

## Chapter 8

# Online Social Networks: Status and Trends

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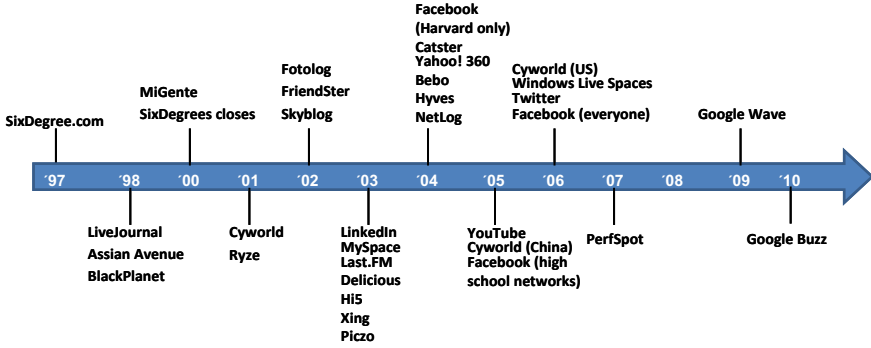
**Abstract.** The rapid proliferation of *Online Social Network (OSN)* sites has made a profound impact on the WWW, which tends to reshape its structure, design, and utility. Industry experts believe that OSNs create a potentially transformational change in consumer behavior and will bring a far-reaching impact on traditional industries of content, media, and communications. This chapter starts out by presenting the current status of OSNs through a taxonomy which delineates the spectrum of attributes that relate to these systems. It also presents an overall reference system architecture that aims at capturing the building blocks of prominent OSNs. Additionally, it provides a state-of-the-art survey of popular OSN systems, examining their architectural designs and business models. Finally, the chapter explores the future trends of OSN systems, presents significant research challenges and discusses their societal and business impact.

## 1 Introduction

With the emergence of Web 2.0, end-users are placed at the heart of various Web technologies, which tend to reshape the future of the WWW in terms of its structure, design, and utility. In this context, *Online Social Networks (OSNs)* are emerging as a new type of “killer application” on the Internet, which can be considered as a natural extension of Web applications that establishes and manages explicit relationships between users. Specifically, an OSN consists of users who communicate with each other in an online setting in diverse ways. Nowadays, we have been witnessing the rapid rise of a large variety of OSN sites, which publish user-generated or aggregated content, allow users to annotate published content with tags, reviews, comments and recommendations, and provide mechanisms that enable the establishment of user communities based on shared interests [2], [11].

The first well-known OSN site, called SixDegrees.com, was launched in 1997; its name originates from the six degrees of separation concept. Six degrees of separation is the theory that anyone can be connected to any other person through a chain of acquaintances that has no more than five intermediaries. Through SixDegrees.com, users could create their profiles, have a list of friends and

contribute information to their community. Although this site attracted million of users, it could not evolve into a sustainable business and closed down in 2000. The founder of SixDegrees.com believes that it was ahead of its time. From 2003, we witnessed a revolution and uptake of OSN sites that established most of nowadays most popular OSN sites. This revolution has brought a dramatic shift on the business, the cultural and the research landscape of the WWW [11]. Figure 1, presents a timeline that shows the evolution of OSN sites during the last decade.



**Fig. 1.** Timeline of Online Social Network Sites

According to Nielsen Online's latest research<sup>1</sup>, social network and blogging sites are nowadays the fourth most popular activity on the Internet; this means that more than two-thirds of the global on-line population visit and participate in social networks and blogs. In fact, social media have pulled ahead of e-mail in the rank of the most popular online activities. Another interesting finding is that social networking and blogging accounts for nearly 10% of all time spent on the Internet. These statistics suggest that OSNs have become a fundamental part of the online experience on the WWW throughout the world.

The key breakthrough brought by OSN sites like Facebook, Myspace, Flickr, LinkedIn, and YouTube, and the main driving force behind their success, is that OSN sites promote the vision of a Human-centric Web, where the network of people and their interests become the primary source of information, which resides entirely on social networking services. Consequently, the main objective of OSN systems is to provide social networking functionality as a core service to a variety of high-level applications and services. In addition, online social networking opens new interesting problems and creates challenges for research in an environment that becomes increasingly complex, and less structured [1], [43]. Nowadays, OSNs have become the subject of numerous startup companies, offering users the ability to create, search and manage their own OSN communities.

<sup>1</sup> Nielsen Company: [http://blog.nielsen.com/nielsenwire/wp-content/uploads/2009/03/nielsen\\_globalfaces\\_mar09.pdf](http://blog.nielsen.com/nielsenwire/wp-content/uploads/2009/03/nielsen_globalfaces_mar09.pdf)