

## **The European Network for Social Intelligence, SINTELNET 2011-2014: A summary of the main outcomes**

SINTELNET is a Coordination Action whose aim is to explore foundational issues of *Social Intelligence*.

### **Scope**

Social intelligence is a term that lies at the intersection of different disciplines including philosophy, social sciences ---sociology, economics, legal science, etc. --- and computer science. Broadly speaking, social intelligence is the capacity to understand others and to act rationally and emotionally in relations with others. This is an ability that not only human but also artificial agents have, as modelled in artificial intelligence and agent-based research in particular.

The interactions between philosophy, social sciences and computer science around social intelligence are manifold, and many concepts and theories from social science have found their way into artificial intelligence and agent-based research. In the latter, coordination and cooperation between largely independent, autonomous computational entities are modelled. Conversely, logical and computational models and their implementations have been used in the social sciences to help improve simulations, hypotheses and theories. Among the most prominent subjects at the interface are *action and agency*, *communicative interaction*, *group attitudes*, *socio-technical epistemology* and *social coordination*.

### **Objectives:**

The aim of the European Network for Social Intelligence (SINTELNET, 2011-2014) was

- to help build a shared perspective at the intersection of the above fields,
- to identify challenges and opportunities for cross-disciplinary collaboration,
- to provide guidelines for research and policy-making and
- to kindle partnerships among participants.

### **Activities:**

To achieve these aims SINTELNET organised a series of interdisciplinary, thematic workshops that have brought together key players in diverse, relevant sub-areas.

To give structure to its activities, five main **Working Groups** were formed in the network, covering the key subjects listed above. During the course of the project, additional working groups were created and together these groups have delivered studies and position papers as well as identified emerging topics and important research challenges. The themes emanating from these activities featured prominently in the first *European Conference on Social Intelligence* (ECSI 2014) organised by SINTELNET that took place in Barcelona, November 3-5, 2014.

### **Instruments**

As part of its activities to stimulate knowledge transfer and build new interdisciplinary partnerships, the Action set up and managed several instruments for coordination and community building:a

- *Mobility grants* supported short-term visits and exchanges of PhD students as well as senior researchers.
- An *event support scheme* provided support in the form of invited speakers or student grants for related scientific events.
- A *Summer School* was organised in 2014 together with the European Association for Multi-Agent Systems.
- An *Open Fund scheme* allowed network members not belonging to the project management to propose events and activities to be supported by the project. This led to a significant increase in the thematic scope of the project and in the number of activities carried out.
- The SINTELNET *Website* [www.sintelnet.eu](http://www.sintelnet.eu) has acted as an information source for researchers, developers, stakeholders, end-users and the general public. It documents the main activities of the network and collects together the material outcomes of activities in the form of presentations, abstracts, papers, reports and other project deliverables.

## **Achievements**

Among the main achievements of the project we can list the following:

*1. To **raise awareness** of the scientific, technological and social challenges that social intelligence produces.*

Such awareness of the significance of the topic was a result of the involvement of a substantial number of individuals and organisations in the outcomes and activities of the Coordination Action, as described below in item 5 of this list of achievements.

*2. To propose **socio-cognitive technical systems** as a focal notion that facilitates a working definition of social intelligence.*

While “social intelligence” is an evocative phrase, it may share the concomitant problem of excessive connotations that analogous terms like “artificial intelligence” suffer. For this reason, the activity generated around Sintelnet was fortunate to identify *socio-cognitive technical systems* as a concrete domain that contains the key features of what a multidisciplinary scientific community might label as social intelligence. These systems are *technical* in the sense that IT supports the interaction of participants, but in this case it is an “augmented” and “hybrid” form of interaction where IT is present also in the form of *artificial* intelligent entities that form part of the interactions. Moreover, the systems are *socio-cognitive* because those artificial entities need to share key social features of human cognition, like awareness (of others and the social environment in general), empathy and social responsibility.

*3. To **build bridges** between different scientific communities in order for them to collaborate around this topic*

There is strong evidence that Sintelnet has been helping to build bridges between different communities of researchers and practitioners and that this may be of lasting effect. Specifically, in the area of multi-agent systems and especially normative multi-agent systems, the project has greatly increased awareness of the need to consider concepts and methods from the social sciences, cognitive sciences, law and philosophy. Through Sintelnet support, a large number of events that cut across traditional disciplinary boundaries took place. Most of these events could not have happened without the financial and technical support of a project of this type. Many scholars of social and practical philosophy have become more aware of the relevance of their work to Information Technologies and the fact that many similar problems are being studied by Computer Scientists. Similar links to sociology and political science have also been forged.

*4. To **activate a community** of researchers that recognise their work to be relevant for this emerging field*

The action was started with six institutional partners and, by December 2014, 229 individuals from 145 institutions were registered as members of the Action, a large majority being active participants in the activities and outcomes described in item 5 below.

*5. To **produce public outcomes** that reflect the current understanding of the topics and may provide the foundations for a new field of research and development*

The most salient outcomes are: (i) the *Sintelnet Summer School*, (ii) the *European Conference on Social Intelligence*, ECSI 2014 (iii) the electronic *Sourcebook*, hosted in (iv) *Sintelnet Wiki*, that compiles numerous outcomes of the activities that resulted from the Action. They include *position papers*, *presentations*, *slides* and *proceedings* from the *workshops organised by the Sintelnet working groups* and those presented in several *workshops supported by the action* in different ways; *reports* of those workshop and also of the *short-term scientific visits* supported by Sintelnet; and (v) of particular significance for dissemination:

- A report compiled by the Sintelnet consortium together with active members of the working groups on “*Issues in Social Intelligence: Problems and Challenges*”.
- Four special issues in leading scientific journals.
- Seven books.

*6. To **establish the foundations** for the continuity of these activities once the Coordination Action is over through five concrete mechanisms.*

- **A book on socio-cognitive technical systems.** As a follow-up to the *Issues in Social Intelligence* report, there is an intention to publish a book on socio-cognitive technical systems with a major publisher. This would focus on foundations and expand on the chapters already available in the report. Additionally, it can draw on position papers that appear in the Sintelnet Sourcebook and on contributions from

other Sintelnet events, with overview sections around the themes of the Working Groups.

•**An interdisciplinary journal on the foundations of socio-technical systems.**

Sintelnet partners and members have shown a strong interest in setting-up a new academic journal. The aim is for it to become a reference point for researchers interested in

- Conceptual, computational and methodological foundations of socio-technical systems
- Developing a synthesis of conceptual and computational modelling in socio-technical system design

The journal should be interdisciplinary in nature: covering particularly Social Sciences, Computer Science (primarily AI and Multi-agent Systems) and Philosophy. It should contrast with the Autonomous Agents and Multi-Agent Systems journal by giving centre-stage to genuinely interdisciplinary work combining conceptual and computational models. Papers will be sought on:

- Theoretical models of social concepts capable of informing development of computational models
- Computational models of social concepts informed by relevant social theory. Critical reviews of work on MAS, with a focus on their account of key social notions
- Legal and/or ethical aspects of socio-technical system design.

•**A website and related online resources.** The current website will continue to be hosted for the foreseeable future and membership email lists can be maintained. Resources can be updated and information on events and activities can be posted there.

•**A regular conference series.** The European Conference on Social Intelligence successfully brought together scholars and themes from the areas and disciplines covered by Sintelnet. This has the potential to become a regular event held every one or two years.

•Support the creation of an **international organisation** to promote the emerging community. Future activities might include preparing a **roadmap** of research challenges and opportunities.