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Web Data Analytics and Tools - A Review

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ABSTRACT

The objective of web analytics is to function as a business metric for promoting specific products to the purchasers who are presumably to shop for them and to work out which products a selected customer is presumably to get. This helps improve the ratio of revenue to marketing costs.In addition to those features, web analytics may track the clickthrough and drill down behavior of consumers within an internet site, determine the sites from which customers most frequently arrive, and communicate with browsers to track and analyze online behavior. The results of web analytics are provided within the sort of tables, charts and graphs.

Keywords : Web Analytics, Web Data Analytics, Clickstream, CI, VOC, Data insights

I. INTRODUCTION

The world is becoming aware that the Internet is evolving rapidly and constantly growing as more and more users get online. It's necessary for all organizations and businesses to be present in the web sphere. The Internet is providing many multimedia features which enables and changes the way organizations communicate with their customers, suppliers, competitors and employees.

The web sphere has a direct impact on a user's perception of business success and the strategic importance of web context for modern business. It also shifts numerous business activities towards the online creating within the same time new context of business models so called web business models. According to , a business model is described as a business method used by a particular company to generate revenue and add new value to its product/services.

There are nine basic categories of web business models such as:

(1) Brokerage Model
(2) Advertising Model
(3) Model of information Agent
(4) Commercial Model
(5) Manufacturing Model
(6) Affiliate/Collaborative Model
(7) Virtual Community Model
(8) Subscription Model
(9) Utility/Ancillary Services Model.

Within these business models five common goals can be identified:

- ✓ Selling products or services online and then measuring the outcomes by the number of products sold or services
- ✓ Creating a potential client databases and measures of the outcomes based on the number of collected visitor contacts via web sites
- ✓ Content publication must be directed towards attracting as many visitors as possible and thereby increase the revenue by advertising
- ✓ Providing information to the website visitors
- ✓ Company branding

Without proper web metrics applied to a business model on an internet site, it's almost impossible to leave the consequences on visitors, hence the proper right choice of an analytics tool is important. On the opposite hand, gaining insight is additionally important, on what tool is apt for unique user needs. Based on what's been said, the research task is to specially investigate the following: Web analytics tools track and improve a user's satisfaction with web-based business models.

1. WHAT IS WEB ANALYTICS

According to the official definition of , web analytics refers to a combination of measuring, acquisition, analyzing and reporting of data collected from the Internet with the aim of understanding and optimizing the web experience.

Measuring incorporates different metrics and expressed within the sort of numbers, ratios and key performance indicators (KPI's). Data acquisition activity is especially done through one among the 2 most generally used methods: using log files that gather data from a server.

Log files contain data collected from a corporation server, no matter the visitor's sort of Internet browser. Data acquisition activities on a server are available in the shape of a document containing server-side collected data. These activities are related to requests directed to a web server, such as displaying pages, images or PDF files . On the client side, site tagging is administered and is run and recorded each time a user opens a tagged webpage. Then the visitor behavior is recorded in a separate file.

Furthermore, the aim of analyzing data is to rework data into information useful for a decision-making process . In that sense, special attention should tend to selecting appropriate web analytics tools while taking under consideration a company's specific characteristics and goals, as well as employing the staff who are competent in discovering useful information for supporting decisions that are based on large amounts of acquired data.

Finally, reports are generated supporting selected metrics outputs which successively are useful for company management.

Data originating from the web offers relevant information on website traffic, website transactions, server performance and knowledge submitted by users themselves . Understanding of the web and website optimization provides a more adapted approach to a target audience with the goal of increasing conversion rates , as well as customer loyalty . Analyzing website traffic provides insight into the amount of tourists, their geolocation, visitor locations, time spent on websites and other parameters. Web analytics also provides other advantages like increasing efficiency and price reduction . Marketers also can find web analytics data useful for improving products/services and evaluating the success of a marketing campaign. In addition, web designers and web developers use these data for improving website usability and consequently, website user satisfaction. Web analytics provides company management with the insight into how to generate revenue from a website, how to create appropriate user experience and improve its competitive advantage, as well as to support continuous improvement and competitiveness.

Improved business results supported decisions supported by information gained from web analytics certainly justify further expenditure in web analytics.

II. WEB ANALYTICS 2.O

Most of the businesses focusing on Web Analytics think that Analytics is just collecting and analyzing clickstream data. The amount of data is large but the actionable insights they provide is very less comparatively. It's because the clickstream data provides insights only on the 'what' and not the 'why'.Web Analytics 2.O is the redefinition of Web Analytics that answers not only the 'what' and 'why' but to more questions that will help businesses make more data driven decisions based on their customer behavior.

Web Analytics 2.0 is the analysis of qualitative and quantitative data from your website and therefore the competition, to drive a continuing improvement of the web experience that your customers, and potential customers have, which translates into your required outcomes (online and offline).

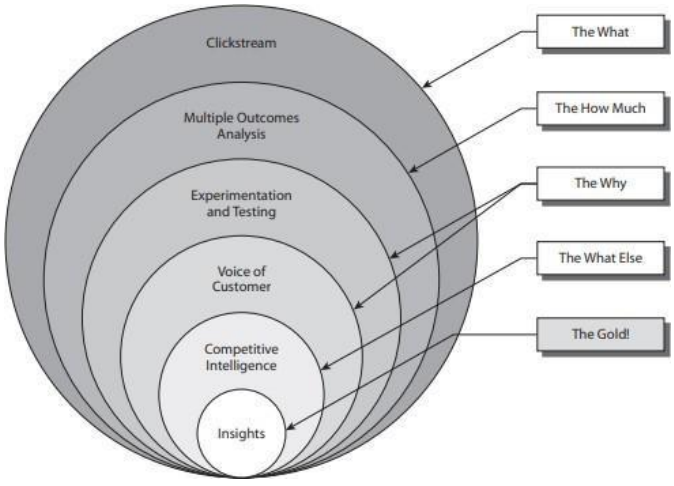

Fig 1 : The Web Analytics 2.O

2.1 THE WHAT : CLICKSTREAM

It's straightforward. If a Web Analytics solution is hosted in-house then the what is generally collecting, storing, processing, and analyzing the website's click-level data. If a Web Analytics solution is hosted externally then the what is generally collecting and analyzing the click-level data.

Where will you get Click-level data? Webtrends, Google Analytics and other Analytics tools.

2.2 THE HOW MUCH : MULTIPLE OUTCOMES ANALYSIS

There are typically three outcomes a website attempts to deliver,

1) Increase revenue
2) Reduce cost
3) Improve customer satisfaction/loyalty.

Irrespective of your website's domain, your website has to deliver these outcomes against whatever is happening in your website.

2.3 THE WHY: EXPERIMENTATION AND TESTING

Tools like Google Website Optimizer, Omniture's Test&Target, Autonomy's Optimost, or SiteSpect allow you to test your website ideas against your customers and let you know what they like. One can experiment with different ideas before releasing them in the market.

2.4 THE WHY: VOICE OF CUSTOMER

Never Assume. Let your customers speak up for themselves. Your website might have too many pages, your web analytics can't report them all. If there is an internal problem in your website? That's why this is the most important feature of Web Analytics 2.O - The Voice of your Customers. Surveys, Slot cards, Usability Hub's testing and more of these will lead you to direct feedback from your customers. So that you will come to know where you are lacking.

2.5 THE WHAT ELSE: COMPETITIVE INTELLIGENCE

For now you were dealing with lots of data, but only your data. Tons of data of your competitors is out there for free. You can compare your website's performance with theirs. You can compare against measures like views per page, visitor's loyalty, growth etc.,

III. BASIC TYPES OF WEB ANALYTICS

Web analytics can be categorized into two types:

- Off- site Web analytics
- On-site Web analytics.

3.1 OFF- SITE WEB ANALYTICS

Off-site web analytics refers to measurement of web and analysis of web data without considering whether we own or maintain a website. It includes the measurement of a website's users, visibility, and comments that are occurring on the Internet. Example for an e-commerce website, we can identify the size of the market, identify competitors, determine market penetration for our market, conduct surveys and consult market research sources. Tools like Google insight for search and Compete.com provide off-site web analytics.

3.2 ON-SITE WEB ANALYTICS

On-site web analytics refers to a most common method to measure a page visitor behavior for our website and performance in a commercial way rather than traditional way. This includes its conversions and drivers. For example, the different landing pages are associated with online purchases. This web data is usually compared against key performance indicators for performance, and which is employed to enhance an internet site or marketing supported response of the users. It uses trend analysis software to analyze server logs and tag pages.

To remain before the race during this competitive digital world, marketers are leveraging upon some web analytics tools. The most widely used on-site web analytics tools are Google Analytics and Adobe Analytics.Even though new tools have come into existence that provide additional information, like heat maps and session replay.

IV. STAGES IN WEB ANALYTICS

Web analytics processes are mainly classified into 4 stages:

4.1 Collection of data: It's the essential step within the web analytics process i.e, collection of knowledge which is an elementary data. Mainly this data includes counts of things.

4.2 Processing of knowledge into information: Regardless of the data which is obtained from the first stage is translated in terms of ratios which is an information considered as a metric and still there could also be some counts.

4.3 Developing KPI: It mainly focuses on using the knowledge after processing and mixing them with some business strategies, mentioned as Key Performance Indicators (KPI). counting on the organization, KPIs affect conversion aspects but not always.

4.4 Formulating online strategy: This step mainly deals with the web goals, objectives, and standards for the organization or business. These online strategies are wont to increase marketing, making money and saving money.

V. ADDITIONAL FUNCTION AVAILABLE IN WEB ANALYTICS PROCESS

5.1 Experiments and testings: Changes to web pages are to be identified because they may increase or maximize statistically tested results of a website which can be

done by A/B testing . It is a controlled method which is available in online settings with two variants.

VI. ADVANTAGES OF WEB ANALYTICS

Web Analytics will show the number of visitors to the site via various sources like search engines, through emails and social media.

Web analytics provides reports on how much time visitors spent on the web page which helps to identify how engaging or effective a web page is.

Web analytics helps to improve customer experience. But the website should keep track of bounce rate for each page and the page with high bounce rate should be improved.

ROI(Return On Investment) lets one know what's working and what's not and helps improve the website's performance.

VII. WEB ANALYTICS TOOLS

Mostly, Web Analytics tools tag their web pages using a snippet of JavaScript code in their web page. The tag in the web page will count each time the page gets a visitor or gets a click on a link provided in the webpage. It will also gather the information about the device, their browser and their location.

7.1 Google Analytics

Google Analytics is a traffic analytics tool provided by Google which allows the user to analyze the visitors count, bounce rate, goal conversion. Using Google Analytics one can get to know which keyword will bring you more visitors. It is also a free tool.

7.2 Clicky

Clicky is a real-time analytics tool which allows you to know what your visitors are doing. It also offers a free service and a subscribed service with benefits. Clicky has an easy to interact and precise dashboard.

7.3 Spring Metrics

Spring Metrics is also a real-time analytics, which provides real-time conversion analytics, keyword analytics and email performance reports. Spring Metrics is a simple and good analytics tool.

7.4 Mixpanel

Mixpanel is a business analytics platform used to track the business KPIs and the customer behavior across the website. It is a free available source. Mixpanel also helps to build better products. It's a self serve product which brings in more users by making the product more interactive and engaging.

7.5 Adobe Analytics

Adobe Analytics brings insights from data taken from anywhere. It will also let you mix, match and analyze the data of the customer journey. Adobe Analytics also provides predictive analysis using AI and Machine Learning.

VIII. CONCLUSION

The world is growing with the amount of data and its users. So much data to focus on. When the data is handled in a proper way, a larger amount of actionable insights can be provided which helps the businesses in making the right decision. Web analytics data is generally presented in customized dashboards based on the user requirements, date range, and also other attributes. There is a wide variety of analytics tools available in the market, the right tool for the company's needs will depend on their specific requirements. Choosing the right tool based on those requirements will result in better decision-making.

IX. REFERENCES

[1]. Fagan, J.C. The suitability of web analytics key performance indicators in the academic library environment. J. Acad. Librarianship. 2014, 40, 25–34.

[2]. Kent, M.L.; Carr, B.J.; Husted, R.A.; Pop, R.A. Learning web analytics: A tool for strategic communication. Public Relat. Rev. 2011, 37, 536–543

[3]. Plaza, B. Google analytics intelligence for information professionals. Online 2010, 34, 33–37.

[4]. B. Nemade, J. Nair, and B. Nemade, "Efficient GDP Growth Forecasting for India through a Novel Modified LSTM Approach," Communications on Applied Nonlinear Analysis, vol. 31, no. 2s, pp. 339-357, 2024.

[5]. B. Marakarkandy, B. Nemade, S. Kelkar, P. V. Chandrika, V. A. Shirsath, and M. Mali, "Enhancing Multi-Channel Consumer Behavior Analysis: A Data-Driven Approach using the Optimized Apriori Algorithm," Journal of Electrical Systems, vol. 20, no. 2s, pp. 700–708, 2024.

[6]. Lee, G. Death of 'last click wins': Media attribution and the expanding use of media data. J. Direct Data Digit. Mark. Pract. 2010, 12, 16–26.

[7]. Järvinen, J.; Karjaluoto, H. The use of Web analytics for digital marketing performance measurement. Ind. Mark. Manag. 2015, 50, 117–127

[8]. Avinash Kaushik, "The Three Greatest Survey Ques- tions Ever." Occam's Razor, April 10,2007,

[9]. www.kaushik.net/avinash/2007/04/the-three-greatest-survey-questions-ever.html (accessed March 25, 2011).

[10]. Steve Krug, Don't Make Me Think: A Common Sense Approach to Web Usability, 2nd ed. (Berkeley, CA: New Riders, 2006); Steve Krug, Rocket Surgery Made Easy (Berkeley, CA: New Riders. 2010).

[11]. Elaina Norlin and C. M. Winters, Usability Testing for Library Websites: A Hands-On Guide (Chicago: ALA, 2002).

[12]. Avinash Kaushik, Web Analytics: An Hour a Day (In- dianapolis, IN: Wiley Publishing, 2007).

[13]. Avinash Kaushik, Web Analytics 2.0 (Indianapolis, IN: Wiley Publishing, 2010).

[14]. Kaushik, A. (2009). Web Analytics 2.0: The Art of Online Accountability and Science of Customer Centricity. Indiana: Wiley Publishing, Inc.

[15]. Kaushik, A. (2007). Web Analytics: An Hour a Day. Indiana: Wiley Publishing, Inc.

[16]. Burby, J., Brown, A. and WAA Standards Committee (2007). Web Analytics Definitions – Version 4.0, Web Analytics Association.

[17]. Clifton, B. (2010). Advanced Web Metrics with Google Analytics (2nd ed.). Indiana: Wiley Publishing, Inc.

[18]. Creese, G. and Veytsel, A. (2000). Web Analytics: Translating Clicks into Business. Boston: The Aberdeen Group, Inc.