UDC [004.774.6:021.7] (477)

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ВИКОРИСТАННЯ ВЕБ-АНАЛІТИКИ БІБЛІОТЕКАМИ УКРАЇНИ

Досліджується рівень упровадження інструментів веб-аналітики в бібліотеках України. Представлена модель процесу безперервного вдосконалення бібліотечного веб-сайта з метою досягнення ефективності діяльності в онлайн-середовищі. Пропонується поетапний план оцінювання для впровадження інструментів веб-аналітики у вітчизняних бібліотеках. Наведені приклади цілей, стратегій та тактик, які можуть використовувати бібліотеки. Особлива увага приділена ключовим показникам ефективності, які необхідно відстежувати для отримання необхідних даних.

Ключові слова: *веб-аналітика, онлайн-діяльність бібліотек, ключові показники ефективності, інтернет-маркетинг, план вимірювання.*

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ИСПОЛЬЗОВАНИЕ ВЕБ-АНАЛИТИКИ БИБЛИОТЕКАМИ УКРАИНЫ

Исследуется уровень внедрения инструментов веб-аналитики в библиотеках Украины. Представлена модель процесса беспрерывного совершенствования библиотечного веб-сайта с целью достижения эффективности деятельности в онлайн-среде. Предлагается поэтапный план оценивания для внедрения инструментов веб-аналитики в отечественных библиотеках. Приведены примеры целей, стратегий и тактик, которые могут использовать библиотеки. Особенное внимание уделяется ключевым показателям эффективности, которые необходимо отслеживать для получения необходимых данных.

Ключевые слова: *веб-аналитика, онлайн-деятельность библиотек, ключевые показатели эффективности, интернет-маркетинг, план оценивания.*

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WEB ANALYTICS USAGE IN ONLINE-ACTIVITY OF UKRAINIAN LIBRARIES

This paper presents an investigation of web analytics tools integration in Ukrainian libraries. The author suggests the model of continual improvement process of library web-sites in order to achieve an overall performance in online-environment. Also, the step by step measurement plan is proposed for effective implementation of web analytics tools in Ukrainian libraries. The examples of objectives, strategies and tactics which may be used by libraries are presented. A particular attention is paid to the Key Performance Indicators which are needed to be measured by libraries to get necessary data.

Key words: *web analytics, libraries online activity, key performance indicators, digital marketing, measurement plan.*

Introduction. The development of the internet provides both libraries and users with great opportunities. For libraries it is a chance to reach the distant users, and for site visitors it is an opportunity to get valu-

able information in the most convenient and fastest way. However, today's changing user behaviour has altered the way how the organizations need to act and measure their achievements in online environment. And though the Web, internet-marketing and advertising have been revolutionized in the last few years, yet the approach to using data has remained mainly the same as it was in previous decade. So, for libraries it is obligatory to organize an effective process of managing website on a regular basis in order to improve the service quality and to evaluate each action using up-to-date instruments and comparing results with those that have been planned. With the help of web analytics it is possible to make decisions based on numbers, data and analysis. So analytics usage is vital for libraries as an instrument of successful internet-marketing system implementation and tracking the ever changing user needs.

Literature review. Though web analytics is relatively a new instrument of internet marketing it manages to achieve a great popularity among online-businesses, and the growing number of publications on the topic confirms this fact. The author of "Web Analytics 2.0" A. Kaushik [4], who is considered to be one of the most famous ideologists of digital marketing lays out in his book specific strategies and models, which include qualitative data, experimentation and testing, and competitive intelligence tools. The author explains how to measure, analyse and act upon quickly evolving web technologies and trends including social media, video, mobile and online user-centric design options.

At the same time different aspects of web analytics have been researched by M. Hassler [3]. A number of authors such as J. Ledford [5], B. Clifton [1] and some other investigate the features of Google analytics tools. Some Ukrainian scientists (D. Melihov, I. Sarmatov [6]) focus on various methodology issues of web analytics in their scientific works. A. Strungar and O. Maryina [7] evaluate the advisability of using monitoring system "Yandex Metrika" as an analytical tool for Ukrainian libraries. But the number of researches devoted to online-activity measuring of Ukrainian libraries is insufficient, so the further investigation of the topic is required.

The main objective of this paper is to examine and describe the peculiarities of web analytics usage in online-activity of Ukrainian libraries. In particular, the study has been designed to attain the following objectives:

To study the web analytics tools integration in Ukrainian libraries;

To suggest a model of library website improvement;

To explore the components of measurement plan.

Results. There are few major trends that are driving change for organizations in general and libraries in particular. First, the internet has made the information and media available to most of people at the click of a button. Second, mobile devices have helped users to become online at any time from any place. Finally, cloud computing provides cheap and practically infinite computing power. Because of the two first trends, the consumer behaviour is forever changed. People are empowered with more information than ever: product and service reviews, recommendations from friends or experts, advertising etc. All these things are now instantly available. At the same time, cloud computing has empowered web-based companies to collect and analyse more activity data than ever before. In order to understand how to manage online activities it is vital to have a solid infrastructure to collect and distribute data, and to have the skills to analyse and interpret that information, making decisions about what should be done online to understand and connect customers. So, organizations need right people, processes and technologies to improve the way of interaction with users, to measure the effectiveness of such interaction and to make sure that all the decisions are based on relevant data. All this may be provided by instruments of web analytics.

According to A. Kaushik web analytics is defined as the analysis of qualitative and quantitative data from organization and its competition to drive a continual improvement of the online experience that existing and potential users have [4]. It should be noted that one of the main aims of web analytics is to study user behaviour and make him follow the elaborated pattern of interaction with an online resource and perform any useful action on the site.

Most of Ukrainian libraries, following global trends, have developed their web-sites. Some of them present only some general information about library activity, while the number of leading libraries already has well-developed informational portals with an ability to provide access to information resources and offer web-based products and services. But it has been found that library web sites are not fully utilized as a marketing tool and an enabler to measure the results of online-activity.

In order to identify the degree of web analytics tools integration by Ukrainian library websites, a small research has been conducted. According to results provided by two ranking services – Google PageRank and Alexa Rank, ten top library websites have been chosen. Each of them have been analysed for the presence of analytics tool JavaScript code with the help of Chrome Developer Tools. The results are presented in the table 1.

Table 1

The presence of analytics tools on top 10 Ukrainian library sites

#	Library name	Web analytics tool
1	Vernadsky National Library of Ukraine	Google Analytics
2	National Parliamentary Library of Ukraine	Google Analytics
3	Korolenko State Scientific Library	None
4	National library of Ukraine for children	None
5	The library of Verkhovna Rada of Ukraine	None
6	The Scientific and Technical Library of National Technical University of Ukraine "Kyiv Polytechnic Institute"	None
7	The library of Kharkiv National University of Radioelectronics	Google Analytics
8	National Scientific Medical Library of Ukraine	Google Analytics
9	M. Maksymovych Scientific Library	None
10	Central Scientific Library of Kharkiv National University	None

It is seen that only 4 from 10 libraries have set analytical tools. That may witness that libraries don't perceive their sites as a separate full-fledged product and the role of the internet is underestimated. A strong competition in online-environment requires the struggle for every user, and the sooner libraries realize this, the stronger positions they will get on the information market. At the same time it is vital to learn and implement various marketing tools.

Despite the fact that libraries are non-commercial organisations, they have to set a business objective for effective operation in online environment. For instance, if consider the library as a content publisher, the objective may be to encourage engagement and frequent visitation; from the point of view of informational or support site — helping users find the information they need at the right time; for branding, the main objective may be to drive awareness, engagement and loyalty.

According to the definition, data can be a driver of a continual improvement process for the library. The model of such interaction is presented in the figure 1.

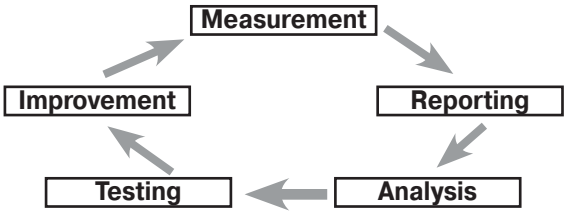

Figure 1. The continual process of improving library web-site

The whole process starts with measurement. The questions should be answered at this level: how many users are completing the site visiting with any useful action? Where along the visiting users are lost or retained? How much time does it take to get necessary information, etc.? Generally, the measurement stage is about collecting the data needed to answer business-questions.

Next, the reporting should be done, to package the data in a readable format and to get information out to decision-makers so that they can be empowered with the information they need to make business decisions. Most of web analytics tools develop and distribute pre-made reports or dashboards. An example of such report is presented in figure 2.

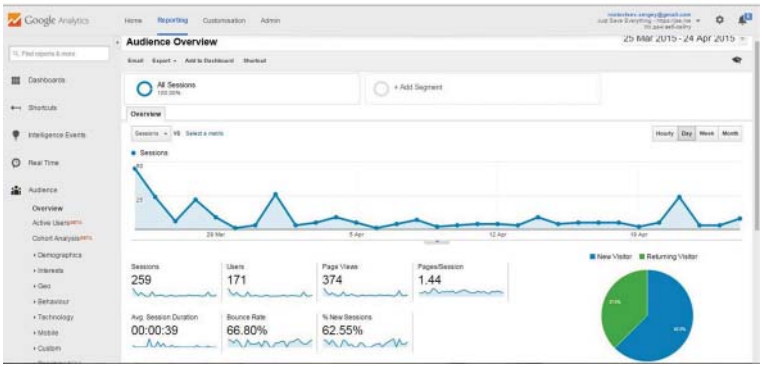

Figure 2. An example of Google Analytics report

Next stage is analysis which can be as simple as identifying larger trends, but it can also be complex, including deep segmentation of data or competitive analysis comparing performance of library to an industry benchmark. Essentially, analysis is the process of developing a hypothesis that reflects expectations, and then figuring out why the numbers do, or do not match those expectations. When unexpected events happen in the data, analysis helps to figure out why.

Testing is the next phase of the process. At this stage various solutions are tried to the problems which have been identified during the analysis. Testing is critical, because it takes opinions out of the decision making process for discovering improvement opportunities.

Based on the results obtained during the whole process, improvements are made. Then the process is repeated. So, the continual improvement process should include both qualitative and quantitative data about

how users engage with a library, and ultimately whether the digital assets are driving visitors to a designful online objective.

Before starting using web analytics, it is vital to create an analytics measurement plan that is specific to a concrete library. Good data is the foundation for making smart decisions. The amount of time and effort, people, processes and technologies, which are required for managing and implementing infrastructure for data collecting, will depend on the size of the library and its plans. Obligatory there should be specialists in the analytics team who understand what the library objectives are and the strategies used to support those objectives; someone who understands what analytics can do; someone with technical skills who can implement an analytics tool. All these functions can be combined in one person.

After the right people are organised to be involved with the planning conversation, it is necessary to decide what is needed to be measured. In whole, an analytics infrastructure includes such components: 1) Defining a measurement plan, which identifies business objectives; 2) Documenting technical infrastructure to understand library technical environment (At this stage an IT-specialists should be asked such questions: What are the server technologies? Is the library website active on mobile? Does the site use responsive design? Do the technologies, which are used, make it possible to track everything which is needed to be tracked?); 3) Creating an implementation plan that is specific to the analytics tool that is using (in most cases it means defining the code snippets and specific product features that will be needed to track the data defined in the measurement plan); 4) Implementation of the tracking recommendations that have been made; 5) Maintaining and refining of the measurement plan. Because the digital world changes so fast, the measurement planning process should be cyclical in order the achieved data can evolve with library activity.

The whole point of measurement is to understand if the library makes good business decisions or bad ones, and then figuring out how to make changes moving forward. To define the measurement plan, it is supposed to go through five steps.

The first step to create the measurement plan is to define the business objective. It is vital at this stage to answer a question — why does online-library exist? For example an objective may be: "To help users to get necessary information and cultivate the idea of only qualitative information usage". To support the objective, libraries will use specific strategies and tactics, which already belong to the second stage of defining the measurement plan.

According to the objective, the strategy of supporting the mission would be to deliver information to the user in the fastest way. A tactic

to support this strategy would be to provide information online by the library website, by means of email or even through the mobile library application. At the same time, if there is a physical library, then one more way to drive the delivery, will be to give users information about it on the website or in the mobile application. To support the second part of library mission — cultivating the idea of qualitative information usage — the strategy would be to engage users in conversations about qualitative information usage advantages, and that might be done through posts on blog, website, forum, in social media etc.

The next step is to choose the Key Performance Indicators (KPIs). These are the measurements of the strategies and tactics and are the numbers which have to be checked on a regular basis to understand how the library business is performing. Following our example, the next KPIs should be looked at. For the first tactic — delivering information to users through website, email and mobile apps — the number of useful actions made by user and which led to satisfying his information needs should be studied. For the tactic of physical library promotion, it should be looked at how many times the library locator on the site is used. To measure user engagement on the blog, the recency and frequency metrics should be examined and whether or not users share library brand content on social networks.

Basically, there are seven key web metrics which should be considered. 1) Visits — report the fact that someone came to the website and spent some time browsing before leaving. Technically this visitor experience is called a session. 2) Visitors — number of people who come to the website. 3) Time on page — the time that visitors spend on an individual page. 4) Time on site — the time, spent on the site during a session. 5) Bounce rate — the percentage of sessions on the website with only one page view. 6) Exit rate — how many people left the website from a certain page. 7) Conversion rate — expressed as a percentage, and defined as a number of useful actions divided by visitors. For library websites useful actions may be: downloading any files, watching videos, writing comments, interaction with virtual reference and others.

After the KPIs which are needed to be measured have been defined, the next stage is to document which segments of data are important to measure. For example the KPIs may be segmented by marketing channel to determine what drives more users to the website: search, email, social and so on. Also, the customer type may be examined — new users versus repeat users — to see how much of the library business is being driven by each segment and whether there are opportunities for driving more visitors loyalty. Since there is a physical library it might also be interesting

to look at the geography of site visitors to learn what the target audience of the certain library is.

Finally, it is necessary to add the targets, which are supposed to be achieved, for each of the KPIs. Adding targets to the measurement plan helps everyone, who analyses the data, understands if the library business is doing effectively.

Once the measurement plan is complete it is critical to have a thorough conversation with an IT team of the library in order to translate business needs into an implementation plan. The specialists can help to understand the website or app environment and ultimately determine what can be tracked. There are few website technologies that will require additional planning. For example: query string parameters; server redirects; Flash and Ajax events; multiple subdomains; responsive web design. All of these technologies require extra attention when designing an implementation plan for certain tools.

Conclusions. The investigation reveals that most of Ukrainian libraries don't use web analytics tools, which make libraries uncompetitive on the global informational online market. To avoid this, the step by step measurement plan has been proposed for effective implementation of web analytics tools in Ukrainian libraries.

It is obvious, that in nearest future web analytics will become a key instrument of online activity. So, for libraries it is vital to understand this tendency and start to use all the opportunities offered by the internet environment.

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Надійшла до редколегії 01.04.2015 р.