

OPTIMIZING ECOMMERCE SITES THROUGH THE USE HEAT MAP

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Abstract

Managers of firms have increasingly more e-business initiatives because any economic transaction can be conducted exclusively via the Internet, these online solutions are characterized by high flexibility in developing and rapidly adaptability to specific customer requirements. To this end, we approached this work, where we aimed to present the objectives and the stages of realization a web application for e-commerce and then to analyze the impact of using of complex tools for webmasters to optimize sites so as to attract as many visitors. An important tool is "Heat map" which providing "feedback" indirect the webmaster with which it can determine which areas of the site should be improved. By the proposed project we have developed a web solution, which was resulted in a tool that helps administrators and site owners who want more from their website.

Keywords: internet, web, webmaster tools, click map, heat map

1. Introduction

Modern business environment is characterized unprecedented growth of the supplier's offer, of global competition and the demanding customers, positively influencing not only small and medium-sized business, but comes in their support, giving them many options. The rapid and incremental development of information and communication technology led to the emergence of the new economy, digital, which tends to globalize worldwide. Within it, individuals and small businesses, together with the big companies, have more opportunities than ever, to play an important role in society. The digital economy is characterized by radical changes in the nature of work and labor relations, with profound implications on work and life styles of people.

The Internet, by contributing to the creation and dissemination of information and knowledge (cognitive goods), computers and networks present in the environment every day, provides access to a

multitude of services and applications through easy interfaces to use from all individuals, achieving the "intelligent environment" and places the individual user at the center of the knowledge society.

In the XXI century, the Internet went into a new period of its existence, manifested by the remarkable increase of data velocity, changing "revolutionary" of aspect of Web sites that put emphasis increasingly higher on the compiling an exciting, complex and fantastic virtual reality, at the same time. By introducing 3D graphics, audio and video clips, advanced animations and surround stereo sound will enhance the feeling of immersion in a virtual space. Will improve interactivity with websites content, trying to use all the human senses to create a special atmosphere where the interaction will involve not only sense of sight or hearing, but and sense of touch and smell. Surfing the Internet is looked at first with to walk through a game of "first-person" and then it will be like a walk in the street, can give voice commands or communicate with various people which could be found, or interact with objects present in the landscape, via a virtual body. We can say that we have the image of a truly mature Internet technology, able to take and harmonize the most advanced features designed computer programs, so that the end result is virtual existential experience which rival the actual existence and at the same time to complete, this is the ultimate goal pursued by all those involved in Internet development.

2. Objectives and steps to implement a web application for e-commerce

The Internet represents new opportunities for traditional companies including diversification of services and promoting new services, personalized and attractive, which the information technologies make them possible. In this context, it was allowed to develop a new form of commerce, namely e-commerce that fosters competition and competitiveness by developing new products. When we say the Internet, the ordinary user refers actually to the use of websites.

Through e-commerce is offered the opportunity to practice individual marketing (Botescu, I., 2007), it is possible to adapt the product to the customer requirements by specifying the desired characteristics using forms implemented through the website.

Electronic commerce is one of complex integrated solutions offered by Internet technology, which means that a multitude of applications and Internet service providers must work together in perfect timing, for as to work an e-commerce site. The objectives of a web applications e-commerce are: increasing sales, permanent communication with customers, delivery of the products in a short time and ensuring of payment methods how much safe and effective (Tudor, S., Huțanu, V., 2003). To do these proceeds to a careful analysis of the product categories that will be sold. In addition it is necessary to keep regular statistics, the updating normally of the lists of products offered and the prompt answer to customer requirements.

Building a website - online shop, online catalog or website - is an essential step in developing a business online, especially if that area already had a large market, strong competitors and users advised (Yuan, G., 2005). In achieving a web application for e-commerce the developer should consider the following steps:

1. Understand:
 - ✓ their business objectives in the short, medium and long term;
 - ✓ the role of the website as part of the overall business strategy;
 - ✓ The competitive context Online and offline in which business places, an original site in relation to those who are already online market in the same area of activity: Additional information/documentation about the extensive products and services/ new approach to their quality (cost/efficiency/saving time and so on).

2. Identifies:

- ✓ market and audience - Online Market Analysis - Competition studies and evolution in the field (competition/search volume/direction towards which domain/of the users preferences);
- ✓ competition in the relevant market segment;
- ✓ way in which the competitors approach the road to success, both online and offline;
- ✓ market evolution trends and an audience;
- ✓ technologies used in the work of implementation;
- ✓ strengths and weaknesses of future offers;
- ✓ time, effort and budget of design, promotion and maintenance of site optimization strategies and techniques on site /promotion "off site" suited to the field of activity.

3. Designing:

- ✓ the actual content of the website in accordance with all standards of professional presentations;
- ✓ structure of the website, so navigation is easy, clear and comprehensive;
- ✓ creating the site is complex and for it to be profitable is important to give users and search engines since the beginning - from the launch site - a site correctly, consistently and with valuable content;
- ✓ website design, such that the graphical elements not to abound nor lacking but everything to find a harmony;
- ✓ architecture of the database as specified by the system.

4. Validates:

- ✓ correctness of syntactical and the morphological of texts (grammatical validating);
- ✓ semantic structure of all content;
- ✓ composition the code (HTML, CSS, JavaScript, Java, XML, PHP, ASP, etc ...);
- ✓ general line of presentation and tender;
- ✓ copyright on the finished product obtained.

Key elements in building a website for a successful business can be summarized in:

- ✓ establishment keywords strategy;
- ✓ attractive design;
- ✓ easy to use/degree of effective airworthiness;
- ✓ organized by categories / subcategories / products;
- ✓ technically correct and SEO;
- ✓ textual content enough, organized and original.

Not many people know how much work lies in building of a website and with the less people know about their efforts to manage such a site. Once completed the development and testing phases of a site, follows maintenance phase, is an optional but very important step in ensuring the success of the website. At this stage the focus is on a number of factors such as off-page optimization, driving traffic, getting "feedback" and monitor site usage. I targeted this stage in achieving proposed tool.

Usually when a site is created, the interest is to make it known, but to you know whether visited or not, we need to have tools to make this known, and based on these statistics (number of unique visitors, their number of visits, pages viewed, operating systems and browsers used, used plugging in the browser, screen resolution, country, network providers and many others) can improve the quality of the site and the services offered to visitors. Through continuous monitoring of the evolution of site visibility can ensure its proper functioning and maintaining or increasing traffic volumes. Maintenance and management involves, besides updating content and check the site and analyze proper indexing by search engines.

3. Optimizing a website

Traffic a website can be generated by search engines, web directories and direct visitors. Optimizing a website is a process that involves structuring it, for to be indexed by search engines, in the most efficient way to be easily found when searching for different words or groups of words. The importance of website optimization derives from the need to be identified in searches by potential customers on the leading search engines (Google, Yahoo, MSN).

Optimizing your site for search engines is one of the two main methods of online promotion of website with paid advertising on specialized sites. The process of search engine optimization has the advantage minimal effort, and is necessary to weigh performing once (Călin, I., 2003). However, duration of the making of this process is between 6 months and 1 year, the first results are visible after about three months, from that point it is growing.

In order for a website to become a successful business, it must have an attractive design that offers useful features and user friendly and is optimized to appear in top results of any search. Another important element is the content of the website represented by elements that capture the attention of visitors who must inspire a high quality and high reliability.

In order to optimize the site to achieve an easy navigation is sometimes necessary to make some changes in some parts of the website, which to consider:

- ✓ Create of unique page titles, exact for each page on the site, by which is made known of the subject of an certain specific pages, both users and search engines;
- ✓ The Use of meta tag "description" of a page, which gives search engines a summary of the topic page (one or two sentences or a short paragraph), where a description to inform and attract the interest of users. Given that the site has thousands or millions of pages, creating meta description is generated automatically based on the content of each page;
- ✓ Improve structure the URLs addresses, avoidance of the very long and complex addresses, use the words, because they within an URL addressee can attract the interest of a user faster than numerical codes;
- ✓ Create a simple directory structure, with a content well organized so that it is easily found on the site;
- ✓ simplify browsing websites, they include a home page ("root"), which is typically the most common and the starting point of navigation, but mapping the site, is much more useful user (a page simple with site pages in a hierarchical structure);
- ✓ Use text, usually for navigation, which facilitates access, and links that allow visitors to return to a previous section or the root;
- ✓ Creating a 404 page that guides users to the functional page on site, when selecting a page that does not exist on the site (due to broken link or entering a URL wrong);
- ✓ Creating a site based on the user needs with a compelling and useful content and quality services, resulting in recommendations transmitted by blog, social networking, e-mail, forums or other means, leading to the formation of reputation;
- ✓ Promote efficient of the website so as to be found quickly by those interested in the subject and sent to the associated community site;
- ✓ Use tools for webmasters by which more effective control of sites so you can monitor access to the site and user behavior, and can make necessary changes to streamline the site.

Search Engine Optimization (SEO) can be defined as a set of methodologies that help improve a site's visibility in search engine pages. Search Engine Optimization is the process of optimizing a web site or a web page for search engine, assuming a set of actions undertaken on a website/blog in order to manipulate

favorable position (ranking) keyword relevant site in search engines (<http://www.endd.ro/definitii-seo/>). Basically, SEO aims to bring relevant traffic (which generates money and fame) to the site.

To create a link between what contains page and keywords that characterize, can change page content, meta tags, the informational structure of site, quantity and quality of links, images, structure of the URLs, through their rewriting, so that it is easy to remember by visitors (<http://www.website-iefertin.ro/articol-site/11-ce-inseamna-optimizare-seo.html>).

The optimization is needed because search engines have huge traffic, million daily users use websites to find different information. Thus, the problem occurs of classifying the sites according to certain criteria, to facilitate the search process, whose solution involves implementing a complex indexing algorithm and improved periodically, taking into account a number of factors influence.

SEO is a method to improve the traffic on the pages of site, which is fairly inexpensive. Optimization strategy starts from the design stage, when is a list of ideas, by imposing design, content and structure page.

Search Engine Optimization - natural optimization - is considered the more technical part of online marketing, assuming optimizing the pages or websites, so that they are more "friendly" to search engines. Includes all operations / changes / updates in the website content, internal and external links, so that their results have the best possible visibility of your site in search engine natural results of Google, Bing or Yahoo and others. Optimization is necessary because most Internet users choose their priority responses, from the first results page of search engine used, and involves editing the source code and the content of the web page to increase relevance to certain keywords.

4. Tools used for traffic analysis

It requires complex tools to measure monitor and analyze visitor satisfaction in relation to site investigation (<http://www.dezvoltare-site-seo.ro/servicii-seo/analiza-website/>). Data collection can be done through various research methods, which include: quantitative (survey, heat map) and qualitative (mouse tracking, focus group, scenarios of testing).

Sounding

During the visit to the site, users are asked to answer a short questionnaire. The respondents would choose statistical step (lafisare/unic/zi) to ensure representative ness in relation to all categories of visitors to the site (new / existing), producing a final sample which will contain a minimum of 300 visitors. With poll analysis is obtained information related to:

- ✓ visitor segmentation depending on socio-demographic and psychographic profile and its division into core/secondary target;
- ✓ satisfaction in relation to: the site as a whole, loading speed, design, website content, how are structured information, ease of working with the website;
- ✓ habits of use of the site;
- ✓ availability of the visitors to recommend the site to friends/colleagues;
- ✓ extent to which purpose of the visit were met.

Heat map analysis

Heat map is a visual aggregate representation which showing dispersion the total number of clicks made on different pages of the site during the analyzed period. Heat map will collect all the clicks made on site during the study, obtaining information on:

- ✓ frequency and concentration of clicks on certain sections of the analyzed page: logo, menu structure, search box, main content/secondary, areas for advertising;

- ✓ problems in design, information structure and copywriting ;
- ✓ factors that encourage or interrupt the navigation path;
- ✓ priority areas that attract visitors' attention.

Focus Group

In this qualitative methods will evaluate in detail the experience that individuals have had in using the site. Will be select 10-12 of the respondents who participated in the survey and who have expressed their willingness to participate in online focus groups, on the ergonomics theme of the investigation site , and will follow as these individuals to represent the socio-demographic target audience, which the client wants to investigate, being able to collect the following information: *using functions site; airworthiness evaluation; organization and consistency of information; visitor perception of design; level of interactivity; the general perspective: strengths and weaknesses.*

Analysis Mouse Tracking

Through the MouseTracking analysis are registered the visitor behavior in the real context of site navigation (mouse movements and areas where clicked). This type of analysis uses 10-12 respondents, were used in completing and validating information from the Focus Group (makes visitor? vis-à-vis, what he says do), resulting detailed information about:

- ✓ behavioral elements of the visit: reading passive/active, scroll, the number of clicks;
- ✓ levels of interaction in sessions: filling the data fields , selecting different options on the page, opening the links in separate tabs;
- ✓ actual time spent per the page and technical peculiarities of the visit;
- ✓ improvements in the structure and organization of information on page, conversion and interaction.

Analysis of the test scenarios

This analysis will be used only for sites that are in pre-launch. In this respect, choose 6 subjects for which are given 20 scenarios, random ranked according to difficulty, which they must solve them. Evaluation will made on based the realization of tasks and performance notes, aiming at:

- ✓ performance: how many respondents have fulfilled your task? which has been the time required?
How many steps have traveled for fulfilling of some basic tasks?
- ✓ accuracy: how many mistakes they made users? what kinds of mistakes they made?
- ✓ learning/reminders: how much information (basic/related) remembered of the users after the end of testing? how long deemed to be necessary to meet the next time the task?
- ✓ emotional perception: how they are related to tasks and browsing? would be willing to return?
A complex tool aims at:
 - ✓ completion the tool of the analysis classic of a site (Google Analytics, trafic.ro, SATI, A/B split testing) whose main function is to provide quantitative information;
 - ✓ providing additional qualitative information on visitor behavior on the site, answering the following questions:
 - Who are your website visitors?
 - Why were entered on site /what looking?
 - What does they like/does not like at the site?
 - What are the areas of greatest interest to the site and why?

- What are places where users have difficulties in finding the information they seek and what are the difficulties?
- How can the site be optimized?
- ✓ due to a large volume and variety of data allows a comprehensive analysis of the site:
- records both loyal user behavior (those that use familiar shortcuts and know the menu structure, use the search box more often and so on) and of the new or occasional (new vs. returning);
- browsing behavior of users is real, they are not put into context artificial (in laboratory under direct observation of researchers);
- information obtained help redesign website visitors according to expectations;
- can be identified the specific motivations for some quantitative indicators (conversion rate, dropout rate transaction, bounce rate etc.).

This complex instrument, of data visualization that shows the activity of a web page, offers some information that will assist webmasters, that can achieve an increasingly navigation easier and more enjoyable:

- ✓ number of readers who visit the site, according to him can determine if it is necessary to use ads or not (the number which recommend placing ads on a website, is 1000 unique visitors per day. shall be deemed that beneath this the number it is not efficient use of advertising for the monetization of a blog);
- ✓ the target type of visitors, thus, is pursued the type of operating system, browser, display resolution, geographical area, time spent blog can form some opinions about the page traffic and thus can achieve better targeting of advertisements. The keywords, by which the blog is located in a good position in the search engine, can be used for the optimization in the future articles. Based on these statistics can be developed strategies of the subsequent to approach of the writing style, choice of advertising (CPM, contextual or affiliates), development of a community of readers.

For the development of the ECommerce can be taken into account using an instrument called a heat map, with help by which online service provider can tell easily which products or services are things of interest to users. This can decide which products will be featured in the foreground. Given the need to monitor website, we developed the Heat map tool.

5. Web Technologies used in the application development

In achieving an application of traffic monitoring of a site we used as technologies: the web programming language and open-source server-side PHP, to create different color areas, the management system of Relational Database, open source MySQL, for achieving database, the programming language object-oriented JavaScript to capture clicks at different coordinates on the page, and a collection of technologies used in developing websites AJAX (Asynchronous JavaScript and XML) to insert the coordinates of the clicks in database.

a. PHP

PHP has versions available for most web servers and for all operating systems (<http://ro.wikipedia.org/wiki/PHP>). It is mainly focused on the server-side scripting, and can be done any CGI program (collection the data of the form, generate dynamic page content, or send and receive of the cookies), however, and scripting in the command line (can run without server and web browser, using only PHP parser), and even the writing of the desktop applications (using some PHP-GTK facilities). The popularity enjoyed by PHP, is due to the following features (Welling, L., Thomson, L., 2008):

- ✓ familiarity, the language has a very easy syntax, they are based the languages Perl and C ;

- ✓ simplicity, the syntax is simple, no need for libraries or compiler directives, PHP code included in a document is executed between special markings;
- ✓ efficiency, the language uses the resource allocation mechanisms, especially useful the multi-user environment (web);
- ✓ security, the programmer has a flexible and effective set of safety measures;
- ✓ flexibility, created from the need to develop the web technology, language is modular to adapt to the development of various technologies which can be integrated for the multiple the existing web servers;
- ✓ gratuity, is practically featuring that caused rapid adaptation of the PHP at the web requirements, leading to increased efficiency and security of the code.

The most significant features in PHP resulting of the support for a wide range of databases and the ability to connect complex data between virtually all Web programming languages, support for instantiation of Java objects and using them transparently as PHP objects.

Using PHP to develop our application was fundamental because this is one of the most used languages, of "server side", has the most extensions and developed libraries. We were interested in using library - GD2, graphics library that offers a wide range of functions for processing of the dynamic of image. The part of project that had the most to gain from PHP and GD2 was generate of the Heat map, namely creating of areas by different colors (from blue to red) to show the intensity of clicks in different parts of site.

b. MySQL

MySQL is the most popular the management system of the database relational, open source, at this time, is a key component of the LAMP stack (Linux, Apache, MySQL, PHP). MySQL is a specialized language for the relational database management on the Internet, based on SQL, which manages databases that are on a server that can be exploited easy through PHP, but also with other languages (e.g. Java) (Schwartz, B., and other, 2004). Its popularity as a web application is closely related to that of PHP which is often combined with MySQL and called the Dynamic Duo (Dubois, P., 2008).

For this application which we realized it, we have developed three-tier architecture (three tiers): the interface, an application level and server the database. Although it was not our only option (I could choose XML for store the data), MySQL has proved the most optimal and scalable alternative for development of the tool „Heat map". The necessary data on which we needed, to store, are the coordinates of the mouse (xOy axis) used by users who enter the site. We based on query speed and on the storage capacity, we opted between two technologies: XML and MySQL, on the MySQL solution. The reason I chose MySQL refers to the possibilities of optimization of database, both in terms of structure and query level, but and facility to generate massive insertions in the database (one event of INSERT for the N records), and the instructions: FLUSH TABLES, or DISABLE KEYS LOCK TABLES.

c. JavaScript

JavaScript is an object oriented programming language based on the concept of prototypes (<http://ro.wikipedia.org/wiki/JavaScript>). Generally, it is used especially for introducing some functionality to web pages, JavaScript code on these pages are run by the browser. The language is best known for its use in building web sites, but is also used to access the encapsulated objects (embedded objects) in other applications. The most common use of JavaScript is in scripting of the web pages. Web developers can embed in HTML pages the scripts for various activities such as checking of user input data or creating animated menus and other effects.

Web pages are retained in memory by the browser as a tree of objects, which then available of JavaScript scripts in order to read and manipulate. Although all technologies presented were very important in the application development, project would not have been completed without the use of JavaScript technology. Used to capture clicks at the different coordinates in the page, JavaScript was the only programming language that allowed this operation. As a language "client-side", JavaScript seeks user throughout the site and give it a navigation and interaction with the elements as pleasant as possible.

d. AJAX

AJAX (Asynchronous JavaScript and XML) is a collection of technologies used in the developing of websites. The intention is to add greater interactivity in web pages, and decrease their loading time. Insofar as the Internet is growing, the number of web pages is doubles a period of several months and grows e-commerce services, ecommerce or social sites, the AJAX technology is a basic component for any site.

AJAX involves a data transfer of the reduced sizes between the browser and server, so that no longer be need to reload the whole web page each time the user makes a change to it. AJAX is a collection of technologies, each used in a stand-alone, but which combined will produce very powerful tools:

- ✓ presentation by default pages through HTML or the new of XHTML and CSS (Cascading Style-Sheets) for the layout of the page contents;
- ✓ dynamic display and interaction using the DOM (Document Object Model), accessed through a scripting language in order to dynamically change and ensure interaction with the information presented;
- ✓ the bidirectional exchange of data and manipulation via XML between client and server, although any format can be used, including HTML, XSLT or plain text;
- ✓ the asynchronous data sharing is achieved by XMLHttpRequest object, although in some AJAX implementations can use an iFrame to exchange data, or the tags <script> dynamically added.
- ✓ JavaScript used to link all these elements into one powerful package.

The use together with JavaScript Ajax made our work much easier. With this technology we were able to insert coordinates of clicks in the database, without having to do "refresh" on the page. To develop an optimal and reliable application we designed an algorithm which saves the clicks without that user to be part of harder site navigation. To avoid sending requests by the server at the every click we developed a matrix restraint of the mouse movement and when the matrix reaches a certain size send all the coordinates to the database.

6. The development of e-commerce with using heat map

For the development of the ECommerce can be taken into account using an instrument called heat map, with help which online service provider he can tell easily which of the products or services interest for the users are. This can decide which products will be featured in the foreground.

A data visualization tool that shows activity of a web page through colors, red and yellow indicating a high level of activity, and blue and purple indicating the lowest level of activity.

By using heat map type tools, trader, which operates through an ecommerce website may be realize which is areas of the site which attract the most attention, the most viewed products etc. Thus, we can decide which products will be presented at the forefront of the site and the place where to be located for the attention of the user / buyer. In this way you can also choose areas in that are located promotions, the objective being to attract more buyers.

After a long period of research in web marketing, were found the models not only in the way people surf the web, but and on websites and web pages. All these data were analyzed of the marketing companies and used to create the Heat map.

The Heat map has the originated in the marketing studies, where researchers used so-called eyeball tracking equipment, to identify and cartography where the people look exactly when it is presented visual information. These maps can provide information not only for marketing but also for web developers.

Advantages of using heat maps are that it allows quick and intuitive perception of some relationships in a way that is more accessible (and user friendly) than if they display data in numerical form in a tabular format.

A Heat map is a graphical representation of points in an Internet page. Each data point is found at the intersection of the two axes X and Y. The density of these points is represented through a heat map through colors. With the help of the colors, wish visualization the usage (accessing) the links or the products from an ecommerce site. Heat map shows the correlations between different assets 50 and each of the two FX pairs. In total, there are hundreds of cells displayed on between each heat maps shown.

Cells are classified according to the correlation observed between each pair of correlation tools the most negative, which is the top left cell to the largest positive correlation, which appears at the bottom right cell.

Thus, a Heat maps shows where people look, instinctively, when we open a website or webpage. Map shows regions colored in blue, green, yellow, orange and red - the darker color representing the most intense point (Table 1, Figure 1).

Table 1

Color	Density of points	Color	Density of points
Red	80 to 100%	Green	50 - 60%
Brown	70 - 80%	Pale green	40 - 50%
Yellow	60 - 70%	Blue	less than 40%

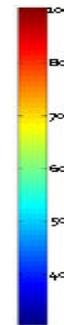


Figure 1. The range of colors used in Heat map

Specific parts of a web page tend to be more accessible than others and can be discover by Heat map. When we have thousands of visitors, but the pay is not so high, it is possible that ads are placed incorrectly. For this purpose, comes the Heat map tool, proposed. Colored areas show how many users viewing, or gives click on specific sections of the website.

The Heat map differs from one site to another. These vary depending on the content of site. However, the Heat map have an element in common, most visitors focus on the top left of the page. Thus was created the notion of "Golden Triangle".

A Google page was presented of a test sample and technicians were pursued the movement the mouse and determined the points of interest (visual) for each test participant. Data were processed and the results from this experiment shown below (one Heat map - Figure 2).

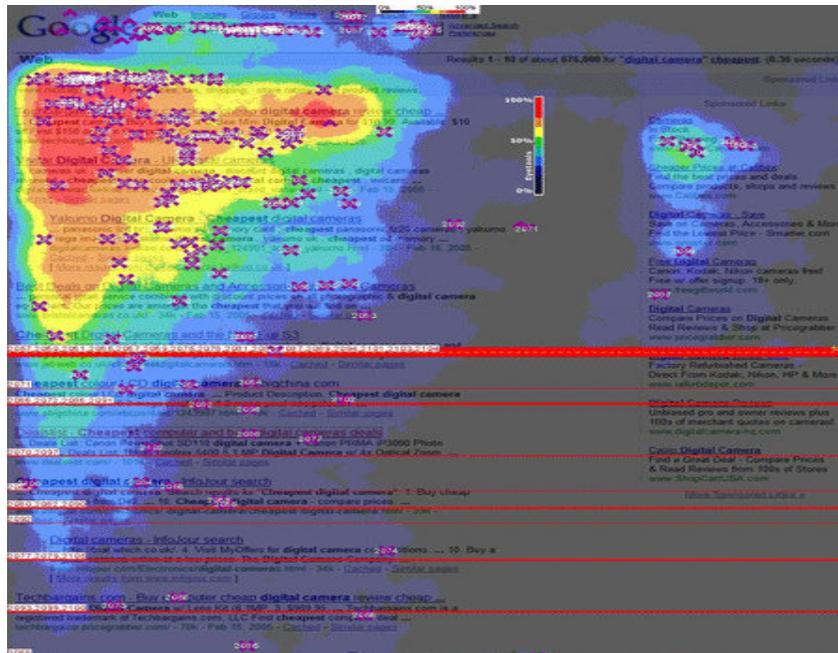


Figure 2. The result of the experiment

It is clear that "The Golden Triangle" is the yellow triangle in the upper left corner. After the data were analyzed, were made public the following statistics:

- ✓ Position 1 (red) - 100% visibility
- ✓ Position 2 (red) - 100% visibility
- ✓ Position 3 (red-orange) - 100% visibility
- ✓ Position 4 (orange) - 85% visibility
- ✓ Position 5 (yellow-green) - 60% visibility
- ✓ Position 6 (blue) - 50% visibility

Most the part of activity on a web page's is done in primary areas of the Heat map. Each web page works differently, so there is no universally valid strategy, but generally all boils down to:

- ✓ Placing ads at the top of the site tend to have better results to the detriment of the part of bottom ;
- ✓ Ads placed near rich content or the page navigation bar generally give good results because visitors focus on those portions of the page;
- ✓ Advertisements placed immediately below an article tend to have good results because users search other materials relating to the article read, so ads "target" provides answers in this regard.

One of the biggest advantages of a Heat map is that it provides insight into visitor behavior. Can see where most people make clicking or towards which the region of the site gravitates.

With a Heat map can see which part of the link is accessed more often. Analyzing this behavior as one universally valid, navigation can be more efficient on the web page and on strategy of "linking".

It also can identify areas of poor performance of the website. For example, if many visitors click on the images without hyperlinks probably expect for something to happen pressing. Action "waiting for something to happen" is much easy to see with the Heat map, the new tool proposed by us. Discovering these portions can apply a hyperlink depending on where visitors think we should go.

7. Conclusions

With the Heat map tool we are trying to find portions of the web pages with a high density of clicks, the favorable areas of placement of advertisements in order to maximize profit. Another aspect that can be taken into account by using Heat map instrument refers to analysis of the areas of menu most frequented. This helps us in placing the most optimal of the menu on the surface of the page, from the viewpoint of browsing on the site.

Project undertaken by us is a software program that uses a series of algorithms to represent in a graphical manner, areas from a page web where people look and do the click. Use of this program gives us information that helps us in:

- ✓ determine the correct position of links and of the advertisements;
- ✓ quickly identify problem areas before they get out of control;
- ✓ positioning on the resources and the attention where they bring maximum profit;
- ✓ attract visitors to make a purchase or fill out a form;
- ✓ anticipate interaction of the visitors with web page in the future;
- ✓ discovering the user trends, as regards the web pages, which can lead to other opportunities to win?

As a future perspective, we take into account, the algorithm development of taking over the mouse events such as:

- ✓ movement mouse on the page;
- ✓ selecting the text on the page.

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