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Document information

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ICTeCollective introduction

ICTeCollective (*Harnessing ICT enabled collective social behaviour*) aims to develop systematic means of exploring, understanding and modelling2 systems where ICT is entangled with social structures. In particular, we will focus on behavioural patterns, dynamics and driving mechanisms of social structures whose interactions are ICT-mediated, from the level of individuals to the level of groups and large-scale social systems. Our unique approach is based on combined expertise in complex systems and the social sciences. By contrast with the majority of complexity studies that start from extremely simplified assumptions concerning social dynamics and concentrate on diagnosing structural features of social systems, we emphasize that ICT networks are dynamic systems of interacting humans and groups, and fully utilize the theories and methods of the social sciences are to be in ICTeCollective.

We will study and relate high quality datasets on ICT mediated social interactions and groups that have already been acquired, and also create new sets of data by conducting experiments with human subjects to examine the properties of social interactions mediated by technological means. The first source of data, electronic records of interactions, is a by-product of how ICT mediated communities operate. In particular, we will use some of the most extensive ICT datasets available at present, such as time-stamped data sets on mobile telephone communications between millions of users, the editing history of Wikipedia documents, and the popularity of Facebook applications. Secondly, entirely new data will be generated and released into the public domain by conducting laboratory experiments on ICT-mediated human interactions.

This project addresses the goals of the FP7 FET-OPEN call by trying to build an integrated picture of ICT-mediated social systems focussing on some aspects that are
  i)   critical to social interaction,
  ii) can be easily tracked in large datasets and confirmed in experiments, and
  iii) have a considerable
chance of improving our understanding and usage of ICT, with the possibility of leading to new and exciting technologies that can shape the future of ICT. The particular aspects that we focus on are *activity patterns*, *social influence*, and *group dynamics*. This choice helps us to address a large number of practical issues such as the driving mechanisms of social interactions mediated by ICT, and how these mechanisms then shape groups and society. All of these are critical to the goals of ICTeCollective.

We define the above terms as follows: *Activity patterns* are temporal sequences of social interaction and communication events, measurable in electronic communication records and representing the "atoms" of social interaction processes. *Social influence* refers to all processes where individuals affect each others' beliefs, behaviour, activities, and representations of reality. *Group dynamics* comprises processes such as emergence, growth, merging, and splitting of groups, and associated behavioural patterns of individuals.

Contents

D7.2b Report on International Workshop on ICT-mediated Social Interactions for Researchers

This report is written as a part of the 24 months deliverables of the ICTeCollective project to fulfill reporting requests of dissemination activities (D7.2b) as it is written in project Annex I.

Meeting with the dissemination objectives of WP7 we organized an International Workshop on ICT-mediated Social Interactions together with the group of Prof Esteban Moro (Department of Mathematics, Universidad Carlos III de Madrid). The workshop was organized with the title: "Complex Dynamics of Human Interactions" on the 14th September as a satellite meeting of the ECCS'11 (European Conference on Complex Systems 2011) which was held at the Medical University of Vienna from 12th to the 16th September. At the meeting all ICTeCollective participant institutions were presented by the following members:

AALTO:	Prof Kimmo Kaski
	Dr Jari Saramäki
	Dr Márton Karsai
UOXF.MQ:	Prof Felix Reed-Tsochas
BME:	Prof János Kertész
ISI:	Prof Santo Fortunato
UWAR:	Prof Andrzej Nowak
	Dr Michał Ziembowicz

This meeting was addressed to present recent research findings and results of ICTeCollective for researchers and give a summary about the most recent results of the field by contributed talks and invited speakers. During the workshop 21 talks were given: 4 ICTeCollective talks, 3 invited talks and 14 contributed talks. The invitees were the leader scientists of the field as:

- Prof Albert-László Barabási (Notheastern University, Harvard University)
- Prof Allesandro Vespignani (Indiana University, ISI Foundation-Torino)
- Dr Alain Barrat (CNRS-Marseille, ISI Foundation-Torino)

The workshop was organized in four sessions where in each session one ICTeCollective presentation was given by the following title:

- Mikko Kivelä (Aalto): Link activation sequences, waiting times, and spreading in temporal networks
- János Kertész (BME): Edit wars in Wikipedia
- Hang-Hyun Jo (Aalto): Emergence of Bursts and Communities in Evolving Weighted Networks
- Karolina Lisiecka (UWAR): Social dynamics of ICT-mediated interaction

We invited professors, researchers and research leaders from the field from different departments and universities and also industrial partners from Skype Research Lab. To ensure the widest possible dissemination level we advertised the workshop online [1] and on booklets [2] resulting in that all together the number of attendants exceeded 90. The program of the meeting was the following:

Sep 12 Monday
11:15-11:40 **Albert-László Barabási:** Plenary talk 1

Sep 14 Wednesday
9:00-9:05   **Esteban Moro:** CONFERENCE OPENINGS
9:05-9:50   **Alessandro Vespignani:** Plenary talk 1
9:50-10:10   **Giovanna Miritello:** Time allocation in social networks: correlation
                    between social structure and human dynamics
10:10-10:30 **Kwang-Il Goh:** Spreading dynamics following human activity patterns
10:30-10:45 *ICTeCollective talk -* **Mikko Kivelä:** Link activation sequences, waiting
                    times, and spreading in temporal networks

10:45-11:15 - COFFEE BREAK

11:15-11:35 **Albert Diaz Guilera:** Emergent properties of networks of mobile agents
11:35-11:55 **Wouter de Nooy:** Complex dynamics of election campaigns: Interaction
                    among politicians in the media
11:55-12:15 **Laura Hernández :** Co-evolution of links and nodes: A complex network
                    model of cultural dynamics face to social intolerance
12:15-12:30 *ICTeCollective talk -* **Karolina Lisiecka:** Social dynamics of ICT-mediated
                    interaction

12:30-14:00 - LUNCH BREAK

14:00-14:45 **Alain Barrat:** Plenary talk 2
14:45-15:05 **Andrea Friggeri:** Fellows: Crowd-Sourcing the Evaluation of an
                    Overlapping Community Model based on the Cohesion Measure
15:05-15:25 **Yukie Sano:** Statistics of collective human behaviors for extraordinary
                    events in cyberspace
15:25-15:45 **Boris Granovskiy:** 1 versus 100: Integrating social information in decision
                    making by human groups
15:45-16:00 *ICTeCollective talk -* **János Kertész:** Edit wars in Wikipedia

16:00-16:30 - COFFEE BREAK

16:30-16:50 **Ginestra Bianconi:** Entropy of dynamical social networks
16:50-17:10 **Oliver Richters:** Trust Transitivity in Social Network
17:10-17:30 **Djamila Moulay:** A Metapopulation Model for the Spread of the
                    Chikungunya Virus
17:30-17:50 **Akira Ishii:** Mathematical Model for Human Interaction and its application
                    to hit phenomena
17:50-18:10 **Piotr Migdał:** Two and more heads deciding: models of information-sharing
                    and aggregation for two-choice discriminative tasks
18:10-18:25 *ICTeCollective talk -* **Hang-Hyun Jo:** Emergence of Bursts and Communities
                    in Evolving Weighted Networks

18:25-18:30 **Kimmo Kaski:** CLOSING REMARKS

[1] Webpage of the workshop:
http://markov.uc3m.es/complexdynamics11/Home.html
[2] Booklet of the workshop:
http://www.becs.tkk.fi/ictecollective/docs/bookletCDHI_v2.pdf
[3] Scientific presentations: internal site of www.ictecollective.fi