Ubiquitous Business Model by Seamless Integration of Photo and Location Information

Jeong-In Ju, Jong Chul Lee, Kyoung Jun Lee

Photos are one of the most popular contents in many social networking sites, and their usage is suitable for commercial purposes because a particular place has its own characteristic or symbolic meaning related to products and services. However, it is difficult to find business models using photos due to limitation that is to save and use location information automatically and systematically. U-Photo business model which we propose in this paper is a sort of network business model to connect content producer, consumer, and sponsor. It also promotes specific location where end user takes photos to sponsor who wants to advertise through the location. The aim of this research is to develop a new business model using photos in U-Commerce/Media environment. We also analyze the implications of this business model and evaluate this business model to judge that it is going to work well in the real market.

Index Terms— Commerce-Media Integrated Space, U-Commerce, U-Media, U-Photo Business Model

I. INTRODUCTION

Photos on the Internet function as a media rather than mere memories of people. Especially the photos in blogs or community sites can be a topic to talk about and a medium that people can share their thoughts and feelings. In other words, we could understand that the photo is a visualized communication tool. However, photos were used as a way of entertainment or visual material because common photos do not have particular information except its actual image.

These limitations could be solved after possessing particular information such as Tag and camera setting information (e.g. EXIF; EXchangeable Image Format). A Tag is composed while end users upload photos with key words regarding the photos [1]. The tag has been allowed to be searched and then search has been making photos as information. Photos also could have rich information because the emergence of digital camera enabled to annotate camera setting information automatically such as camera model, date, aperture, brightness, exposure time, focal length, ISO speed, and shutter speed. In short, digital photos are developed into two ways that have more information. One way is tagging in the web site which is time-consuming and tedious task. The other one is annotating via digital camera which is more like automatic and systematical compared to tagging.

Furthermore, there is a potential that the information of photos holds the tag, camera setting information and any RFID tag of objects or digital information that the photos were taken as well. Photos in Ubiquitous environment have not only simple information by tagging and digital camera setting options but also real world information of objects and people. Ubiquitous environment is defined as the commercial interaction among providers, consumers, products, and service that enabled and supported especially by (the real-world) seamless communication of each entity’s (digital) information [3]. Ubiquitous environment also can be explained as a Commerce-Media Integrated Space which combines commerce and media in real world due to seamlessness of information [4]. Compared to photos in web environment, it is able to use information more seamlessly because the information is far more automatic and systematized [2].

A new network produces new media, and new media creates new industries and commerce. The ubiquitous technology will affect in its content generation, consumption, distribution, sharing, and derivation processes thus it is possible to expect the widespread emergence of seamless business models in the media [2]. Photos in Ubiquitous environment imply a possibility of a new business item because of enhanced seamlessness of information. The aim of this paper is to propose a new business model using photos made via Ubiquitous Commerce and Media environments.

II. PHOTOS AND ADVERTISING BUSINESS MODEL

A. Web 2.0 and Business Models

Recently, the contents produced, shared, and consumed by end users are of high quality that illustrates the obscure boundary between professional and amateur so-called Pro-Am [5]. The most remarkable issue is a change that end user becomes pro-sumer which indicates a producer and consumer at the same time who participates in generation and sharing processes actively. This is a reconfirmation of MacLuhan’s opinion that we shape our tools, and thereafter our tools shape us [6]. Active end users on the Internet have been producing lots of text, image, and video that are creative, innovative and
unique. Moreover, these contents have had endless links by Web 2.0 technologies such as XHTML, Permalink, Trackback, RSS feed and the endless links connect between content and the new content that is derived from the original content. Naturally, content has the features that are participative, sharing, and open.

Those reasons mentioned above drove the emergence of many remarkable business models and Sponsored Links business model such as Yahoo’s Overture or Google’s AdWords exists in the middle of these emergences. These business models are text-based advertisements that if end user types a particular word (e.g. rent car) into the search engine, list related to sponsors with that word ‘rent car’ will show up as a search result and when web surfers click on an advertisement and visit the advertiser site, charges are made on a pre-determined amount that the advertiser has agreed to pay. The prices of sponsored links are usually set through a bidding system (http://en.wikipedia.org/wiki/PPC), (http://en.wikipedia.org/wiki/Pay per click). It is an innovative model that business leader, sponsor, end user, portal site (e.g. Yahoo.com) can play a win-win game [4], [7]. As another type of new business model, Revver.com is a video sharing platform which is UGC (User Generated Contents) service such as YouTube.com but Revver.com shares advertisement revenue with the creator of the video[Revver.com]. The most interesting fact is that Revver.com shares advertisement revenue with distributors who upload Revver.com’s video to another web site. Thus, Revver.com would be the best practice to represent how the model compensates incentive for the creators’ and distributors’ efforts [10].

As opposed to the emergences of sponsored link and Revver.com which have a clear value proposition, it is difficult to find business models using photos although photos are one of the most popular contents in many social networking sites (e.g. Flickr.com and Facebook.com), and even more attractive business item than text or movie. Accordingly, it is evident that designing a new business model using photos is of a great business item than text or movie. Accordingly, it is evident that Flickr.com and Facebook.com), and even more attractive the most popular contents in many social networking sites (e.g. Revver.com) which have a clear value proposition, it is difficult efforts [10].

III. U-PHOTO BUSINESS MODEL

U-Photo business model is a sort of network business model to link between content producer, consumer and sponsor and it sells specific location information where end user takes photos to sponsor who wants to advertise through the location.

A. U-Photo Scenario 1: Perspective of End User

Daniel took a picture with friends in front of the COEX Mall square. Camera has received GPS information which was the background and annotated that information on the photographic file. Daniel uploaded the photo on his blog and checked U-Photo Inc.’s option among BBS (Bulletin Board System) menu.

Jonny has seen Daniel’s photo in his blog through search engine. Jonny clicked ABC electronic company’s brand new camera advertising located in a frame of the photo. At the moment, a web site of ABC electronic company’s brand new camera was loaded. U-Photo Inc. provided economic incentives to Daniel and blog providers.

1. Take a Photo: 1-1) Photograph objects, 1-2) Insert location information (e.g. GPS)
2. Complete a U-Photo
3. Upload a U-Photo: Check advertisement option
4. Access of blog: 4-1) Access of U-Photo advertisement and download sponsor’s site, 4-2) Click U-Photo
5. Loading of sponsor’s web site
6. Provide incentives: 6-1) Contents producer, 6-2) Blog provider
7. Commerce
Figure 1 illustrates this scenario, and each number on the figure indicates the number of steps.

Fig. 1. Process of U-Photo Business Model: Perspective of End User

In step 1, content producer takes some pictures with U-camera that can take digital links within a certain angle. This camera annotates GPS information to the photo file where producer has taken pictures. In step 2, U-Camera produces U-Photo graphic file by synthesizing image with digital information within the angle. In step 3, those pictures are uploaded to end user’s blog and it asks to make a decision whether they want to join this business model or not. If they want to earn some money, they would be willing to check the option that is an affiliation between U-Photo Inc. and blog providers. It will be provided like one of the options that end user uses to change something in BBS (Bulletin Board System) such as font size, color and etc. In step 4, content consumers access content producer’s blog via search engine. The reason why consumers can access the others’ blogs is that search engine interprets high relevance between metadata regarding location information in pictures and sponsor’s products or services. In step 5, the sponsor’s site will be loaded in end user’s web browser and this step includes to download advertising and sponsor’s site information through co-working between U-Photo Inc.’s server and blog provider’s server. In step 6, U-Photo Inc. will share advertisement revenues with content producer and blog provider due to clicks of advertisement. They also can confirm their incentive through U-Photo Inc.’s systems. In particular, content consumer could buy sponsor’s product in the web site which was loaded by U-Photo advertising systems.

B. U-Photo Scenario 2: Perspective of Sponsor

ABC electronic company considers advertising a brand new camera. A manager at public relations accesses to U-Photo Inc.’s sponsor web site after a budget has been confirmed. He chose COEX Mall square while he searched right place to advertise his company’s camera. He set up radius based on GPS and then checked error range provided by U-Photo Inc. However, since the location is very popular place so that another company has preoccupied. The manager had to set higher cost per one click and then typed period, advertising copy, and URL. Lastly he paid for advertising within budget.

0. Building sponsor’s interface: Define location information quantitatively/qualitatively

1. Access of U-Photo Inc.’s interface for sponsor
2. Search of advertisement location: 2-1) Search through keyword, 2-2) Search through map
3. Set up advertisement range: 3-1) Set up radius, 3-2) Check error range
4. Bidding: 4-1) CPC set, 4-2) Type detailed information
5. Payment
6. Working with Blog
7. Incentive

Figure 2 illustrates this scenario, and each number on the figure indicates the number of steps.

Fig. 2. Process of U-Photo Business Model: Perspective of Sponsor

In step 0, it is building up stage that U-Photo Inc. starts constructing their business model. In this step, U-Photo Inc. should define not only qualitative location information to distinguish physical places where sponsor wants to advertise but also quantitative latitude, longitude and radius to set exact range based on GPS information. If it needs more precise definition such as dense downtown, U-Photo Inc. has to build a highly advanced location database. In step 1, sponsor accesses U-Photo Inc.’s interface for sponsor. In step 2, sponsor searches where to advertise based on keyword (e.g. Samsung Subway Station) and double-checks the places through map. In step 3, sponsor sets advertisement range up among places where end users take pictures and then checks error range. The reason that sponsors set ranges includes chance to check which company advertises in the specific places. In step 4, sponsor checks cost a click (CPC: Click Per Cost) and proposes higher cost than competitors. Sponsor also chooses advertising options (e.g. Product name, company mark, advertisement copy) with picture and others options. In step 5, sponsor pays U-Photo Inc. for advertising. In step 6, systems between U-Photo Inc. and blog providers work together. In step 7, when end user clicks on U-Photo Inc.’s advertising, content producer and blog provider get incentive.

There might be many other scenarios that can be derived from the basic scenario when we count all of processes. However, the most important factor is to lead the participation of the end users that can join business model voluntarily because they would hate collaboration between their content and advertising model. Accordingly, it is considered as the best
way to lead end user via incentive mechanism [3]. Chapter five investigates the incentive mechanism.

IV. REQUIREMENTS OF U-PHOTO BUSINESS MODEL

Business model should meet many requirements to work in a real market. In view point of end user, the entry barrier should be low to join this business model and they should be able to play a win-win game with U-Photo Inc. It needs to consider type of advertisement exposure and relevance between contents and advertisement. We also have to scrutinize issues regarding technologies and social systems. We investigate requirements of this business model to work in this chapter.

A. Interface for Sponsors

Every single time sponsors make decisions, they should consider many options. They have to search an appropriate location, choose and set up advertisement range. Setting price, period and advertising copy are also necessary. In short, U-Photo’s supporting systems are requested for sponsor’s right decision making. U-Photo Inc. should provide 2 and 3 dimension map, and GPS integrated interface with sponsor to understand location easily. Accordingly, keyword search (e.g. COEX Mall) is a good way to find right place and the map is also useful to understand where is where. Numerical information based on GPS (e.g. 37 degrees 28 minutes 47.2005 seconds, north latitude) is most significant when sponsor wants to be aware of the precise location. Sponsor needs 2 and 3 dimensions graphic to recognize range intuitively. Afterward the process, they would recognize that they are being allocated specific location information from where to where (e.g. 37 degrees 28 minutes 47.2005 seconds, north latitude / 130 degrees 54 minutes 01.1705 seconds, longitude, and range 20M). This is similar to Overture’s sponsor supporting systems which let them understand advertising copy, budget, and how much budget is left in real time.

In view point of end users, they would want to know their incentive and which photo’s advertisement is most popular. Therefore, the web page only for end user made by U-Photo Inc. is also necessary and this web page could encourage end user’s voluntary participation.

B. Affiliation with Blog Providers

It is clear that we cannot take affiliation with blog providers lightly when we discuss this model because blog is a space to show end user’s contents and to be exposed sponsors’ advertisement at the same time. Thus, U-Photo Inc. should form a market structure with blog providers as a partner which is a bridge between U-Photo Inc. and sponsor. In this regard, Overture model could be a good reference because Overture established a win-win game to share advertisement revenues with a portal site. Scenario 2 of U-Photo Inc. shares advertisement revenues with blog providers. Therefore, this business model could build good relationship with blog providers.

C. Advertising Exposure Method

Banners on the Internet are the most traditional advertising method. Banner often bothers end user because it does not consider end user’s preference individually or it is stimulus visually. It is also exposed at random and cannot calculate exact ROI (Return on Investment). That is why it has been becoming less popular than Sponsored Links business model. Nevertheless, we cannot deny that it is still popular due to wide exposure range just like TV commercial films.

This model has similarity in terms of exposure concerning a name of the product/service visually even though it is with picture compared to banner. So, the balance between advertisement and end user’s picture must be considered visually. This may be a good idea to offer options that end user can choose or limitation sponsor’s advertising copy and color to be in harmony.

D. Relevance between Advertising and Contents

The only moment advertisement is useful to consumers is when consumer faces interesting product/service, and at the moment, it could be transformed from advertisement to information or start up of a commerce process. In other words, the higher relevance U-Photo model offers, the higher value this model offers.

The reason why this model has potential of having high relevance is because location information is essential in this model. However we may doubt whether content consumer is interested in U-Photo Inc.’s advertisement or not. It depends on social network type [13] where U-Photo is published. The purpose of visit in Complete-Network such as Cyworld.com is caused by an interest in their friends. However, unlike Complete-Network, Quasi-Network such as Flickr.com could be explained by common interest (e.g. Camera). In the previous scenario in chapter 3 section 1, Jonny reached Daniel’s blog through search engine and this case has high relevance like Google Adsense. Even though Complete-Network has lower relevance, Quasi-Network and visiting via search engine promise that U-Photo model can have high relevance not only between content and advertisement like Google Adsense but also between content producer/consumer and sponsor.

E. Technical and Social Problems

Let us suppose that end user took a picture nearby the border between ‘A’ sponsor and ‘B’ sponsor and then the U-Camera had ‘B’ sponsor’s GPS even though end user was closer ‘A’ sponsor’s territory. This is really serious issue to provide an utmost satisfaction to the sponsor. It is obvious that this is a matter of how much U-Photo Inc. could define location information precisely.

Solutions for future problem should be prepared. As I mentioned above, there might be a problem between sponsor and landlord. In this case, this model is not in contravention of the law but conflicts could influence negative aspects to this model especially in the initial phase. Sharing advertisement revenues with landlord is a good solution to figure this problem out. This conflict reflects a new social phenomenon when real world is having automatic/systemic information with high relevance while physical space partially does or not at all.
V. BUSINESS MODEL ANALYSIS

It is difficult to judge that business model is going to succeed in proposing phase because there are so many uncertainties in a start-up business. However, business model definition can provide benefits to analyze a business. It provides systematic approach in finding idea phase and communicates among actors in business model to facilitates business planning as a tool. It also helps uncertainties be eliminated for more clear expectations. Lastly, it could offer opportunities to redefine relationship between themselves and competitors in view of enterprise and let experiment of their new business strategies virtually realize. We analyze U-Photos business model by applying it to Timmers’ definition in this chapter. Timmers [15] defines business model as 1) an architecture for the product, service and information flows, including a description of the various business actors and their roles, 2) A description of the potential benefits for the various business actors, 3) a description of the sources of revenues.

Applying the definition to U-Photos business model, its participants can be classified as follows; U-Photos Inc., content producers/consumers, sponsors and blog providers (Table 1). It is well known that U-Photos Inc. is an initiative actor in this business model. This company provides sponsor supporting systems on which advertisement can be applied and evaluates its effectiveness, and also provides content producer supporting systems from which their revenue can be confirmed through photos and its advertising effectiveness. U-Photos business model is based on the voluntary and active participation of contents producers. This model proposes economical incentive with the help of content producers’ participation as well.

Meanwhile, content producers generate U-Photos and choose U-Photo Inc.’s advertising option when they upload U-Photos on their blogs. They perform word of mouth to let content consumers recognize benefit or economical incentive. Sponsors insert advertising into sponsor supporting systems provided by U-Photos Inc. and they make sure of the new advertising method which means it extends sponsor’s contact point with customers. The advertisement revenues from sponsors become profit to U-Photos Inc., content producers and blog providers. Content consumers are entities that access web page where content producers published his/her photo and click advertising.

U-Photos business model is essentially a network model that connects many business actors. Those actors cooperate to deliver a new value to their customers. Sponsors are customers to U-Photos Inc. and blog providers, content producers and camera manufacturers take a part in this business model. In blog provider case, the content producers that handle blogs are customers. Thus, blog providers could not accept any unreasonable proposition suggested for their customers. Content consumers are customers to content producers. They want content consumers to click advertising shown with picture that they published. When content consumers click more U-Photos Inc.’s advertising or more exposure of advertising, the economical incentive becomes bigger. However, U-Photos Inc. has to do its best to attract more clicks or exposures because content producers could not adjust content of advertising themselves without agreement from sponsors even though there are supporting systems for content producers.

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VI. RELATED WORKS

Apparently, the research focused on method which is using photos with GPS information is regarded on industry field rather than academic field. Camera manufacturers such as Sony, Ricoh, DeLorme, and etc. have produced camera installed GPS module and developed new product line due to increasing demand on it. There exist many kinds of hardware to show specific places where end user took a picture on on-line map and software such as GPS Photos Linker, Downloader Pro of Breeze System, Adobe Systems. However those hardware and software have not seen the commercially viable business models. Photos sharing service companies such as Flickr, Smugmug have delivered services that can sort and manage picture based on location which end users upload. Geosnapper of Ulocate Inc. has provided pictures having GPS and famous places list. Compared to hardware and software development, the Photos sharing service companies try to reach commerce because they propose high value like sorting and search of picture through tag. Although, it turns out that they cannot find adequate approach how to sell location information to sponsor. However, here is a company named lat49.com that tries to connect location information with sponsor. Lat49.com brings on-line map advertising network to sell divided location to sponsor and they also encourage publisher to use map of lat49.com which can collaborate with map providers such as MapQuest, Google Maps, and so on(lat49.com). This business
model is very remarkable rather than products or services mentioned above in a viewpoint of commerce. However, it does not use photos as a medium between sponsor and end user.

Meanwhile, on academic fields, Happel and Portraits [16] have brought up an issue that was inconvenient way to manage picture and discussed convenient way to classify and manage picture with using GPS information. Aris, Gemmell and Lueder [17] conducted research about technology based on the question ‘how to recognize location information and mark movement route through story telling’. Those researches did not propose commercial business model, but those researches concentrated on how to systematize location information in photos. Sarvas [18] demonstrated a system that immediately publishes pictures on the Internet using a cell phone, and provides album and comment functions. Although MobShare can produce and share picture content simultaneously, it cannot provide the information of objects appearing in the picture. Furthermore, it does not provide commercial functions.

VII. CONCLUSION

The aim of this research is to develop a new business model using photos in U-Commerce/Media environment, and we investigated how to design a new business model when seamlessness of information is enhanced. We also brought up an issue of lack of business model using photos even though photos have high value. Thus we proposed a new business model which uses automatic and systematic location information. In addition, we demonstrated scenarios and business processes to intensify the understanding of this business model. We analyzed the business model using the Timmers’ definition to understand the model as a perspective of business entity and this obviously analyzed what kind of value this business model provides to the market and other business entities.

It is clear that this business model showed the potential of new business model through the implication that every media can develop a new business model when information is enhanced seamlessness.

REFERENCES


Jeong-In Ju received a B.S., and M.S. in Management Information Systems from Kyung Hee University in Seoul, South Korea. He is a Lecturer of Mzumbe University in Tanzania. His main research interests are in the fields of business models and ubiquitous commerce and media.

Jong Chul Lee received a B.S., and M.S. in Management Information Systems from Kyung Hee University. He is in a doctoral course in Management Information Systems in Kyung Hee University. His research interests are in the fields of business models and mobile and ubiquitous commerce.

Kyoung Jun Lee received a B.S., M.S., and Ph.D. in Management Science from Korea Advanced Institute of Science and Technology (KAIST). He is an Associate Professor of Kyung Hee University in Korea. His main research interests are in the fields of business models and ubiquitous commerce and media. He won the Innovative Applications of Artificial Intelligence Awards from AAAI in 1995 and 1997 and cowrote papers in Decision Support Systems, Journal of Organizational Computing and Electronic Commerce, Electronic Markets, AI Magazine, Electronic Commerce: Research and Applications and European Journal on Operational Research etc.