
Perspectives to Social Acceptability Issues in Professional Social Matching Systems

Ekaterina Olshannikova
Thomas Olsson
University of Tampere
Kalevantie 4, 33100 Tampere
ekaterina.olshannikova@uta.fi
thomas.olsson@uta.fi

Jukka Huhtamäki
Tampere University of
Technology
Korkeakoulunkatu 10, 33720
Tampere
jukka.huhtamaki@tut.fi

Abstract

Professional Social Matching (PSM) is an understudied area in human-computer interaction, referring to computer-supported networking, partnering, and grouping of people in professional contexts. We are working on a new type of PSM that aims to encourage new encounters in work life, particularly between seemingly different and yet complementary individuals. Utilizing big social data in designing matchmaking mechanisms allows the creation of extensive profiles of individuals, which helps computationally identifying suitable social matches across individuals and organizations. Although novel PSM services have the potential to revolutionize the way people find more suitable collaborators and business partners, they also come with major risks regarding social acceptance and ethics. This paper provides an overview of relevant acceptance challenges, as well as considerations for the service design and UI design of PSM systems.

Author Keywords

Social Acceptability, Professional Social Matching, Big Social Data, People Recommender Systems

ACM Classification Keywords

K.4.3 [Organizational Impacts]: Computer-supported collaborative work; H.5.3 [Group and Organization Interfaces]: Collaborative computing

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Background and Motivation

For decades, supporting and encouraging collaboration between people has been an essential design goal in information and communication technology, particularly in the field of computer-supported cooperative work [3]. Recently, this has led to research and design of people recommender systems [9] and social matching [8] applications that unite users with relevant others. The majority of designed systems focus on dating application scenarios (e.g., Tinder) or opportune interactions with strangers (e.g., Happn), while only a few focuses on professional matchmaking (e.g., Shapr, Grip, and Brella).

Such systems utilize similarity-maximizing analytical approaches, following two social network evolution mechanisms. The first one, so-called homophily [5], relates to the tendency of meeting and collaborating with like-minded people [7]. The second refers to triadic closure hypothesis – new connections are most likely to form between actors already having strong bilateral ties (e.g., friends-of-friends). These mechanisms have been found detrimental in a professional context [7] decreasing innovativeness. According to Pentland et al. [6], the effects of fruitful collaboration tend to result from new enriching, complementary viewpoints of actors with diverse backgrounds, rather than similar.

We envision new computational solutions to PSM that can provide more informed (data-driven) and unexpected suggestions of collaborator candidates. For example, a system might provide the user with recommendations of people who share an interest or professional goal but who are from different disciplines or social circles or have complementary knowledge. We question the traditional mindset (i.e., homophily, triadic closure) of interpersonal interactions in professional life and explore how information technology could play a more meaningful role in such sensitive topic

as professional interpersonal relationships. However, such non-traditional approaches bring risks of acceptance: gaining social insights from such systems will require more than just delivering efficient matchmaking mechanisms and usable interfaces. The following provides key perspectives and directions for making such systems also socially acceptable.

Perspectives to Acceptability Challenges

This section outlines acceptability challenges in relation to five key perspectives that are also illustrated in Figure 1.

(1) The *internal* perspective refers to the user's perceptions of the other people's acceptance of their behavior and choices. For example, an expected design challenge relates to the user's willingness to hand over some of their agency to a computational system in choosing with whom to collaborate. One might question if others find it acceptable that collaboration decisions are made based on a seemingly small-minded algorithm's recommendation.

(2) The *interpersonal* perspective relates to the dynamics and norms in interpersonal interaction and social encounters. It remains an open question how to trigger and facilitate encounters between seemingly different people in a way that does not feel awkward, privacy intrusive or untrustworthy for anyone involved in the situation. For example, it is crucial to get holistic overview situations in which two matched strangers would initiate conversation and understand how to support the follow-up interactions with ICT. Another vital concern relates to the context of interactions – whether it should take place face-to-face or mediated by chat applications or similar.

(3) The *organizational* perspective is about the acceptance of such technology within a company or other organization. For example, a company's interests might include prevent-

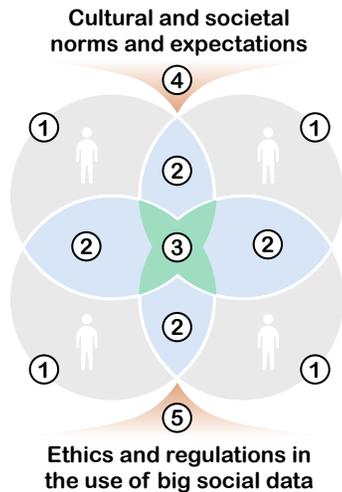


Figure 1: The diagram of five acceptance perspectives:
 1 – Internal; 2 – Interpersonal;
 3 – Organizational; 4 – Cultural;
 5 – Ethics and regulations.

ing or controlling which of the individual workers can be matched with other people inside or outside the organization and for what purposes. Also, the information that is available about individuals' interests and skills can be business sensitive.

(4) The *cultural* perspective relates to implicit, unwritten societal and cultural norms and expectations. For example, how can a society welcome the idea that algorithms would increasingly meddle with the social fabric and networks of people, especially given the recent debate on how much the algorithms of the Internet giants affect users' information ecologies and media landscapes. This demands an understanding of how such systems can avoid creating confrontations between overly dissimilar people, particularly in unstable societies.

(5) The *ethics and regulations* perspective relate to written rules, such as law and ethical regulations, particularly about the use of big social data for PSM. At one end of the spectrum, social supercollider, "a facility that combines multiple streams of data, creating richer and more realistic portraits of individual behavior and identity, while retaining the benefits of massive scale," [11] would enable the implementation of robust social matching services. At the same time, from ethics viewpoint, building a collection of such social data is unthinkable, as governance and regulations on gathering and using it continue to be developed.

Design Considerations

Here we present some key considerations for the design in the envisioned novel PSM systems.

User Interface and Information Visualization

The ability of a system to effectively present recommendations is dependent on the user interface solutions and interaction techniques. In comparison with existing services,

new types of PSM systems aim not only to trigger interpersonal interaction but also facilitate the follow-up activities needed to turn recommendations into action. Therefore, the next generation of PSM should move beyond traditional list-based approach while presenting potential collaborators. It has been found that the ability of the system to justify the recommended results create the perception of transparency and efficiency [4, 10]. These could be achieved through comprehensive information visualizations regarding both the similarities and complementary qualities between two individuals. In this regard, we are in line with Terveen and McDonald [8] who argued that "Social networks are useful tools for social matching." For instance, it might be substantial to bring potential weak ties [1, 2] to the front rather than the people that one already knows. Furthermore, it would be useful to visually indicate the inferred relevance level of a match or communicate the expected contexts in which particular matches are considered valuable.

Perceived Relevance of Recommendations

Perceived relevance refers to the degree of how recommendations in a matching system meet expectations of the user regarding internal drivers for collaboration and contextual factors. This affects the user's attitude towards intervention of technology to the process of social matching. While in dating applications like Tinder users are driven by a relatively clear need to find a romantic company, professional matching is characterized by diverse needs of partnering, collaboration, and networking. For instance, mentorship for vocational growth, knowledge and idea sharing, community building, and co-producing new information that could serve both individuals and organizations. These objectives lead to diverse requirements for identifying potential collaborators. Therefore, PSM is characterized by several dimensions of relevant matches. We propose the following criteria and viewpoints to consider the relevance of a recommendation:

(i) *similarity* in terms of goals and intentions (e.g., business goals, research aims); (ii) *complementarity* in terms of skills, knowledge, and social capital; (iii) *compatibility* in terms of group cohesion and interpersonal “chemistry”; (iv) *approachability/logistics* – how a person or organization is accessible for interaction in terms of physical proximity as well as social and organizational distance.

Persuasiveness for Behavioral Effects

Recommender systems often face challenges in converting the recommendations to user behavior. Notably, in the context of big social data based PSM systems, the decision-making about whether to interact with a match or not should be facilitated because the opportunities for one user can rapidly become numerous. Supporting the selection of the best match at different times as well as motivating the user to follow-up interactions are essential design targets to allow social acceptance of a system. A data-driven approach to the design of people recommender systems could, for example, result in intelligent assistance for a user with making a connection between the represented content and their own needs, interests, or background. A system might help with hints regarding inferences of how a given recommendation would be relevant to the target user thus supporting decision making. At the same time, this content can provide the users with tickets to talk to initiate discussion. Additionally, after a recommendation has been given, notifications about the recommended person’s recent activities, career changes, and updates on topics of interests might help the target user proactively encourage following up on the new connection.

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