SmartSociety

Hybrid and Diversity-Aware Collective Adaptive Systems
When People Meet Machines to Build a Smarter Society

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Executive summary

The objectives of this deliverable are to report on the planning and implementation of the dissemination activities undertaken by the project. The deliverable comprises two main parts. The first provides a plan for the dissemination activities of the project providing the dissemination goals, target audiences, and key messages together with a mapping of these to dissemination channels together with a brief overview of the means of evaluation of the dissemination activity. This part is substantially similar to the part (a) version of the document developed in year 1. It has however been adjusted to take account of the reviewers' comments from the first annual review and developments since then. **In order to ease the burden on reviewers while maintaining the integrity of the report, we have gathered the developments for each main section into a subsection at the conclusion of the main section. These sections have all been gathered in Section 10 of this document to further ease the reading task.**

Sections 6 and 7 provide a report on the second year dissemination activities. These are structured according to the agreed KPI table taken from the DOW. This identifies a number of agreed KPI together with targets set for M12, M24 and so on. This is reported mainly in tables relating to the achieved performance relative to the targets. In this we meet or exceed the targets set for all of the KPIs. Since most of the measures are cumulative we have included tables for years one and two.

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Project Overview

We live in an evolving socio-technical ecosystem where the physical and virtual are increasingly intertwined, where social interaction, is mediated by, and engages with, machines. Pervasive devices of different kinds (e.g. personal computers, mobile phones and tablets) combined with infrastructure and apps supporting large scale social networking ensure that there are strong incentives for us to participate at individual, organizational and societal levels.

This process has led to significant growth in communication opportunities. These new communication modalities have significant potential benefits but also have challenges associated with the scale and diversity of the people involved (different opinions, multiple cultures and languages, different goals, different access to data, …).

We are witnessing the emergence of new forms of social organisation supported by these new communication modalities. We are particularly interested in developing the means to support relatively stable large-scale social groups that can participate in collective action and adapt to changes in their situation.

Existing work on collective adaptive systems (CASs) that provide or impose some form of harmonization or lightweight coordination of meaning and actions have concentrated on situations where machines - sometimes by simulating human behaviour - do most of the work and humans - when present - are at the periphery acting mainly as "consumers" of services. Even systems that involve so-called "human-based computation", and in which human intelligence is used to generate the overall computation on a large scale, are usually handcrafted to a particular application objective, and not based on a solid engineering methodology. In these settings, collectives are generally homogeneous and are orchestrated to achieve a common global goal where knowledge adaptation only takes place locally to a single unit.

Our goal in this project is to move towards hybrid systems where people and machines work together tightly to build a smarter society. We envision a new generation of CASs where humans and machines synergistically complement each other and operate collectively to achieve their, possibly conflicting, goals, but which also exhibit an emergent global behaviour that is in line with their designers' objectives. For instance, while machines are very effective in computation tasks, they cannot compete with humans in creativity, making judgements, expressing subjective opinions, sensing activities and real world objects, philosophical thought and scientific reasoning.

The Smart Society project will provide conceptual tools to aid the analysis and the operation, design and evolution of Hybrid Diversity-Aware CASs. The impact of this work will be both in the operation and evolution of "naturally occurring" CASs that have grown up around providing particular functions and in the design, operation and evolution of new CASs designed to deliver particular functions.

1 Dissemination Goals

Because CASs are a relatively new idea our main dissemination goal is to establish the notion of HDA-CAS as a useful concept to structure research and to support the development of tools to design, operate and evolve infrastructures supporting HDA-CASs. We will also emphasise foundational insight into the structure of systems that depend on the synthesis of collective human action interacting with computer-based infrastructure and tools that the HDA-CAS perspective provides.

This is an evolving document and as our research progresses our range of dissemination targets will broaden and our focus may change. This document will change to reflect those changes in dissemination planning.

1.1 Goals: Year 2 Developments

In the second year of the project we have begun to develop the dissemination goals further to elaborate the preliminary dissemination goals to take account of specific project objectives:

- **Gaining deployment experience of HDA-CAS:** In particular the deployment of the ridesharing CAS in University settings in BGU and DFKI. In addition we are also investigating the potential for disseminating through use by some Italian Municipalities. This work provides a user group (potentially a large user group) with the potential to experience the benefits of CAS technologies as well as providing valuable data to researchers. The transfer from prototype to a full service using Ridesharing is very challenging and it remains to be seen if we can develop a sustainable model for the transition. In addition we have a basic tourism deployment, "Ask SmartSociety!" that provides a good vehicle to verify horizontal integration of components.
- **Synergy of HDA-CAS concepts:** Smart Society models, programming frameworks and architectures are now available in a preliminary form. The combination of prototype applications, diverse scenarios with evidence our architectures can support them and in-depth understanding of the privacy and governance issues provides good dissemination opportunities for this year. In particular engaging with key potential deployers in various domains including tourism, health and public services.
- **Governances:** WP1 has developed a body of work on the privacy and governance issues in HDA-CASs we believe this is a valuable dissemination resource and will use these resources to disseminate the work of the project at a policy level. The project has well-established connections at policy level and will use these channels to disseminate Smart Society ideas in his area.
- **Downstream funding applications:** in year two the project has already made application to the LEIT and Societal Challenges pillars of H2020. These involved SMEs and public service delivery organisations. In addition there have been joint applications to national funding. In the UK SmartSociety and the SOCIAM project have submitted an application entitled "Social Queries" that exploits Smart Society ideas to explore the notion of querying a population support by social computational techniques. In addition DFKI, UNITN, UEDIN and UH have all participated in EIT ICT Labs projects in the area of social computation during 2014. In 2015 DFKI, UNITN and UEDIN are all participating in EIT ICT Labs High Impact Initiatives that have potential applications of Smart Society techniques.

2 Target Audiences

Our main audiences are:

- Research Communities:
  - FOCAS Community: we will play a leading role within FOCAS helping to articulate unity in the diversity of the FOCAS group of projects.
  - Broader Social Computing/Collective Intelligence Community: We will demonstrate the utility of the HDA-CAS concept. In particular, our emphasis on hybridity, diversity awareness and compositionality. The main communities include: social computation, social machines, collective adaptive systems, and human computer convergence.
  - Other Scientific Communities: we will articulate the utility of the HDA CAS perspective to a range of applied and translational research communities. These communities will include the KICs particularly EIT ICT Labs, the smart (cities, tourism, mobility, energy, enterprise, …) and applied communities such as Digital Health. In addition, as the key questions are clarified increasingly social scientists will be engaged in validating and refining the concept.
  - Societal Challenges: The HDA CAS concept is of particular relevance to many societal challenges in the third pillar of Horizon 2020 and the broader agenda of challenge-led research initiatives. We see three particularly salient areas of connection:
    - The explicit consideration of features such as policy, governance, and incentives in the HDA CAS concept builds a natural link to organisational scientists.
    - Some of the challenges, particularly climate change, require us to understand how to motivate change when this can only be effective if it is collective and inclusive.

        - Many of the societal challenges see leveraging community collective effort as a key route resourcing innovation in tackling the challenge using a coproduction approach. A CAS approach has considerable potential as a new form of organisation of coproduction.
    - Students: we already have a developing group of research students engaged in the work around HDA CAS ideas and we have begun to think through the message we want to take to taught course students.
- EU Commission: We will disseminate to relevant DGs in the commission. FET is important since our work will stimulate additional fundamental questions. In addition DG Connect is important because downstream our work will benefit from closer interaction with large-scale companies. In addition several DGs are problem holders for Societal Challenges, for example DG Sanco and DG Connect cooperate in the EIP on AHA to tackle health and demographic change but other clear problem holders that are in the scope of CASs include DG Regio, EAC, and Move. Another key body in the EU is the EIT since the KICs are directly tackling societal challenges.
- Companies: In the long term we imagine that some of the architecture, tools and methodologies developed by Smart Society will be of great utility to companies both large and small but this is more likely to occur in the second two years of the project. In the early part of the project we envisage that there will be engagement on how our insight into incentives, governance, and ethics can shape the design of hybrid human computational systems in order to avoid some of the pitfalls of the design of complex organizational processes. In particular, there are many well-documented examples of the operation of perverse incentives where the incentive structure undermines successful delivery of a service.
    - Consultants/Integrators: In the short to medium term the experience of the project in governance, regulation and incentives will be of particular relevance to this group.
    - Service delivery organisations: In the longer term this group will be interested in tools and techniques developed inside Smart Society as a means
    - SMEs: Ultimately the concepts being developed inside Smart Society will contribute to a new form of infrastructure in organisations by working with SMEs we can start to develop ideas that are better adapted to emerging infrastructural trends that also have a clear market that can be met by an SME.
    - Software Tool and Component Makers: this group will be an important route for dissemination later in the project when tools and techniques are more mature. For example, current workflow-based techniques tend to support workarounds and adaptations rather poorly, the tools we are developing within Smart Society will point the way forward for techniques that avoid some of the pressing issues in supporting organisations effectively. Thus we believe we will have the capacity to drive innovation both in the structure and methodology of large scale systems developed to support organisations.
- Public Sector: For many of the challenge areas we are considering the public sector plays a key role in terms of structuring the framework of response to the challenge and how governance and regulation in the sector are constructed. So, from our perspective, working closely with the public sector is essential to the adoption of our ideas.
    - Policy Makers: Many of the potential challenge areas have direct public policy linkage. For example in health and care the policy drive is to move to a coproduction approach where highly differentiated, condition and locality specific collectives assisted in the production of healthcare. In Climate Change the creation of large, heterogeneous, transnational collectives with a focus on mitigation is key to effecting behaviour change but creating such a large-scale collective with objectives that imply quite radical lifestyle transformation is difficult to achieve.
    - Service delivery organisations: The situation here is similar to private companies but the value system of workers and management may be quite different.
- Practitioners: these are probably best accessed via professional organisations such as the BCS in the UK and other national and transnational organisations oriented to improving professional practice.

- General Public: here we should be aiming at a "public understanding" audience that presents scenarios and illustrates the utility of the concepts. This should focus on the potentially transformational impact of HDA CAS technologies and on the broader issue of the ethics of hybrid CASs and the care that needs to be taken to ensure responsible innovation, ethical implementation and sustainable transformation around the way work is carried out in complex organisations.

In the first two years of the Smart Society project our main focus should be on developing academic, policy and consultancy awareness of the HDA CAS approach. In particular how hybridity, compositionality and diversity-awareness extend the range of application of CAS ideas and how this extended CAS notion influences the way we manage governance, regulation, incentives and the design of work. As firmer results, techniques and components are delivered by the project we can extend our approach both in terms of interactions with tool builders and users and by providing more vivid examples of the power of the concepts to the wider public.

2.1 Audiences: Year 2 Developments

In the second year of the project the focus is still primarily on scientific audiences. However members of the SmartSociety project are beginning to disseminate the key ideas more widely beyond the core of researchers working on ideas around social computation. In particular we believe we have developed our audiences in the following ways:

- **Researchers:**
  - We continue to develop communication and dissemination with our core research community including cooperation with our cluster members via the summer schools, workshops and other activities initiated by the FoCAS CSA. For example, participation in the recent AppSprint in Barcelona will provide a basis for Educational developments that will help disseminate CAS and HAD-CAS More broadly our key messengers are very active in the community as can be seen in the Messengers Update section.
  - In the other H2020 pillars we have been active over the last year and will intensify activities in the coming year. We submitted a proposal to the PHC-26 call entitled: **ESSCA:** Empowering Self-Management via Social Collective Awareness in Health and Care**,** unfortunately this was unsuccessful (the call had around 250 proposals submitted and 12 were funded). The ESSCA proposal involved Universities, SMEs and Health Delivery Organisations. In 2015 we plan further applications and currently are targeting ICT-10 (Collective Awareness Platforms) in the LEIT pillar and PHC-25 (integrated Care) in the Societal Challenges pillar. In addition we may consider applications to EURO-6 (Using Emerging Technologies in the Public Sector), INSO-1 (Using Emerging Technologies in the Public Sector), and INSO-9 (Innovative mobile eGov apps) as potential exploitation channels for Smart Society research.
- **EU Commission:** DFKI, UNITN and UEDIN are all full participants in the EIT ICT Labs KIC. During 2014 we have positioned ourselves in a range of the large-scale High Impact Initiatives that will run over the next two or three years. For example, all are involved in the Health and Wellbeing area in the "Fit to Perform" High impact initiative. This involves several companies (Phillips, MAN, Astrata, Telecom Italia, …). This is oriented towards improving the health and improving driving safety of truck drivers. A critical element in this is understanding the mix of human and machine contribution to the activity and on incentivisation for human groups (e.g. the collective of drivers operating out of a particular depot). Smart Society members are also engaged in the European Innovation Partnership on Active and Healthy Ageing. Smart Society members have also contributed to responses to consultation on mHealth and on the Silver Economy. Both of these are key potential exploitation areas for CAS technologies.
- **Companies:** In developing proposals for projects related to Smart Society we have engaged with five SMEs and will develop tis direct interact further as we develop additional proposals over the next year. As we gain experience of interaction with SMEs in this area we will consider dissemination at wider scale in order to reach a larger SME audience. Our **exploitation** plan has already identified key exploitable technologies and we will use these as the focus for further dissemination to tech companies. EIT ICT Labs remains a key channel to

reach larger companies through participation in projects such as the High Impact Initiatives. It may be that Smart Society technologies will be highly relevant to a range of the High Impact Initiatives such as "Cloud for Trusted Personal Data", "Smart Street Retail", and "Trusted Data Management with Service Ecosystem". We plan to develop these routes to this audience over the coming year.

- **Public Sector:** Our main connection both with policy and delivery agencies has been via health activities in the EIP on AHA, responses to consultations, participation in policy groups and in engaging agencies in follow-on funding applications. This will continue to be a strong audience but we believe there will be significant developments around cyber-security over the next year and our expertise in support CAS-like structures in the privacy and governance area will offer significant opportunities for dissemination. Vincenzo Maltese is a member of the Trento Smart City experts' board. The IEEE has nominated Trento among the top Ten Smart Cities in the world.
- **Public Awareness:** We have participated with the FoCAS CSA in discussion on how to reach a broad public audience. One route has been the publication of work in broad technical publications such as Communications of the ACM which reaches a very broad technical audience and provide a platform access by an informed public. One additional route has been TEDx talks. These have very wide reach and are necessarily accessible. We see this as a potentially important route to reach our wider audience. Concern over the consequences of intelligent systems is an opportunity to provide a technically informed voice in dialogue over the development and control of such systems. Vincenzo Maltese has presented a talk entitles " A Hybrid Society is Already Happening" at the Smart City Expo World Forum. SmartSociety will also present a panel at the Trento ICT days on 19th March.

3 Key Messages

This is the first iteration of the dissemination plan before the main outputs of the project have been fully clarified. As the project progresses we will refine these both in terms of the precision of the messages and the audience we intend to address. Here we focus mainly on the scientific, policy and consultancy audiences outlined above. We have the following key messages:

- HDA CAS as a unifying notion for work on CASs, in particular exemplifying how work on hybridity, diversity and compositionality provide key analytical tools for CASs. For example, the utility of the ideas in looking at smart transportation and the linkage across several FOCAS projects. This is directed primarily at the FOCAS community but is also of interest to the wider Social Computation community.
- The key role of the collective in organizing social computation in large scale social computations together with analysis of the formation and maintenance of collectives and supporting their activity. This is relevant to the wider social computation research grouping.
- Presenting the range of open questions on HDA CASs that have potential impact and are manageable as a PhD or Masters thesis provides a perspective on the potential of the field for graduate student projects.
- HDA CASs take the design and analysis of governance, regulation and incentives as a key part of the design and evolution of CASs. This perspective is also highly relevant to the broad social computation community but also is of great interest to consultant and policy makers who are interested in how to develop policy options that achieve their ends. The phenomenon of perverse incentives in complex service delivery organisations occurs too frequently and has a destructive effect on service delivery. Thus these ideas have a key role to play in tackling the societal challenges where, for example, in the EIP in AHA radical service redesign is seen as a key to unlocking the potential for innovation in Health and Care.

In the next section we consider channels and the messages we plan to deliver along those channels. We split the channel description into two distinct classes: **messengers** who are individuals that carry particular messages with authority in particular communities and other more **generic channels**. The messenger channels are still being refined but they demonstrate the intention of the project to deploy its leading researchers in the task of direct personal dissemination to their communities. For the other channels we consider first their generic characteristics and then consider how to deploy them to carry particular messages to particular target audiences.

3.1 Messages: Year 2 Developments

We have developed the "Rideshare" and "Ask SmartSociety!" demonstrators provide an embodied vision of some of the core SmartSociety concepts. In addition we have a strong collection of scenarios that illustrate other features of the HDA-CAS concept that can be supported by the SmartSociety architecture and components. This is the basis to develop some additional messages that provide a more detailed account of HDA-CAS concepts:

- **Models:**
  - The minimal formal models that enable communication between the architectural components of the SmartSociety components.
  - Provenance models that provide key resources for adaptation that will be developed in the coming year and for traceability and transparency as an underpinning for governance.
  - Peer modelling provides a basis for privacy-aware task management for human participants in CASs.
  - Privacy models that ensure users have control over their data and are able to track its use in HDA-CAS systems.
  - Orchestration and programming models together with an architecture that integrates the contribution of the other technical work packages.
- **Deployment:** The ridesharing deployments are generating experience and data that provide valuable concrete information for the technical community and potential adopters. As the data is analysed this will be presented on the website and through publications. If we believe the data is valuable to the wider community we will make it available to the community.
- **Exploitation:** D10.5 provides an exploitation process and has identifies some initial exploitation opportunities. These will be developed through our Knowledge Exchange channels in the coming year.
- **Citizen Science:** Over the past year we have been working with the Zooniverse project using SmartSociety concepts to analyse community behaviour in the Zooniverse context. This provides us with a good contribution to an understanding of collective work in Citizen Science.
- **Education:** Task 10.2 is responsible for developing curricular and teaching materials. Inevitably this will comprise both "bottom up" and "top down" work to ensure coherence and coverage of curriculum and materials. At the moment we see the following threads in the curriculum and teaching materials:
  - **Ethics, Governance and Privacy:** we already have materials for the ethics and governance workshops we have held internally. These, together with materials on privacy provide the basis for a crosscutting thread that covers these issues and how they interact with other processes and components in an HDA-CAS.
  - **Scenarios and Deployment:** We already have some early data from the BGU deployment and expect to see other data and simulation work to provide the basis for analysis of the operation of HDA-CASs. In addition we have a considerable body of scenarios and other observational studies that provide ideal materials for practical work on the creation and operation of HAD-CASs. Included in this work will be a typology of kinds of collective work. These will be exemplified using our range of scenarios.
  - **Orchestration, Programming and Architecture:** This work is still in development but it does provide the basis for composing HDA-CAS components and deploying such systems.
  - **Models:** we have models that underpin all of the main technical components in HDA-CASs that have some formal unity in terms of systematic approach to entities in the domain and an orchestration framework that brings together components using these models. This is still under development but we anticipate sufficient progress during the coming year to develop educational materials to support learning in this area.
  - **Methodology – Operation, Design and Evolution of HDA-CASs:** this is a key thread we have yet to consider in terms of curricular content. We anticipate work will commence on this aspect concurrently with the second work cycle beginning in month 30.

4 Messengers

A key strength in SmartSociety is the academic reputation of the investigators. This section provides a list of our key influencers. The goal of this section in the dissemination plan is to consciously consider how to leverage the high reputation of our investigators to target key audiences and to understand how best to coordinate in messages to reach our intended audiences.

We can see the list below either as a plan or as a means of auditing the activity of our principal researchers. As we refine key messages we will develop a small repository of slides that carry key messages for the use of our researches and as part of the dissemination activity we will collect data on talks given by our researchers. Thus we will consciously create collateral to support particular messages and audit activity against messages and communities. This process will enable us to gain a qualitative feel for the reach of the project.

As the project develops this list will grow to take account of the development both of our researchers and their capabilities. For each messenger we provide a list of at least one community they are recognised in and at least one message they can carry about the project. These lists will be refined as we understand the individual, messages and communities better.

- Fausto Giunchiglia:
  - Communitie(s): social computation; semantic web; open knowledge; …
  - Message(s): on the utility of hybridity, compositionality and diversity as foundational notions; applications of CAS in various settings; the role of CAS in understanding context; …
- Dave Robertson:
  - Communitie(s): social machines; open knowledge; coordination; software engineering; …
  - Message(s): the space of social computation and the place of HDA CAS in that space; role of HDA CAS in software engineering; …
- Marina Jirotka:
  - Communitie(s): Responsible Research and Innovation (RRI); Requirements Engineering; UK government at policy levels e.g. Information Commissioners Office; UK research councils; …
  - Message(s): RRI aspects of the approach taken in SmartSociety; the approach to operation, design and evolution of CASs and how this could influence RE; the role of governance, regulation and incentives in HDA CASs;…
- Luc Moreau:
  - Communitie(s): Provenance, Web Science, …
  - Message(s): role of provenance in a collective setting, relationship between provenance data and adaptation;…
- Paul Lukowicz:
  - Communitie(s): pervasive intelligence; ubiquitous intelligence; social interactive systems; …
  - Message(s): role of the collective in pervasive intelligence;
- George Kampis:
  - Communitie(s): complex systems; cognitive science; …
  - Message(s): the role of the collective in social computation; …
- Schahram Dustdar
  - Communitie(s): social programming languages/systems; distributed systems; adaptive systems; …
  - Message(s): the role of hybridity in programming systems for HDA CASs
- Kobi Gal:
  - Communitie(s): multi-agent systems; human-computer decision making; …
  - Message(s): the role of the collective in human decision taking;…
- Subramanian Ramamoorthy:
  - Communitie(s): robotics; machine learning; complex dynamical systems; multi-agent systems; …
  - Message(s): the role of incentives in shaping collective decision taking; …
- Michael Rovatsos:

    - Communitie(s): multi-agent systems; planning;
    - Message(s): the role of the collective in decision taking; …
- Simone Fischer-Hubner:
    - Communitie(s): privacy; data protection; security; …
    - Message(s): how to achieve built in privacy in HDA CASs;…
- Daniele Miorandi:
    - Communitie(s): socio-technical systems; smart energy; mobile systems
    - Message(s): architecting, developing and evolving HDA CAS to meet societal challenges; …
- Vincenzo Maltese
    - Communitie(s): knowledge organization; knowledge management; open knowledge
    - Message(s): the role of diversity awareness in developing smart systems; …
- Iacopo Carreras:
    - Communitie(s): SME companies working in the mobility space
    - Message(s): How smaller companies can leverage the ideas (and software) from SmartSociety to provide infrastructure for their work.
- Dave DeRoure:
    - Communitie(s): semantic web; web science; social machines;…
    - Message(s): on the role of social science in understanding social computational systems; the role of empirical investigation in understanding social machines;…
- Lucia Pannese:
    - Communitie(s): serious games;…
    - Message(s): on the use of HDA CAS concepts to support notions of the collective in serious games; on using serious games as means to evaluate the HDA CAS concept.

This list is incomplete but it will develop as our understanding of HDA CAS improves and we refine our messages and audiences.

4.1 Messengers: Year 2 Developments

Our messengers have been heavily involved in disseminating Smart Society concepts across a wide range of communities. In this section we touch on a selection of the dissemination actions that have taken place on 2014. In this selection we attempt to span audiences and messages.

At IJCAI 2014 Giunchiglia gave a plenary on "Knowledge in Diversity" that took the key concept of diversity to a wide AI audience. Gal organised the *Human-Agent Interaction Design and Models* workshop for Smart Society at the International Conference on Autonomous Agents and Multiagent Systems to help embed Smart Society concepts in the Agent community. Similarly Moreau organised a provenance analytics workshop at provenance week and Jirotka a consent workshop at Ubicomp. Dustdar presented a range of invited talks on the Vienna Elastic Computing Model that underpins the SmartSociety programming model.

Rovatsos reached out to a general public audience with his TEDx Edinburgh talk on "The Society of Computation and the Computation of Society". De Roure presented the keynote "The Social Machines Paradigm" at the Web Science and Data Analytics Summer School, taking material to grad students. Similarly Pannese presented a session on Gamification at the FoCAS summer school. Maltese presented the SmartSociety project at the Smart City World Congress. Lukowicz presented at the Computational Social Science Workshop to a broad interdisciplinary group. Miorandi and Maltese edited the Social Collective Intelligence book that projected SmartSociety ideas to a broader technical audience.

Robertson, Dustdar and others presented a joint paper between SmartSociety and the SOCIAM project at the 10th International Conference on Collaborative Computing. Other joint publications are in preparation with projects inside the FoCAS cluster and more broadly.

Exploitation activity has been led from our companies Imaginary and U-Hopper where we have seen the identification of exploitable results. In addition Pannese has led on connecting to Municipalities

and seeking the opportunity to launch a full-scale service based on SmartSociety ideas and technologies.

5 Dissemination activities, tools/channels

This section provides a short overview of our strategy for each of the main audiences followed by a list of concrete actions and responsibilities. The first section characterises each of the main channels we will deploy to disseminate the results of the project and considers some generic activities we can carry out in each of the main channels. The second section provides an overview of the activities for each of the main audience groups.

5.1 Dissemination Channels

In this section we consider the individual dissemination channels and the activities and messages they most effectively support. The main channels are:

- Web: this is the main online resource that carries the public face of the project. It is also the main news and social media source for the project. The design and implementation of the web site is described in Section 7.1.
- Social media: The use of social media is fully integrated into the website. This is described in Section 7.1.2
- Publication: The project website provides access to project materials. This is described in Section 7.1.5
- Community: Project members are very active in attending workshops, conferences and meetings and routinely give talks at meetings. These are gathered monthly and recorded as part of the project activity tracking. In 2014 the project aims to organise two workshops covering the work of the project. One is already confirmed, the other is still in preparation. The confirmed workshop is Third International Workshop on Human-Agent Interaction Design and Models at AAMAS 2014: http://haidm.wordpress.com/.
- Innovation: The project members all have good access to innovation mechanisms. DFKI, UNITN and UEDIN participate in EIT ICT Labs and other partners have strong local arrangements so as the project progresses we will leverage these connections to interact with companies and public sector organisations with a particular focus on coordinating complex organisations.
- Proposals to Horizon 2020: Smart Society is a FET project so we are already seeing potential applications of Smart Society ideas in more applied projects. In particular in the Health Demographic Change and Wellbeing societal challenge area the personalizing health and care call topics are proving particularly productive.
- Print media: we are producing a short two page flyer since we believe online presentation of the project should have priority.
- Public Understanding: As the project matures we will aim to capture public understanding material and make it available on the website. In addition we will work to identify Science Festival events, exhibitions and meetings where presenting Smart Society ideas to the public would be appropriate.

5.2 Dissemination to Audiences

Here we consider each of the audiences we want to reach. Once we have a clear collection of messages we can refine this list to link activities to messages which should point to relevant KPIs for the message and the audience. This will provide a basis for evaluation of the particular dissemination activity.

- Scientific Community:
    - Generic:
        - Social media (this also has relevance for the other audiences): Twitter and Facebook feeds from the website automatically transfer information to these social media.
        - Publications:

- All should attach the following acknowledgement (it can be shortened but should retain three elements: "FP7", "600854" and "SmartSociety".) The text is: "*The work reported here is partially supported by the European Community's Seventh Framework Program (FP7/2007-2013) under grant agreement n. 600854 Smart Society: hybrid and diversity-aware collective adaptive systems: where people meet machines to build smarter societies (http://www.smart-society-project.eu/).*"
- Our current list of target journals include: Nature, IEEE Transactions on Computational Intelligence and AI in Games, Springer Transactions on Computational Collective Intelligence. Target conferences include IEEE World Congress on Computational Intelligence, International Joint Conference on Computational Intelligence and IEEE Symposium Series on Computational Intelligence.

▪ Education: we are planning to create a MOOC to provide online training in HDA CAS techniques and technologies. UEDIN has considerable experience of this through its use of MOOCs via the Coursera system. DFKI will lead on this. We believe we can make significant progress on the MOOC in 2014.

o FOCAS Community:

▪ Liason with other projects in FOCAS:

- Allow Ensembles: DFKI are leading on this and will take smart transport as the initial point of contact with SmartSociety.
- QUANTICOL: UEDIN are leading on this and will take smart transportation modelling as the initial point of contact.
- We plan to fully participate in FOCAS activities having already contributed two short papers to their Taormina workshop in July 2013. We also participated in the Booksprint that created a short introductory book on Collective Adaptive Systems.

o Broader Social Computing/Collective Intelligence Community: We have a good connection to the SOCIAM project in the UK that studies Social Machines through our UK partners who form the SOCIAM project members. We also have connections to Sandy Pentland's group at MIT and to the Center for Collective Intelligence at MIT and the Human Computer Convergence community in Europe.

o Research Students: we are investigating the development of a MOOC that covers many of the key concepts of HDA CASs this is being led by DFKI and may involve the cooperation of the wider FOCAS group.

o Other Communities: three partners (DFKI, UNITN and UEDIN) participate in the EIT ICT Labs KIC and have a joint project funded by the KIC during 2014. We believe our active involvement will see wider use of CAS concepts and more broadly social computation inside EIT ICT Labs.

o We have also identified two further projects to interact with: http://www.smartcrowds.net, for WP3 experiments and http://superhub-project.eu to interact with WP6.

- EU Commission:

o DG Connect + DG Sanco: The European Innovation Partnership on Active and Healthy Ageing has a strong ICT theme with issues in the construction and operation of large scale organisational systems. It may be that the HDA-CAS perspective provides some leverage on the issues. Smart Society project members are active in the EIP on AHA and this engagement may see the development of dissemination into practice in the e-health sector.

o EIT: EIT owns the societal challenges in H2020 and HDA-CASs potentially have wide applicability in these domains so we should investigate how to approach them. We have yet to determine the best timing for this initiative.

o Individual KICs

  - EIT-ICT Labs: DFKI, Trento and Edinburgh are in EIT ICT Labs. We are actively looking for opportunities to collaborate using HDA-CAS concepts in the EIT ICT Labs 2015 workprogramme.
  - Climate KIC, KIC Inno Energy: We believe the HDA CAS concept is particularly appropriate to providing motivation to large scale groups. Because Climate KIC has clear needs in this area we will explore the potential for cooperation over the next six months to a year. The overall lead on Climate KIC is Mary Ritter at Imperial College and the Imperial node leader is Richard Templar, UEDIN have connections with both of theses individuals and will broker a meeting with Climate KIC in this period.
- Companies: This section will grow in size as the project develops specific propositions for companies. We should further differentiate the strategies by the size and concerns of the companies. At the moment our first approaches will be with companies that are experiencing serious difficulties with governance and configuration of large-scale organizational systems. This suggests SAP, IBM, Oracle, and other systems integrators. Translating Smart Society results into clear propositions is still work in progress. We are collecting company contact that are of use to Smart Society and will commence some company interaction over the next six months.
- Public Sector: Here we already have good links with public sector e.g. in the Territorial Lab in Trento, the Digital Health Institute in Edinburgh and through EIT ICT Labs. As part of the Interview activity in WP1 we also interviewed a large number of public and private service companies to explore how HDA CAS concepts might be useful in analysing their situation. We anticipate returning to these organisations if it is a appropriate once we have fully analysed the data we collected. This provides us with an initial list of settings we can disseminate into when the Smart Society proposition for the public sector is more clearly articulated.
- Practitioners: It is still too early to decide how best to deal with dissemination to practitioners. If the approach is via professional organisations then providing education and training material derived from activity on MOOCs is a likely avenue of approach.
- General Public: Here we are aiming getting public engagement and interest. The FOCAS CA produces a regular newsletter and is prepared to undertake other public understanding actions. We will cooperate actively with them on these activities. We are exploring the possibility of events at science festivals events in 2014/15. Our strategy will be to develop materials for one festival, possibly the Science Festival in Edinburgh, and then localize the material to other settings.

5.3 Dissemination Tools and Channels: Year 2 Developments

In response to the reviewers' comments we have extended the range of channels we are using. We have used hard copy somewhat more and there is a good flier in use. ISSU seems to be particularly heavily used so we are ensuring materials are up to date on that channel. The profiling of access provided by ISSU is proving helpful. We have also developed Mendeley and Zotero resources together with SildeShare.

In the second half of 2014 we began to video interviews with researchers on the project and have created a youtube channel entitled "SmartSociety Science Café". The channel is insufficiently populated to publicise at the moment but we do have sufficient interviews to announce the channel. The main issue that is delaying us is the time taken to edit and prepare the videos for publication. We anticipate the channel will be launched in the first quarter of 2015. The URL for the channel is: https://www.youtube.com/channel/UCYGLkQTnb_FChu0HmM7nWEA .

We had assumed that in the second year of the project we would be able to arrange a meeting of our International Advisory Committee. All attempts to convene a meeting have proven unsuccessful to date. Our new strategy will be to slightly expand the membership to provide better coverage of what is a highly multidisciplinary project and attempt to approach the members on a more direct one-to-one basis with specific questions about the direction of our work. We believe this is particularly important at month 30 where we commence our second iteration of the project.

An important part of our dissemination activity is our decision to continue our association with the HAIDM series of workshops as a means of reaching the wider academic community of interest in CAS. The appendix to this document provides a rationale for our involvement.

6 Evaluation

Evaluation looks at two facets: the effort we are putting into the dissemination activities and the effectiveness of the measures. The DOW for the Smart Society project has an agreed framework of KPIs with annual target KPIs for the duration of the project. Both effort and effectiveness can be measured using KPIs. The current KPI framework is mainly intended to measure the effectiveness in terms of activity levels on our main dissemination channels. The main KPIs listed in the proposal are given in the table below:

KPIs	M12 Target	M12 Actual	M24 Target	M24 Actual	M36 Target
Published works (cumulative)	6	17	15	39	40
Invited Speeches/Keynotes (cumulative)	1	14	3	18	5
Joint Publications (cumulative)	1	4	5	8	15
Visits to other Partners for joint work (cumulative)	1	5	3	?	6
Monthly website hits	200	Dec 2013: 473	500	1065	1000
Downloads (inc. ISSUU)	300		1000	8537	3000
Articles in blogs etc (cumulative)	3	6	7	10	15
Papers submitted/attendees at workshop	n/a	n/a	40/50	22/30	80/120
Partnerships with other institutions working on similar work	1	1	3	4	8
Number of projects using Smart Society methods	n/a	n/a	n/a	n/a	1
Products/Processes using Smart Society results	n/a	n/a	n/a	n/a	1

The project dissemination report reports against these measures. We will retain these KPIs for the duration of the project but we believe it should be possible to develop a more strongly outcome-based approach that will allow us to develop a better characterisation of the quality of the dissemination activity as well as retaining these measures that provide a feel for the quantity of dissemination activity.

Twitter activity in 2014 can be summarised: 403 tweets, following 105, with 128 followers, listed by 30.

6.1 Evaluation: Year 2 Developments

The main development in evaluation is the creation of D10.5 that identifies the exploitable results of the project. Over the next year we will attempt to provide meaningful outcome measures for the exploitable aspects of the project. In addition we will develop a broader range of overall measures that will help evaluate the impact of the Smart Society project.

7 Dissemination Report

This section provides a report on the dissemination activities undertaken across the project in 2013. Although the dissemination levels are quite high, for the initial year of a four-year project we did encounter some problems. At UEDIN we had severe difficulties in recruiting staff to assist in the development of the web presence etc. A stable arrangement was not in place until October 2013. In the interim period, we did not establish a fully stable web presence and there were severe issues in gathering statistics and in creating an easily accessible repository of the work of the project. In particular this affected the recording of website visits and downloads. As can be seen in the table below now we are recording the data accurately website visits are already exceeding the anticipated levels for M24. On downloads, we will include an effective repository of work in the new website to be launched at the end of Jan 2014. Meantime we have done some sampling of project outputs. On the

whole finding data was quite difficult but we did find one particular paper from the project that had been downloaded more than 7000 times (it was a particularly popular paper) which points to the dissemination potential of the new website. In the following sections we provide a more detailed breakdown of the evidence underpinning the summary table below.

7.1 Website and Social Media

The old Smart Society website was developed as a stopgap to provide some web presence while we recruited personnel to develop the new website. The following sections describe the new website in some detail.

The new SmartSociety website has been set up at the School of Informatics, University of Edinburgh (UEDIN), on an OS X server with URL http://smart.inf.ed.ac.uk/. It was first launched in October 2013 and is going to officially replace the previous website http://groups.inf.ed.ac.uk/smart-society/index.php before the SmartSociety General meeting in Ein Gedi, on the 28th of January 2014. This previous web-page, hosted on the groups.inf.ed.ac.uk server at UEDIN, was last updated on the 15th of January 2014. The replacement is going to take place through the redirection of http://www.smart-society-project.eu/ to the new website.

7.1.1 General Set-up

The new SmartSociety website (SSw) is currently built on WordPress version 3.8 and is running the Catch Box theme version 2.9. Also running are the plug-ins Akismet version 2.5.9, Database Browser 1.1.4, Download Manager 2.5.94, EU Cookie Law Compliance 1.1.4**,** Enhanced Admin Bar with Codex Search 2.0.53, Hello Dolly 1.6, Jetpack by WordPress.com 2.7 and WP-Mail-SMTP version 0.9.4.

SSw is maintained by 10 users, 1 Administrator from UEDIN and 9 with Editor privileges from the other institutions. There is, therefore, one representative from each institution in the consortium who is responsible for locally gathering dissemination information and sharing it on the website, either directly or through the administrator.

In order to gather statistics and information for the SmartSociety's Key Performance Indicators (KPIs), AWStats version 7.2 has been installed on the server.

7.1.2 Social Media

Content posted on SSw makes regular use of social media and the site contains direct links to these. Furthermore, in order to aid in the dissemination, the following SmartSociety social media accounts are maintained:

- Twitter: https://twitter.com/SmartSocietyFP7
- ISSUU: http://issuu.com/smart-society-project
- Slideshare: http://www.slideshare.net/Smart-Society-Project/

A Google account (smartsocietyproject@gmail.com) is maintained for registration purposes only.

The WordPress layout automatically supports a number of RSS feeds. Out of those we highlight:

- Entries RSS: http://smart.inf.ed.ac.uk/feed/
- Comments RSS: http://smart.inf.ed.ac.uk/comments/feed/
- Events RSS: http://smart.inf.ed.ac.uk/category/events/feed/
- Calls for Papers RSS: http://smart.inf.ed.ac.uk/category/calls_for_papers/feed/
- Job Openings RSS: http://smart.inf.ed.ac.uk/category/job_openings/feed/

Entries RSS is directly linked to our Twitter account via IFTTT.

7.1.3 Layout

The main site area is contained between two menu bars, the main and footer. Above the main menu stretches a banner highlighting the project's logo and full title. The logo also appears near the centre of the Home page alongside a short project abstract. Above it, a slider showcases any posts selected by the administrator.

The abstract and slider cover the content area and are replaced by any pages or posts the visitor navigates to. On the left of this area, a column contains a search-bar and links to the most recent posts on the site (currently set to 12), followed by meta links. The latter include the above mentioned RSS feeds and an Internal page with access limited to SSw registered users. This contains project documents as well as a Dropbox and repository links.

The area below the footer menu displays website and project related information as well as some social media links.

7.1.4 Content

Content is mainly accessed through the search-bar, left column links, slider and menus. An attempt has been made to keep project related content easily accessible through the main menu. Site specific or less relevant content has been kept at the footer menu.

On the main menu, one can find information on the SmartSociety project's Advisory Board, as well as the Consortium and its key members. The About page gives an explanation of the project and links to a Fact sheet. There is also a detailed Research Outline, a Publications list, and the Event feed. The Software page is currently a place holder.

On the footer menu, one can find the Site-map, SSw's Privacy policy, a Contact form and Job Openings feed.

7.1.5 Files

All images displayed and directly downloadable document files are stored on the http://smart.inf.ed.ac.uk/ server. Additionally, documents have been uploaded to the ISSUU and Slideshare accounts and have been embedded to various posts. Some links, however, are to non SmartSociety maintained accounts. Care is taken to reference content sources, with links to original posts when relevant.

7.1.6 Feedback

Site visitors can provide feedback by commenting on a specific post or completing and sending a form to the site administrator through the "Contact us" page.

7.1.7 EU Directive 2009/136

European Union Directive 2009/136, amending the E-Privacy Directive 2002/58, declares that website cookies are subject to prior consent. This amendment is widely known as the EU Cookie law.

The SmartSociety website complies to this directive. Visitors are asked for explicit consent through use of the EU Cookie Law Compliance plug-in.

7.1.8 Website Traffic

While we have been developing the new website we have also improved the collection of monitoring data on the existing website and this has provided much more accurate figures for visits. As we develop the new website we will provide a more detailed analysis of the geographical distribution of website visits while ensuring the privacy of website users is preserved.

7.2 Publications

In this section we can see the project has been reasonable active in the first year in terms of publication. Included in this list is the publication developed in cooperation with our FOCAS partner project using the BookSprint methodology. This was written in one intensive week and is intended to provide an introduction to CASs for potential research students and members of the public with a general interest in Collective adaptive systems. The second table lists seven publications that have already been accepted for publication in 2014.

Citation	Institutions	Publication Type	Date	Other
F. Giunchiglia, V. Maltese, S. Anderson, D. Miorandi (2013). Towards Hybrid and Diversity-Aware Collective Adaptive Systems. First FOCAS Workshop on Fundamentals of Collective Systems @ECAL 2013.	UNITN, UEDIN, UH.	Slides		
Kampis, G, Lukowicz, P, and Anderson, S. (2013): Human-Machine Coexistence in Groups, FOCAS ECAL Workshop, European Conference on Artificial Life (ECAL), Taormina, September 2-6, 2013.	UEDIN, DFKI.	Slides		
F. Giunchiglia, Smart Society: Vision and Challenges, Venice, March 26, 2013 @Social-ist Workshop.	UNITN.	Slides		
Moreau, Luc and Groth, Paul (2013) Provenance: An Introduction to PROV, Morgan and Claypool, 129pp.	UoS.	Book		
Hong-Linh Truong, Schahram Dustdar,Kamal Bhattacharya "Conceptualizing and Programming Hybrid Services in the Cloud", International Journal of Cooperative Information Systems, (c)World Scientific Publishing, 2013, Accepted. doi: http://www.worldscientific.com/doi/abs/10.1142/S0218843013410037	TUW.	Paper	**24/12/13**	
Ognjen Scekic, Hong-Linh Truong, and Schahram Dustdar. 2013. Incentives and rewarding in social computing. Commun. ACM 56, 6 (June 2013), 72-82. doi: http://doi.acm.org/10.1145/2461256.2461275	TUW.	Paper	**01/06/13**	

Muhammad Zuhri Catur Candra, Hong-Linh Truong, Schahram Dustdar, "Provisioning Quality-aware Social Compute Units in the Cloud", the 11th International Conference on Service Oriented Computing. Berlin, Germany, 2-5 December, 2013. doi: http://dx.doi.org/10.1007/978-3-642-45005-1_22	TUW.	Paper	**01/12/13**	
Ognjen Scekic, Christoph Dorn, Schahram Dustdar, "Simulation-Based Modeling and Evaluation of Incentive Schemes in Crowdsourcing Environments", 21st International Conference on Cooperative Information Systems (CoopIS'13), September 11-13, 2013, Graz, Austria. doi: http://dx.doi.org/10.1007/978-3-642-41030-7_11	TUW.	Paper	**01/09/13**	
Ognjen Scekic, Hong-Linh Truong, Schahram Dustdar, "Programming Incentives in Information Systems", 25th International Conference on Advanced Information Systems Engineering(CAiSE'13), Springer-Verlag, Valencia, Spain, 17-21 June, 2013. doi: http://dx.doi.org/10.1007/978-3-642-38709-8_44	TUW.	Paper	**01/07/13**	
Moreau, Luc, Huynh, Trung Dong and Michaelides, Danius (2014) An Online Validator for Provenance: Algorithmic Design, Testing, and API. In, 17th International Conference on Fundamental Approaches to Software Engineering (FASE'14), Springer-Verlag.	UoS.	Paper	**13/01/14**	**2014**
Anderson, S., Bredeche, N., Eiben, A.E., Kampis, G. and van Steen, M. (2013). Adaptive Collective Systems – Herding Black Sheep, on-line book publication (pp. 76), ISBN pending. Retrieved from http://focas.eu/adaptive-collective-systems-book/	UEDIN, DFKI.	Book	**08/11/13**	
M. Rovatsos. Multiagent Systems for Social Computation (challenge paper), Thirteenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2014), May 5-9, 2014.	UEDIN.	Paper	**05/05/13**	winner of the second prize for best challenge and vision paper, 2014

F. Giunchiglia., I. Zaihrayeu, R. Chenu-Abente (2013). A semantic-enabled engine for mobile social network. Poster presentation at ESWC 2013 Workshop paper presentation at co-located SWCS 2013. Montpellier (FR).	UNITN.	Paper	**28/05/13**	
S. Torsi (2013). Building Sense in the Infosphere. In Giaccardi, E.,Ciolfi, L., Hornecker, E., Speed, C., Bardzell, S. (2013) CHI 2013 Workshop "Exploration in Social Interaction Design". Paris (FR), 28th. April 2013	UNITN.	Paper	**28/04/13**	
Torsi, S. Notification in Motion. Theoretical Frameworks and Design Guidelines. JMMT: Journal of Man, Machine and Technology (ISSN: 2234-1625)	UNITN.	Paper	**30/06/13**	
F. Giunchiglia and A. Hume. A Distributed Entity Directory. In ESWC (Satellite Events), volume 7955 of Lecture Notes in Computer Science, pages 291–292. Springer, 2013.	UNITN.	Paper	**28/05/13**	
F. Giunchiglia and A. Hume. A Distributed Directory System. In 9th Int. Workshop on Scalable Semantic Web Knowledge Base Systems (SSWS) @ISWC2013.	UNITN.	Paper	**21/10/13**	
F. Giunchiglia, V. Maltese, S. Anderson, D. Miorandi (2013). Towards Hybrid and Diversity-Aware Collective Adaptive Systems. First FOCAS Workshop on Fundamentals of Collective Systems @ECAL 2013.	UNITN, UEDIN, UH.	Technical Report	**10/10/13**	
Fischer-Hübner, S. and Martucci, L. A., "Privacy in Social Collective Intelligence Systems" to appear in Miorandi, D., Maltese, V., Rovatsos, M., Nijholt., A. and Stewart, J. (eds) Social collective intelligence: Combining the powers of humans and machines Springer, 2014.	KAU.	Paper	**2014**	**2014**
Hartswood, M., Grimpe, B., and Jirotka, M., "Towards ethical governance for a SmartSociety" to appear in Miorandi, D., Maltese, V., Rovatsos, M., Nijholt., A. and Stewart, J. (eds) Social collective intelligence: Combining the powers of humans and machines Springer, 2014.	UOXF.	Paper	**2014**	**2014**

Hartswood, M., Grimpe, B., and Jirotka, M., "Towards Ethical Governance of Social Machines," cgc, pp.426-427, 2013 International Conference on Cloud and Green Computing, 2013.	UOXF.	Paper	**30/09/13**	
Grimpe, B., Hartswood, M., and Jirotka, M., "Towards a closer a dialogue between Policy and Practice: Responsible Design in HCI". To appear in Proceedings of the 2014 ACM annual conference on Human Factors in Computing Systems (CHI '14). Toronto.	UOXF.	Paper	**26/04/14**	**2014**
Robertson, D., Anderson, S., Carreras, I., Miorandi, D., "D2.1 White Paper on Research Challenges in Social Collective Intelligence WP2 – Research Challenges and Strategic Analysis", Social-IST (2013).	UEDIN, UH.	White Paper	**19/11/13**	
Carreras, I., Anderson, S., Robertson, D., Miorandi, D., "D3.1 Roadmap for FET Initiatives in Social Collective Intelligence, WP3 – High Impact Application Areas and Roadmapping", Social-IST (2013).	UEDIN, UH.	Roadmap	**19/11/13**	
B. Rosman, S. Ramamoorthy, Giving advice to agents with hidden goals, In Proc. IEEE International Conference on Robotics and Automation (ICRA), 2014.	UEDIN.	Paper	**31/05/14**	**2014**
Ofra Amir, Yuval Shahar, Ya'akov Gal and Litan Ilany. On the Verification Complexity of Group Decision-Making Tasks. Conference on Human Computation and Crowdsourcing, Palm Springs, CA, November 2013.	BGU.	Paper	**03/11/13**	
Miorandi, D., Maltese, V., Rovatsos, M., Nijholt, A., Stewart, J., Social Collective Intelligence: Combining the Powers of Humans and Machines to Build a Smarter Society, Springer, 2014.	UNITN, UEDIN, UH.	Book	**2014**	**2014**
R. Simpson, K. R. Page, D. De Roure. 2014. Zooniverse: Observing the World's Largest Citizen Science Platform. 2nd International Web Observatory Workshop, ACM.	OOXF.	Paper	**2014**	**2014**
Mirela Riveni, Hong-Linh Truong, Schahram Dustdar, "On the Elasticity of Social Compute Units", Springer-Verlag, 26th International Conference on Advanced Information Systems Engineering (CAiSE 2014), 16-20 June 2014, Thessaloniki, Greece. Accepted.	TUW.	Paper	**2014**	

Stuart Anderson, Mark Hartswood and Marina Jirotka (2014), Reflection, collectives and adaptation: the role of models in the design of Collective Adaptive Systems. To appear in the 2014 IEEE Eighth International Conference on Self-Adaptive and Self-Organizing Systems Workshops (SASOW 2014).	UEDIN, UOXF.	Paper	**2014**	
“Programming” Social Collective Intelligence. Daniele Miorandi and Lorenzo Maggi. To appear in IEEE Technology and Society, special issue on Technology for Collective Action (2014).	UH.	Paper	**2014**	
"A Collaboration Model for Community-Based Software Development with Social Machines", Dave Murray-Rust, Ognjen Scekic, Hong-Linh Truong, Dave Robertson and Schahram Dustdar, 10th IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing, 22-25 Oct, Miami, FL, USA, 2014. (accepted)	UEDIN, TUW.	Paper	**2014**	
"Virtualizing Communication for Hybrid and Diversity-Aware Collective Adaptive Systems", Philipp Zeppezauer, Ognjen Scekic, Hong-Linh Truong, and Schahram Dustdar, 10th International Workshop on Engineering Service-Oriented Applications (WESOA'14), 3 Nov, Paris, France, 2014. (accepted)	TUW.	Paper	**2014**	
F{\'a}bio Borges and Leonardo A. Martucci (2014). {iKUP} Keeps Users' Privacy in the Smart Grid. In Proceedings of the IEEE Conference on Communications and Network Security (CNS 2014), 29--31 Oct, San Francisco, CA, USA. (To appear.)	KAU.	Paper	**2014**	
F{\'a}bio Borges and Leonardo A. Martucci and Filipe Beato and and Max M{\"u}hlh{\"a}user (2014). Secure and Privacy-Friendly Public Key Generation and Certification. In Proceedings of the 13th IEEE International Conference on Trust, Security and Privacy in Computing and Communications, 24--26 September, Beijing, China, TrustCom 2014.	KAU.	Paper	**2014**	

Avi Segal, Ziv Katzir, Ya'akov Gal, Guy Shani and Bracha Shapira. EduRank: A Collaborative Filtering Approach to Personalization in E-learning. Seventh International Conference on Educational Data Mining (EDM 2014), London, England, July 2014. ** winner of best student paper award **	BGU	Paper	**2014**	
Galit Haim, Ya'akov Gal, Sarit Kraus and Bo An. Equilibrium Strategies for Human-Computer Negotiation in 3-player Market Settings. Twenty First European Conference on AI (ECAI 2014), Prague, Czech Republic, August 2014	BGU.	Paper	**2014**	
Ya'akov Gal, Avi Rosenfeld, Sarit Kraus, Michele Gelfand, Bo An and Jun Lin. A new paradigm for the study of corruption across cultures. International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP), Maryland, MD, April 2014.	BGU.	Paper	**2014**	
M.M.H. Mahmud, B. Rosman, S. Ramamoorthy, P. Kohli, Adapting interaction environments to diverse users through online action set selection, In Proc. AAAI Workshop on Machine Learning for Interactive Systems (AAAI-MLIS), 2014.	UEDIN.	Paper	**2014**	
S. Albrecht, J. Crandall, S. Ramamoorthy, E-HBA: Using Action Policies for Expert Advice and Agent Typification, In Proc. AAAI-Workshop on Multiagent Interaction without Prior Coordination (MIPC), 2015.	UEDIN.	Paper	**2015**	
S. Albrecht, J. Crandall, S. Ramamoorthy, An Empirical Study on the Practical Impact of Prior Beliefs over Policy Types, In Proc. AAAI Conference on Artificial Intelligence (AAAI), 2015.	UEDIN.	Paper	**2015**	

Gernot Bahle, Agnes Gruenerbl, Enrico Bignotti, Mattia Zeni, Fausto Giunchiglia and Paul Lukowicz (2014): "Recognizing Hospital Care Activities with a Pocket Worn Smartphone", 6th International Conference on Mobile Computing, Applications and Services (MobiCASE 2014, http://mobicase.org/2014/show/home)	UNITN, DFKI.	Paper	**2015**	Best Paper Award at the 6th International Conference on Mobile Computing, Applications and Services (MobiCASE 2014)

7.3 Community

The tables below list invited talks, other talks and blogs and online articles presented by members of the Smart Society project in 2013 and 2014. The talks are heterogeneous in topic reflecting the wide scope of the project and are highly geographically distributed. We believe this approach gives us good dissemination of the results of the project to the communities we work in.

SmartSociety Representative	Rep/ves' Institutions	Title	Institution / Venue	Event Name	Date	Type
S. Ramamoorthy	UEDIN.			Workshop on Computer Mediated Social Sense-Making	14/02/13	Invited Talk
M. Rovatsos	UEDIN.	Challenges for Formal Modelling in Computer-Mediated Social Sense Making	University of Edinburgh, School of informatics	Workshop on Computer Mediated Social Sense-Making	14/02/13	Talk
S. Anderson	UEDIN.	Computer Mediated Social Sensemaking in Health and Care Delivery: Stuart Anderson, University of Edinburgh	Inria research centre	ESSoS 2013	27/02/13	Invited Talk
M. Rovatsos	UEDIN.	Lightweight Social Orchestration		Social Computation Special Interest Group	13/03/13	Talk
S. Fischer-Hübner, L. Martucci	KAU.	Usable Privacy and Transparency	Högskolan I Skövde	Informatics Research Centre: Seminars	21/03/13	Scientific Seminar
S. Ramamoorthy	UEDIN.	Clustering Markov Decision Processes for a Lifelong Learning Agent	McGill's Bellairs Institute	Bellairs Workshop on Reinforcement Learning	30/04/13	Invited Talk
F. Giunchiglia	UNITN.	Invited Keynote: The Social Computer	Institute for Pervasive Computing, Johannes Kepler University Linz	Human Computer Confluence Research Challenges - Workshop	16/05/13	Invited Talk
D. De Roure	UOXF.	Social Machines	Global Climate Forum	Second Open Global Systems Science Conference	11/06/13	Invited Workshop
M. Rovatsos	UEDIN.	Rationality in communication: from learning to planning and back	King's College London (KCL)	AIS Seminar Series	04/07/13	Invited Talk

D. De Roure	UOXF.	Scholarly Social Machines	University of Oxford	Digital Humanities at Oxford Summer School 2013	10/07/13	Invited Public Lecture
M. Rovatsos	UEDIN.	Multiagent Systems for Social Computation: The SmartSociety approach	Technical University of Crete (TUC)	CretaMASSS 2013	22/07/13	Invited Talk
D. De Roure	UOXF.	Social Machines of Science and Scholarship		ACM/IEEE Joint Conference on Digital Libraries	25/07/13	Invited Keynote
S. Ramamoorthy	UEDIN.		Infosys Laboratories		30/07/13	Invited Talk
S. Ramamoorthy	UEDIN.		Indian Institute of Science	Computer Science and Automation Seminar	06/08/13	Invited Talk
S. Ramamoorthy	UEDIN.		Tata Institute of Fundamental Research	Departmental Seminar, National Centre for Biological Sciences	09/08/13	Invited Talk
S. Anderson	UEDIN.	Finitism and Social Computation	Oxford University	Social Machines Social Science workshop	23/09/13	Talk
K. Page, M. Hartswood, D. De Roure	UOXF.		University of Oxford	Social Machines Social Science workshop	23/09/13	Workshop
D. Robertson	UEDIN.	Sustainability, Ubiquity and Social Computation	the Royal Society	Royal society workshop on "Computing for a Sustainable Future"	01/10/13	Invited Talk
M. Rovatsos	UEDIN.	Multiagent Planning for Social Computation	Universidad Rey Juan Carlos	CETINIA Invited Lecture	10/10/13	Invited Lecture
D. De Roure	UOXF.	Big Data meets Big Social: Social Machines and the Semantic Web		International Semantic Web Conference ISWC 2013, CrowdSem 2013 workshop	21/10/13	Invited Talk
M. Rovatsos	UEDIN.	AI for Social Computation: Smart Society and SOCIAM	Scottish Informatics & Computer Science Alliance (SICSA)	SICSA Demofest 2013	05/11/13	Poster
S. Ramamoorthy	UEDIN.		University of Teesside	Departmental Seminar, School of Computing	20/11/13	Invited Talk

D. Miorandi	UH.	Game Theory and Programming Social Collective Intelligence	Imperial College London, Department of Electrical and Electronic Engineering	Featured talks	18/12/13	Talk
D. Robertson	UEDIN.	Future Cities	Scottish Informatics and Computer Science Alliance	SICSA Future Cities Theme	09/01/14	Co-organised, Talk
S. Ramamoorthy	UEDIN.		Council for Scientific and Industrial Research (CSIR), Mobile Intelligent Autonomous Systems Group		13/01/14	Invited Talk
M. Rovatsos	UEDIN.	The Smart Society Project	University of Edinburgh	PEPA Club Talk	14/02/14	Invited Talk
M. Rovatsos	UEDIN.	Society of Computation / Computation of society	University of Edinburgh	TEDxUniofEdinburgh	21/02/14	Invited Talk
M. Rovatsos	UEDIN.	Panel Presentation		HAIDM 2014 Workshop at AAMAS 2014	06/05/14	Panel Presentation
K. Gal	BGU.	Human-Agent Interaction Design and Models (HAIDM) workshop		HAIDM 2014 Workshop at AAMAS 2014	06/05/14	Co-organizer
K. Gal	BGU.	EduRank: Personalization in E-Learning using Social Choice and Collaborative Filtering (S)		HAIDM 2014 Workshop at AAMAS 2014	06/05/14	Talk
M. Rovatsos	UEDIN.	Some Interesting Problems in Social Computation	CTU	Agent Technology Center Seminar	08/10/14	Invited Talk
D. Diochnos	UEDIN.	Smart Society	University of Edinburgh	SICSA DemoFest	31/10/14	Poster
V. Maltese	Trento	A Hybrid Society is Already Happening	GRAN VIA VENUE	Smart City World Congress 2014 - Developing ICT-based city initiatives	20/11/14	Invited Talk
P. Andreadis	UEDIN.	Decision-theoretic ride-sharing optimisation with coarse user preferences	University of Stirling	SICSA Workshop on modelling and optimisation of real-world transportation	16/01/15	Talk
M. Rovatsos	UEDIN.	Travelling Collectives: The Human Side of Transportation Modelling	University of Stirling	SICSA Workshop on modelling and optimisation of real-world	16/01/15	Talk

				transportation		
F. Giunchiglia., A. Hume.	UNITN.	A distributed-entity Directory	Université Montpellier	ESWC 2013 Workshop	27-28/05/13	Poster
F. Giunchiglia, I. Zairahyeu, R. Chenu	UNITN.	A semantic-enabled engine for mobile social network	Université Montpellier	ESWC 2013 Workshop	27-28/05/13	Poster
S. Ramamoorthy	UEDIN.	Knowledge Representation and Reasoning in Robotics		29th International Conference on Logic Programming (2013) Workshop	August 24-29, 2013	Organized Workshop
S. Ramamoorthy	UEDIN.	Multiagent Interaction without Prior Coordination		AAAI 2014 Workshop	July 27-28, 2014	Organized Workshop

7.4 Blogs and Articles

The next table lists blogs and other articles that reach a somewhat broader audience than **more formal scientific events.**

Date	Media Name	Issue/version	Media Type	Article Name	Article Author
2012	ESSEGI be serious, play games!	no, 2012	Newsletter	Al via il progetto di ricerca europeo SmartSociety | tr: Launch of the European research project SmartSociety	Imaginary srl
07/06/13	Immersive Technology Strategies	June '13	Newsletter	Smart Society Applications and Grand Challenges	David Wortley
09/07/13	Immersive Technology Strategies	July '13	Newsletter	Smart Society and other European Projects	David Wortley
Summer 2013	Newsletter of the FoCAS Co-ordination Action project	Issue 1 Summer 2013	Newsletter	p. 7	FoCAS
01/10/13	Human Computer Confluence The Next Generation Humans and Computers Research Agenda	19.0, last change 16. 01. 2014	Book - position statement	Hybrid and Diversity-Aware Collective Adaptive Systems, p. 12	Fausto Giunchiglia
01/10/13	Human Computer Confluence	19.0, last change 16. 01.	Book - position	Incentives – Enabling Complex Collaborations in	Schahram Dustdar, Ognjen Šćekić and Hong-Linh Truong

	The Next Generation Humans and Computers Research Agenda	2014	statement	Socio-technical Systems, p. 23	
01/10/13	Human Computer Confluence	19.0, last change 16. 01. 2014	Book - position statement	Computer Mediated Social Sense-Making - An Interesting Special Case of	Stuart Anderson and Mark Hartswood
	The Next Generation Humans and Computers Research Agenda			Social Computation, p. 26	
24/01/14	Newsletter of the FoCAS Co-ordination Action project	Issue 2 Winter 2014	Newsletter	p. 9	FoCAS
Spring 2014	Newsletter of the FoCAS Co-ordination Action project	Issue 3 Spring 2014	Newsletter	p. 4-6	FoCAS
Summer 2014	Newsletter of the FoCAS Co-ordination Action project	Issue 4 Summer 2014	Newsletter	p. 7	FoCAS

7.5 Innovation

Because Smart Society is in its first year the level of direct innovation activity has been small. However there have been notable successes in work that paves the way for effective innovation work in the future. Having three project members in EIT ICT Labs provides the project with good connectivity to the ICT KIC. Several members have also good access to local innovation mechanisms. For example in UEDIN smart society members were heavily involved in the development of Innovation Centre proposals that have established centres to promote digital health and big data with total academic funding of £25m and potential fund to support industrial participation of up to £50m.

7.6 New Proposals

In 2013 we mainly concentrated on establishing the project. Now that the new H2020 calls have appeared we anticipate a number of proposals from consortia involving Smart Society project members.

7.7 Print Media

We have not emphasised this in the project believing that online materials will be more widely used and disseminated. The text of a flyer is available and can be used for print media.

7.8 Public Understanding

Because the project is still at an early stage we did not feel there was sufficient mature material to consider public understanding activity. We will actively pursue this in 2014.

7.9 Reporting: Year 2 Developments

The tables in this section carry the cumulative information for the Smart Society project

8 Collaboration

The Smart Society consortium is collaborating very effectively internally. Many of the workpackages have fortnightly meetings often including other workpackages as the needs of coordination and collaboration require. For example WP1 that provides the interdisciplinary foundations for the project has run very regular fortnightly flash meetings that bring together almost all project partners. In 2013 there have been three whole project meetings in Trento (Winter), Milan (Spring) and Helsingborg (Summer) and other face-to-face meetings, for example WP1/4/10 in Trento in September and data analysis workshops in Oxford to work on the collected Interview data. The level of interdisciplinary collaboration has been very high.

8.1 Collaboration: Year 2 Developments

In the second year of operation SmartSociety has full participated in FoCAS cluster activities. For example: participation in the Barcelona App Sprint, presentation of a workshop at the FoCAS Summer School, participation in the SASO workshop and joint meetings with the FoCAS CSA to discuss public outreach. In addition we have begun to collaborate more extensively with EIT ICT Labs, and the SOCIAM and ORCHID projects. We believe that as the work becomes more concrete with the deployment of the Ridesharing work combined with developments of components and integration techniques and architectures we will see additional collaborations develop and wider use of our technologies as anticipated in our Year 3 target.

9 Conclusion

We believe that Smart Society is in good health at the end of its first year and materials from the project have been widely disseminated. We have a robust and reasonably well-articulated dissemination plan that will support our second year of operation. Despite some initial staffing issues over the website we have overcome these and now have a solid online presence to build on.

9.1 Conclusion: Year 2 Developments

In year 2 of the project SmartSociety has exceeded all of its target KPIs and has begun to play a leading role in the development of work on Collective Adaptive Systems. In year three we anticipate an intensification of academic dissemination combined with the development of more intensive exploitation activity.

10 Appendix: Year 2 Developments Section

10.1 Goals: Year 2 Developments

In the second year of the project we have begun to develop the dissemination goals further to elaborate the preliminary dissemination goals to take account of specific project objectives:

- **Gaining deployment experience of HDA-CAS:** In particular the deployment of the ridesharing CAS in University settings in BGU and DFKI. In addition we are also investigating the potential for disseminating through use by some Italian Municipalities. This work provides a user group (potentially a large user group) with the potential to experience the benefits of CAS technologies as well as providing valuable data to researchers. The transfer from prototype to a full service using Ridesharing is very challenging and it remains to be seen if we can develop a sustainable model for the transition. In addition we have a basic tourism deployment, "Ask SmartSociety!" that provides a good vehicle to verify horizontal integration of components.
- **Synergy of HDA-CAS concepts:** Smart Society models, programming frameworks and architectures are now available in a preliminary form. The combination of prototype applications, diverse scenarios with evidence our architectures can support them and in-depth understanding of the privacy and governance issues provides good dissemination opportunities for this year. In particular engaging with key potential deployers in various domains including tourism, health and public services.
- **Governances:** WP1 has developed a body of work on the privacy and governance issues in HDA-CASs we believe this is a valuable dissemination resource and will use these resources to disseminate the work of the project at a policy level. The project has well-established connections at policy level and will use these channels to disseminate Smart Society ideas in his area.
- **Downstream funding applications:** in year two the project has already made application to the LEIT and Societal Challenges pillars of H2020. These involved SMEs and public service delivery organisations. In addition there have been joint applications to national funding. In the UK SmartSociety and the SOCIAM project have submitted an application entitled "Social Queries" that exploits Smart Society ideas to explore the notion of querying a population support by social computational techniques. In addition DFKI, UNITN, UEDIN and UH have all participated in EIT ICT Labs projects in the area of social computation during 2014. In 2015 DFKI, UNITN and UEDIN are all participating in EIT ICT Labs High Impact Initiatives that have potential applications of Smart Society techniques.

10.2 Audiences: Year 2 Developments

In the second year of the project the focus is still primarily on scientific audiences. However members of the SmartSociety project are beginning to disseminate the key ideas more widely beyond the core of researchers working on ideas around social computation. In particular we believe we have developed our audiences in the following ways:

- **Researchers:**
  - We continue to develop communication and dissemination with our core research community including cooperation with our cluster members via the summer schools, workshops and other activities initiated by the FoCAS CSA. For example, participation in the recent AppSprint in Barcelona will provide a basis for Educational developments that will help disseminate CAS and HAD-CAS More broadly our key messengers are very active in the community as can be seen in the Messengers Update section.
  - In the other H2020 pillars we have been active over the last year and will intensify activities in the coming year. We submitted a proposal to the PHC-26 call entitled:

ESSCA: Empowering Self-Management via Social Collective Awareness in Health and Care**,** unfortunately this was unsuccessful (the call had around 250 proposals submitted and 12 were funded). The ESSCA proposal involved Universities, SMEs and Health Delivery Organisations. In 2015 we plan further applications and currently are targeting ICT-10 (Collective Awareness Platforms) in the LEIT pillar and PHC-25 (integrated Care) in the Societal Challenges pillar. In addition we may consider applications to EURO-6 (Using Emerging Technologies in the Public Sector), INSO-1 (Using Emerging Technologies in the Public Sector), and INSO-9 (Innovative mobile eGov apps) as potential exploitation channels for Smart Society research.

- **EU Commission:** DFKI, UNITN and UEDIN are all full participants in the EIT ICT Labs KIC. During 2014 we have positioned ourselves in a range of the large-scale High Impact Initiatives that will run over the next two or three years. For example, all are involved in the Health and Wellbeing area in the "Fit to Perform" High impact initiative. This involves several companies (Phillips, MAN, Astrata, Telecom Italia, …). This is oriented towards improving the health and improving driving safety of truck drivers. A critical element in this is understanding the mix of human and machine contribution to the activity and on incentivisation for human groups (e.g. the collective of drivers operating out of a particular depot). Smart Society members are also engaged in the European Innovation Partnership on Active and Healthy Ageing. Smart Society members have also contributed to responses to consultation on mHealth and on the Silver Economy. Both of these are key potential exploitation areas for CAS technologies.
- **Companies:** In developing proposals for projects related to Smart Society we have engaged with five SMEs and will develop tis direct interact further as we develop additional proposals over the next year. As we gain experience of interaction with SMEs in this area we will consider dissemination at wider scale in order to reach a larger SME audience. Our **exploitation** plan has already identified key exploitable technologies and we will use these as the focus for further dissemination to tech companies. EIT ICT Labs remains a key channel to reach larger companies through participation in projects such as the High Impact Initiatives. It may be that Smart Society technologies will be highly relevant to a range of the High Impact Initiatives such as "Cloud for Trusted Personal Data", "Smart Street Retail", and "Trusted Data Management with Service Ecosystem". We plan to develop these routes to this audience over the coming year.
- **Public Sector:** Our main connection both with policy and delivery agencies has been via health activities in the EIP on AHA, responses to consultations, participation in policy groups and in engaging agencies in follow-on funding applications. This will continue to be a strong audience but we believe there will be significant developments around cyber-security over the next year and our expertise in support CAS-like structures in the privacy and governance area will offer significant opportunities for dissemination. Vincenzo Maltese is a member of the Trento Smart City experts' board. The IEEE has nominated Trento among the top Ten Smart Cities in the world.
- **Public Awareness:** We have participated with the FoCAS CSA in discussion on how to reach a broad public audience. One route has been the publication of work in broad technical publications such as Communications of the ACM which reaches a very broad technical audience and provide a platform access by an informed public. One additional route has been TEDx talks. These have very wide reach and are necessarily accessible. We see this as a potentially important route to reach our wider audience. Concern over the consequences of intelligent systems is an opportunity to provide a technically informed voice in dialogue over the development and control of such systems. Vincenzo Maltese has presented a talk entitles " A Hybrid Society is Already Happening" at the Smart City Expo World Forum. SmartSociety will also present a panel at the Trento ICT days on 19th March.

10.3 Messages: Year 2 Developments

We have developed the "Rideshare" and "Ask SmartSociety!" demonstrators provide an embodied vision of some of the core SmartSociety concepts. In addition we have a strong collection of scenarios that illustrate other features of the HDA-CAS concept that can be supported by the SmartSociety

architecture and components. This is the basis to develop some additional messages that provide a more detailed account of HDA-CAS concepts:

- **Models:**
  - The minimal formal models that enable communication between the architectural components of the SmartSociety components.
  - Provenance models that provide key resources for adaptation that will be developed in the coming year and for traceability and transparency as an underpinning for governance.
  - Peer modelling provides a basis for privacy-aware task management for human participants in CASs.
  - Privacy models that ensure users have control over their data and are able to track its use in HDA-CAS systems.
  - Orchestration and programming models together with an architecture that integrates the contribution of the other technical work packages.
- **Deployment:** The ridesharing deployments are generating experience and data that provide valuable concrete information for the technical community and potential adopters. As the data is analysed this will be presented on the website and through publications. If we believe the data is valuable to the wider community we will make it available to the community.
- **Exploitation:** D10.5 provides an exploitation process and has identifies some initial exploitation opportunities. These will be developed through our Knowledge Exchange channels in the coming year.
- **Citizen Science:** Over the past year we have been working with the Zooniverse project using SmartSociety concepts to analyse community behaviour in the Zooniverse context. This provides us with a good contributions to an understanding of collective work in Citizen Science.
- **Education:** Task 10.2 is responsible for developing curricular and teaching materials. Inevitably this will comprise both "bottom up" and "top down" work to ensure coherence and coverage of curriculum and materials. At the moment we see the following threads in the curriculum and teaching materials:
  - **Ethics, Governance and Privacy:** we already have materials for the ethics and governance workshops we have held internally. These, together with materials on privacy provide the basis for a crosscutting thread that covers these issues and how they interact with other processes and components in an HDA-CAS.
  - **Scenarios and Deployment:** We already have some early data from the BGU deployment and expect to see other data and simulation work to provide the basis for analysis of the operation of HDA-CASs. In addition we have a considerable body of scenarios and other observational studies that provide ideal materials for practical work on the creation and operation of HAD-CASs. Included in this work will be a typology of kinds of collective work. These will be exemplified using our range of scenarios.
  - **Orchestration, Programming and Architecture:** This work is still in development but it does provide the basis for composing HDA-CAS components and deploying such systems.
  - **Models:** we have models that underpin all of the main technical components in HDA-CASs that have some formal unity in terms of systematic approach to entities in the domain and an orchestration framework that brings together components using these models. This is still under development but we anticipate sufficient progress during the coming year to develop educational materials to support learning in this area.
  - **Methodology – Operation, Design and Evolution of HDA-CASs:** this is a key thread we have yet to consider in terms of curricular content. We anticipate work will commence on this aspect concurrently with the second work cycle beginning in month 30.

10.4 Messengers: Year 2 Developments

Our messengers have been heavily involved in disseminating Smart Society concepts across a wide range of communities. In this section we touch on a selection of the dissemination actions that have taken place on 2014. In this selection we attempt to span audiences and messages.

At IJCAI 2014 Giunchiglia gave a plenary on "Knowledge in Diversity" that took the key concept of diversity to a wide AI audience. Gal organised the *Human-Agent Interaction Design and Models* workshop for Smart Society at the International Conference on Autonomous Agents and Multiagent Systems to help embed Smart Society concepts in the Agent community. Similarly Moreau organised a provenance analytics workshop at provenance week and Jirotka a consent workshop at Ubicomp. Dustdar presented a range of invited talks on the Vienna Elastic Computing Model that underpins the SmartSociety programming model.

Rovatsos reached out to a general public audience with his TEDx Edinburgh talk on "The Society of Computation and the Computation of Society". De Roure presented the keynote "The Social Machines Paradigm" at the Web Science and Data Analytics Summer School, taking material to grad students. Similarly Pannese presented a session on Gamification at the FoCAS summer school. Maltese presented the SmartSociety project at the Smart City World Congress. Lukowicz presented at the Computational Social Science Workshop to a broad interdisciplinary group. Miorandi and Maltese edited the Social Collective Intelligence book that projected SmartSociety ideas to a broader technical audience.

Robertson, Dustdar and others presented a joint paper between SmartSociety and the SOCIAM project at the 10th International Conference on Collaborative Computing. Other joint publications are in preparation with projects inside the FoCAS cluster and more broadly.

Exploitation activity has been led from our companies Imaginary and U-Hopper where we have seen the identification of exploitable results. In addition Pannese has led on connecting to Municipalities and seeking the opportunity to launch a full-scale service based on SmartSociety ideas and technologies.

10.5 Dissemination Tools and Channels: Year 2 Developments

In response to the reviewers' comments we have extended the range of channels we are using. We have used hard copy somewhat more and there is a good flier in use. ISSU seems to be particularly heavily used so we are ensuring materials are up to date on that channel. The profiling of access provided by ISSU is proving helpful. We have also developed Mendeley and Zotero resources together with SildeShare.

In the second half of 2014 we began to video interviews with researchers on the project and have created a youtube channel entitled "SmartSociety Science Café". The channel is insufficiently populated to publicise at the moment but we do have sufficient interviews to announce the channel. The main issue that is delaying us is the time taken to edit and prepare the videos for publication. We anticipate the channel will be launched in the first quarter of 2015. The URL for the channel is: https://www.youtube.com/channel/UCYGLkQTnb_FChu0HmM7nWEA .

We had assumed that in the second year of the project we would be able to arrange a meeting of our International Advisory Committee. All attempts to convene a meeting have proven unsuccessful to date. Our new strategy will be to slightly expand the membership to provide better coverage of what is a highly multidisciplinary project and attempt to approach the members on a more direct one-to-one basis with specific questions about the direction of our work. We believe this is particularly important at month 30 where we commence our second iteration of the project.

An important part of our dissemination activity is our decision to continue our association with the HAIDM series of workshops as a means of reaching the wider academic community of interest in CAS. The appendix to this document provides a rationale for our involvement.

10.6 Evaluation: Year 2 Developments

The main development in evaluation is the creation of D10.5 that identifies the exploitable results of the project. Over the next year we will attempt to provide meaningful outcome measures for the exploitable aspects of the project. In addition we will develop a broader range of overall measures that will help evaluate the impact of the Smart Society project.

10.7 Reporting: Year 2 Developments

The tables in this section carry the cumulative information for the Smart Society project. Rather than reproduce the tables twice, in the main text and in this update section we have updated all the tables in section 7 to report the month 24 status of the project.

10.8 Collaboration: Year 2 Developments

In the second year of operation SmartSociety has full participated in FoCAS cluster activities. For example: participation in the Barcelona App Sprint, presentation of a workshop at the FoCAS Summer School, participation in the SASO workshop and joint meetings with the FoCAS CSA to discuss public outreach. In addition we have begun to collaborate more extensively with EIT ICT Labs, and the SOCIAM and ORCHID projects. We believe that as the work becomes more concrete with the deployment of the Ridesharing work combined with developments of components and integration techniques and architectures we will see additional collaborations develop and wider use of our technologies as anticipated in our Year 3 target.

10.9 Conclusion: Year 2 Developments

In year 2 of the project SmartSociety has exceeded all of its target KPIs and has begun to play a leading role in the development of work on Collective Adaptive Systems. In year three we anticipate an intensification of academic dissemination combined with the development of more intensive exploitation activity.

Appendix I HAIDM Workshop Series

This appendix motivates SmartSociety engagement with the HAIDM (Human-Agent Interaction Design and Models) workshop series. The engagement with the HAIDM workshop was successful in terms of participation, themes covered and spread of SmartSociety ideas and also gave clear advantages in terms of containment of the costs.

Our aim

In the DoW we commit to organise two focussed workshops:

> *"Implementation aspects of the plan for Scientific, Educational and Cluster Activities will be led by University of Trento. The main activities in this aspect of dissemination will be two focussed workshops on respectively operating and design principles for HDA-CASs. These will provide timely opportunities for dissemination but will also be highly interdisciplinary targeting all the relevant communities to test the stability and strength of our concepts."*

The HAIDM workshop is part of the the International Conference of Autonomous Agents and Multi Agent Systems. This is a highly interdisciplinary conference on agent systems:

> *"AAMAS is the leading scientific conference for research in autonomous agents and multiagent systems. The AAMAS conference series was initiated in 2002 by merging three highly respected meetings: the International Conference on Multi-Agent Systems (ICMAS); the International Workshop on Agent Theories, Architectures, and Languages (ATAL); and the International Conference on Autonomous Agents (AA).*
> *The aim of the joint conference is to provide a single, high-profile, internationally respected archival forum for scientific research in the theory and practice of autonomous agents and multiagent systems."*

The SmartSociety project took the decision to work with AAMAS on the HAIDM workshop series because autonomous agents are key partners in CAS systems and thus we believed the AAMAS community to be a key dissemination point for SmartSociety. This also allowed a containment of the costs given that the logistics costs were covered by the AAMAS organization. Our costs only included the travel costs of the speakers.

Our participation in 2014

The 2014 programme committee membership was (SmartSociety representatives are indicated with an asterix):

Bo An, Nanyang Technological University
Ben Bedwell, University of Nottingham
Ladislau Boloni, University of Central Florida
Frank Dignum, Utrecht University
Virginia Dignum, TU Delft
Michael Goodrich, Brigham Young University
Piyush Khandelwal, University of Texas at Austin
Sarit Kraus, Bar Ilan University
* Paul Lukowicz, DFKI
* Vincenzo (Enzo) Maltese, University of Trento
Thanh Nguyen, University of Southern California
Ana Paiva, INESC
Rui Prada, Instituto Superior Técnico-UTL and INESC-ID
* Subramanian Ramamoorthy, University of Edinburgh
* Michael Rovatsos, University of Edinburgh
Elizabeth Sklar, University of Liverpool
Sebastian Stein, University of Southampton
Matthew E. Taylor, Washington State University

Greg Trafton, Naval Research Lab
Matteo Venanzi, University of Southampton
Rong Yang, University of Southern California

The workshop website can be found at this link.

SmartSociety had four members of the PC and one member of the organizing committee. The final programme contained two papers developed by a member of the SmartSociety project out of a total of 22 papers at the workshop. In addition, Michael Rovatsos contributed to the panel session on the operation of CAS-like systems.

Results obtained

In this first workshop we achieved the following:

- Identified a group of workers in the agent community for whom the study of complex, blended, social computations was a focus.
- Exposed some ideas of CAS operation, in hybrid settings with humans and machines, to the community via the panel session where Rovatsos spoke. The discussions we engaged gives us concrete indications of the level of interest in the SmartSociety themes (that actually was explicitly are recurrently mentioned during the panel)
- Contributed to the community via participation in the programme committee and the accepted papers..

Thus HAIDM 2014 provided us with a modest dissemination action and established SmartSociety as an active member of the AAMAS research community. Given the lead times for such workshops we believe this is a considerable achievement and is an effective dissemination action because it engages with a strong community working in areas that can benefit from CAS-oriented thinking.

In terms of participation, the workshop reached the highest number of attendees ever considering previous editions. This allowed us to maximize the level of dissemination of SmartSociety ideas.

Towards the next editions

In the 2015 edition we have increased our activity in the HAIDM workshop. We now have 10 members of the programme committee and the project has submitted four papers to the workshop. In addition, the panel will focus on design aspects and will involve members of the SmartSociety project as panelists. Now in the second year of cooperation with HAIDM we believe we can ensure SmartSociety plays a more prominent part in publicity surrounding HADIM and, through participation in panels and presented papers. We believe SmartSociety thinking will be well presented and disseminated by the workshop.

We also believe that SmartSociety involvement with HAIDM will extend into a third edition of the workshop. In this edition we believe we will be able to shape the panel session to have a focus on the evolution of systems and can have more involvement and submissions at the workshop. A long-term engagement with a highly active community will provide SmartSociety with strong dissemination into that community.

In addition we will seek to partner with other organizations to provide SmartSociety with Dissemination activity. At the moment we are planning engagement with the IFIP Summer School on Privacy and security in Edinburgh in the summer and we will exert a continuing influence on the ESSENCE ITN. In both of these activities we see good potential to disseminate SmartSociety to the wider community with particular emphasis on young researchers. As we develop our educational materials into MOOC or Distance Learning resources we will be able to refer young researchers to such resources and thus provide a continuing engagement with these communities.