CONSIDERATION OF WEB ANALYSIS AND A/B TESTING FOR EFFECTIVE WEBSITE DEVELOPMENT IN B2B INDUSTRY

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Abstract- To improve own products and services awareness in B2B software industry is often held by the marketing event. Improving the number of the event attendees is equal to improving the product and service awareness. Therefore, it has been required to develop an attractive web site to promote the event and secure the attendance registration, also asked for cost reduction at the same time from ROI (Return on Investment) perspective. In this study, we could identify the web page that contributed event registration by original referrer domain analysis and page effectiveness analysis. This paper also contains consideration of A/B testing, such as wording and color effectiveness of the web creatives to make the web visitors register the event attendance. It shows several results of A/B testing to figure out effective communication with the web visitors at the B2B event website.

Keywords- B2B Industry, Marketing Event, Website, Web Analysis, A/B Testing.

I. INTRODUCTION

To improve own products and services awareness in the B2B business industry is generally often used by way of the marketing event. Improving the number of event attendees is equal to improving the products and services awareness. The sales representatives invite enterprise customers at the onsite meeting, but for small or mid-sized customers it does not work with the same approach. The strategy of assigning sales representatives and performing targeted marketing, which worked for enterprise customers, is not realistically be focused for small and medium-sized customersdue to sales and marketing costs. There are many opportunities for us to generate revenue from the small and medium-sized customers including long tail market, and it must be considered for further business expansion.

Therefore, many of the B2B companies are required to develop the effective web site for improving event awareness and number of customer registration from the cost reduction perspective. To develop the effective web site in order to achieve its purpose, it should also understand not only high contribution page and visitor behavior to the event registration through the web analysis, but also effective web components and contents by the A/B testing.

II. OVERVIEW OF PURPOSE OF WEB ANALYSIS AND A/B TESTING IN B2B INDUSTRY

2.1. Purpose

It is possible to figure out where the high contribution web page of event registration from among many by visitor behavior analysis. The approach of the analysis are the following three ways, i) Analysis of original referrer domain (Where the visitors come from), ii) Analysis of page effectiveness (Which page the customers visit and are interest in), and iii) Participation analysis of conversion (Which is the most effective page and/or content). We can expect significant of the business impact by running the A/B testing at the most effective page and/or content, and figure out what the components and contents of the website fit to the purpose of the visitors at low risk. The risks are that company do not invest unnecessary resources and make the visitors have wrong understanding of products and services. It is important to avoid those risks through the web analysis and A/B testing.

2.2. Previous Research

There were studies about web analytics. Sampath [1] studied web mining techniques. Pascual-Cid et al [2] proved information visualization techniques were useful for web analytics. Nasraoui et al [3] presented a framework for understanding web usage patterns from web log files. Wang et al [4] showed a way of utilizing web analytic tool to conduct behavioral analysis. Otsuka et al [5] studied to analyze web user behavior by collecting all web access data for a segmented visitor. There was a research about ecommerce site by Y.Ichikawa et al [6] showed a way of web access logs analysis and classify users in precision. There was study about log file analysis for ecommerce site by Aivalis [7]. Park et al [8] identified factors affecting continuous usage of web site through web log data. In another study by Xiao-Gang [9] presented web access was used to analyze sequential access pattern mining for web personalization. Virtsonis [10] conducted a study about B2B web site from branding perspectives. Furthermore, Wilson [11] used clickstream data to analyze B2B web site performance and concluded

that web analytics can be applied in a B2B domain. In addition, Sekiguchi et al [12] studied for B2B web analytics for such a critical web conversion metric as web form registration and factors of web user registration for own website. Also there were general studies about web analysis [13] - [21]. However, there was no study done for web analysis and A/B testing for improving event awareness and attendance registration in B2B industry.

III. APPROACH OF WEB ANALYSIS AND A/B TESTING

3.1. Web Analysis

i) Analysis of original referrer domain is that it shows where the web visitors come from just before visiting its website at the first time (It is not double counted when the visitors visit the website again). In **Table 1**, we identified that 53.2% visits came from URL typing in the web browser directly and/or from the bookmarks. It showed more than half of visitors already knew the event or they experienced to visit the web site and bookmarked it before. The rest of them are possibility of new visitors.

Table 1. Original Referrer Domain Report

Original Referring Domains	Visits	Ratio
Typed/Bookmarked	15,743	53.2%
serving-sys.com	3,013	10.2%
google.co.jp	2,760	9.3%
nikkei.com	1,361	4.6%
adobe.com	889	3.0%
mynavi.jp	841	2.8%
tokyo-np.co.jp	488	1.7%
facebook.com	459	1.6%
nikkeibp.co.jp	389	1.3%
yahoo.co.jp	380	1.3%
markezine.jp	333	1.1%
toyokeizai.net	323	1.1%
advertimes.com	237	0.8%
impressrd.jp	228	0.8%
googleadservices.com	227	0.8%

Then, ii) Analysis of page effectiveness is that we identify which pages the customers visit and are interest in. In **Table 2**, "Page Name" shows a single name of each web page, "Page Views" is the number of page view by visitors.In **Table 3**, "Visits" is the number of sessions within a given time period by visitors. A visit is defined as a sequence of consecutive page views without a 30-minute break, or continuous activity for 12 hours.

In **Table 4**, "Entries" is counted as entry page of visitors. In **Table 5**,"Bounce Rate" is that number of "Entries" divides by number of Bounces, "Bounces" are defined a single hit visit with no other link event by a visitor. If a visitor comes to web site and fires more than a single visit, even a page refresh, they aren't counted as a bounce.

In **Table 2, 3 and 4**, we could understand that Page Name of "admf2013:index.html" had the biggest number of visits, page views and entries. It was the most popular page at the website.

In Table 5, it could be found that Page Name of "admf2013:session:index.html" had the biggest number of bounce rate.

And furthermore, iii) Participation analysis of conversion shows that which is the most effective page and/or content for success event. In **Table6**, "Success registration Participation" is full credit to each value that contributed to the conversion event (success number of attendance registration). We figured out Page Name of "admf2013:index.html" was the highest participation for the conversion. However, it was excluded in relation to all of the application pages for the event registration such as "admf2013:regist:entry", "admf2013:regist:confirm", "admf2013:regist:thanks" and "admf2013:regist:session_entry" because visitors are positioned as willing to apply for the event, and therefore the conversion contribution of those pages are naturally high.

Table 2. Page Effectiveness Report-1 "Page Views"

Page Name	Page Views	
admf2013:index.html	24,254	54.3%
admf2013:regist:entry	8,300	18.6%
admf2013:regist:confirm	2,893	6.5%
admf2013:access.html	2,888	6.5%
admf2013:regist:thanks	2,792	6.2%
admf2013:faq.html	1,449	3.2%
admf2013:regist:session_entry	1,201	2.7%
admf2013:session:index.html	249	0.6%

Table 3. Page Effectiveness Report-2 "Visits"

Page Name	Visits	
admf2013:index.html	15,677	90.2%
admf2013:regist:entry	5,294	30.4%
admf2013:regist:confirm	2,603	15.0%
admf2013:access.html	2,364	13.6%
admf2013:regist:thanks	2,591	14.9%
admf2013:faq.html	1,145	6.6%
admf2013:regist:session_entry	940	5.4%
admf2013:session:index.html	204	1.2%

Table 4. Page Effectiveness Report-3 "Entries"

Page Name	Entries	
admf2013:index.html	13,758	87.2%
admf2013:regist:entry	1,220	7.7%
admf2013:regist:confirm	52	0.3%
admf2013:access.html	557	3.5%
admf2013:regist:thanks	4	0.0%
admf2013:faq.html	67	0.4%
admf2013:regist:session_entry	23	0.1%
admf2013:session:index.html	54	0.3%

Table 5. Page Effectiveness Report-4 "Bounce Rate"

Page Name	Bounce Rate
admf2013:index.html	52.05%
admf2013:regist:entry	30.66%
admf2013:regist:confirm	1.92%
admf2013:access.html	49.91%
admf2013:regist:thanks	50.00%
admf2013:faq.html	47.76%
admf2013:regist:session_entry	52.17%
admf2013:session:index.html	83.33%

Table 6. Participation Report

Page Name	Success registration Participation	
admf2013:index.html	83.2%	2,223
admf2013:regist:entry	97.8%	2,614
admf2013:regist:confirm	99.9%	2,669
admf2013:access.html	5.2%	139
admf2013:regist:thanks	100.0%	2,673
admf2013:faq.html	3.1%	83
admf2013:regist:session_entry	32.7%	875
admf2013:session:index.html	0.3%	9

3.2. Theme of A/B testing

It is necessary to improve the motivation of the attendance registration for the web visitors, and it needs to prepare right communication with right wording at the web page which is the highest number of page views, visits and participation for the conversion. Also before the conversion the visitors is lead to click the web-button (Call-to-Action) into web-form which the visitors input their contact information, therefore we executed two type of A/B testing, a) Words of the Main Massage Area and b) Color and Words of Call-to-Action.

3.3. Plan for A/B testing

In **Figure 1**, it shows the area of A/B testing at the B-to-B event website. We executed A/B testing of "a) Words of the Main Massage" at the inside of dotted-line, and "b) Color and Words of Call-to Action" at the inside of solid line.



Figure 1. Area of A/B testing.

There are five experiences to identify which creatives are the most effective results of A/B testing in **Table7** as bellows.

Table 7. Creatives for A/B testing.

	a) Words of the Main Massage	b) Color and Words of Call-to Action
Experience A	アドビデジタルマーケティングフォーラム (English: Adobe Digital Marketing Forum)	Color: Orange Words: 無料登録はこちらから (English: Free Registration)
Experience B	最新のデジタルマーケティングイベント (English: The newest digital marketing event)	Color: Orange Words: 無料登録はこちらから (English: Free Registration)
Experience C	日本最大級のデジタルマーケティングイベント (English: The biggest digital marketing event)	Color: Orange Words: 無料登録はこちらから (English: Free Registration)
Experience D	アドビデジタルマーケティングフォーラム (English: Adobe Digital Marketing Forum)	Color: Orange Words: 無料エントリーはこちらから (English: Free Entry)
Experience E	アドビデジタルマーケティングフォーラム (English: Adobe Digital Marketing Forum)	Color: Green Words: 無料登録はこちらから (English: Free Registration)

In **Figure 2**, it shows a schematic of experience comparison.

a)Words of the Main Massage:
Comparing "Experience A", "B" and "C"
b) Words of Call-to Action:
Comparing "Experience A" and "D".
b) Color of Call-to Action:
Comparing "Experience A" and "E".

In this A/B testing, the same test experience will be displayed as long as visitors do not delete the cookies of the web browser and the test experience to be displayed randomly and equality for first time visitors.

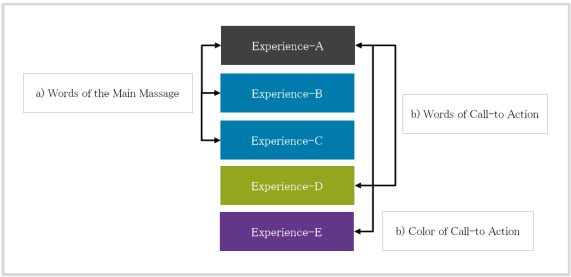


Figure 2. Test Experience Comparison.

IV. RESULTS OF A/B TESTING

It is the results of A/B testing in **Table 8**. The conversion rate is calculated "Number of Success Registration divides by Visits".

The test results were Experience-C that a) Words of the main message was “The biggest digital marketing event” and b) Color and Words of Call-to-Action were “Orange and Free Registration” has become the largest value in the conversion rate. However significant difference of conversion rates and numbers between Experience-A, B, and C were not shown. Also in **figure 3**, it could be found that any experiences did notbecome a winner consistentlyduring testing period. However it was possible to see the transition of conversion rate after April 3.

We sent an e-mail to the customers on April 3that included the keyword of “The biggest digital marketing event” (as same as Experience C). There was a possibility of the relationship between the email wording and the main message, but it could not be said that Experience C was effective to visitors in a) Words of the main message because of lack of test period and conversion numbers after April 3. We need to continue the test with another candidates of effective wording for extending period.

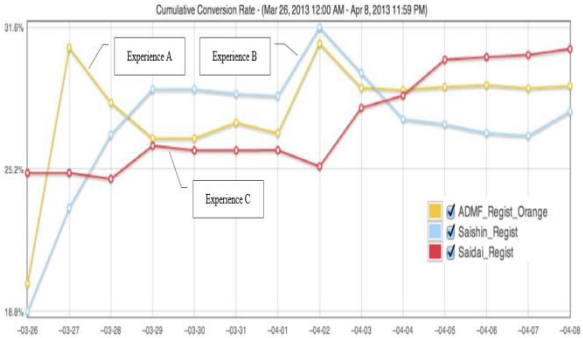


Figure 3. Test Result: Words of the Main Message.

In **Table 8**, the test of b) Color of Call-to-Action, Experience A (Orange) showed better conversion rates and numbers towards to Experience E (Green). However in **figure 4**, it could be found that any experiences did notbecome a winner consistently during testing period. Before April 5 Experience A was winner, but after April 5 it showed that Experience E was winner. Both of result were not good enough to identify the winner because it needed more test period and numbers of conversion. Therefore it could not be said clearly “Orange was a winner” because it should be also considered effectiveness and relationship between the background color and its color. We need to continue the A/B testing for b) Color of Call-to-Action, warm vs cool colors with considering relationship of the background color.

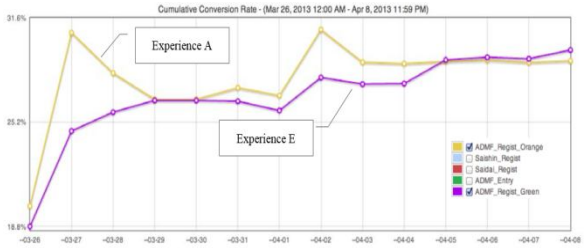


Figure 4. Test Result: Color of Call-to-Action

In **Table 8**, we identified that Experience A was a winner at the test of b) Words of Call-to-Action. Also in **Figure 5**, it could be found that Experience A became a winner consistently during testing period.It showed the keyword of “Registration” had more effectiveness than “Entry”. “Entry” has several meaning in Japanese, such as “Entrance”, “Admission”, and “Submission”. It is necessary to continue the A/B testing and collect the date that the wording ambiguity or number of characters is affecting the test results.



Figure 5. Test Result: Color of Call-to-Action.

Table 8. All Results of A/B testing.

	Impression Rate (Units)	Conversion Rate (Units)
Experience-A	20.29% (553)	28.93% (160)
Experience-B	19.82% (540)	27.78% (150)
Experience-C	20.62% (562)	30.60% (172)
Experience-D	19.30% (526)	26.24% (138)
Experience-E	19.96% (544)	29.60% (161)

CONCLUSIONS

To improve own products and services awareness in the B2B business industry is generally often used by way of the marketing event. Improving the number of event attendees is equal to improving the products and services awareness with low cost investment. Therefore, many of the B2B companies are required to develop the effective web site for improving event awareness and number of customer registration from the cost reduction perspective.

To develop the effective web site in order to achieve its purpose, should understand customer behaviors and effective components and contents through the web analysis and A/B testing.

It is possible to figure out where the high contribution web page of event registration from among many by visitor behavior analysis.We ran three type of analysis, i) Analysis of original referrer domain, ii) Analysis of page effectiveness and iii) Participation analysis of conversion.

We can expect significant of the business impact by running the A/B testing at the most effective page and/or content, and figure out what the components and contents of the website In addition it could be found that there aredifferences of visitor behavior by words of the main message and color of Call-to-Action through the A / B testing.

Also it was executed three type of A/B testing, a)Words of the Main Massage with comparing "Experience A", "B" and "C", b) Word of Call-to Action with comparing "Experience A" and "D" and b) Color of Call-to Action with comparing "Experience A" and "E".

Through the result of thosestudies we understood that there are differences in the number of visits for each inflow source from i) Analysis of original referrer domain. Also we were able to discover the differences in number of Page Views,Bounce Rate and Participation of Success Registration.

However we did not able to fully analyze the factors of those influencesfor visitors becausethere are not enough numbers of test result.Also it needed to extend test period. We will pursue to find the effectiveness of words and colorswith continuing the web analysis and A/B testing.

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