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WP3: Connecting Private Sector Applications with CS Science & COSI-ICT

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WP3: Connecting Private Sector Applications with CS Science & COSI-ICT

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WP3: Connecting Private Sector Applications with CS Science & COSI-ICT

Summary of Progress on WP3

As expected, the WP3 objective of connecting science to business is very challenging. Nonetheless we feel we are making good progress and developing many ideas that should help us make the connections.

The collaboration between WP3 and WP4 is now well established, and we have identified a number of areas in which we expect similar solutions to be successful for both workpackages. For example, producing clear guidance on the theory and practice of COSI-ICT will be beneficial to both the private and public sectors.

Although our first formal meeting will be held a little later than expected, a great deal of ground work has been done for a lot of progress in the next year. Many companies have been contacted and many leads generated, and we have a good portfolio of activities planned. These include round table conferences, a public-private sector conference, engagement with centres of complex systems research, publications, the development of an SME interest group, and meetings at ECSS'10.

We also have a range of activities around initiatives in COSI-ICT.

The FET Flagship FuturICT initiative is expected to have a major impact on WP3 during the next year, giving further impetus and opportunities to enable scientists to make contact with the private sector.

We feel that WP3 has been successful this year in working towards its objectives, and we are in an excellent position to make big steps forward during our second year.

1. Objectives of WP3

Objective 3 of ASSYST is stated in Annex-1 (page 7) are

Objective 3. To create strong links between CS & COSI-ICT and the Private Sector

- Creating business-science networks at national and international levels.
- Informing the business community of the opportunities provided by CS and COSI-ICT science.
- Organising meetings between students and professional people in public and private sectors.
- Facilitating contact between business with needs and scientists able to satisfy those needs.

Objective 3 addresses the common problem in Europe that science does not engage adequately with industry and that innovative research does not easily result in innovative commercial, industrial and civil applications. Objective 3 can have a high impact on European industry and the economy since CS and COSI-ICT provide 'high added-value' science for innovative applications across large scales. Objective 3 can also have a high impact on CS and COSI-ICT research by providing the research community with a wide range of stimulating problems and private sector funding to work on those problems.

This objective is articulated in more detail on page 26 of Annex-1 as:

Objectives

- (1) To bridge the information gap between CS science and its commercial and industrial applications.
- (2) To form a 'Business Club' with the Complex Systems Society.
- (3) To promote, encourage and assist the application of Complex Systems Science by companies.
- (4) To forge CS and COSI-ICT links between the public and private sectors.
- (5) To collect information for the roadmap and policy documents on CS and COSI-ICT.

Description of work

Leaders: (a) Yasmin Merali (UW) and (b) Kemal Delic (OU)

The workpackage leaders will attempt to form business networks at national level and European level using their funds to pump-prime meetings. Wherever possible they will aim to gain leverage on their funds by organising joint meetings with companies and other interested organisation. The WP3 leaders will propose outline events to the ASSYST Management Committee including scientific topic, location, draft programme giving the invited and other speakers, budget, and expected participants. On approval of the outline the WP3 leaders will organise and deliver the events without further reference to the Management Committee. A written business-science report of the events will be presented to the Management Committee within one month of the events for publication on the ASSYST web site where appropriate. These reports will be delivered to the Business Committee of the CSS.

WP3 has two parts: WP3(a) Prof Merali from Warwick University has responsibility for the overall management of the workpackage and for its deliverables. She will work closely with Kemal Delic who will be visiting researcher with the Open University, and brings extensive industrial experience to the work package. His responsibility in WP3(b) is to help make contact with business people, especially in the ICT industry, and those with industrial interests in the development of COSI-ICT. Together Merali and Delic will devise a programme of activities and, once it is approved by the Management Committee, deliver it. Professor Johnson of the Open University will also assist with this workpackage, as will Prof Louçã from the University of Lisbon and Prof Bourguine of Ecole Polytechnique (CNRS). This team has excellent working relationships, and is expected to work very well under the overall direction of WP3 leader, Prof Merali.

The WP leaders will find CS and COSI-ICT scientists who are interested in working with companies, and a list of such scientists and their specialisms will be posted on the ASSYST web site, in conjunction with the CSS.

A major outcome of the workpackage, which may not be achieved but must be attempted, is the formation of CSS Business Clubs at European level, and possibly national level. The Santa Fe Institute provides an example of how this can be done successfully.

This workpackage will experiment in providing schools for CS and COSI-ICT research with presentations by business people, and activities related to applying the science in industry.

The work package will include engaging in professional conferences and presenting CS and COSI-ICT research, its successes, and its potential.

The four COSI-ICT IPs will be asked for their contacts with business, and a database will be kept for dissemination and involving business people in the many ASSYST activities (including those in WP2).

To make an impact the WP will publish as widely as possible in accessible journals such as Scientific America, New Scientist, the Economist, and newspapers.

2. WP3 Deliverables and Milestones for the period

The Deliverable for WP3 is D3.1 – this report



Milestones

M3.1 First Business-Complexity Meeting

Month 12



M3.2 Second Business-Complexity Meeting

Month 24



Using our traffic light coding, it can be seen that our first business-complexity has not yet be held. As this report shows, we have good plans for these meetings and we expect them to be held later in 2010.

3. WP3 progress and achievements during the period

The prime objective of this work package is to introduce and promote the use of complexity science concepts and tools in the private sector. The ambition is to develop a sustainable network of private sector institutions (possibly in the form of a European Business club) that are willing to invest in perpetuating the exploitation of complexity concepts and tools beyond the lifetime of the ASSYST co-ordination action. It is anticipated that there will be an exchange of expertise and ideas between the academic and practitioner communities, and that this will serve to inform the evolution of academic research agendas with relevance to the needs of practitioners.

Working with WP3

It is recognised that many of the issues exercising private sector practitioners are shared by their counterparts in the public sector, and furthermore public/private partnerships are becoming increasingly important in the European economy. Consequently it has been agreed that in designing the activities for this work package we will seek to identify and build on synergies with WP 4.

Summary of the first year of WP3

The first year of WP3 has been dedicated to

- the development of relationships with private sector institutions and NGOs and
- the identification of activities that would have a direct relevance for the challenges faced by these institutions
- the identification of areas of common interest with WP4 and
- planning a programme of activities to meet our separate and joint requirements.

A number of meetings with individual businesses and institutions have taken place over the year, including IBM, HP, Lockheed Martin, Jaguar Landrover, the BBC, i-Crossing, SITA, INTELLECT (the UK ICT 'club'), SMEs in the creative industries and NHSI.

The COSI-ICT satellite meeting at ECCS09 in Warwick was an important event in consolidating the links between WP3 and WP4. We also met Peter Dick from the UK Department of Health.

In June 2009 Yasmin Merali and Jeffrey Johnson attended an event organised by the UK EPSRC (Engineering and Physical Science Research Council) and the Institute of Practitioners in Advertising:

Afternoon Networking Session:

The IPA has been working with the RCUK to create a networking opportunity for senior advertising agency executives to meet leading Digital Economy academics. These executives are witnessing the impact of ICTs on society and the knock on effect on marketing communications. They represent a broad spectrum of agency type. Some are focussed on web-based marketing communications, some operate across many media types, all of which are being impacted by new technologies. Other agencies have special interests like digital signage, brand experiences or search engine marketing.

Our hope is to foster relationships between individual practitioners & academics (plus the communities as a whole) of mutual benefit.

Attached you will find profiles of 21 individuals and the agencies they represent. They will soon be sent your one-page profiles too. Our plan is to create a 'speed dating' format with each attendee given the opportunity to select their preferred 'dates'. Some additional matchmaking will be handled by us and the RCUK.

Dr Helen Bailey, RCUK Digital Economy Programme, EPSRC

This has generated some interesting contacts that we are following up.

In January 2010 Jane Bromley and Jeff Johnson attended a meeting of Complexity-Net in London to attend a meeting planning a workshop in Brussels on global dynamics and policy. At this meeting we met the Danish member of Complexity-Net, Preben Alstrøm, who told us of a meeting he had organised in Denmark with a number of companies and of a report he had written on 17 responses from a survey of their industry group. We suggested that ASSYST could organise a COSI-ICT meeting in Copenhagen:

- Some short, keynote talks by CS researcher(s) giving an overview of CS
- Some business people give 1-2 talks about the types of problems they have for scientists to think about
- Speed dating: match up 1 or 2 business people to each scientist to allow discussion on the business people's problems and how the scientists could be helpful to them.

The purpose of this meeting would be to see if the scientists could offer anything useful to the business people who are known to be open minded. We feel that WP3 needs a successful example of CS science-business collaborations, and this is a good opportunity to try to create such an example.

Although progress has been slower on WP3 than we had hoped, we have done a lot of work and a lot of groundwork has been completed. Based on this we have developed a portfolio of activities for 2010/2011 aligned with the delivery of our objectives.

Planned Portfolio of Activities

1. Round Table Conferences

We have identified *Cloud Computing* and *Social Computing* as two areas in which can engage practitioner interest in utilising the concepts and tools of Complex Systems Science.

We will be holding two round table conferences hosted at Hewlett Packard, Grenoble and CNRS, Paris respectively.

The plan is to invite a small number of key players to participate in an intensive two-day workshop with the objective of identifying areas of collaboration for the utilisation of Complex Systems Science. This format is designed to meet the needs of the first two objectives and to allow us to explore possible modes of operationalising the third objective and contributing to the fulfilment of the final objective.

2. Public/Private Sector Conference

We will be organising a joint conference with WP4 under the *Territorial Intelligence* title, focusing on the utilisation of ICTs in a socially intelligent manner to deliver information and services in the network economy. Of particular interest are the challenges of strategising and policy making to ensure the effective utilisation of ICT capabilities for contextually sensitive deployment of models for managing distributed networks in order to make the best use of local resources to deliver global performance.

3. Engagement with Centres of Complex Systems Research

We will continue to develop relationships with centres of Complex Systems Research with a view to engaging them in the design and delivery of the portfolio of activities for 2011/2012. This is an ongoing activity co-ordinating with ECCS and COSI-ICT. It contributes to all our listed objectives.

4. Publications

We have two publications on Complexity Science and Cloud Computing in preparation (targeted at the ACM and IEEE practitioner audience) and a joint white paper with WP4 on Wicked Problems and the application of Complex Systems Thinking to be published on the ASSYST web site.

5. Development of an SME interest group

Exploratory work in the first year of the project has highlighted the potential for engaging SME players in the utilisation of Complex Systems Science for individual and collective benefits. In 2010 we will build on this finding to explore the most effective means for meeting the needs of this constituency. It is envisaged that this will entail working with businesses and with regional development agencies.

6. ECCS'10

We will be utilise the meeting at ECCS10 to consolidate links with the European Complex Systems community and to invite further ideas for their engagement in the advancement of ASSYST objectives .

COSI-ICT Initiatives

COSI-ICT for Unilever ?

During the year we made a chance contact with Unilever Foodsolutions and discussed their intention to begin a new form of web-based marketing. Since this seemed to be a possible application for COSI-ICT we suggested a meeting with them. The proposal is attached as an Appendix.

A COSI ICT-Workshop: 'COSI-ICT – Theory for Practice'

The contact with Unilever stimulated the question of how much rigorous theory exists on 'social intelligence', *i.e.* what systematic knowledge is there that could be applied by those in industry? Since an answer to this question is essential for both WP3 and WP4 we have set ourselves the task of answering this question. If there is an extensive literature on the subject we document it, and use it for educational purposes. If not we will run a series of workshops to collect and synthesise what is know, and set an agenda of research issues.

In the first instance we have circulated the COSI-ICT integrated projects asking for their input. We intend to raise the issue formally at the COSI-ICT day in Brussels on 25th March 2010.

A COSI-ICT-Workshop: ICT-enabled Social Intelligence for Business ?

Following our attempts to create a knowledge resource on COSI-ICT, we propose to organise a meeting on ICT-enabled social intelligence for business in London. This will probably be in associated with Jeremy Pitt at Imperial College (also of the PerAda project), since we expect simulation to be an important tool in designing COSI-ICT systems.

The Private Sector and the FuturICT Flagship Proposal

The FuturICT Flagship Proposal discussed in the report of WP1 could have a significant impact on WP3 during the next year. Working with Prof J B McCarthy of the Financial Services Innovation Centre at

University College Cork, we expect to give serious consideration as to how to engage the private sector in that programme (of the proposed €1 billion, only €200 m will come from the EC and a significant proportion must come from industry). We are confident that the proposed Flagship has a tremendous amount to offer industry, and working with Prof McCarthy and others we expect to have a number of high level business meetings during the next year.

Putting Complexity to Work: Private Sector Support at ECCS'09

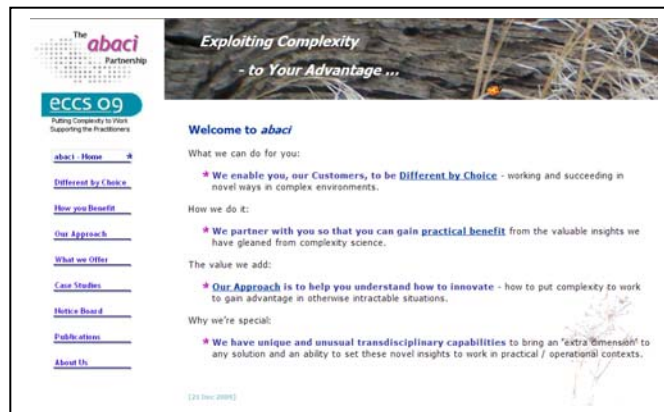


Figure 1. The company Abaci was supported to present a satellite workshop at ECCS'09

One of the satellite meeting proposals for ECCS'09 came from a company called Abaci on the subject of *Putting Complexity to Work – Supporting the Practitioners*. We welcomed this spontaneous attempt to bridge science and business, and we provided the meeting with modest support (£ 2K) to pay half towards speakers and other expenses. The workshop had the format:

Putting Complexity to Work - Supporting the practitioners

20 min. Introduction and Workshop Aims

40 min. Scene Setter "Practical Complexity - Do we know what we need to do?" - Speaker TBC

Session #2 - Thursday 24 September / 10:30-12:30

40 min. Eileen Conn - Living Systems "Community engagement - a social eco-system dance"

40 min. Anna Plodowski - Peckham Power Project "Putting Complexity to Work in Community Projects"

40 min. Group work - Session 1 - "Challenges and Advice to Complexity Science from the Practitioners"

Session #3 - Thursday 24 September / 14:00-16:00

20 min. Findings from Group Work Session 1

40 min. David Palmer, Institute of Directors, "The Commercial Benefits of Embracing Complexity"

40 min. W.H. Erik de Man - "Trans-disciplinary working - Bridging the Gap between Practitioners and Complexity Scientists"

20 min. Scene setting for Group Work Session 2

Session #4 - Thursday 24 September / 17:00-19:00

40 min. Group Work - Session 2 - "Addressing the Challenges"

40 min. Findings from Group Work Session 2

20 min. Concluding presentation - Lucian Hudson - "What is to be done? Goodbye to Lenin, and putting complexity to work"

20 min. Decide Follow-on actions for White paper

and received the write-up shown in Figure 2. Also Abaci put the presentations on their website with other documentation. We feel this was a good use of ASSYST funds, and we expect to have further activities with Abaci in the future.



Workshop UK - Putting Complexity to Work - Supporting the Practitioners

Written by Christine Broenner
Tuesday, 13 October 2009 08:00



[complexity](#) - [emergency relief](#) - [local planning](#) - [event](#) - [United Kingdom](#) - [Warwick](#) - [health](#) - [strategy](#) - [UK](#)



This topic was addressed in a workshop called "Putting complexity to work – supporting the Practitioners" organised by The abaci Partnership on 24 September 2009 as part of the European Conference on Complex Systems (ECCS 2009) held at the University of Warwick, UK. The Workshop explored novel approaches for dealing with the complex spatial realities that practitioners face in their day-to-day work. It showed that insights from complexity science could assist people working in emergency relief, humanitarian aid, local and regional planning, sustainable development, climate change initiatives, health care, logistics planning and business strategy development, to name a few.

Complexity science is ideally suited to these tasks as it addresses the types of phenomena that arise from the dynamic, interconnected nature of the real world by providing approaches to understand and solve problems and take advantage of emerging opportunities. The relevance of the Workshop was highlighted by a public session of the ECCS 2009 which discussed 'The Complexity of Global Change.'

The Expert Panel in that session expressed the realisation that complex (spatial) problems, such as climate change, cannot be adequately examined at present owing to both the lack of interconnected models at all scales and the incomplete understanding of the widely diverse nature of the variables involved. In addition, The Panel also highlighted the lack of appropriate data (as they are often inaccessible because they are hidden within the interactions between natural processes) and the inability to adequately model complex realities such as human behaviours. These limitations are not always fully acknowledged by scientists and decision-makers and the Panel noted that this would reduce the utility of the results for planning and policy-making.

These issues raised during the public session serve as good examples of the types of practical challenges that the Workshop on 24 September addressed. The Workshop both developed 'common ground' between practitioners and complexity scientists to improve their understanding of complex and dynamic spatial realities and then identified strategies and approaches for dealing with them.

By listening to and learning from practitioners' experiences the participants were able to explore the issues that arise in complex realities and address how to deal with them to achieve sustainable solutions and introduce novel approaches by exploiting insights from complexity science. To this end, both complexity scientists and practitioners from various application fields and levels of planning and decision making attended the Workshop. The morning session was dedicated to capturing examples of the kind of situations in which practitioners work. Speakers from a wide range of application fields illustrated the variety of these complex (spatial) realities.

Robert Holloway, Director of the AFP Foundation in Paris, France set the scene. He described the Foundation's work in training journalists in Developing Countries who are reporting facts from calamitous events (such as earthquakes or conflicts) and in culturally and politically sensitive settings. He provided particular examples from the Lebanon where

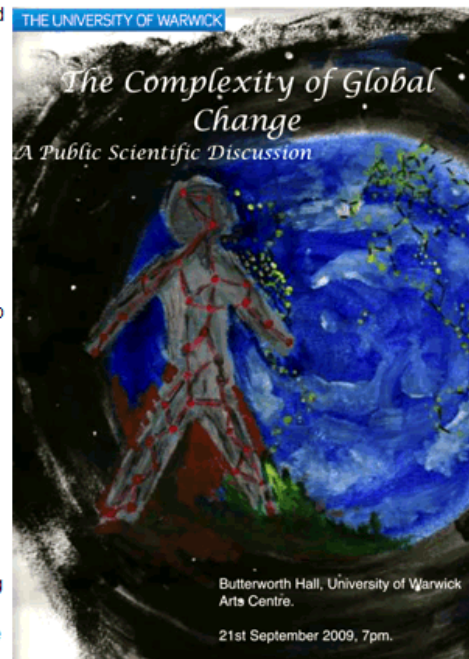


Figure 2(a). Report of the meeting *Putting Complexity to Work - Supporting the practitioners*

extremely diverse viewpoints among inhabitants of the different quarters of Beirut had to be addressed. Eileen Conn from Living Systems Ltd, UK elaborated on the problems of 'Community Engagement', which is UK Government policy, where the Government assumes that communities will have an institutional structure with which it can interact on its own terms. Eileen highlighted that this was not the reality - community engagement cannot be imposed top-down and, in any case, communities do not have organisational structures of the type that governments expect for interaction. Eileen developed a 'model' for more effective engagement which both acknowledged and addressed these incompatibilities.

Anna Plodowski described the Peckham Power Project (UK) which exemplifies such a community engagement project in the London suburb of Peckham. The Project aims to introduce a renewable, energy-efficient infrastructure. Anna highlighted the range of social, organisational and technical difficulties experienced and the approaches taken to deal with them. Group work then followed which captured each participants own experience and built them into a systematic understanding of the issues at stake.

These included that: Mechanistic, reductionist, 'mono-disciplinary' approaches are often used which do not address the complexity of real-world situations; Complexity is perceived as 'difficult' regardless of whether it actually was; There was commonly a lack of recognition and / or perception that a problem or situation was complex and that a different approach was therefore required; People found it difficult to comprehend the nature of the complexity they were facing; There was little appreciation of the need to include, understand and reconcile the viewpoints of various stakeholders; The limited capability of models to deal with complex realities was not fully appreciated;

There was a fundamental lack of interoperability between data, mindsets and organisations - especially when dealing with dissimilar scales and time-horizons; The 'right' data was often unavailable - even uncollectable; Top-down approaches were often seen as the only and exclusive way to deal with real-world problems.

The afternoon session moved on to identify how these issues, practically, could be addressed. The speakers indicated both a range of suitable options which had been informed by insights from complexity science and some strategies for employing them. Dave Palmer (Phrazzle Associates, UK) highlighted the challenges from the business world's perspective and provided a systematic analysis of the options for addressing them, showing where insights from complexity science might prove relevant. Dr. Erik de Man (formerly ITC, The Netherlands) introduced the concept of Transdisciplinarity as a way for people with various mindsets to work together to grasp complex problems.

His talk developed the concept of Transdisciplinarity from dealing with 'information about space' and Geographic Information Science to handling complex problems in general. Dr. de Man specifically highlighted the fact that solutions to complex problems are not, in most cases, of a technical nature; rather that most need to be tackled in the social domain through human relationships and interactions.

He also made clear that complexity is not a problem per se – it is the normality we deal with every day. Lucian Hudson, Chair of the Collaborative Strategies Network (UK) highlighted a range of issues, from the policy perspective, covering changes required at the economic, organisational and social levels and indicating what that would mean for the development, deployment and employment of capabilities, tools and supporting information.

The afternoon's Group work examined each of the issues captured in the morning session and identified potential options for bringing about change - which included investigating which factors might enable or inhibit their achievement and where there were critical interdependencies. One key outcome was the realisation that, without a rich understanding of the complexities of the situation at stake, it is impossible to identify which tools or techniques would be suitable to use.

This is a topic for further work. The Geospatial community recognises these kinds of situations mentioned during the day. Developers of spatial models acknowledge limitations when asking 'is the model fit for the real world?' and often have to deal with a lack of appropriate data regarding time, scale and quality. Interoperability can be considered from purely a system point of view. However, practically, the interoperability of organisational structures and mindsets influences the enabling of system interoperability as well. GIS is, by design, a tool capable of handling the integration of data in support of complex issues, eg in spatial planning.

However, applications are often not designed or exploited in a manner which efficiently and effectively supports decision-making about the dynamically interacting issues of various disciplines in spatial planning. This can happen because, at design-time, the understanding of the issues at stake is not fully developed. Often, the actual users and stakeholders are not involved in a participatory activity to capture the realities and plan the implementation.

The Workshop participants expressed their appreciation for the way that The abaci Partnership had facilitated the day. They recognised that the 'crosspollination' techniques used had enabled a 'collective intelligence' to develop, innovative ideas to emerge and problems to be solved in a way that would not have been possible on ones own. The results of the Workshop are to be collected in a White Paper which will be published at The abaci Partnership's website by the end of November 2009.

For more information:

www2.warwick.ac.uk/fac/cross_fac/comcom/events/eccs09/publicsession
www.abaci.net

Figure 2(b). Report of the meeting *Putting Complexity to Work - Supporting the practitioners*

4. Summary

As expected, the WP3 objective of connecting science to business is very challenging. Nonetheless we feel we are making good progress and developing many ideas that should help us make the connections.

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