their music. Additionally, the analysis of user listening behavior and preference enables to offer considerate services for users. Within user engagement process, asset utilization basically emerges on stage connection and interaction as a fundamental step.

| Value conversion | Within the circumstance of open platform, the data that user input turns into UGC and further transformed into innovative service offering. Later, those positive user experiences are considered as an intangible asset to finally be converted into user delight and user loyalty. Eventually, those fully engaged users are empowered to arrange user-led events and Xiami receives those contributions and transforms them into rich website contents and various services. In addition, once user downloads any music and pays the fee, it supports the financial position of both Xiami and musician and thus motivates them to improve better services and music works. Hence, value conversion is triggered when users are active into Xiami’s system after the utilization of asset and it continues the conversion until the end of engagement process. |

| Value enhancement | According to Xiami’s user engagement strategy, it attaches great importance on the co-created value of core users. During the value conversion process, Xiami highlights outstanding song collections on homepage and widely accepted comments on detail pages to detect and develop core users. Further, Xiami also notices the influences of popular musicians and stimulates cooperation with them to further enhance their popularity by means of spreading their new releases. Through this approach, Xiami aims to emphasize those actors’ uniqueness to utilize them to catch a wider audience. It begins in the retention stage and reaches the peak in the advocacy stage. |

| Recipient perceived value | Since Xiami has continuously contributed on promoting services, consequently, users have their needs fulfilled in several aspects, such as exploring abundant music resources and knowledge, enlarged friend groups, and pleasing experiences. Despite the disengagement stage that it might hurt the expectation of users, users can still gain unexpected service and unique resource offered through re-engagement stage. In short, the journey that users experienced reflects user’s social, knowledge and emotional needs. This status will go through the whole engagement process but it becomes more obvious after the stage of satisfaction when users get satisfied with their basic needs and have a tendency to expect more from Xiami. |
Once user perceived value is exposed and fulfilled, it affects other indirect users in several ways. A well-orchestrated user-led event represents a feasible path for any other users who have potential desire to devote their knowledge and ideas in Xiami’s system. Also any recommended collections and top comments encourage other users to revise their own works to be more sophisticated and eventually become the one favored by the public. Through these approaches, they arouse the sensitivities of social respects for indirect users to perform in a self-motivated attitude. This dimension occurs after the sign of social needs and emerges in the advocacy and engagement stage.

### Table 5.1 Value co-creation dimensions

These analyses provide a better insight to understand how user needs are motivated and how to satisfy their needs with other stakeholders’ simultaneously. Further, these analyses also reveal many different types of value existing and exchanged value in the user engagement process. IT-based functions support and increase the productivity of UGC meanwhile Xiami analyze those contents to get better knowledge about its users and further socialize and specialize them to expand their social influences on a wider scale of audiences. Additionally, Xiami not only engage users but stimulate the activities and outputs from musicians as well. This process is similar with user engagement process (See Table 5.2).

<table>
<thead>
<tr>
<th>Connection</th>
<th>Xiami constructs the platform for musicians to own their musician pages and sets up the regulations for musicians to enter.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>Xiami enables musicians the right to publish their original contents, including their music creations and informative self-introductions.</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Once users are satisfied with musicians’ work, Xiami help musicians to reach large scale audiences and form core fans.</td>
</tr>
<tr>
<td>Engagement</td>
<td>By downloading music works and being favored by users, musicians receive business resources shared by Xiami and get direct profits.</td>
</tr>
</tbody>
</table>

### Table 5.2 Engagement on musicians

In this condition, service provider, product provider and users are entangled in an interlinked dimension in user engagement networks. Overall, the positive outcomes of user engagement lies on how user needs can be fully recognized and highly motivated. However, we realized that user engagement process continuously face challenges related to validity of product resources.

### 5.2 Managing User Engagement Networks in Digital Ecosystem

Through our analyses, we notice that there exist important observations from the case that go beyond the user engagement cycle and value co-creation analysis. We extend our analytical process to a practical context in digital ecosystem to make user engagement networks
useful. Drawing from related research, our observations of user engagement network management focus on its three constituents: ICT, knowledge and social network. This elaborate account reflects the practical implications of user engagement in digital ecosystems.

In Xiami’s digital ecosystem, ICT infrastructure initially enables music sharing and searching capabilities in order to meet user’s functional demands. By gathering user data, ICT capabilities provide precise music matching index calculation to fulfill user needs; it establishes a breeding ground for active social behaviors. Furthermore, ICT ensures effectiveness of communication within the system. There remain copious kinds of communication channels throughout the whole website covering almost every page. Users and musicians can easily reach each other and exchange their ideas or give proposals to operators and vice versa. ICT network provides a transparent and accessible path to improve information diffusions and reserves plenty of areas for new message generation. It supports social activities and influences efficiency of those activities all the while acting as a central role to boost productivity and improve competitiveness (Nachira, Dini, & Nicolai, 2007).

After the system absorbs user data and alter them into intangible value it is generated as UGC in website, those UGC together with existing music related information compose of knowledge network. UGC brings precious experience for new users to understand new environments and for operators to detect potential service promoting strategy. As for user interaction activities, it enables its communication and collaboration among the clusters that have common interest or music taste, which socializes individual knowledge as open knowledge and increases the possibility for further interactions (Boley & Chang, 2007). Meanwhile, users attribute Xiami’s high quality service to a complete music database and a detailed genre classification, which was an affirmative answer from all the respondents. According to this indication, we find Xiami has great amounts of long tail music resources due to the open channel for musicians’ participation. Whenever UGC and musical knowledge crashes into each other, it incites countless possible combinations towards a new knowledge generation. Users are able to contact with a new genre sector through others commentaries and musicians may find the path to export a better emotional expression of their artistic works to fans.

The social network behaves as a core battlefield to implement user engagement. It emerges from integrated social and knowledge contexts that generated from ICT and knowledge networks. In social network, actors gain the ability to turn any thoughts into actions. Xiami is no longer a single function website solely for online music streaming. Instead, with contribution by a vibrant user community, Xiami is filled with user knowledge inputs. Those knowledge inputs emerge not just in the form of products like music collections, music sharing list or song comments but further as reflections on creators’ psychological state, which is to say their potential desire and actual feelings. In light of the creation of UGC represents a progress from user attitude towards user behavior (Daugherty, et al, 2008), the emotional bonds connected between Xiami and users improve user activity along with UGC creation in a positive way. Further, a self-organized open community emerges as a new pattern for Xiami to collaborate with users. In Xiami’s opinion, platforms no longer take a dominant position. In contrast, by
means of triggering user needs and persisting user needs in a priority position, it leads to a high-efficiency cooperation with other stakeholders and expand the potential value co-creation space towards a win-win situation.

We generate those contents and simplify user engagement process into three stages: initial, development and mature. As a further contribution, we held the view on identifying each network’s responsibilities from corporation perspective (See Table 5.3). With the convergence of three networks, Xiami converts the traditional music industry by changing traditional business model from record companies-dominated to user-dominated, from record sales-oriented to user need-oriented and towards an open interactive ecosystem.

<table>
<thead>
<tr>
<th></th>
<th>Initial Stage</th>
<th>Development Stage</th>
<th>Mature Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT</td>
<td>Identify the product function and establish the user model to recognize user needs</td>
<td>Evolve the product function and user interface to fulfill user needs</td>
<td>Evaluate the profits from users to estimate the product effects on user value growth</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Segment the user level through completed product database and cluster users in groups by detecting the similarity of UGC</td>
<td>Enrich knowledge system through any other available resources and strengthen the uniqueness of core knowledge</td>
<td>Guide users to actively contribute to knowledge system and improve the awareness on unique knowledge</td>
</tr>
<tr>
<td>Social</td>
<td>Implement cognitive strategy on user behaviors to glean user's expectation</td>
<td>Enhance sense of social respects to arouse user's social recognition sensitivity</td>
<td>Shift the dominant value co-creation position to users by empowering users and promote the user experience</td>
</tr>
</tbody>
</table>

Table 5.3 User engagement network management

Our outcomes emphasize that user needs and user expectations are crucial factors for organizations to be aware of. Through a deep understanding of users, it is easier for organizations to build relationships with users and then gain their trust. It is equally important to recognize the precious value transformed by core user's UGC and return the same quantity of trust to those core users by empowering them in a self-active mode.

6. Conclusion

The research conducted in this paper adopts a case study in the music sector to detect how to strengthen user engagement in a digital ecosystem. Through a user demand-driven and user need-oriented perspective, the results indicate that EC is subtly evolving its business model from traditional B2C, C2C model towards approximately C2B1-based digital ecosystem. In order to recognize and fulfill user needs and later expand their potential desires to reach a full user engagement. Precise identification on core business resources and by stimulating their

uniqueness, is a feasible solution to revive an engagement process from being disengagement. Besides our findings in this research, there are several relevant studies that can be conducted to expand this topic further. Considering that a service provider has its limitation on product supplies, future research on business strategy between service provider and product provider will have deep insights to contribute to an advanced user engagement strategy. Additionally, there are many factors that affect user motivations on user engagement. It would be valuable to investigate how user engagement could be integrated with marketing strategies, for instance, how marketing strategies like sales promotion may trigger the engagement of users and what the process and value network would look like.
References


Appendix 1: Interview Guide I

Interview questions for company

I. Respondent background: job description, work history

II. Environment of user engagement

   A. Can you describe what kind of system Xiami is?

   B. What do you think about the function of each element in this system?

   C. What do you know about the user value enabled by Xiami? How does this value emerge in your system?

   D. What is your definition of the user of the Xiami system? What role does each kind of user play?

   E. How do you recognize the importance of user value in your system?

III. User engagement in use

   A. Basing on your previous working experience, what interaction has been held between official and users to maintain the active relationship?

   B. How users are engaged through your business strategy?

   C. What effects of user engagement bring to the ecosystem?

   D. What is your strategy to maintain progressive improvement by engaging users?

   E. Is there any challenge disturb the progress of user engagement?
Appendix 2: Interview Guide II

Interview questions for users

I. How long have you been a member of Xiami?

II. How often do you use Xiami?

III. What kinds of feature or function of Xiami attracts you?

IV. Have you participated in any official activities? If yes, what is it? If no, why?

V. Are you active in interacting with other user or official?

VI. How do you feel the relationship with them?

VII. Except the capability of music listening and downloading, is there any other benefit that you gain from Xiami?

VIII. Will you keep using Xiami? Why?
## Appendix 3: Comments Page

<table>
<thead>
<tr>
<th>Commenter</th>
<th>Date/Time</th>
<th>Reply</th>
<th>Like</th>
<th>Week</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog ye</td>
<td>2015-05-24 22:30</td>
<td>Reply</td>
<td>(151)</td>
<td>weak (0)</td>
<td>Such outstanding musicians shrimp music if not many people may not know, in fact, they are much more excellent than those of the so-called monopoly stage musicians. Shrimp music boundless beneficence.</td>
</tr>
<tr>
<td>Ravingcáted (the Just listen...)</td>
<td>2015-05-19 13:28</td>
<td>Reply</td>
<td>(50)</td>
<td>weak (0)</td>
<td>On the way to the library to see groups of graduates wearing a gown in the photo, my heart is filled with another year of graduation season, and was suddenly aware, originally I was going to leave people. No memory is like a stone rolling rolled to the end of the university.</td>
</tr>
<tr>
<td>Two Aberdeen</td>
<td>2015-05-25 09:52</td>
<td>Reply</td>
<td>(27)</td>
<td>weak (0)</td>
<td>How a bit like Wang Fang? !</td>
</tr>
<tr>
<td>Terence</td>
<td>2016-05-01 23:33</td>
<td>Reply</td>
<td>(0)</td>
<td>weak (0)</td>
<td>Opening brittle from the iPhone client</td>
</tr>
<tr>
<td>Wheels</td>
<td>2016-04-29 16:31</td>
<td>Reply</td>
<td>(0)</td>
<td>weak (0)</td>
<td>Curious looks from the iPhone client</td>
</tr>
<tr>
<td>yijiaht1</td>
<td>2016-04-25 20:26</td>
<td>Reply</td>
<td>(0)</td>
<td>weak (0)</td>
<td>Feeling good ~ ~ good melody, then lyrics noted, is also good ~ ~</td>
</tr>
<tr>
<td>Autumn next year to see a play</td>
<td>2016-04-25 08:58</td>
<td>Reply</td>
<td>(1)</td>
<td>weak (0)</td>
<td>High school summer vacation started listening to you, she said, everyone’s heart has a song / That summer day in the song cycle / and you want to transfer the non-mainstream best friend in the tea shop outside put the phone to share the sound brother across listened quietly watching us / but now finally ushered in the season of graduation / recommend just wish to see the songs there are songs you came directly to the point / good morning from the iPhone client</td>
</tr>
<tr>
<td>Lotus case</td>
<td>2016-04-21 19:08</td>
<td>Reply</td>
<td>(2)</td>
<td>weak (0)</td>
<td>Really nice, and turned back to listen ...... from the iPhone client</td>
</tr>
<tr>
<td>Xi’er feel it</td>
<td>2016-04-21 14:55</td>
<td>Reply</td>
<td>(1)</td>
<td>weak (0)</td>
<td>Nice from the android client</td>
</tr>
<tr>
<td>Springs Aurora</td>
<td>2016-04-20 13:57</td>
<td>Reply</td>
<td>(1)</td>
<td>weak (0)</td>
<td>I have desperate love, oh, thinking that it would not be alone. Life can always repeat, repeating the error X from the iPhone client</td>
</tr>
</tbody>
</table>
Appendix 4.1: Recommendations on homepage

4.2 Xiami record
# Appendix 5: User engagement process

<table>
<thead>
<tr>
<th>Engagement stage</th>
<th>Engagement Process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connection</strong></td>
<td>Xiami initiates its process through a functional oriented approach to tighten emotional bonds with its users by meeting their needs of music searching. Via facilitating genre category navigation, music search engine and information sharing, Xiami arranged a functional oriented place to establish connections with potential users before their needs arise. Xiami struggles for a better understanding of user needs, especially during the initial interaction period, user is extremely likely to change their needs to adapt new environment. Hence, Xiami focus on user data collection by means of utilizing user model to analyze user listening behavior and preference to restructure service providing as a response plan.</td>
</tr>
<tr>
<td><strong>Interaction</strong></td>
<td>Only if initial interaction between users and platforms result in satisfying outcome, this interaction will continue towards engagement. Xiami manages to keep users in an explorative status after inputting several social sense actions. Once user feels satisfied about song recommending accuracy and complete music repository, Xiami alters recommended direction from song recommendation to user recommendation. Those who have the same song tastes or already become friends on other social media platform are ranked in the top of priority as long as user has bond their Xiami account with other social networks.</td>
</tr>
<tr>
<td><strong>Satisfaction</strong></td>
<td>User-dominated interactions such as Xiami Loop and Xiami Host devote a highly and enduring satisfaction to extend emotional relationship with users. They continuously delight users by enhancing user experience, satisfying user needs and stimulating sense of user loyalty subconsciously.</td>
</tr>
<tr>
<td><strong>Retention</strong></td>
<td>Users remain active to participate in internal activities to continuously get delight experience through enlarging their music inventories and extending their friend groups.</td>
</tr>
<tr>
<td><strong>Commitment</strong></td>
<td>When a lasting relationship with users is established, Xiami certifies those users and commends them in homepage for their outstanding contributions such as writing excellent song comments, creating public-favored collections and so on. Through this way, Xiami strengthens emotional bonds with users by prompting user’s self-esteem senses with an increasing social respect from other users.</td>
</tr>
<tr>
<td><strong>Advocacy</strong></td>
<td>When users are considered as co-creators, Xiami empowers reliable users to plant their idea into actions through self-organized projects, user-led events and implement them in Xiami’s system. As a consequence, Xiami discovers more options to exploit innovative services and enriches website contents so as to make the whole system completed and versatile.</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>The invalidity of certain amount of songs disturbs the process of user engagement, especially for users with strong needs for specific songs. It leads to a risky position that if it still cannot satisfy user’s basic need to listen and download music in short time, Xiami will lose its users.</td>
</tr>
<tr>
<td><strong>Disengagement</strong></td>
<td>Xiami focuses on variable music resources and cooperates with popular musicians to attract user’s attention and further stimulate users to remain active by releasing latest and unique music resources. Now that Xiami is suffering from the invalidities of original productions, an incremental innovation is to open new and unique sources to draw users’ attention back.</td>
</tr>
<tr>
<td><strong>Re-engagement</strong></td>
<td></td>
</tr>
</tbody>
</table>
