

Using Social Networking Software to Promote Digital Libraries¹

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Abstract: The impact of the social networks nowadays is impossible to ignore. Sales companies turn towards them as they acknowledge the opportunities provided by the socio-emotional value of the information that spreads quickly within the communities of these networks. Facebook, at more than 600 million users, is the largest of these, to date. We made a study on this very network, in order to observe the way an application can spread among its users for a week, without using any paid publicity. The use of Facebook’s framework for the promotion of digital libraries can constitute an opportunity and a challenge at the same time. In this paper, we propose an architecture to enable the promotion of digital libraries within the social network environment. The results prove that such an approach can have a significant impact in the online community.

Keywords: Digital libraries, Social network, Facebook, Social learning, Consumer, Software Architecture

1. What is a Social Network?

In [3] we have the following definition “... a social network is a social structure made up of individuals (or organizations) called “nodes”, which are tied (connected) by one or more specific types of interdependency, such as friendship, kinship, common interest, financial exchange, dislike, sexual relationships, or relationships of beliefs, knowledge or prestige”.

Another definition for Social Network can be found in [2]. Social networking is the grouping of individuals into specific groups, like small rural communities or a neighbourhood subdivision. Although social networking was established first between persons, especially at workplace, in universities or high schools, it is becoming more popular since internet and online communication can be used by everyone. The main cause for this situation is the fact that WEB is used by millions of individual people seeking other people to share messages, pictures, music, to find life partners or friends, to find business partners, to live some phantasies which in real life aren’t possible. The topics covered are extremely varied.

¹ A previous, shorter version of this paper was presented in “The Second INTERNATIONAL CONFERENCE in ROMANIA on Information Science and Information Literacy”, Sibiu, 2011, with the title “Digital Libraries in the Social Networks Era”.

The strength of social networks has been demonstrated recently in organizing the street demonstrations on Wall Street in Manhattan.

In [4] there is an interesting study on social networks in US. The US patent office has reported that the social networking is becoming more and more an important subject for patent registration. The Figure 1 shows the rate at which these applications have been filled and the rate at which patents have issued from these applications over the past few years.

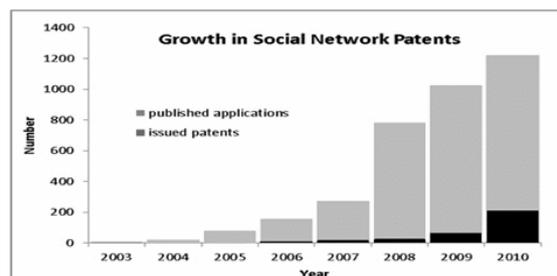


Figure 1. Growth in Social Network Patents ([4])

The total amount of published applications in Social Network per year is shown in grey and the total amount of issued patents is shown in black. Social networking patents include any application or issued patent that has the phrase “social network” in it. The growth is obvious in the latest years.

The Facebook was started as a website and a social network in February 2004. It was founded by Mark Zuckerberg and his computer

science college roommates and fellows Eduardo Saverin, Dustin Moskovitz and Chris Hughes. The name of the service stems from the colloquial name of the book given to students at the start of the academic year in the United State universities, to help them get to knew each other better. The social network allows anyone who declares himself/herself to be at least 13 years old to become a registered user of the website.

According to [12] in January 2011, Facebook had more than 600 million active users. In this application the user can create hers/his personal profile, include friends and exchange messages with them, post pictures and get notified if changes occur in friends profiles. Additionally, users can access common interest user groups, which are organized by schools, colleges or have other characteristics. A Compete.com 2009 study ranked *Facebook* as the most used social networking service by monthly active users, *MySpace* being ranked second. Also, *Quantcast* estimated that Facebook had 135.1 million monthly unique U.S. visitors in October 2010 [14] and according to *Social Media Today*, in April 2010 an estimated 41.6% of the U.S. population already had a Facebook account.

2. The impact of social networks over the customers

The impact of social networks on customers and customer behaviour is a fact that can no longer be ignored. Because of the huge amount of information which is exchanged over these networks in an almost personal manner influences the customer behaviour. Figure 2 presents 12 statistics on consumer reviews, regarding the growth and the behavior changes of the customers using social networks ([1], [13], [15], [16], [17], [18]). Some of the most important statistics are those related with the consumer confidence in the information found on online reviews. Furthermore, 7 out of 10 people who read reviews share them with friends, family and colleagues thus amplifying their impact and 90% of online consumers trust their friends' recommendations.

So, if the impact of internet advertising is so important on the customers and the use of social networks among customers is growing constantly, why not use them together to promote digital libraries for example?

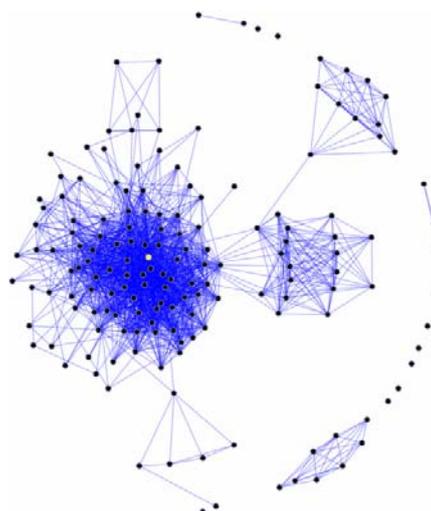


Figure 2. An example of a social network diagram

3. Digital Libraries

According to the DELOS Digital Library Reference Model [5] a digital library is “an organization, which might be virtual, that comprehensively collects, manages and preserves for the long term rich digital content, and offers to its user communities specialized functionality on that content, of measurable quality and according to codified policies”.

The ease and speed of accessing books, images and archives trough digital libraries makes this environment important and it is known by the general public and business environment [11]. The general problems of a traditional library begin with the problem of the storage place for the books, renewing old ones and so on. Digital libraries didn't have this type of problems. The costs regarding the personnel for running a traditional library are must higher than those for a digital library. Both library types need some mechanisms for cataloguing information and allow users to find it in a reasonable time. The digital library can improve this mechanism by using data mining technologies. Also audio books, new communication forms and Web-resources can now find their place in a library.

An important advantage of the digital library is the accessibility for the users but for some information they still need the ability to read. Some of the advantages of a digital library are presented in [6] as follows:

- No physical boundary. The user of a digital library didn't need to go to the library physically; people from all over the world can gain access to the same information, as

long as an Internet connection is available and the digital library is online.

- Round the clock availability. People can gain access 24 hours / 7 days to the digital library.
- Multiple accesses. The same resources can be used simultaneously by a number of institutions and patrons. This may not be the case for copyrighted material: a library may have a license for "lending out" only one copy at a time; this is achieved with a system of digital rights management where a resource can become inaccessible after expiration of the lending period or after the lender chooses to make it inaccessible (equivalent to returning the resource).
- Information retrieval. The user is able to use any search term (words, phrases, titles, names, subjects) to search the entire collection. Digital libraries can provide very user-friendly interfaces, giving clickable access to its resources.
- Preservation and conservation. Digitization is not a long-term preservation solution for physical collections, but does succeed in providing access copies for materials that would otherwise fall to degradation from repeated use.
- Space. Whereas traditional libraries are limited by storage space, digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain them and media storage technologies are more affordable than ever before.
- Added value. Certain characteristics of objects, primarily the quality of images, may be improved. Digitization can enhance legibility and remove visible flaws such as stains and discoloration.
- Easily accessible. ([6])

Empirical studies have been carried out on the quality of the information in Digital Libraries [19] using a number of student users. The same thing is possible at a much larger scale using Social Networks as a questionnaire platform. Figure [20] shows some statistical methods of information clustering that can be used in user group creation based on their opinions

4. Using Social Networks to Promote Digital Content or eLearning Tools

There are several companies which develop software for social eLearning. The aim is to permit collaborative learning and knowledge sharing, enabling the creation and use of courses and user generated content. Part of the functionality is similar to the one found on social networking websites. A list of some of these companies and their products can be found in [7].

By building communities around and within themselves, digital libraries will improve their support for social interactions. This will allow a better integration with social groups and communities [8].

Digital libraries were and are not designed with social contexts in mind. Therefore, with some exceptions, there is no social interaction support in the actual digital libraries [9], [10]. They should improve this support to "integrate better with, cross the boundaries of, and build the communities that use them" [11].

Our idea is to build a Facebook application to promote digital library content or services. This will provide a much larger visibility and promotion for the digital library. The architecture we propose is presented in Figure 3.

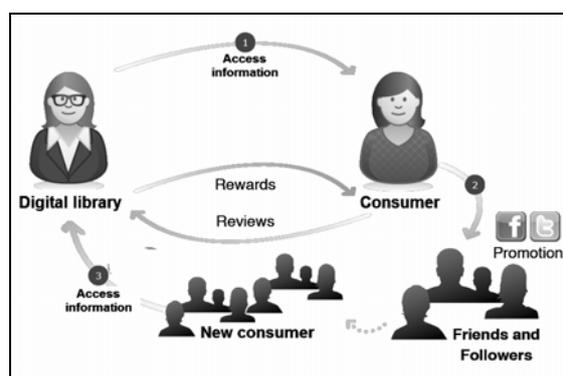


Figure 3. The architecture of the proposed solution

There are three major steps:

1. The user of the digital library (noted as consumer in figure 3) accesses the needed information. This can be, for instance, a book, an article or some multimedia content.
2. The user shares with his/her social network friends that information and where it can be accessed.

- Some of the friends, the ones with similar interests, have now the opportunity to access the same information as the original user.

This is a win-win situation. The library will be more and more visible to the potential users and on the other side, the users will have the chance to find out about the digital content accessed by their friends.

5. The Facebook App

In order to maximise the impact upon the users and in order to limit the study to a short timeframe, we chose an Easter thematic. The app was launched on the 21st of April 2011 in Sibiu, unaided by paid publicity. We gathered data until the 27th of the same month.

In short, the application enables the user to send an image alongside with a short message to a list of friends.

The application uses the following technologies:

- Php;
- Html + CSS;
- Facebook API;
- MySQL.

To increase the relevance and specificity of the study, the app has a Romanian language user interface, without multinational support.

6. Results

The registered results resemble the statistics of other Internet apps, while also proving the high usage of social networks among Romanian population.

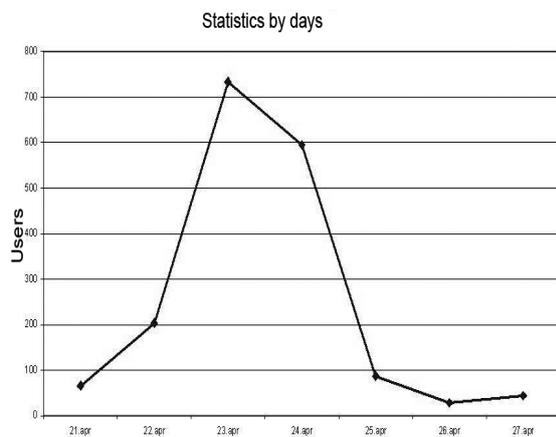


Figure 4. The usage of the app - 21st and 27th April

Figure 4 shows the evolution of the user base during our study. An increase in the use of the app is clearly seen on the 22nd and 23rd of April, followed by a dramatic drop towards the end of the study. This usage pattern is shared by most online applications, not only Facebook. The user base is on a significant increase at first, but drops steadily after some time. In this case the shape was obtained in a short period of time because the thematic of the Easter is only relevant to a few days a year.

In Figure 5 we can see the spread of the application on the globe. It was used in countries from all over the world, even though it is only provided in the Romanian language, and also despite its short lifespan. Most users of the app came from Romania, followed by Italy and Spain. Even though it was primarily used in Europe, it also reached certain parts of America, Africa, Asia and Australia. The fact that it managed to get to such distant regions in such a short time span confirms the relatively long time people spend on social networks.

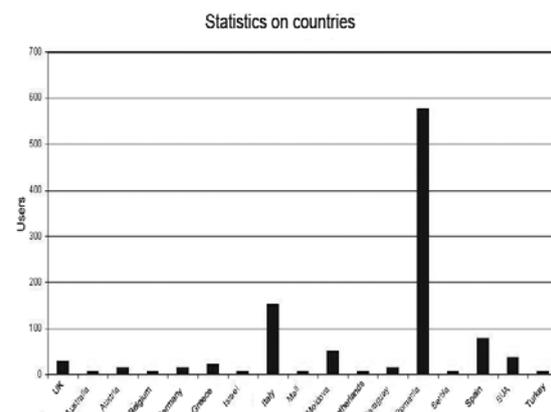


Figure 5. Statistics on using the app worldwide

In Figure 6 it is presented the extent to which the app was used within the borders of Romania and the Republic of Moldova. The greatest user base was in Sibiu, where the app

was first launched, but it also reached most of the other regions fairly uniformly.

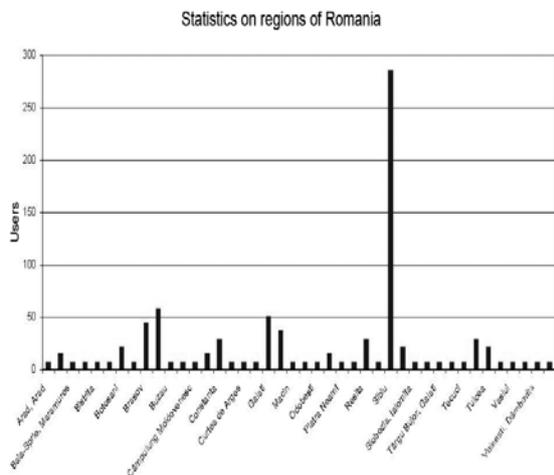
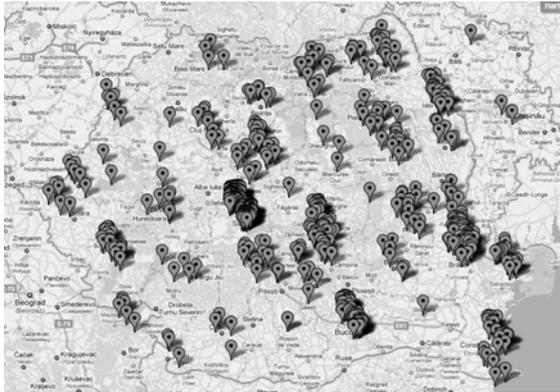


Figure 6. Statistics on using the app in different regions in Romania

Figure 7 shows statistics on gender, grouped on each distinct day of the monitoring period of the app use. We can see that most of the users were females, as expected for this kind of application.

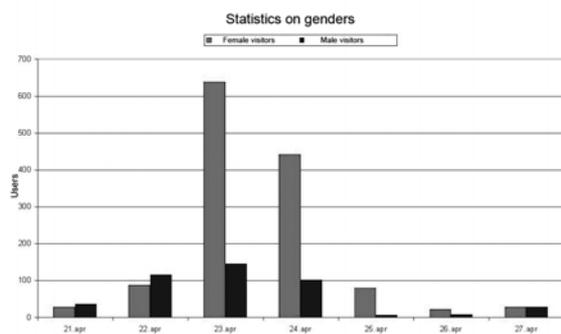


Figure 7. Statistics on genders

In Figure 8 it is represented the usage of the app by users from different age groups. The age groups were ranged from 13 to 56. It can be observed some peak values for users with the age between 20 and 30 years.

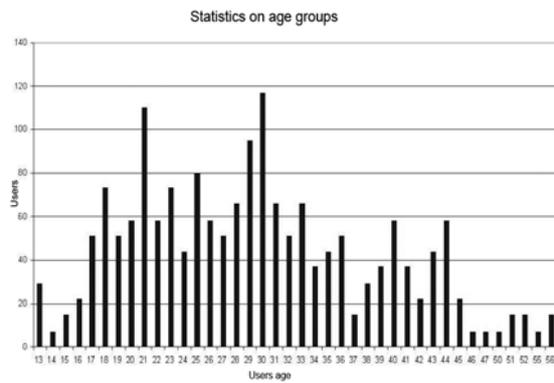


Figure 8. Statistic on age groups

7. Concluding Remarks

Commercial companies use social networks for advertising and for gaining new customers. The use of social networks like Facebook for promoting digital libraries could represent a logical step for a number of businesses.

Our study has brought insights into the potential impact of Facebook onto the Romanian users. The extensive spread of the application in a short time frame is a proof that this potential exists and that digital libraries should try to capitalize on it.

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