

Chapter 2

Identifying Users and Their Tasks

2.1 Defining the Scope and Objectives

2.1.1 *Scope and Objectives*

The first step towards the introduction of a new social network is the definition of its scope and the identification of the added value of the proposed network. What is the gap in the market that the proposed social network will cover? What social and communication needs does this network address? Why will people use this social network instead an existing one? What are the differentiation attributes that will be valued by the potential users? What is the main social object that the network will focus on? What will be the activities derived from the identified social object? Answering these questions at a primary stage will help the designer to focus the design on the appropriate mechanisms and components in the network facilitating future users and social interaction.

It may seem at a first glance that some of the aforementioned questions overlap which is the case. Examining the same point from different aspects can be proven a better approach at the end. Answering the first question, for example, requires knowledge of the contemporary environment, which will help answering a couple of other questions such as why people will use this network or what are the differentiation attributes of the proposed one. The identification of a social object according to Porter [134] is of critical importance since social objects will mediate social activities and thus provide a scope in the proposed network. According to the same author there is a range of successful social networks that are built around social objects such as Flickr (photos), YouTube (videos), Del.icio.us (bookmarks), Dogster (dogs), Netflix (movies) and so on. On the other hand, there are examples of very successful networks that were not based on social objects such as LinkedIn, Facebook and MySpace to name just a few. As it is very well understood from the example, the success of a social network does not necessarily depend on how well it is defined but as we are going to see later on how well it is designed and developed.

In this initial step it is very important to start apart from an idea with a scope and a set of objectives for the future social network.

Once the generic scope and objectives are set, the next step is to identify the participants in the social network and consequently their objectives as potential users of the system. In the next section the required methods, tools and techniques that can help in this phase will be presented.

2.2 Target User Population

2.2.1 User's Mental Model

In order to design and develop a complex interactive system such as a social network which involves the participation of human beings with different background, culture, education and philosophy, it is very important for the developers to understand the expectations, mental models and behaviors of the users [31]. Whenever a new system is introduced, if the users have already used a similar system they will have expectations about the way they complete specific tasks in the new system, the functionality the system should support and the feedback they should receive from it. In other words, the users have already formed a mental model of how the system should operate. In the case that the system follows a totally new approach that the users are not familiar with, again they expect from the system to support a series of functionality they think appropriate. Thus, even if the users are not familiar with the process a new system supports, they still tend to form a mental model about it. A simple interpretation of the mental model can be how the users understand the system they use [102, 126]. There are cases that the mental model the user develops unconsciously often does not match the actual functionality of the system [102]. This mainly happens because the user may develop the mental model based on partial interpretation of the system. For example, the user may be familiar with the sets of data used from the system or may know only the functionality of the system or have a general knowledge about the domain of the system. In all the cases, this may lead to false expectations from the system. A designer's job is to ensure that the definition and objectives of the system will not allow for misinterpretations.

The target user population for a social network depends primarily upon the purpose of the networking platform and the opportunities for connectivity offered to the users. Thus, if the network focuses on a specific social object, the most interested community that will start using the network will have a great interest on the specific social object. Otherwise in case the network is a general purpose social network, then the most interested community can be any human being connected to the Internet.

Nonetheless, it is important to systematically identify all the users and other stakeholders who may take advantage of the network facilities. This will help to ensure that the needs of all those involved are taken into account and, if required,

the system is tested by them [111]. Moreover, in order to better support network activities, it is necessary to specify apart from the range of intended users, their characteristics, the tasks and the environment of use of the system in sufficient detail [78]. A thorough investigation of the possible stakeholders of the social network, the anticipated tasks and the potential environment of use [113] must be performed by studying the related bibliography of the selected social object or the generic social behavior of human beings and interviewing potential users for such a social network.

2.2.2 Identification of User Groups

Defining the user group of a software environment should take into consideration several issues concerning the process of defining the common characteristics of the group and the interrelationships between the identified groups. Individuals may be members of one or more user groups and may change their actions along with changes in the user group that they are currently representing or belonging to. While all individuals generally possess a number of common characteristics to some extent, the majority of individuals in certain groups may possess them to a significantly greater or lesser extent than the general population. In order to identify their various usability requirements and concerns, each user group needs to be carefully analyzed in terms of both the typical characteristics of individual members of the group and the typical characteristics of the group itself [18].

A direct approach to define the target group of an online social network is to investigate the profile of users of such systems. Several studies have been conducted (e.g., [12, 43, 68, 115, 162, 163]) trying to analyze the profile of social network users mainly by studying a specific network e.g., Facebook, MySpace or comparing user profiles of a number of social networks or studying users from a specific geographical area. If somebody tries to project the findings of the aforementioned studies on the same axis in order to find the common characteristics of social network users, it will become apparent that the results are diverse and sometimes inconsistent. This can be attributed to the different focus of each social network as well as its different origins. Facebook, for example, originated in Harvard at 2004 and later on was opened to the other Ivy League Universities and progressively to the whole world while Google's Orkut was open from the beginning to the whole world but became known and very successful in particularly Brazil and later on in India [12]. Thus, in order to start investigating and collecting the characteristics of social network users someone should start with a top down approach eliciting the generic characteristics of the users and progressively focusing on the user characteristics of the potential target group of the specific social network under design.

Where Will Be the Users Located?

Since online social networks are accessible over the Internet, it is of paramount importance to take into consideration Internet statistics and especially how the Internet users are dispersed in the various geographical areas. According to the world internet statistics¹ the majority of internet users come from Asia followed by users from Europe and North America. The figures can lead the designer of the social network to plan for language support for global coverage or to limit the network to a specific geographic area or language.

How Will Users Access the Network?

The advance of smart phones with mobile Internet access will in a few years lead mobile phone users to outreach the users who access social networks from their personal computers. The numerous social networking applications found in Android Market,² iTunes App Store,³ Windows Phone Apps MarketPlace⁴ indicate that more and more users are going to use their mobile phone or device to have instant access to their favorite social network from literally anywhere. The mobile and wireless network coverage is growing day by day and progressively it will cover the whole globe.

What Will the Age Ranges of the Users Be?

Technology recently has been made accessible to even more age groups than it was some years ago. Various campaigns run under the auspices of governments and various non-governmental organizations aiming at a growing penetration of the Internet and information technology among less privileged groups has led to an increase of internet penetration to the almost 70 % of the population in United States, 60 % of the European and Australian/Oceania population while in other areas it ranges from 10 to 40 % according to the Internet World Statistics for June 2011. Based on these statistics people of various ages get access to the Internet and start participating in social networks.

What Time Are Users Accessing the Network?

Based on the globalization of the Internet it is very difficult to define time in absolute terms since people from around the world may be connected at any time

¹<http://www.internetworldstats.com/stats.htm>

²<https://market.android.com/apps/SOCIAL>

³<http://itunes.apple.com/us/genre/ios-social-networking/id6005?mt=8>

⁴<http://www.microsoft.com/windowsphone/en-us/apps/default.aspx>

per day. What is very interesting though is what time of the day and what day of the week people tend to connect to a social network. Somebody would say anytime they are using a device connected to the Internet. There are few studies surveying this question, but the findings seem to verify this hypothesis. For example, in a study of the behavior of 4.2 million of Facebook users Golder et al. [58] found that connection to the social networks coincide with other activities while using a computer, e.g., while studying for students or working for employees. Another remarkable finding is that social network use seems to decline during the weekend when the users of the social networks seem to be interested in actually socializing.

2.2.3 User Groups

These generic characteristics, patterns and behaviors that have been found from the users of existing social networks can set the base for defining the users of the network under design. A more detailed description of the target user groups should follow taking into consideration the specific goals and objectives of the social network in design. For example, in a study carried out in UK by the Office of Communication in 2008 regarding the behaviors of users in social networking websites it was found that the participants of such sites fall into distinct groups adopting different attitudes. Based on those attitudes they were classified in the following categories [124]:

- *Alpha Socializers* who seek entertainment, new acquaintances and new flirts and use the social networking websites sparingly but enthusiastically;
- *Attention Seekers* who seek for attention and constantly upload new photos and customize their profiles;
- *Followers* who want to be fashionable and up-to-date with their friends;
- *Faithfuls* who always are using social networking websites to find their friends from the past;
- *Functionals* who use the specific websites for a particular purpose e.g., collecting personal data for a specific purpose.

Indicatively if somebody wanted to define broader functional categories of users of a social network, then these could be distinguished in the following categories:

Social Network Users

Members of this group can have diverse background, from very experienced, highly educated and trained to unfamiliar with computers and new technologies, and with little motivation to use complex computerized environment persons.

Nevertheless, when accustomed to an efficient and effective working process, they are committed and willing to take full advantage of the available instruments of work or entertainment depending on how they will see their participation in the social network.

Moreover, the working model of these users may be totally incompatible with each other which means that it is very difficult to standardize a model of actions that will satisfy the whole user population. The key to success in order to satisfy the requirements of social network users is to incorporate into the platform, the appropriate mechanisms that facilitate searching, communication, exchange of opinions as well as socializing tools such as interactive games. It is difficult to persuade these users to learn a completely new platform, unless it is intuitive, easy to use and learn and its objective is clearly perceived at the first use.

Group Creators

The members of this group are very experienced at using the social network platform. Usually, their engagement with the platform is on-going and most of the times they wish to exploit to the maximum degree the capabilities of the system, thus they have a positive attitude towards continuous learning and they are eager to acquire new working experiences. They need minimum training in new technologies since their work requires frequent computer use and so they are familiar with software tools and any kind of computer technology. However, it is very hard to convince them to substitute a successful social network with a different one, unless the new social network platform is clearly more proficient, efficient and effective than the established one. Creating groups and sharing their own ideas, thoughts and objects is very important for them and the easiness of group creation and management can be a determining factor in using the new social network.

Administrators

The user group of administrators consists of people with high computer expertise that usually work as system administrators. They are familiar with the maintenance of complex computer systems and usually have additional time for their personal interests since the installation, support and maintenance of a computer system is not an on-going process. The requirements posed by the administrators of an online social network are encapsulated in the need for the appropriate tools that facilitate their tasks for adding, updating and organizing the available social objects, users, applications and groups, supporting at the same time the installation and continuous operation of the system. The available tools should be designed and implemented to favor productivity, ease of use and intuitiveness.

2.3 Tasks Definition

Capitalizing on previous studies regarding user behavior in online social networks, the main tasks of social network users can be defined. Moreover, the tasks per specific user groups which were identified in the previous step can be defined, distinguishing at the same time some of the most important attributes of a task like the goal, frequency, importance and finally the interdependencies between all the identified tasks [111]. In the following sections, the identified tasks are presented in general and for each user group defined in the previous section. Task lists are based mainly on the bibliography published to identify e.g., the most frequent tasks carried out in a social network ([9, 148] and [161]). An illustration of the basic functionality of a social networking website and the corresponding tasks as identified by Richter and Koch [143] can be seen in Fig. 2.1.

2.3.1 *Social Network Users*

As it was mentioned above this user group has a diverse background and consequently diverse needs and thus it is not straightforward what the tasks they usually do are. Other factors such as the social object or the objectives of the social network are also important to the definition of the list of user tasks. For example, if a social network is built around digital portfolios then the most frequent tasks will be related to the development and maintenance of the portfolio as well as the view of other participants' portfolios, and furthermore commenting or sharing them. Thus, the list presented in Table 2.1 is indicative of the most common tasks found in social networks and do not focus on a specific type of social network as in the example mentioned before with the digital portfolios.

All the tasks correspond to various common activities found in a social network. For example, task 1 is fundamental for any social network since the only way to find the available information in such an online network is by searching with the appropriate keywords. Tasks 2–6 are the most essential tasks in a social network since they involve the way people are networking. Tasks 7–9, 10–15 and 16–25 refer to the most common social objects in social networks namely, messages, videos and photos. Tasks 26–36 refer to another important functionality in social networks that of participating in communities. Tasks 37–42 can be found in some social networks that support extensibility by allowing the users to create, share and use custom applications e.g., games, etc. Finally, tasks 43–49 are related to user management which is important since all social networks require subscription. Most of the aforementioned tasks can be further broken down in more elementary ones, e.g., task 18 creating a photo album may involve the naming of the album, the writing of a short description, and the addition of the date created and so on. Other tasks may be more complicated as for example task 44 browsing user settings may

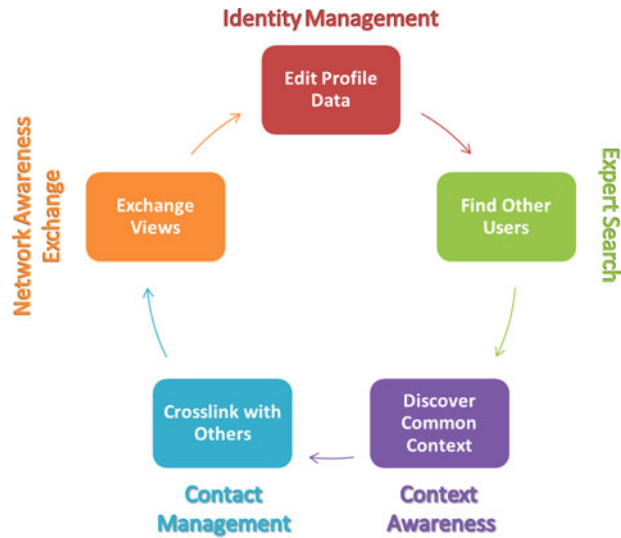


Fig. 2.1 Basic social networking functionality [143]

involve very important activities such as the definition of privacy settings namely what personal data other users can see or how they can interact with the user.

2.3.2 Group Creators

Group creators are users performing the same tasks as the simple social network users, but apart from the above-mentioned tasks, they should be able to create and manage a group or a community in a structured and easy way. Thus, the following list summarizes the additional identified tasks of this user group.

In Table 2.2, some of the tasks are generic such as community management. The specific task depending on the characteristics of the supported community may involve posts moderation, request management, etc. Similarly, tasks 5 and 6 may differ from social network to social network since one may support only digital events, e.g., webcasts while the other one may also support live events e.g., meetings, concerts, etc.

2.3.3 Administrators

As it is stated above, the administrators’ user group should have access to tools that will facilitate the administration and maintenance of the content and system.

Table 2.1 Task list of the social network users' group

No	Task description	Frequent	Importance	Dependency
T_{U_1}	Search functionality	✓	High	
T_{U_2}	Browse list of friends	✓	High	
T_{U_3}	Read a friend profile	✓	High	T_{U_2}
T_{U_4}	Manage friend invitations		High	
T_{U_5}	Add a friend		High	T_{U_2}
T_{U_6}	Remove a friend		Medium	T_{U_5}
T_{U_7}	Browse message list	✓	High	
T_{U_8}	Read message	✓	High	T_{U_7}
T_{U_9}	Write message	✓	High	T_{U_7}
$T_{U_{10}}$	Browse video list	✓	Medium	
$T_{U_{11}}$	Create a video list		Medium	
$T_{U_{12}}$	View video	✓	Medium	$T_{U_{12}}$
$T_{U_{13}}$	Upload a video		Medium	$T_{U_{11}}$
$T_{U_{14}}$	Remove a video		Medium	$T_{U_{13}}$
$T_{U_{15}}$	Comment on video	✓	Medium	$T_{U_{12}}$
$T_{U_{16}}$	Browse list of photo albums	✓	High	
$T_{U_{17}}$	Browse photo album	✓	High	$T_{U_{16}}$
$T_{U_{18}}$	Create a photo album		High	
$T_{U_{19}}$	Remove a photo album		High	$T_{U_{18}}$
$T_{U_{20}}$	Organize a photo album		Low	$T_{U_{18}}$
$T_{U_{21}}$	View photo	✓	High	$T_{U_{17}}$
$T_{U_{22}}$	Comment on photo	✓	High	$T_{U_{21}}$
$T_{U_{23}}$	Create tag for a photo	✓	Low	$T_{U_{21}}$
$T_{U_{24}}$	Upload a photo		High	$T_{U_{18}}$
$T_{U_{25}}$	Remove a photo		High	$T_{U_{24}}$
$T_{U_{26}}$	Browse the list of communities	✓	High	
$T_{U_{27}}$	Browse a community	✓	High	$T_{U_{26}}$
$T_{U_{28}}$	Browse a list of community topics	✓	High	$T_{U_{27}}$
$T_{U_{29}}$	Browse a topic in a community	✓	High	$T_{U_{28}}$
$T_{U_{30}}$	Browse members in communities	✓	Medium	$T_{U_{26}}$
$T_{U_{31}}$	Browse community events	✓	Medium	$T_{U_{26}}$
$T_{U_{32}}$	View a member of a community	✓	Medium	$T_{U_{30}}$
$T_{U_{33}}$	Post a topic in a community		High	$T_{U_{26}}$
$T_{U_{34}}$	Respond to a poll in communities		Low	$T_{U_{26}}$
$T_{U_{35}}$	Share within a community		High	$T_{U_{26}}$
$T_{U_{36}}$	Join or leave communities		High	$T_{U_{27}}$
$T_{U_{37}}$	Browse application list	✓	Medium	$T_{U_{38}}$
$T_{U_{38}}$	View an application	✓	Medium	$T_{U_{37}}$
$T_{U_{39}}$	Add an application	✓	Medium	$T_{U_{38}}$
$T_{U_{40}}$	Use an application	✓	Medium	$T_{U_{39}}$
$T_{U_{41}}$	Share an application		Medium	$T_{U_{39}}$
$T_{U_{42}}$	Remove an application		Medium	$T_{U_{39}}$
$T_{U_{43}}$	Browse user settings		High	
$T_{U_{44}}$	Manage user settings		High	
$T_{U_{45}}$	Login	✓	High	$T_{U_{48}}$
$T_{U_{46}}$	Logout	✓	High	
$T_{U_{47}}$	Password retrieval		High	$T_{U_{45}}$
$T_{U_{48}}$	User account creation		High	
$T_{U_{49}}$	User account deletion		High	$T_{U_{48}}$

Table 2.2 Task list of the community creators’ user group

No	Task description	Frequent	Importance	Dependency
T_{G_1}	Create a community		High	
T_{G_2}	Community management	✓	High	T_{G_1}
T_{G_3}	Remove a community		Low	T_{G_1}
T_{G_4}	Manage community invitations	✓	High	T_{G_1}
T_{G_5}	Create community event	✓	Medium	T_{G_1}
T_{G_6}	Manage community event	✓	Medium	T_{G_5}
T_{G_7}	Create community polls		Low	T_{G_1}
T_{G_8}	Manage community polls		Low	T_{G_7}

Table 2.3 Task list of the administrators’ user group

No	Task description	Frequent	Importance	Dependency
T_{A_1}	Install the system		High	
T_{A_2}	Ensure the proper operation of the system	✓	High	T_{A_1}
T_{A_3}	Diagnose & solve functionality problems	✓	High	T_{A_2}
T_{A_4}	Administer users		Medium	
T_{A_5}	Create back-ups	✓	High	
T_{A_6}	Recover (recent) previous settings/conditions		High	T_{A_5}
T_{A_7}	Moderate applications	✓	Medium	
T_{A_8}	Moderate groups	✓	Medium	
T_{A_9}	Browse system statistics	✓	Low	
$T_{A_{10}}$	Prepare various reports	✓	Low	
$T_{A_{11}}$	Configure usage parameters of the system (default language, user profiles etc.)		Medium	
$T_{A_{12}}$	User support	✓	High	

Therefore, the identified tasks of this user group in the Table 2.3 below reflect this necessity.

Table 2.3 contains some complex tasks that are presented in a high level since they mostly depend on the implementation platform. For example, task 5 creating back-ups may differ in details depending on the database management system or the web server used. In general, the administrative tasks should be revisited once the implementation details have been decided and further analyzed to more analytical tasks in order to better reflect the implementation technologies selected.

Questions and Activities

- 2.1. Select a social networking platform and check whether the existing functionality of the network can support the identified by the UK Office of Communication social network behaviors.

- 2.2. Create your social networking profile by answering the questions in Sect. 2.2.2. Do the same for some of your friends and create a collective model of your user group by finding the common characteristics.
- 2.3. Starting with the broad categories of the user groups defined in this chapter, try to identify smaller groups of users having common characteristics in an existing social network.

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