THE GAMIFICATION IN WEB MANAGEMENT SYSTEMS: A TOOL TO ENGAGE AND KEEP CLIENTS AND SUPPLIERS LOYAL

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Abstract: The evolution of information and communication technologies (ICTs) promoted the increased volume of information produced and consumed by people and organizations, leading to the need for developing information systems to stand organizing all this information. Nowadays, the organizations have become dependent on these systems because, based on them, they are guided to make decisions quickly to become or remain competitive in the global market. The fast growth of the Internet has led many organizations to migrate their systems to the Web environment. However, on the Internet, the systems need certain care, that in desktops systems, were not so necessary. In addition, the greatest challenge is to create and / or maintain a system that can motivate, retain and engage customers, because in a web environment the user can "change" the company in a simple and easy way, especially, for the competition that exists in this environment . Thus, this paper discusses how the gamification can help solve or minimize these problems, from the use of mechanics, ideas and games aesthetic in web systems (eg e-commerce).

Keywords: gamification. information systems. web system. information and communication technologies.

1 Introduction

The evolution of Information and Communication Technologies (ICTs), including the internet, provided an increase in the volume of information on products and services, and promote greater connection between the individuals in a world level. (Friedman, 2006).

For Castells (2006, p. 255) [...] "internet is a way for everything, which interacts with the whole of society." It is a way to communicate and interact, it is a fundamental tool for the organization of contemporary society. The author further says that "the Internet is - and will be even more - the means of communication and essential relationship that is based on a new form of society that we already live."

The statistics on the internet confirms its importance for current organizations, which should be alerted to this new way of doing business. Statistics show these numbers, according to a survey conducted in 2012 by Pingdom (Tecmundo, 2013). A number of 2.4 billion active users and 634 million websites were indicated. In relation to the use of email, 2.2 billion people were sending and receiving, daily, 144 billion emails. In that year, 51 million web pages were

created, and also the access to social networks has grown exponentially (for example, Facebook, in 2012, 1 billion of people were monthly active) (Pingdom, 2012).

All of this growth is possible by the development of ICTs. According Zem-Lopes (2009),

> The use of Information and Communication Technologies (ICTs) promote changes in the way by which many products and services are designed, produced and delivered to the local, national and international market (ZEM-LOPES, 2009, p.18).

In this context, the organizations must also evolve their information systems so that customers and suppliers can acquire and or deliver their products / services in a faster, simpler and more economical way (Zem-Lopes, 2009).

According to Rezende and Abreu (2007), currently, ICTs cover all the activities developed in society, by computing resources, as well as the social diffusion of information, in a large scale of transmission from Information Systems (IS).

Currently, the large majority of organizations use Integrated Management Systems (ERP - Enterprise Resources Planning). According to Chaffey & Wood (2004), the business management systems support the business processes, such as, marketing, sales, logistics and manufacturing, and intend to integrate information through different processes, increasing their efficiency. Figure 1 shows the environment of an IS.

Figure 1 – Environment of Information Systems

Source: Adaptation of (Laudon and Laudon, 2006, p. 8).

The use of IS based on Web can bring competitive advantages to these organizations because, as already discussed, the evolution of the internet confirms the need to migrate such systems to the Web platform.

However, Web systems require supervision, previously unnecessary in desktop systems (installed in computers, locally within organizations). In these systems, the number of users / clients is unpredictable, more supervision of accessibility is needed, it needs to be available 24 hours a day. Also, create and / or maintain a system that can motivate, retain and engage customers, this is a challenge, since on the Web, the "exchange" of company is simpler by them, mainly due to large supply and how ease is to find competitors who offer the same products / services.

To try to minimize these and other issues in relation to their users (customers, suppliers), the use of Gamification has been discussed, which can be defined as the use of mechanics, ideas and aesthetics of games in different contexts of games, according to Kapp (2012). This can be a viable solution for organizations that maintain business (systems e-commerce, and so on) on the Web.

In this sense, this paper aims to present the concepts of Gamification and discuss, from some application examples, how it can be useful as a tool for motivation and engagement of clients in Web Systems.

This article is divided as follows: in section 2, concepts of ICT and IS are presented; in section 3, Gamification is discussed, in section 4, examples of gamified Web systems are shown; section 5 provides a brief discussion on the advantages, disadvantages and problems when gamifying a system, and finally, in section 6, final considerations are made.

2 Methodology

A scientific research has, as its main objective, the solution of problems not yet solved or thought of, therefore, methods, techniques and procedures, that can help achieve this goal, should be employed (Gil, 2002).

The scientific methodology has, as its purpose, to conduct the search according to the specifics required to ensure the reliability of the processes that are involved in finding the solution of the researched problem. In this sense, a scientific research needs to use methods and mechanisms to ensure the accuracy of this information, and promote the connection between this theory and practice.

Thus, for this article, a literature review on the topic in question was carried out on books, current newspapers and websites of technology and education, in order to support the concepts discussed. Also, main sites/systems, that use the technologies in question, were surveyed and selected to allow discussion based on real systems.

3 Information and Communication Technologies (ICTs) and Information Systems (IS)

The Information Technology and Communication (ICT) can be defined as the set of all activities and solutions provided by the computational resources that are designed to enable the storage, the access, the management and the use of information (Laudon and Laudon, 2007).

In view of Rezende and Abreu (2007), we can understand that ICT refers to all technological devices: hardware, software and telecommunications systems available to improve the management of information. According to the authors, almost all developed activities by society make use of ICTs, as well as the social diffusion of information, are made from Information Systems in a large-scale transmission (IS).

Laudon and Laudon (2006) claim that an SI can be technically defined as a set of interrelated components that collect (or retrieve), process, storage and distribute information that are destined to support decision making, coordination and control of an organization.

When it comes to SI, the Integrated Management Systems (ERP - Enterprise Resource Planning) are examples of very well complete tools, they are consisted of several modules that cover all areas of a company and work with the use of a common database, as shown in Figure 2.

Figure 2 - Structure of a typical operating ERP.
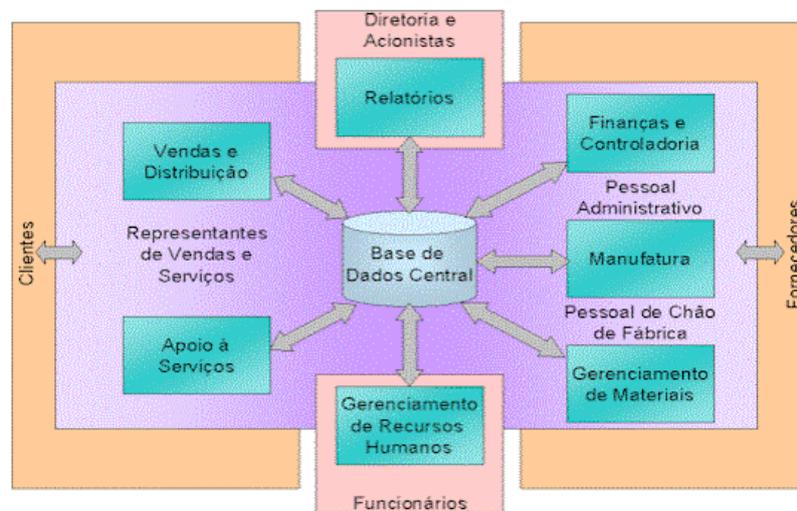
Source: Davenport (1998, p. 316)

The dissemination of ERPs in industry occurred with the highest expression in the 90s. The SAP Company, followed by Baan Company, both European, implanted the first generation of ERP systems, which were adopted in industry organizations such as Boeing, Mercedes-Benz, BMW and Ford. (ROSINI and PALMISANO, 2011, p.167)

However, the evolution of ICTs has led to the need to migrate such systems to the Internet environment, the Web. It's known that the Web is large, not only large in the sense of the amount of its pages, users, sites or quantity of information that flows through it, but it in a great social and cultural sense, since it has the ability to connect people from around the world bringing culture, knowledge and entertainment. (PRESSMAN, LOWE, 2009)

The authors affirm that, currently, the Web has become an indispensable platform for business, trade, communication, education and it promotes changes, such as, in the way products are bought (e-commerce), how people relate to each other (online dating), and obtain information (online portals), how they interact and express their opinions (blogs and social networks) and how to have fun (online games) and study (learning environments online).

Also, according to the authors, the focus of Web applications (WebApp) has changed, compared to when they were created, and improvements were made in infrastructure, making applications more functional. Recently, from new technologies (eg Web 2.0, Ajax, new web

services), it was possible to improve, also, the support for more efficient and interactive applications such as blogs, wikis and RSS-driven applications.

According to Pressman (2010, p. 378)

> As WebApps become increasingly more integrated into business strategies for small and large businesses (such as e-commerce), the need to build reliable, usable and adaptable systems grows in importance. It is, therefore, necessary that a disciplined approach to the development of WebApps.

However, the challenge, as technologies develop, is to evolve the applications and systems, thus, users can browse and access such applications in an ever more simple and efficient way, in addition to promoting motivation and engagement. The techniques are being researched in this sense, to enable greater interaction between users and applications.

4 Gamification

A recent technique, which has been studied to improve customer engagement systems and applications on the Web is gamification, which refers to the use of mechanics, ideas, aesthetic and games (context, quick feedback, competition, stages, achievements, points and so on) to bring people together, to motivate actions, to promote learning and to solve problems. (KAPP, 2012, p. 10)

The dissemination of the concept of gamification began in 2010, but only in 2011 that the interest in the area has been intensified. The goal is to make routine tasks that are usually dull into something pleasurable and funny. (DUGGAN; Shoup, 2013).

The idea of gamification is to harness the energy that the players have, spending hours focused on solving problems in their games, into something more useful, like making an investment in something educational, or even induce this player to buy products. For this, several characteristics of board games as distribution points and awards were incorporated. (TECEDUCAÇÃO, 2013)

Some areas of knowledge already embraced the gamification, such as, retailers companies and e-commerce, politics, health care, nonprofits enterprises, human resources and education. (DUGGAN; Shoup, 2013)

The biggest problem is the mission of making something funny. Bogost (2011) considers the gamification "a cheating marketing, that feeds false hopes to sustain a new market." The author goes on to say: "When one considers gamifying everything, for all purposes, the result is to find obvious mechanics, with little challenge and, consequently, little engagement.". The author refers to games built at any cost, with closed formulas compensation, rankings, medals and points. (TECEDUCAÇÃO, 2013)

5 Applications

In this section, examples of companies using gamification in their systems which have seen improvements in customer / company relationship will be presented, from employee training to the customer loyalty. A summary of these applications is shown in the Table 1.

Table 1 - Applications of gamification in business

Companies	Applications
Telhanorte	Sales Simulator. (http://www.aennova.com.br/blog/)
Sírio-Libanês Hospital	Feedback mechanism. (http://www.aennova.com.br/blog/)
Bradesco Bank	**Game "Guess the movie".** (http://gerenciamentodeti.com.br /gamification-the-future-in the-aplicacoes/)
Allianz	**Game Live Frog.** (http://gerenciamentodeti.com.br/gamification-o the-future-in the-aplicacoes /)
The Boticário	Loyalty card. (http://www.aennova.com.br/blog/)

Source: (AENNOVA, 2013)

In these applications, one can observe examples of how gamification can be used by business and people on daily basis, to promote engagement and motivation. At Telhanorte company, a simulator sales was developed, and in which, the seller needs to achieve sales targets, to maintain the quality in service and it is assessed in each stage of the sales process, with all clients served by the seller. The sales manager oversees the activities of the seller.

The Allianz Insurance company has already created the game "Live Frog" inspired by the Atari game Frogger, from the images of cameras that transmit live, 24 hours / day, the traffic of Marginal Pinheiros in Sao Paulo, which are used as background. The goal is to make the player go through a bunch of virtual frogs on the road without being run over, so that, it stimulates the feeling of safety / security.

In the application of Sírio-Lebanês Hospital, it is possible to train staff from the safety rules of the hospital. The feedback on every action is immediately applied, what allows to see the consequences of their decisions. This visual feedback is an important element of Gamification.

The Bradesco Bank has already developed the game "Guess the Movie", which aims to publicize the discount on movie tickets to their customers. Using resources from YouTube, the people have to guess the name of the movie through mime and gestures made by actor Marcelo Adnet. On each phase completed, the player accumulates scores that can be shared with friends on social networks.

Finally, Boticário has developed a loyalty card. On each product purchased, the customer presents the card to be credited to a "bonus" that varies with the value of each product. To accumulate a stipulated amount of points, the client can perform the exchange of these points for discounts on products on the website stating your CPF.

Besides these examples, one can cite an education, where Dominguez (2012) explained about the experience of using a plug-in that adds gamification resources within a

stable platform for e-learning that is used by students. The results indicate that students who have reached the end of this experience, were able to improve the performance in practical tests, in addition to increasing their results in overall score.

6 Results and Discussion

Today, people are experiencing a reality in technology that allows them to manipulate and be able to access almost all types of information. The creative use of the result of this manipulation can take a person from obscurity to fame, or a company as a "backyard" company to a multinational organization. Under the constant organizational transitions, markets transformed the world of business in a dynamic and competitive environment, where the customer can be attracted to techniques of marketing.

One way to attract virtual customers is the Gamification, which is developing every day and is being applied in several areas. This segment aims the loyalty and engagement of customers in an interactive and playfully way. It can be noticed that, with this, people started to make their routine tasks with more enjoyment and involvement.

It is noticed that, before gamification was incorporated by web systems, people bought on the internet by the convinience to choose the desired product without leaving home. Currently, this has changed, so, people choose to purchase by internet for the advantages found in virtual stores that make the use of gamification, where customers buy and accumulate bonus and exchange for discounts or products. This provides the customers satisfaction, leading to sales increase.

Companies also have adopted this technique for training their employees. Through games, employees go through a simulation of what can happen in the company, and at each level completed, the employee accumulate a bonus that can be exchanged for benefits in the company.

The field of education, also, is applying this technique as an alternative way to teach and motivate students to learn. Studies have shown that students who developed tests through gamification had a better performance on practice tests and a higher score.

However, it is noted that the Gamification, although facilitates and encourages many tasks in many areas, providing a significant improvement in the performance and resolution of problems, besides engaging and retaining users, it lacks of researches to achieve its efficacy.

7 Conclusion

It was observed from the survey that the evolution of ICTs has provided changes in the way that many products and services are designed, produced and delivered to the local, national and international market. As a consequence, the development of information systems increasing robustly and efficiently, is necessary for organizations to become and/or remain competitive in the global market. The fast growth of the Internet has promoted the need,

therefore, to migrate SIs to the Web environment, since the Web is part of life of most people and organizations around the current world.

It was discussed in the work, the need that such organizations have to motivate and engage their users (customers and suppliers). In this context, there have been some examples of applications that use gamification as a way to achieve that motivation and engagement, making these applications interesting and challenging, encouraging and adding value to them.

However, being a relatively new technique, it is necessary to study a case, how gamification can be positive for the system / application of the organization, since, as discussed in this work, not everything can / should be gamified. It's necessary to be careful to preserve the importance of tasks.

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