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QLectives introduction

QLectives is a project bringing together top social modellers, peer-to-peer engineers and physicists to design and deploy next generation self-organising socially intelligent information systems. The project aims to combine three recent trends within information systems:

- **Social networks** - in which people link to others over the Internet to gain value and facilitate collaboration
- **Peer production** - in which people collectively produce informational products and experiences without traditional hierarchies or market incentives
- **Peer-to-Peer systems** - in which software clients running on user machines distribute media and other information without a central server or administrative control

QLectives aims to bring these together to form Quality Collectives, i.e. functional decentralised communities that self-organise and self-maintain for the benefit of the people who comprise them. We aim to generate theory at the social level, design algorithms and deploy prototypes targeted towards two application domains:

- **QMedia** - an interactive peer-to-peer media distribution system (including live streaming), providing fully distributed social filtering and recommendation for quality
- **QScience** - a distributed platform for scientists allowing them to locate or form new communities and quality reviewing mechanisms, which are transparent and promote quality.

The approach of the QLectives project is unique in that it brings together a highly inter-disciplinary team applied to specific real world problems. The project applies a scientific approach to research by formulating theories, applying them to real systems and then performing detailed measurements of system and user behaviour to validate or modify our theories if necessary. The two applications will be based on two existing user communities comprising several thousand people - so-called "Living labs", media sharing community tribler.org; and the scientific collaboration forum EconoPhysics.

Executive Summary

This deliverable reports the publication and dissemination activities of the QLectives project consortium during the project's third reporting period.

The deliverable is divided into four parts. The first part presents the strategic impact(s) of the project on science and innovation, and on supporting EU leadership in emerging areas of economic significance, as well as outlining the steps taken to achieve long-term potential impact.

The second part presents the dissemination plan of the project in terms of research and development, as well as management activities.

The third part outlines the collaborations that consortium members have engaged in in the context of the QLectives project.

The fourth part lists the publications produced by the consortium members: journal articles, peer-reviewed conference papers and compendiums, books and book chapters, and talks and presentations involving QLectives partners.

Contents

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2. Strategic impact

2.1 Strategic impact on science and innovation

During the project's third reporting period QLectives' work on collaboration and peer-to-peer systems included the following:

Emergence of and dynamics of quality

The emergence and dynamics of quality is one of the key themes of the QLectives project. To this end, research conducted during the third reporting period focussed on analysis of the data previously collected and operationalisation in order to inform implementation in online collectives (QLectives platform).

Overall, this year data analysis relating to quality focused on how it is understood and conceptualised in general ('Quality Negotiations' study), and specifically in science (Survey, Blog and Interview studies). Several iterations of data processing and analysis of this work have taken place in response to feedback from perspectives in social media, linguistics, sociology (STS) and social psychology. Part of this work has also been placed in context of the literature from management and marketing on product quality, as well as looking at prestige and its relationship to science and academia from the sociology of science literature. Other advances have been incorporating more sophisticated computational linguistics techniques and new data sets (evaluation guidelines for quality evaluation of research in UK universities under the 'Research Assessment Exercise'). The next steps for this line of work apart from the QTR model described below, involve testing the insights derived in experimental situations both offline and online – through a demonstration of QScience.

Related to the above (see also *Algorithmic Foundation of Human Collaboration* below) is the development of a model of quality, trust, and reputation (QTR) for inclusion in QScience. This model built upon insights from the empirical work on quality conducted thus far (briefly described above) as well as the relevant literatures associated with each area including recent proposals from the LiquidPub system. The model was implemented (translated into algorithms) and tested using agent based modelling. For the *Algorithmic Foundation of Human Collaboration* in quality contexts see related section below.

Modelling self-organised emergence of human collaboration and peer production

Apart from continuing to use evolutionary game theory and network theory (among others) approaches, this year experimental and modelling approaches were advanced. On the experimental side, a laboratory experiment was conducted aiming at verifying theoretical results for the emergence of cooperation, which predict that the level of cooperation increases drastically when social ties co-evolve with behaviour. The results provide strong empirical evidence of the positive influence of group choice on cooperation, which is a form of structure-behaviour co-evolution.

On the modelling side, multi-agent simulations were conducted positing a decision model based on satisfaction (benefits larger than a given threshold) rather than optimization (maximum benefits) which is what models drawing on theoretical studies of the emergence of cooperation are usually based on (that humans maximize a utility function, with strong information requirements). The simulations showed that cooperation is not such a strong social dilemma – rather, cooperative behaviour emerges and becomes stable over a fairly large range of model parameters and implementation details.

Analyses of citation dynamics have been conducted at both the author and the paper level. At the author level analysis aimed at determining quantitatively how the impact of a landmark paper can influence the attention received by the previous literature of its authors and, eventually, can boost their careers. Analysis of citation dynamics at the paper level aimed at a) characterizing them as having a single or multiple 'lives' (a feature that can be linked to their quality or relevance and is not properly captured by existing indices); and b) studying correlations between citation counts and different aspects such as the 'age profile' of the reference list. (Analysis of citation dynamics at the paper level is also described in *Improvement of data mining algorithms* below). Current work concentrates on the analysis of Citation Activity among Geospatial Areas (world-wide) and Research Areas in the period 2000- 2009.

Analysis and modelling of the citation data provided by the American Physical Society (APS) has been carried out. These data span over more than hundred years and contains all citations among papers published by the APS which enables extensive analysis of trends and patterns in the data, leading to a novel method for obtaining a tree-like backbone of the citation network. Benefiting from the acyclic nature of the citation network, a random-walk-based framework was introduced that can be used to measure mutual influence of nodes and discover seminal papers in a citation network. In addition, by studying the time patterns in the citation data, it was shown that the classical preferential attachment rule is clearly insufficient to model the citation network. A new model for the growth of information networks

in general was introduced where decaying relevance of nodes and heterogeneity of the relevance values are combined. This model produces various degree distributions, including those that are observed in important real systems such as the scientific citation data and the World Wide Web (see dissemination of this work in section 5).

In parallel with the above-described work on patterns in citation data, work on the news recommendation model Newsbag continued. With respect to effects of user heterogeneity, it was shown that it results in a broad distribution of user popularity and that one can improve the model's performance by reflecting this heterogeneity in user reputation, which consequently influences the news recommendation process. Various possibilities for simplifying the Newsbag's computational complexity were tested, thus bringing the model closer to its real implementation. Implementation and collection of user experience still remain important research challenges for the future.

Finally, QLectives partners continued to work on modelling the self-organized emergence of human collaboration including the development of an agent-based model of peer-to-peer networks. As part of this work and in view of the above wide spectrum of research, partners collaboratively launched and worked on the project 'Techno-social simulation of BitTorrent networks'. This collaboration was intended to integrate different modelling efforts together (corresponding to Streams 1 and 2). The project used empirical data (Stream 3) to inform model parameters of a simulation framework (for example, web experiments were conducted on the influence of anonymity and power balance in bargaining situations, while parameterizing empirical results to inform the simulation framework with regards to the dynamics of agents' roles is planned). The goal is to compare model predictions with observed changes in QMedia (e.g. after introducing Bartercast, a reputation system) (see deliverable D1.4.1).

Trust in networks

Understanding the dynamics of networks is vital for the goals of the QLectives project. Research on trust networks has concentrated on identifying psychological mechanisms responsible for creating higher level social structures and meanings. To this end, qualitative, quantitative and modelling approaches were employed. The qualitative and quantitative studies explored the properties of social networks that support profound, peaceful transitions. In addition, research on the 'Game of Trust' was continued by conducting a large survey to explore the relation between choice situations and perception of risk. Finally, a simulation model was proposed in order to check the effect of (different sets of rules for) changing trust at the level of individuals on the quality of information in social groups. The aim is to

demonstrate that trust improves the quality of information on the group level, and to check which of several plausible sets of rules for updating trust is most effective in increasing the quality of information in the group. The results can be used in designing rules of interaction for P2P communities (for strategic impacts under this heading see also QTR model, section *Emergence of and Dynamics of Quality*).

Algorithmic foundations of human collaboration

During this period research on algorithmic foundations of human collaboration involved adopting and operationalising theoretical and empirical investigations in design and implementation. The work first focused on the 'Design Space Analysis' of the BitTorrent protocol and discovered many protocols with higher system performance and robustness as compared to the reference implementation; secondly, using extensive simulations, the pros and cons of sharing ratio enforcement applied in BitTorrent communities were identified and a number of mechanisms to alleviate the problems was proposed; finally, work was carried out on a scheme for reducing the amount of history maintained in decentralized interaction-based reputation systems.

From a combination of theoretical and empirical investigations, the QTR (quality, trust, and reputation) was developed, translated into algorithms, implemented in parts and evaluated using agent based modelling (see deliverable D1.2.1).

Improvement of data mining algorithms

Research in information filtering and data mining algorithms is central to the QLectives project. Following up on previous research, work included developing the novel idea of gossip learning. Subsequent refinements eventually yielded a framework (GOLF) that can support a wide range of algorithms including spam filtering, vandalism detection in the metadata domain, and recommendations. This work builds on previous efforts made in QLectives to develop distributed P2P machine learning algorithms, and on accumulating experience by testing various techniques for effectiveness (see deliverable D2.3.1).

QMedia and QLectives Platform

During this period, work concentrated on producing a re-usable P2P platform infrastructure that facilitates peer-production, that is the QLectives Platform, and create an experimental next-generation user centric and social media distribution platform, QMedia. In the newest version of the QLectives Platform significant incremental evolution was based on three extensive tests: expansion of QLectives Platform functionality, deployment of the software and identification of several bugs and unforeseen missing functionality. The release of the third version of

QMedia includes the Open2Edit concept, which provides users with a platform to create virtual communities in a completely decentralized setting.

QScience Platform

For QScience, QLectives work focused on implementing QScience in Drupal. While year 3 has seen rapid progress in this direction, the majority of work has been done on the required, basic infrastructure. For example, since our idea of QScience puts emphasis on replication and adaptation of QScience instances, QScience developers had to devote a lot of their effort to the development of a Drupal module *Patterns* that allows for automatic configuration of Drupal web sites. Once Patterns is finished, we will use it to create and customize QScience instances in 'one click'. Most importantly, work on Patterns is not only of benefit for QLectives but also for the whole Drupal community.

The planning, implementation and eventual demonstration of the QScience framework also includes use cases and their functionalities, detailed after conducting a needs assessment.

2.2 Strategic impact on media and content distribution

As well as the technological progress and achievements summarised above, the impact of QLectives' work on media and content distribution contributes to the formation of a more decentralized, flat and hence democratic media distribution landscape. QMedia version 3.0 is implemented without any centralized system restricting a peer from remaining in control, with the aim to get the same level of quality and activity as Wikipedia, and thus have a considerable impact on the dissemination of the advanced research done within QLectives.

2.3 Supporting EU leadership in emerging areas of economic significance

Addressing the skills and training gap in P2P technology

The QLectives project continues to address the skill and training gap in P2P technology: for example the TUD group continues to train P2P programmers and researchers at MSc and PhD level and several PhD students are working with QLectives topic areas and contributing to the code base of QMedia. In addition, training across partners is on-going as visits between TUD and other partners (USZ and ETH Zurich) to work on skills and technology transfer – P2P algorithms, in particular (see deliverable D6.3).

With regards to addressing the public and EU audience, code developed within QMedia / Tribler is available as open source and TUD represented QLectives at the ACM SIGCOMM (http://conferences.sigcomm.org/sigcomm/2011/), the flagship conference in data communication and networking.

Building the EU complexity community

QLectives partners have participated widely in the EU complexity community within both ASSYST (the associated Coordination Action of the COSI-ICT programme) and the European Conference on Complex Systems (ECCS).

The UWAR team co-organized with ASSYST Coordination Action the workshop on 'Hypernetworks, network dynamics, influence on networks: current tendency in social research' on 13-14 December 2011 in Warsaw. Members of the QLectives partners' teams (UniFR, CNRS, UWAR) presented at the workshop.

The Surrey team organized ESSA 2011 Summer school at the University of Surrey, Guildford on 18-22 July 2011, where ASSYST was involved by providing bursaries to PhD students.

QLectives partners (UniFR, CNRS) also presented at the European Conference on Complex Systems (ECCS) on 12-16 September in Vienna.

2.4 Potential long-term future impacts

The work done in the QLectives project is also predicted to have potential future long-term impacts. The following have been achieved during the third reporting period of the QLectives project:

Techno-social inclusion

QMedia currently allows the creation of virtual communities in a completely decentralized setting where users themselves have to maintain order in the community. This user-controlled inclusion constitutes an appealing alternative for currently prevalent Web-based media-sharing communities.

Techno-social operating system

The current version of the QLectives Platform provides the functionalities for a simple-to-use platform prioritizing built-in self-organizing and information-exchanging and providing improved scalability, message-handling and permission-altering mechanisms. These features are potential major enablers for the popularization of decentralized techno-social systems among system designers, developers and communities of users.

Scientific collaboration

The implementation of the Patterns module – allowing for automatic configuration of Drupal web sites and, as regards QLectives, the creation and customization of QScience instances in 'one click' – is expected to attract attention by the community of users in recognition of the contribution of the QLectives project to the development of Drupal. This could lead to our involvement in Drupal events as well as to potential contributions, by other Drupal developers, to modules necessary for QScience. The plan is to launch a test QScience web site in the next few months. Upon successful testing, QScience will be ready to be offered to groups outside the QLectives project, in particular to those that have already indicated an interest in the concept. In addition, the planning, implementation and eventual demonstration of the QScience framework will showcase users (such as research groups and other communities of users) and their functionality.

3. Dissemination plan

3.1 Research and development

The dissemination of QLectives results to the research community is one of the key goals of the consortium. To this end, the QLectives partners have engaged in publication and dissemination activities by submitting and publishing articles in international peer-reviewed journals, contributing to and participating in international conferences, workshops and summits. The publications and other dissemination activities of the QLectives project are listed in section 5.

Organising workshops, seminars and training events constitutes another important channel for developing ideas and disseminating results from the QLectives project. To this end, the following dissemination initiatives were taken during the third year of QLectives.

The ETHZ team organized an International Workshop on 'Game Theory and Society: Models of Social Interaction in Sociological Research' on 27-30 July 2011, in Zurich. The workshop aimed at exploring the potential of game theory for sociological theory and its application to sociological research and brought together scholars with different disciplinary backgrounds (see http://www.socio.ethz.ch/workshop2011/index).

The Surrey team organized ESSA 2011 Summer school at the University of Surrey, Guildford on 18-22 July 2011. ESSA 2011 included a list of renowned speakers in the field and experienced modellers and ASSYST was involved by providing bursaries to PhD students (see http://www.simian.ac.uk/courses/essa-summer-school-2011).

The UWAR team co-organized the workshop on 'Hypernetworks, network dynamics, influence on networks: current tendency in social research' on 13-14 December 2011 in Warsaw, a collaboration between the ASSYST Coordination Action and the Institute for Social Studies, University of Warsaw.

In addition, two Stream meetings took place in August 2011 in Zurich. QLectives Stream 1 and Stream 2 Meeting: Second Modeller's Meeting took place on 29-30 August focusing on: explanation of and brainstorming on the game-theoretical modelling of BitTorrent users, Agent-based modelling of BitTorrent, Models for evaluation of trust, reputation and quality in a scientific setting, Validation of hypotheses, models and algorithms developed in streams 1 and 2 with data from the living labs, and Stream flow.

Secondly, the QScience Summer Coding Meeting was held on 8-19 August 2011, focusing on: Implementing quality, trust and reputation in QScience, QScience Use Cases and Functionalities, Consideration of Living Science, Consideration of Innovation Accelerator, Living Labs R&D cycle.

Plans for Dissemination and Exploitation
Apart from scientific events, the demonstration of QLectives to non-scientific audiences is also planned. These include:

The Art Exhibition organized by UWAR. The University of Warsaw team held weekly meetings with Fabio Cavallucchi, the head of Warsaw's Centre for Contemporary Arts to brainstorm the format of the event. A new project was proposed: the artists will be contacted online and invited to participate in the exhibition. They will be asked to get other artists involved in the project using their social networks and to document the whole process. At the same time the scientists will model the network structure and the process that led to the exposition. Two renowned polish artists have been assigned as the curators of the exhibition: Anna Ptak and Olga Wasilkowska. The venue of the exhibition is planned to be the Centre for Contemporary Arts in Warsaw.

Another event for dissemination will be NEM 2012 (Networked and Electronic Media), which is regarded as an important venue for presenting the outcomes of the QLectives project to major key European and global stakeholders.

As regards exploitation plans, IRT will undertake the communication of QLectives achievements as part of its primary objective: to provide an array of new service possibilities to the European public service broadcasters including their associates, the public broadcasters of Germany (ARD, ZDF, DRadio), Austria (ORF) and Switzerland (SRG/SSR) and to various research organizations and institutions of higher education. The exploitation of the QLectives research results will be focused on the following domains:

1. Disseminating the project outcomes and P2P-based, high-quality service concepts to IRT's associates and, through the European Broadcasting Union (EBU), to all European public service broadcasters. Here, the QLectives results are expected to receive special attention as they facilitate high-quality P2P streaming broadcasting/media services for the end-users making use of PCs as well as hybrid / connected TV devices. As hybrid service concepts (e.g. HbbTV) grow on the European market, costs related to the maintenance of web Mediatheques (Content Delivery Network costs for streaming media to the end users) rise accordingly. To keep maintenance costs at a moderate level, new and reliable delivery mechanisms are being investigated, such as the P2P based one developed within QLectives.

2. IRT's 'R&D services' department independently markets manifold services and products. It establishes business contacts with third parties and coordinates all projects carried out on their behalf. IRT is also strong and reliable in the testing and certification of products. Especially, the latter is of high significance for the interoperability of the QLectives services and applications before their rollout.
3. As an independent institution, IRT is as a trustworthy intermediary for content providers, network operators and manufacturers. Therefore, IRT offers its comprehensive knowledge and competence portfolio as a consulting institution. IRT will make use of the QLectives Software components, using the knowledge obtained in Stream 2 and 4, being based on:
    - QMedia living lab prototype (using WP4.3 results)
    - HQ metadata and service discovery (using WP4.4 results)
    - HQ recommendations for media and science (using WP4.3 and WP4.2 results)

We are developing plans for the exploitation of our work in QScience. This will be based on the distribution of open source software to support scientists and scientific organisations. As an example, we are hoping to develop a 'one-click' implementation of an exemplar web site for FP7 projects that would form the starting point for the evolutionary process being developed within QScience. As an indication of the potential demand for such software, the Commission has so far funded more than 3,700 projects just within the ICT theme of FP7, and every one of these is required to set up a web site with at least a specified range of features. The QScience teams are working with a set of use cases that may lead to other software suites that could be exploited similarly.

3.2 Management

In order to facilitate the visibility of the QLectives project, the project team continues to engage in the following activities:

It maintains the QLectives Website located at www.qlectives.eu, including the QLectives Wiki is located at http://www.qlectives.eu/wiki/ and the QLectives Blog at http://www.qlectives.eu/qlectives-blog.

The website has had over 37,000 page hits – 15,000 increase since year 2 reporting – and top pages continued to be: Project Overview, Consortium and Publications, especially Deliverables.

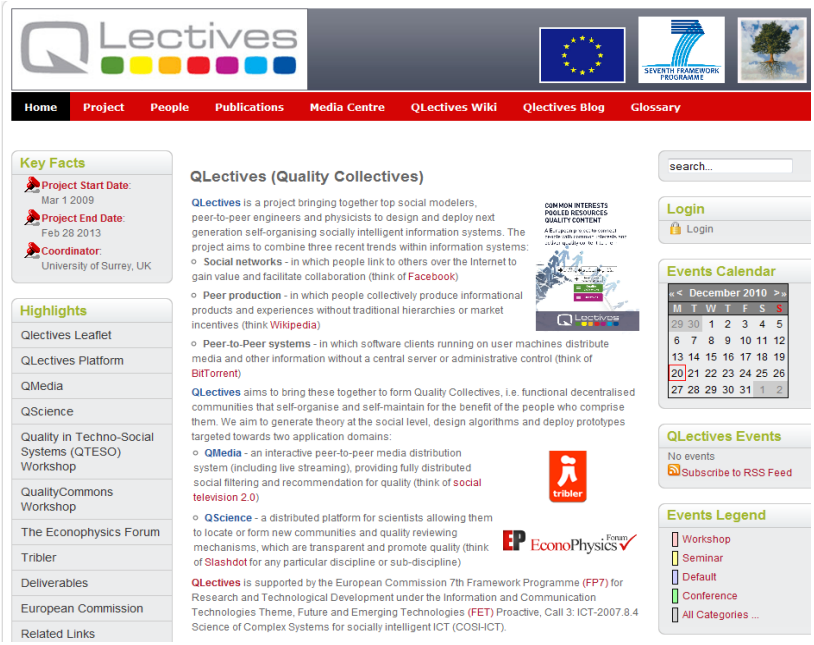

Figure 1: QLectives Website (Homepage)

4. Collaboration(s)

QLectives partners engage in various forms of collaborations, some of which are outlined below:

ETH Zurich
ETH Zurich has maintained collaborations working on the influence of citation dynamics. These were studied together with the member of QLectives Advisory Board Santo Fortunato (ISI, Torino, Italy), CNRS and recently with Katy Börner (Indiana University).
ETHZ has also worked with UniFr, USZ and Surrey on the development of QScience. Finally, ETHZ initiated the project 'Techno-social simulation of BitTorrent networks' in collaboration with TUD.

University of Warsaw (UWAR)
In year 3, UWAR engaged in the following collaborations:

- With Surrey on using empirical results to inform a simulation on the dynamics of agents' roles;
- With Surrey and CNRS on the analysis of external databases;
- With Fabio Cavallucchi, the head of Warsaw's Centre for Contemporary Arts, on the organization of the Art Exhibition.

University of Fribourg (UniFR)
During the third year of QLectives, the UniFR team collaborated with:

- USZ and ETHZ on the development of QScience;
- Surrey and UWAR on the development of a trust and reputation model for science;
- ETHZ on data collection and analysis;
- TUD on the implementation of the LeaderRank algorithm in their P2P client Tribler.

CNRS
During the third year of QLectives, CNRS team members engaged in collaborations with:

- ETHZ on the issue of quality in scientific communities, devising empirical protocols to assess the relationship between citation network dynamics and scientific impact across time;
- Surrey on quality, at a definitional level and, currently, at a modelling level;
- UWAR to explore the potential ways of using computational methods (especially those related to hypergraphs) and data analysis to evaluate social psychological theories.

TUDelft (TUD)

During the third year, TUD team members engaged in the following:

- Tamás Vinkó (TUD) spent 8 days at ETHZ working on stream 1 and stream 2 topics;
- TUD has been collaborating with USZ on development of an AI engine using the QLectives Platform's Dispersy;
- TUD has been collaborating with ETHZ, UF and Surrey on 'Quality, trust and reputation algorithms'.

Surrey

In year 3, Surrey engaged in the following collaborations:

- With CNRS exploring ways to model quality;
- With UniFR, USZ and ETHZ on the development of QScience;
- With UWAR on integrating existing quality research and comparing types of data and method;

USZ

During the third year of QLectives, USZ collaborated with:

- TUD in the area of modelling P2P systems and in P2P algorithms, in particular the implementation of the gossip learning framework in the QLectives platform;
- IRT on WP4.4, with USZ providing an implementation for the quality metadata algorithms that will be tested by IRT in year 4;
- UniFR and ETHZ as USZ plays an important part in the development of the QScience platform.

5. Collection of publications

During the third year of the QLectives project, the QLectives partners have completed a series of publications, and engaged in the following dissemination activities.

5.1 Journal articles

Cimini, G., Medo, M., Zhou, T., Wei, D. and Zhang, Y.-C. (2011) Heterogeneity, quality and reputation in an adaptive recommendation model. *EPJ B*, 80, pp. 201-208.

Conte, R., Gilbert, N., Bonelli, G. and Helbing, D. (2011). FuturICT and social Sciences: Big Data, Big Thinking. *Zeitschrift Fur Soziologie, 40*(5), pp. 412-413.

Gill, A. J. (to appear) Language and Personality in Computer-Mediated Communication. *Information Design Journal*.

Gualdi, S., Medo, M. and Zhang, Y.-C. (2011) Self-organized model of cascade spreading. *EPJ B*, 79, pp. 91-98.

Gualdi, S. Medo, M. and Zhang, Y.-C. (2011) Influence, originality and similarity in directed acyclic graphs, *EPL* 96, 18004.

Gualdi, S., Yeung, C. H. and Zhang, Y.-C. (2011) Tracing the Evolution of Physics on the Backbone of Citation Networks, *Phys. Rev.* E 84, 046104.

Liu, C., Yeung, C. H. and Zhang, Z.-K. (2011) Self-organization in social tagging systems, *Phys. Rev*. E 83, 066104.

Mazloumian, A., Helbing, D., Eom, Y.-H., Lozano, S. and Fortunato, S. (2011) How citation boosts promote scientific paradigm shifts and Nobel Prizes. *PLoS ONE,* 6(5): e18975.

Medo, M., Cimini G. and Gualdi, S. (2011) Temporal effects in the growth of networks, *Physical Review Letters* 107, 238701.

Mitra, B., Tabourier, L. and Roth, C. (to appear) Intrinsically Dynamic Network Communities. To appear in *Computer Networks*.

Nowak, A., Samson, K., Lisiecka, K. and Ziembowicz, M. (2011) Lovely weather, isn't it? On social dynamics of quality judgment. *Mind & Society.*

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5.3 Books and book chapters

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5.4 Talks and presentations

Chen, C.-C. (2011) *Emergence of quality in socio-techno networks*. COST workshop on Socialization and technology as co-evolutionary processes, Tarragona, 12-14 April, 2011.

Chen, C.-C. (2011) *Group-based measures for online communities*. ASSYST workshop "Hypernetworks, network dynamics, influence on networks: current tendency in social research", Warsaw, Poland, 14-15 December, 2011.

Gill, A. J. (2011) *Social Information in Computer-Mediated Communication*. Invited speaker: La Communication Me´diatise´e par Ordinateur chez les adolescents Quelles interactions langagie`res pour quelles relations? (Computer Mediated Communication in adolescents: Which language interactions for which relationships?) workshop, University of Poitiers, France, 17 November, 2011.

Gill, A. J. (2011) *Quality in Online Science*. Paper presented at A Decade in Internet Time: Symposium on the Dynamics of the Internet and Society, Oxford Internet Institute, University of Oxford, September, 2011.

Gill, A. J., Iacobelli, F., and Gilbert, N. (2011) *The projection of quality and reputation in scholarly journals*. Paper presented at the 21th Annual Meeting of the Society for Text and Discourse, Poitiers, France, July, 2011.

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Genoud, S. (2011) *Techno-social simulation of BitTorrent networks*. General Project Meeting, Warsaw, 6th October 2011.

Helbing, D. (2011) *What have we achieved so far*? General Project Meeting, Garmisch Partenkirchen, 21st January 2011.

Jelasity, M. (2011) *Teljesen elosztott adatbányászat pletyka algoritmusokkal* (Fully Distributed Data Mining with Gossip Algorithms, in Hungarian) at Conference on Informatics in Higher Education, University of Debrecen, Debrecen, Hungary, plenary talk invited by Miklós Herdon, 24th August, 2011.

Jelasity, M. (2011) *Asynchronous Peer-to-Peer Data Mining*, at Parallel and Distributed Systems Group, Delft University of Technology, Delft, The Netherlands, invited by Dick H. J. Epema, 1st March 1, 2011.

Lozano, S. (2011) *Techno-social living-archive with massive datasets from living labs and other source*. Second Year Commission Review, Brussels, 17th March 2011.

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Medo, M. (2011) *Self-organized model of cascade spreading*. ECCS 2011 Satellite Workshop "Econophysics Colloquium", Vienna, 15th September 2011.

Menezes, T. (2011) *A process for mapping large directed networks to 2D images and its applications*. Poster presentation at the European Conference on Complex Systems (ECCS) 2011, University of Vienna, Austria, 2011.

Menezes, T. (2011) *Evolving social graph models*. ASSYST workshop "Hypernetworks, network dynamics, influence on networks: current tendency in social research", Warsaw, Poland, 14-15 December 2011.

Nowak, A., Borkowski, W., Kacprzyk, M., Jagielska M., and Lipiec, K., (2011) *Transfer of technology: using empirical data in a simulation mode.* ECCS 2011 Satellite Workshop on Policy Modelling, Vienna, 15th September 2011.

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Xenitidou, M. (2011) *Understanding Quality in Science in Scientists' Talk*. Paper presented at the 10th Conference of the European Sociological Association, ESA 2011. Geneva, 7-10 September 2011.