

Local-Charm-Content Delivering Model by Using Web Advertisement and SNS

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Abstract— This paper proposes a local-charm-content delivering model with a function to focus the target user by using Web advertisement and SNS. As an applied example of the model, we introduce a sale project of a firm land with a residential area in Iwate Prefecture. This paper describes the outline of the proposed model, the experimental results on the delivering of SNS and Web advertisement in the project and the possibility to focus the target user.

Keywords— Information system, Web advertisement, SNS, Information delivering, Information accumulation, system model

1. INTRODUCTION

In Japan, the population has been flowing from rural areas to urban areas. For example, Fig.1 shows that the difference between the population of Tokyo and that of Iwate has been expanding. It means it will be difficult to keep the historical and cultural heritage in a rural area because of the weak economic power in the future.

This research aims to build a proactive rural area and we propose a model to deliver the local charm to the whole of the nation or the world by using information system and to increase the number of tourists and the population.

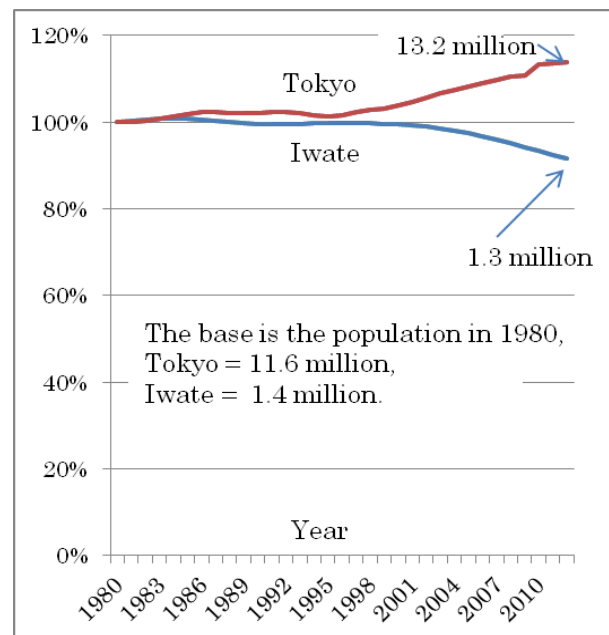


Fig. 1 Population Transition of Iwate and Tokyo [1].

2. RELATED WORK

There are some case studies for the purpose of local revitalization by using Information Communication Technology (ICT), one aims to be the increase of tourists [2], the another aims to grow local industry such as agriculture and fisheries [3], and the other aims to increase the number of business works living in a rural area by telework [4]. In order to activate a region, we consider following flows will be necessary,

- (1) to know widely about the charm of the region,
- (2) to grow economically through the increase of tourism experience, and to sale special products in the area ,
- (3) to live in the area with stable economy and life infrastructure.

In this study, as a first step, we present a local-charm-delivering model by using ICT for external people to know widely the local charm.

3. PROPOSED MODEL

Though the population of rural areas has been reducing, many attractive things are still remained in the regions. For example, they have special cuisines using local ingredients, pure and rich nature environment, historical and cultural heritage, traditional entertainment activities and dancing, special products and souvenirs made by traditional manner and so on. In this paper, we defined those attractive information resources as "local charm contents".

The local charm contents can be classified into following three categories,

- (i) information that is not noticed even the people living in the region,
- (ii) information that can be imagined even if people do not go to the region,
- (iii) information that can be experienced by external people going to the region at the first time.

As a model for delivering the local charm contents in a rural area to urban regions, we consider there are some patterns shown in Fig 2.

That is,

- (a) One-way outgoing type

This is an information delivering model of one-way information sending by using blog, Home Page (HP), and e-mail magazine. In the case of using such a media, as a user has to obtain the information by accessing voluntarily, the information can be provided only to limited users who are interested in a particular region. Even if there would be an attractive information buried in the region, it would be unnoticed in many cases.

- (b) Web advertising collaboration (Web ad. collab.) type

This is a method of embedding a Web advertisement in Web pages that are searched by a user as the way can be clicked like a banner. If a user clicks the Web advertisement, the opportunity to touch the user's views can be obtained because the advertisement is displayed on the pages according to the interest and profile of users and keywords used in searching.

- (c) Experience induced type

A user who is interested in the area strongly will visit the area actually and get a variety of experiences. The information that the user experienced, can be distributed by Social Network System (SNS) to his/her friends, many other users interested in the area can be gathered by the Mouth Marketing effect [5].

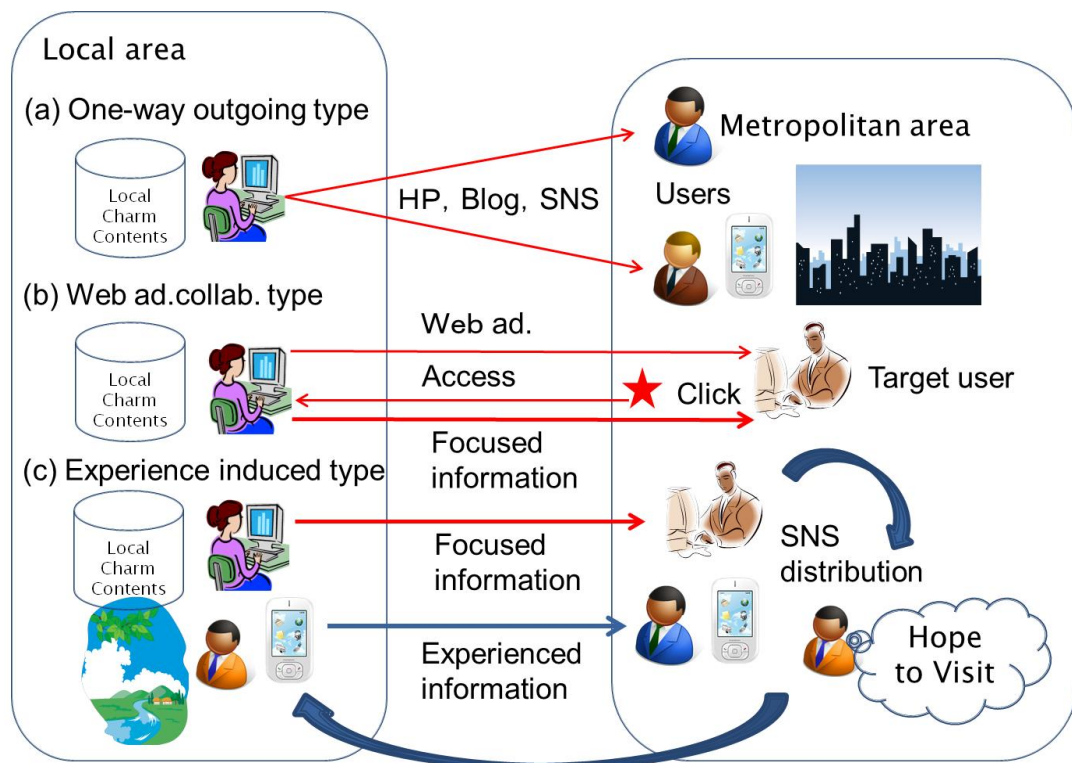


Fig.2 Local Charm Distribution Model.

However, the local charm contents distributed by local area to metropolitan area are limited to the information that general people noticed already. In fact, there may be many charm contents buried in unknown knowledge even for the living people in the region. There is a problem those buried contents will not be delivered anywhere.

In this study, at first, (1) we try to encourage the discovery of the buried local charm contents that is unknown even for people living in the area. We call this process as "Local Charm Finding Cycle". Then, (2) we propose a "Focused Advertisement", which is a Web advertisement distribution method to cause an interest of the user without going to the area. Regarding the (3) experience induced type for external people, we will discuss about it after the studies on (1) and (2).

The overview of proposed method is shown in Fig. 3.

In the proposed method, we consider following process.

- (1) Discover the buried charm of the local area by residents in the area. The discovered newly local charm contents will be stored in the database (DB) of "Local Charm Contents",
- (2) New information discovered by external person who experienced in the visited place is also accumulated in the same DB of "The Local Charm Contents".

- (3) Deliver the Web advertisement with link of HP, Blogs or SNS, which is connected with the DB of "Local Charm Contents" to metropolitan area,

- (4) A user who interested in the Web advertisement, we call the user "target user", access the "Local Charm Contents",

- (5) Analyse the profile, and the access log of the target user and focus the interest of the user and deliver individually focused Web advertisement again to the target user,

- (6) The target user hopes to visit the area to see the focused Web advertisement,

- (7) If the target user would visit the local area, the experience information will be accumulated further by usage of check-in service of SNS.

By the above process from (1) to (7) is repeated, the content of the DB of Local Charm Contents will have rich information, and the delivered information will be more attractive. As a result, we expect the number of visitors from metropolitan area to the local area will be increased and some people will live in the area in the future.

In this paper, we will introduce experimental results on the effect of Web advertisement and the possibility of finding target user, which is related with above processes of (3), (4) and (5).

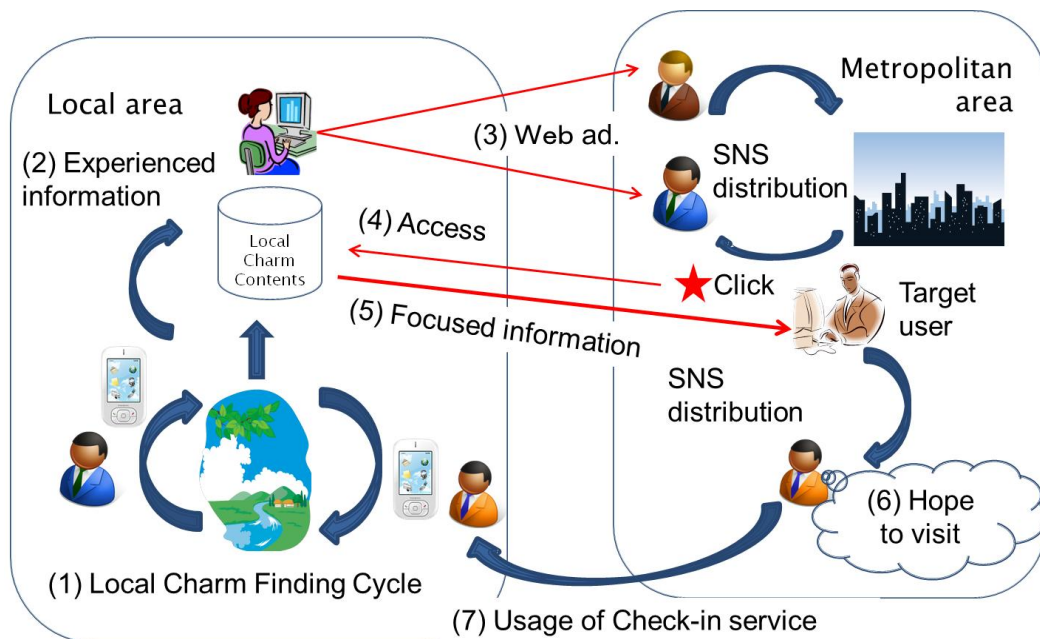


Fig.3 Proposed Accumulation Model of Local Charm Contents.

4. EXPERIMENTS

4.1. Outline of the Project

The experiment was carried out for a sale project of an agricultural land with a residential area called “Shizukuishi Cottage Village”, which is located at Shizukuishi town in Iwate Prefecture of Tohoku area in Japan. The sale of the region is managed by Iwate Prefectural Agricultural Corporation, which has a HP and been accepting the application to live in the area.

In addition, there is a group, called “Minamihata Area Council”, which has a blog to introduce living information in the area. These are typical "One-way outgoing type" information distribution.

4.2. Produce and Deliver of Web Advertisements

In this experiment, we produced Web advertisements, in which each Web advertisement has link information to a Web site. The example is shown in Fig.4.



Fig. 4 Example of Web Advertisement.

The Web sites for the destination are following three.

- (1) HP of Iwate Prefectural Agricultural Corporation,
- (2) HP of Minamihata Area Council,
- (3) Blog of living information on rural area in Minamihata Area,

Regarding to the destination of the Web advertising, we selected following three advertising mediums,

- (i) Facebook Advertising,
- (ii) Yahoo! (Listing Ad.),
- (iii) Yahoo! (Interest Match Ad.).

Three kinds of advertisement with links (1) to (3) is displayed through the each medium (i) to

(iii) according to the service condition of each medium.

There is also a Facebook group named “Team Shizukuishi”, which informs the community activities using SNS in Shizukuishi town. In order to verify whether the SNS could be a medium of the local-charm-content delivering, we delivered a Web advertisement (4) with link to only Facebook Advertising (i). It is prohibited to deliver the Facebook advertisements to Yahoo! Advertising site like (ii) and (iii).

Table 1 shows the delivery method of Web advertising in the experiment.

Table 1 Delivering Method of Web Ad.

Mediums	Delivering method
(i)Facebook Ad.	Random delivery of advertisements with (1) to (4) links (the display timing depends on the determination algorithm of Facebook)
(ii)Yahoo! (Listing Ad.)	Delivery of advertisements with (1) to (3) links on specific pages retrieved and displayed by input specified keyword
(iii)Yahoo! (Interest Match Ad.)	Delivery of advertisement with links (1) to (3) on the pages displayed by user’s interest and concerns (the display timing depends on the decision algorithm of Yahoo!)

Those Web advertisements are not to be charged in the case only displayed, but they have a mechanism to be charged to advertisers by clicking a (pay-per-click). The fee per click once (unit price) is different depending on the mediums and conditions of displaying.

The Effect of the Web advertisements is evaluated in the following criteria.

- Number of impressions (Ni): number of times, which is displayed on the page of users’ browsers,
- Number of clicks (Nc): number of clicks on an advertisement clicked by users,
- Click Through Rate (CTR): percentage of the number of clicks per the number of impressions:

$$CTR = N_c / N_i \times 100 (\%) \quad (1)$$

In the experiment, we delivered total ten kinds of advertisement through three mediums as shown in Table 1. However, considering the research budget, we set following constraints.

- Experimental period: from 1st February to 28th February, in 2014 (28 days),
- Upper limit of advertising per one type: 100 yen / day.

We developed a tool to analyse the effect of advertising by counting the number of accesses to the HP, blogs, and Facebook.

4.3. Experimental Results

Fig.5 shows the change of the number of visitors (viewers) to the HP of Minamihata Council. We could confirm that the number of visitor was slightly increased in the experimental period by delivering the advertisement. However, the change of the number was very small, so we could not say the effect of advertising was remarkable.

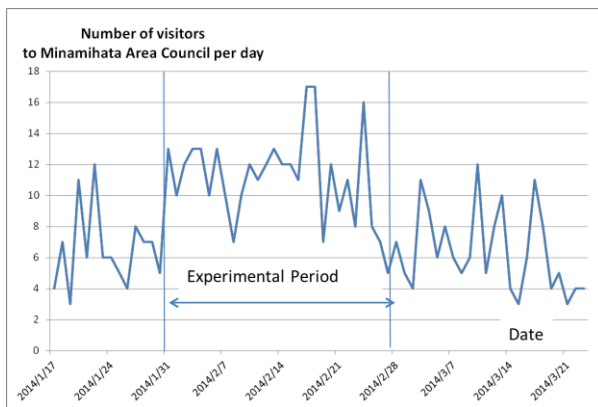


Fig.5 The Number of Visitors to HP of Minamihata Area Council.

Fig.6 shows the results of analysis by Google Analytics, which shows the number of living areas of viewers who access to HP of Minamihata Council. In this case, the number of viewers living in Iwate Prefecture was the most, and the next was Tokyo, then Kanagawa. From this result, we consider the Web advertisement should be delivered to the people living in Iwate Prefecture rather than that living in metropolitan area.

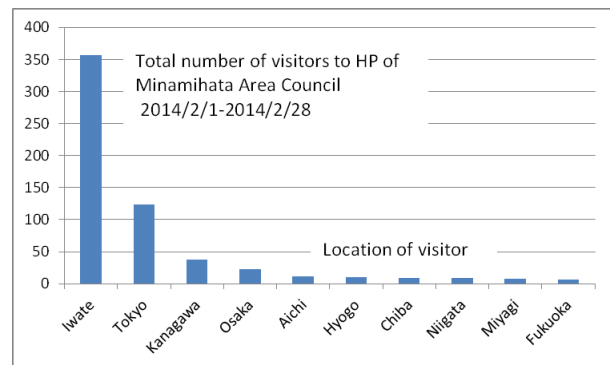


Fig. 6 Total Number of Visitors to HP of Minamihata Area Council from Feb.1st to Feb. 28th in 2014.

Fig.7 and Fig.8 show the total number of impressions (Ni) and Click Through Rate (CTR) respectively, in the experimental period when Web advertisements, which has four kinds of links from (1) to (4), were delivered to Facebook Ad. as shown in (i) of Table 1.

In Fig.7 and Fig.8, the “Facebook” indicates (4) the site of Facebook groups of "Team Shizukuishi", and the “blog” indicates (3) Yahoo! Blog, which is a site of living information on rural area in Minamihata Area and “HP” represents the sum of (1) HP of Iwate Prefectural Agricultural Corporation and HP (2) Minamihata Area Council. From these results, we found that the number of impressions of was more for male than for female, but CTR was higher than for female than for male.

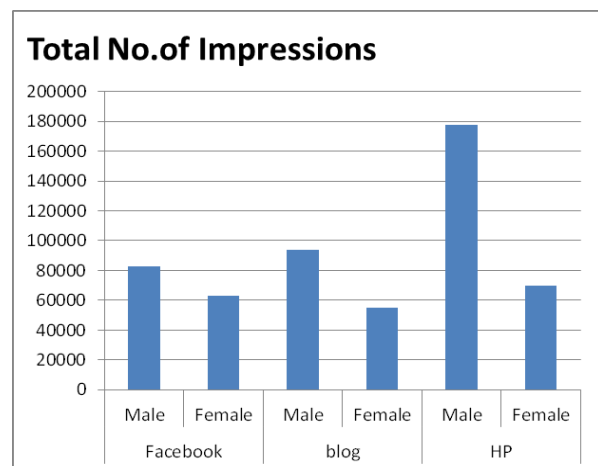


Fig. 7 Total Number of Impressions of Web Advertisements in Facebook Pages.

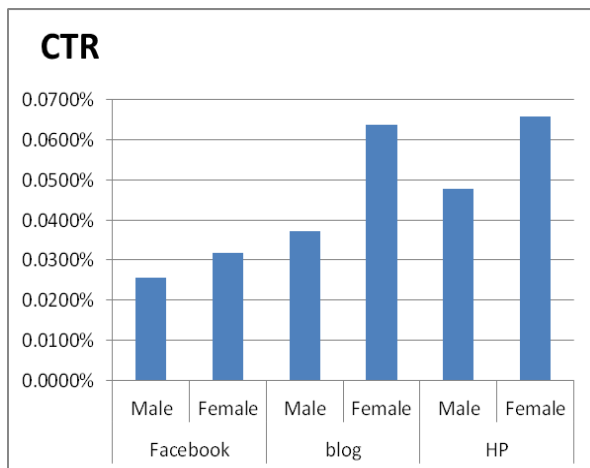


Fig.8 CTR of Web Advertisements in Facebook Pages.

Fig.9 shows the relationship between age and CTR of Web advertisements delivered to Facebook Ad. in the same way in Fig.7 and Fig. 8. In this experiment, we found that the CTR of high age group over 45 years was higher and they tended to click more times to HP (1) of Iwate Prefectural Agricultural Corporation and the blog of living information on rural area in Minamihata Area than other pages.

From the above experiment, we can say the target user in this project can be focused to women of higher age group living in Iwate Prefecture.

5. CONCLUSIONS

In this paper, we proposed Local-Charm-Content Delivering Model using Web advertisement and SNS. Then, as an application example of the model, we introduced a sale project of an agricultural land with a living area in Iwate Prefecture, and we described experimental results of Web advertisement delivering to Facebook and Yahoo! users. As a result, though we could not clear the increase of access the linked pages by the Web advertising, but we could show a possibility to find the target users by analysing CTR

In this time, regarding to focusing of target users, we described the experimental results of using only Facebook advertising effect. For next study, we will analyse the experimental results by using Yahoo! advertising and we will research a creating method of more effective advertisement with profitable Keywords and attractive expressions.

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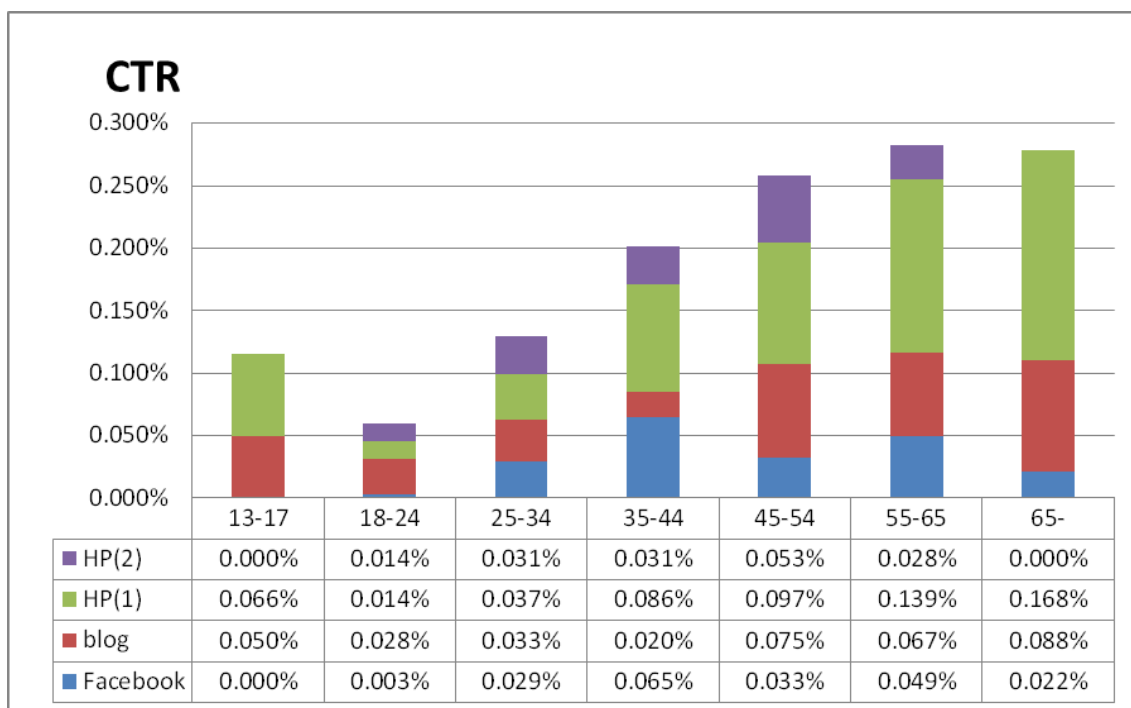


Fig. 9 The Relationship between age grope and CTR.

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