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## Editorial

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**Biographical notes:** Peter A. Gloor is a Research Scientist at the Center for Collective Intelligence at MIT's Sloan School of Management where he leads a project exploring collaborative innovation networks. He is the author of numerous, widely-cited books on the subject including swarm creativity. He also lectures at the University of Cologne and Aalto University, Helsinki. He is the Founder of internet start-up galaxyadvisors.

Ken Riopelle is a retired Research Professor from the Department of Industrial and Systems Engineering at Wayne State University where he completed multiple National Science Foundation research projects in the areas of global teaming and the diffusion of innovations in globally network organisations. He is an entrepreneur and former research consultant in the automotive industry with over 30 years of professional experience.

Julia Gluesing is a Research Professor in the Department of Industrial and Systems Engineering at Wayne State University where she has served as the co-Director of the Global Executive Track (GET) PhD programme as well as a cultural anthropologist specialising in global teams and cross-cultural product development and manufacturing. She has served as a principal investigator of two National Science Foundation grants, one to investigate global virtual teams and the other to examine accelerating the diffusion of innovation in global networked organisations. She is currently the President of Cultural Connections, Inc., a research, consulting and education firm.

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Cristobal Garcia is Director of *EmprendeUC* and Assistant Professor of Innovation, Design Thinking and Entrepreneurship at P. Universidad Catolica de Chile's (PUC) Business School. He is co-Director of the new PUC's Innovation Master programme in collaboration with Stanford Technology Ventures programme, and Founder of both the Laboratory for Innovation and the DO FUTURE programme. He is also a Research Affiliate at Columbia's Center on Organizational Innovation. His research areas include interdisciplinary electronic networks in higher education, workplaces for innovation (forthcoming book), and education curricula for creativity, innovation and entrepreneurship.

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## 1 Introduction

Collaboration and collective intelligence have been discussed and studied for decades and from many different points of view, such as teamwork, organisational behaviour, and corporate productivity, to name just a few. However, new information technologies, in particular the internet, make it possible to harness the intelligence and creativity of huge numbers of people, connected in many different ways and on a much larger scale than has ever been possible before.

This special issue of *IJODE* is focused on the emerging concept of collaborative innovation networks (COINs). COINs are at the core of collaborative knowledge networks, distributed communities taking advantage of the wide connectivity and the support of communication technologies, spanning beyond the organisational perimeter of companies on a global scale. The papers for this special issue have been selected from the 3rd International Conference on COINs, which took place 8–10 September 2011 in Basel, Switzerland at the University of Applied Sciences Northwestern Switzerland, HyperWerk Institute for Postindustrial Design (<http://basel11.coinsconference.org/>). Papers at COINs11 combined a wide range of interdisciplinary fields such as social network analysis, group dynamics, design and visualisation, information systems and both the psychology and sociology of collaboration. The special issue includes the best

papers, which were substantially extended and revised, covering areas from leadership and collaboration, trend prediction and data mining, to social competence and internet communication. It includes papers for both application areas of COINs,

- 1 optimising organisational creativity and performance
- 2 discovering and predicting new trends by identifying COINs on the web through online social media analysis.

## **2 Optimising organisational creativity**

COINs are made up of groups of self-motivated individuals, linked by the idea of something new and exciting, and by the common goal of improving existing business practices, new products or services for which they see a real need. COINs also work to improve social, scientific, and healthcare innovation through increasing decentralised and distributed structures. Their strength is related to their ability to activate creative collaboration, knowledge sharing and social networking mechanisms, affecting positively individual capabilities and organisations' performance.

COINs are powered by swarm creativity, wherein people work together in a structure that enables a fluid creation and exchange of ideas. Patterns of collaborative innovation frequently follow an identical path, from creator to collaborative learning network to collaborative interest network and thus to COINs.

## **3 Discovering and predicting trends through social media analysis**

The emergence of online social networks opens up unprecedented opportunities to read the collective mind, discovering emergent trends while they are still being hatched by small groups of creative individuals collaborating in COINs. The web has become a mirror of the real world, allowing researchers in predictive analytics to study and better understand why some new ideas change our lives, while others never make it from the drawing board of the innovator. Methods for analysis are based on analysis of large corpora of digital traces of human activity, in particular the web, blogs, online forums, social networking sites, e-mail archives, phone logs, and face-to-face interaction through the use of sociometric badges.

Research on COINs is highly interdisciplinary, combining widely different fields: one strand of research covers collective intelligence and crowd sourcing, exploring what makes groups of people more intelligent or creative than the sum of the individuals. Social network analysis is also a key method employed to better understand the internal workings of COINs. Collective action and virtual teaming tackle the same issue on the small-group level, looking at the dynamics of intra-team interaction and communication. At the organisational level, social network analyses techniques are employed for the design, monitoring and optimisation of organisations. At the global level, data mining and web trend analysis techniques are employed to discover COINs on the web and in social media such as Facebook or Twitter.

The papers in this special issue combine high practical relevance with academic rigor. Paper one (Miller) describes a course teaching students how to become a new type of leader for today's networked world, who is highly educated, who is as proficient in

defining e-business strategies as in leveraging web-based social networking inside and outside the firm be it for internal teamwork, or external viral marketing. Paper two (Grippa, Palazzolo, Bucuvalas and Gloor) on organisational design proposes a paradigm shift from conventional leadership to focusing on creativity in self-organising teams by tracking the e-mail network of medical research teams. Paper three (Lykourantzou, Vergados, Napoli) describes a novel approach employing the wisdom of the crowds to elicit tacit knowledge. Paper four (Song and Vinig) identifies predictors of survival of start-ups based on online social networking behaviour of entrepreneurs in LinkedIn and Facebook. Paper five (Kleeb, Gloor, Nemoto and Henninger) employs Wikipedia for near real time cross-cultural analysis with many different examples including the recent US Republican presidential race.

In the first paper, Christine Miller addresses the core principles of COINs, analysing the key operating principles of successful COINs. She does this by describing a distributed course with students from Savannah College of Art and Design, MIT Sloan, University of Cologne, Aalto University, Helsinki, and Witten University who are working together as COINs for the duration of a semester, tackling research problems in the area of COINs. She presents three critical lessons learned on how design students can become more effective members of COINs:

- 1 learning to articulate the value of design in relation to the outcome of the project
- 2 demonstrating the use and value of design practices and tools
- 3 managing diversity in environments where multiple knowledge domains are in play.

The second paper by Francesca Grippa, Margaret Palazzolo, John C. Bucuvalas and Peter A. Gloor introduces a project analysing the collaboration structure of two teams of medical researchers in the areas of liver transplant and cerebral palsy. The research project analysed the e-mail archives of the two teams to monitor structural changes in e-mail communication over one year. By mirroring them back their communication network over one year, the two medical research teams improved the communication network over time, showing a higher cohesiveness, an increase in density, network resilience and external connectivity.

In the third paper, Ioanna Lykourantzou, Dimitrios J. Vergados and Amedeo Napoli propose a novel mechanism that uses the collective intelligence of the corporate crowd to identify the tacit knowledge competencies of each employee and coordinate their contributions, inside a wiki-like system, so that each individual may contribute in the most efficient way. They found that compared to the fully self-coordinated pattern used by current collaborative knowledge harnessing approaches, the proposed mechanism can help the corporate community allocate its intangible skill resources more efficiently, and thus produce more qualitative knowledge in a timelier manner.

The fourth paper by Yang Song and Tsvi Vinig analyses entrepreneur online social network data collected from LinkedIn, Facebook and Twitter. They studied the size and structure of entrepreneurs' social networks by analysing their online industry networks and location diversity. Their findings suggest that the entrepreneurs' LinkedIn network size has a positive relationship with entrepreneurial survival. However, the size of the entrepreneurs' Facebook network is not related to their survival and the size of entrepreneurs' Twitter network has a negative relationship with performance.

In the fifth paper, Reto Kleeb, Peter A. Gloor, Keiichi Nemoto, and Michael Henninger introduce Wikimaps, a tool available online (<http://www.ickn.org/wikimaps>)

to create a dynamic map of knowledge from Wikipedia contents. Wikimaps visualise the evolution of links over time between articles in different subject areas. This visualisation allows users to learn about the context a subject is embedded in, and offers them the opportunity to explore related topics that might not have been obvious. Watching a Wikimap movie permits users to observe the evolution of a topic over time. Two static variants of Wikimaps focus on particular aspects of Wikipedia: latest news and people pages. ‘Who-works-with-whom-on-Wikipedia’ (W5) links between two articles are constructed if the same editor has worked on both articles. W5 links are a novel way to create maps of the most recent news. PeopleMaps only include links between Wikipedia pages about ‘living people’. PeopleMaps in different-language Wikipedias illustrate the difference in emphasis on politics, entertainment, arts and sports in different cultures.

In summary, this special issue devoted to COINs is only one step in a much broader effort of uncovering how collaboration in this new era of rich, global electronic connections is emerging and changing the way we work together and relate to one another. We hope the collected papers will inspire more researchers from multiple disciplines and practices to take on the necessary and intriguing challenge of understanding how COINs are activating collective creativity, knowledge sharing, and action across the globe.