Pilot Study toward Realizing Social Effect in O2O Commerce Services

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Abstract. Social media has become the most convenient space to retrieve the tremendous consumers’ experience, opinion and preference—toward each brands, products or even specific features. The real-time and big amount characteristics of Social media provide great opportunity for producer to know their customers (and potential ones) well. This paper proposes an Online to Offline (O2O) Commerce Service Model and takes the social relationship dashboard as an pilot study, which can help retailers or brands to understand their customers via social network existing data (especially Facebook for this case) by which we can adapt the current social commerce marketing strategy more quickly and responsively.

Keywords: Social Effect, Social Relation Management, O2O.

1 Introduction

Social media and mobile device not only change the way people communicate with friends, but also change the way providers communicate with consumers. We keep posting and reading all the time and place, no matter we are online surfing/blogging or offline walking/shopping. The ubiquity of people getting connected dramatically changes the landscape of post Electronic Commerce.

1.1 Offline to Online

With the growth of local commerce on the Web, the linkage between online and physical commerce are becoming stronger. Alex Rampell, explored the forces behind what he called “Online2Offline” commerce. O2O means finding consumers online and bringing them into real-world stores [1]. Users can visit real store and also get virtual service online. For example, users can purchase products online, and get the products or service at the nearest real store. John Doerr created another buzz word, “SoLoMo”, which stands for Social, Location and Mobile. As the mobile platform hits critical mass in these years, social networking accelerates the growth of mobile device. Real-time social features accelerating mobile usage growth from sharing, likes, tweets, friending and so on [2]. Retailer can collect social word-of-mouth by creating social events, as to explore valuable users and promote products or services to social
customers, through referrals and guiding users to real-world store. Location based service is accessible with mobile devices through internet, which enables the users to find useful context based on the geographical position of the mobile device. For example, users can use their mobile device to find coupons or discounts on online stores or social networks, and find the nearest store based on their current location. No matter offline to online or online to offline, the core value of O2O is to provide a precise consuming experience.

1.2 Social Commerce

We further focus from O2O to social commerce, which is a prevailing commerce type nowadays. In [3] explains how social influence can be used by E-commerce websites to aid the user decision-making process, which indicates the importance of social commerce, and in [4] it proposed an a three-stage system architecture to visually display opinions from social networks for customers’ decision-making. However, when business operators push information onto social networks to sell items, they first encounter marketing issue, and in [5] emphasizes the importance of using Facebook fan page for marketing. Being such a case in [6], to fully understand how and when to post contents in order to attract Facebook users becomes a new research topic. In [7], and [8], based on [9] we have developed a social networking-based service platform to real-time monitor social networks events, and in this paper we integrate some of its components into our purposed system, aiming at helping business operators to have full comprehension on their and competitors’ fan pages, including posting time, user preference and user activity tracking.

2 System Architecture

This paper proposes the O2O commerce service model representing in Figure 1. The top area represents the real-world marketing service model. Manufactures produce and sent their products to channels or retailers. According the location based service and proximity commerce marketing strategy, users can use their mobile devices to interactive with OOH (out-of-home) digital signage or kiosk to get online coupon then shopping in the nearby real world store.

The bottom area represents the online marketing service model. In tradition, manufacture is used to apply E-commerce marketing strategy. With explosion of the social network users, we find out users would like to survey others’ opinions online before they make purchasing decision. Whatever users like the brand, they are very willing to participate the events founded by brands on Social Network, such as Facebook fans group. They will click likes, shares, check-in, and comments in any social events.

There are more and more brands and retailers have created their own fans groups. But not everyone knows how to create topics, interact with fans and attract them to the real-world store. So it becomes a hot topic to create online to offline service model through social networks. In Figure 1, manufacture and brands can apply social network technologies, such as semantic analysis, user preferences analysis, social relationships, social events spreading, referral strategies, Return on Investment and competitors’ performance monitoring.
This pilot study focuses on realizing the social effect such as (1) when the competitors create social events, (2) how the social events are spread and (3) what the fans are interested in. In Figure 2, we construct a social relationship dashboard. The bottom layer is the social crawler and scalable distributed DB allocated in Amazon EC2. So that whenever a social event is created on Facebook fans group, the social crawlers will collect any user interaction through Facebook SDK with licensed access token and store in the scalable distributed DB.

Fig. 1. O2O Commerce Service Model

The middle layer of Figure 2 is Semantic Analysis Engine and Social Network Analysis Engine. The Semantic Analysis Engine can detect the positive and negative opinions comments of users’ posts. The Social Network Analysis Engine can analyze the social event by date and hours and provide social relationship information.

The top layer of Figure 2 is Competitors Performance Monitoring, User Preference Clustering and Event Spreading Monitoring. Competitors Performance Monitoring model can help fans group manager to know the interactions between posts and fans replies. The fans group manager can know when the best time to post on Facebook wall is. And what kind of posts will possible be popular posts and get most users’
replies. User Preference Clustering can cluster the users’ preferences into the interesting domains defined in Facebook. Event Spreading Monitoring can monitor the spread of each target social event by feedbacks (replies) and time and create a spread dashboard so that the fans group manager can know who are the level 1 spreaders, level 2 spreaders and the important spreaders.

3 Pilot Demonstration

3.1 Competitors Performance Monitoring

We take two major retail companies, Company A and Company B in Taiwan as example. These two retail companies are leading companies in the convenient store business, and they are competitors to each other, and they are struggling for popularity on social networks, especially on Facebook fan page. Currently, Company B is second place to Company A on social networks. To assist Company B with Social Relationship Dashboard, searching administrator operation behavior difference on the fan page of social networks is the first thing that we focus on. Figure 3 shows the sum of posted numbers of each time period (24 hours) by Company A and Company B. In April, Company B submitted 3 posts and Company A submitted 14 posts from 11:00 to 12:00 within a month. Company B submitted 6 posts and Company A submitted 18 posts from 18:00 to 19:00 within a month. On the contrary, Company B paid more attention from 8:00 to 9:00 and from 12:00 to 13:00, whereas Company A didn’t.

![Fig. 3. The sum of posted numbers of each time period (24 hours) by Company A and Company B in April](image)

Next, the second step is to observe the result of such posting operations, namely, the comparison of fans’ replies. In Figure 4, Company B received 87 fans’ replies, from 11:00 to 12:00, while Company A received 1140 posts; Company B received 102 fans’ replies, from 18:00 to 19:00, and Company A received 579 posts. However, the time period that Company B paid much attention on did not receive the expected higher replies but a comparatively fewer replies. It is obvious that different the posting time period and numbers of the day may result in different replies on fan page.
As the result shown above, we suppose a deduction that much rapid raising of fans’ replies would be presented if the post were posted at the right time period. Company B made the wrong posting time strategies. The administrator focus on posting at the period from 8:00 to 9:00, which is the commuting time for most Facebook users, most users are office workers according to market analysis in Taiwan. Company B made another posting peak from 12:00 to 13:00, lunch time for most of workers, which results in fewer replies on fan page. Company B focused posting time period on from 19:00 to 21:00, but Company A focused posting time period on from 11:00 to 13:00 and from 20:00 to 23:00, for majority of Facebook users, the former time period is the time before lunch, and the latter one is the time users finish their work, which are leisure time for using social networks. From the analysis, the system helped Company B changes their posting time period next month, and empirically raise fans replies better, as shown in Figure 5.

![Fig. 4. The sum of reply numbers of each time period (24 hours) by Company A and Company B in April](image)

![Fig. 5. The sum of reply numbers of each time period (24 hours) by Company B in April](image)

### 4 Conclusion

Social media has become the most convenient space to retrieve the tremendous consumers’ experience, opinion and preference—toward each brands, products or even specific features. The real-time and big amount characteristics of Social media provide great opportunity for producer to know their customers (and potential ones) well. Entering the O2O era we are looking forward every chance and occasion to get in
touch the consumers, no matter they are online or offline. This work demonstrates to understand customers via social network existing data (especially Facebook for this case) by which we can adapt the current marketing strategy more quickly and responsively. Next, we will continue to explore the possibility that how social media influence the other commerce activity, such as mobile, cooperative and location-based commerce transaction.

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**References**
