Decision Making in Online Social Networks Mini-track

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We take decisions every moment of our lives. What do we eat? Where do we eat? Which phone to buy? Do we rent or buy? Whom should we date? Where should we live? What should be our career? For every one of these decisions we turn to online social networks, online virtual communities, forums, websites, and social media to seek information, advice, and support.

Online Social Communities and Networks (OSN) have become widely popular as a source of data or reference for those seeking advice. With accelerated speed there are more and more websites tapping into the 'wisdom of crowds' as a source of information that influences our everyday decision-making. The internet has revolutionised the manner in which individuals obtain the information they need to make decisions.

Decision-making (DM) is a complex process and an integral part of every individual's life. DM is the cognitive process resulting in the identification and selection of alternatives based on the values, preferences and knowledge of the decision-maker. The processes by which people make decisions range from the structured to the anarchical.

Using OSN can accelerate or decelerate the DM process for both individuals and communities through the accessing of data from multiple sources. Its ubiquitous nature allows the process to be widely distributed, democratised, deconstructed, and diversified, through sheer speed and scale of change. The rapid adoption of OSN across the spectrum of users raises many interesting questions about its dynamics. It is apparent that properly governed and designed OSN can play an important role in supporting different types of decision-making, as they provide their users with various forms of support, ranging from the instrumental to the emotional and informational. Almost certainly, the main benefits of OSN are that they tend to be free and they provide easily accessible information, largely unconstrained by geographical barriers.

The challenges that face users of OSN are information overload and a wide range of online information sources that can complicate decision-making and lead to delays. The potential risk emanates from the use of irrelevant or inaccurate information or from misunderstanding relevant information when making decisions. Over the years, the decision-making process has been explained through several models, among which the rational and anarchical models have emerged as important representations of decision-making dynamics. The problem is that the most referenced decision-making theories, frameworks, models and concepts were developed in the early 20th century when the influence of online connection and collaboration could not be foreseen. Therefore, it is anachronistic to examine

contemporary decision-making practice: the decision-makers and the ways decisions are made have evolved over the intervening years. The other problem with existing literature on DM is that the models are theoretical, outside the context of real decisions that should be exemplified in real decision situations by real people. While ample independent research exists on OSN and DM, there is a lack of research into how online technology affects the making of decisions that have an impact on our lives. How do we use OSN in our most important everyday decision-making? The synergy of these themes provides a unique research perspective from which to take a fresh look at both DM research and the actual process of DM as it is affected by the use of OSN.

The main purpose of this mini track is to explore and extend, as well as challenge, existing knowledge of OSN and DM. We hope to

(1) understand and ascertain whether OSN can support and empower users in their decision-making process and particular phases;

(2) identify and conceptualise new phases (if any) in the decision-making process that is integral to OSN conversations;

(3) explore the structure and sequence of decision-making phases arising out of the use of OSN

(4) identify biases, strengths and weaknesses of the human psyche that could be attenuated and/or enhanced through appropriate design of OSN for decision-making and

(5) seek practical guidelines for the design of OSN that support blended decision-making processes that leverages the wisdom of crowds

The mini track welcomed conceptual, theoretical, and empirical papers that enrich

our understanding of this. All methodological approaches were welcome.

Topics of interest included but were not limited to:

- Decision Making in OSN
- The impact of OSN on Decision Making
- Types of OSN for Decision Making
- Decision Support in OSN
- Typology of Users of OSN for Decision Making
- Traditional and New Decision Models and Theories in OSN
- Biases in OSN for Decision Making
- Online vs Offline Decision Making
- Structure of Decisions in OSN
- Phases of Decision Making Processes in OSN
- Decision Making Governance, Risk, and Compliance in OSN
- OSN Security and Privacy
- Decision Making Processes and Systems
- Apps, Tools and Technologies for Decision Making
- A particular focus is on Health and Financial OSN

This mini track continues to attract interesting papers. This year we had a diverse range of papers.

The first paper, *Towards Intelligent Decision Making in Emotion-aware Applications* proposes an intelligent emotion-aware system (IES), which aims to provide a systematic approach that can make use of the online technology to improve the intelligence of different emotion-aware mobile applications. IES is constructed to provide multi-dimensional online social community data collection and processing approaches for decision making, so as to

recommend intelligent services for emotion-aware mobile applications. Furthermore, they present a flow of intelligent decision making process designed on IES, and highlight the implementation and orchestration of several key technologies and schemes applied in this system for different emotion-aware mobile applications in run-time. They also demonstrate the feasibility of the proposed IES by presenting a novel emotion-aware mobile application - iSmile, and evaluate the system performance based on this application.

The second paper, *Users' Participation Motivation and Behavior Patterns in Online Health Community: A Game Theory Viewpoint* attempts to identify the users' participation motivation and understand their behavior patterns across time in online health community. A game theory model is used. The online health community (OHC) is one of the most promising health-related social media services that has been developed and exponentially increased in the past decades. Studies show that patients can benefit from participating in OHC, including obtaining information and knowledge, receiving support, and releasing mental stress.

The third paper is entitled *Where Does My Product Stand? A Social Network Perspective on Online Product Reviews*. Customer reviews often include comparative comments on competing products. Adopting the "The Strength of Weak Ties" theory, we propose to build a product social network around "strong tie" and "weak tie" entities. By performing text mining on comparative customer reviews collected from Amazon, they successfully identify strong and weak ties products and compute the strength of these ties. Utilizing these network properties, they generated network graphs based on different product features and discovered the underlying competitive relationships among them. In particular,

their regression analysis showed that the strength of ties positively contributes to the review rating of a product and the strength of weak ties plays a more significant role than the strength of strong ties. These results will benefit vendors in online market to discover potential competitors, effectively tailor their marketing and product development efforts, and better position their products to increase profit and explore new market opportunities.

The fourth paper focuses on the *Early Detection of Rumor Veracity in Social Media.* Rumor spread has become a significant issue in online social networks (OSNs). To mitigate and limit the spread of rumors and its detrimental effects, analyzing, detecting and better understanding rumor dynamics is required. One of the critical steps of studying rumor spread is to identify the level of the rumor truthfulness in its early stage. Understanding and identifying the level of rumor truthfulness helps prevent its viral spread and minimizes the damage a rumor may cause. In this research, they aim to debunk rumors by analyzing, visualizing, and classifying the level of rumor truthfulness from a large number of users that actively engage in rumor spread. First, they created a dataset of rumors that belong to one of five categories: "False", "Mostly False", "True", "Mostly True", and "Half True". This dataset provided intrinsic characteristics of a rumor: topics, user's sentiment, network structural and content features. Second, they analyzed and visualized the characteristics of each rumor category to better understand its features. Third, using theories from social science and psychology, they built a feature set to classify those rumors and identify their truthfulness. The evaluation results on their new dataset showed that the approach could effectively detect the truth of rumors as early as seven days.