

## **Social Networks in Life Sciences: Defining and Enabling Appropriate Roles to Create an Atmosphere of Trust and Security**

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The recent trend towards enhanced functionality on the Web through rich internet applications has the ability to fundamentally change how people interact with each other. The most commonly used new applications include user-generated content, collaboration tools, shared bookmarks and social networks. Once the power of the Semantic Web is added to this environment, it will enable the currently isolated applications and silos of data to be connected together and it also will allow data to be represented in a machine readable way, thereby allowing inferencing capabilities.

Technologies that are well suited for linking together data across the various social networks include FOAF (Friend of a Friend) and SIOC (Semantically-Interlinked Online communities). FOAF is a vocabulary that can be used to represent a profile about an individual, and can be used to link data from one social network to another [1]. While SIOC can be used to aggregate data from various Web based media including Wikis, blogs, and newsfeeds; and to present information to users in the most appropriate representation [2].

Social networks are being heavily explored by the health care and life sciences communities. A large reason for this likely stems from the significant usage of the Web for researching health related topics. Examples of social networking within this domain include Sermo which is a network of over 90,000 physicians in the USA who share experiences in treating patients [3]; and 23andme that enables individuals who have had their SNP profile determined to see who else has a similar genetic makeup to them [4]. Harvard University has recently won a significant grant from the National Institute of Health to implement social software to enable principal investigators within the university to better collaborate.

Although there are many social networks across health care and life sciences, there are still opportunities for establishing communities for individuals who have particular diseases or who are taking specific medication. In these scenarios, significant value may be gained by linking together new and existing social networks. Work needs to be undertaken to better understand how to orchestrate the dynamic communities that need to capture, share, analyze, reuse and provide knowledge. The determination of patterns across the community in order to propose meaningful content back to individuals or communities needs exploration. There are also technical challenges relating to the

identification of individuals, as it is important that a person can be traced across social networks, yet their identity must remain anonymous.

Individuals are becoming very wary about too much personal information being available online, and will become increasingly concerned when it becomes possible for information to be aggregated from various information resources. Allowing users to manage their identity through the use of roles would permit them to flag information according to a level of privacy that they could select.

Examples of such roles could include Public to All, Work (External), Work (Confidential), Hobby/Interests, Patient. However, opinion is increasing supporting the notion that all data about individuals will become public [5], leading some lawyers to focus their efforts on determining what can be done with data when it does eventually become publicly available.

As social networks become more prevalent, it will become increasingly important to display the social network according to the context of the user. The context could refer to the region or country in which the person is based, as this will influence the health care that they are likely to have access to. Alternatively, context could relate to the device that the person is using to access the network. Initially, individuals accessed social networks from desktops, but now increasing numbers of people are using mobile interfaces, and would like to move seamlessly between the two environments.

With a semantic framework in place that allows links to objects other than people (e.g. projects, drugs, diseases, genes, etc.) pharmaceutical companies such as Lilly could use social networks to more effectively communicate with patients who use their drugs and get better insights into what is working well and what is not. The use of roles could help to instill the necessary security and trust in these social networks, however there is still much work to be done.

## References:

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