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WP9: Communication and Dissemination

Del9.5.6 – OPAALS Newsletter – Issue 6

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Publications*	Link to newsletter delivered directly by email to primary audience; link for the public to be made available on the OPAALS-OKS web site.
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The information marked with an asterisk () is provided in order to address Recommendation n. 4 from the Year 2 review report*



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Introduction

The sixth edition of the OPAALS newsletter is an electronic deliverable sent to recipients' email inboxes and is located at the following publicly accessible URL:

<http://opaals.eu/newsletters/2009-12-01/>

Besides the standard content of an editorial, feature articles, project developments, Work Package updates and a partner-city profile, the format and look-and-feel of the newsletter continue to reflect increased focus on the public-facing Phase III of the project.

Though the newsletter is best viewed in its online context, the following pages provide a printed representation of its format and content.



THE OPAL: ISSUE 6, DECEMBER 2009

Hollywood or Reality?



The tradition in Hollywood films, no matter what the obstacles faced, is for events somehow have a happy ending. This looks like being the case with OPAALS.

Overcoming enormous challenges and some difficult times, the project has emerged strong and on course for a great finale. We are going into the final year with a positive review behind us, the final public conference already scheduled for March as a major regional event in Brazil, and a growing partnership of regions keen on applications. All this within a world that seems to be

increasingly waking up to the phenomenon of distributed networks, if only via the meteoric rise in popularity of Cloud Computing.

Digital Ecosystems provide a new and far more natural form of collaboration and interoperability for Cloud Computing than centralised, and energy-gobbling, proprietary services delivered from global server farms. DEs have greater credibility as community benefactors than even the most philanthropic commercial monopoly. Wealth creating ability, devolved to the population, with no unfair advantages: it sounds a bit like a Hollywood utopia. Yet it is getting closer, in real life, month by month.

In the best tradition of a Hollywood ending, now is the time, to renew our vigour and find extra energy to push towards our goals. What we achieve in this final reel will determine how people remember our story. Let's make it a high one that people will remember.

Neil Rathbone

Photo from Wikipedia

[back to top](#)

Third Annual OPAALS Review

The Third Annual OPAALS Review, 24 - 25 September 2009 at the London School of Economics and Political Science, was better than ever before! Among the panel of reviewers' overall comments: the pieces of the project are coming together, integration is better than seen previously, the quality of the work is better and management has improved considerably. Much of this positive feedback had to do with the structure of the review itself, which was more organised and easier to grasp than during prior reviews.

Still, there is much work to be done and areas for improvement. The regional case studies presented were seen as successful, but addressed very specific, SME-based economies that brought a few other concerns to light. With the tools of the OKS, for instance, there was concern that the OSS knowledge base underpinning them will be developed too late for the OKS to be fully accessible by the end of the project. Additionally, while the reviewers felt that OPAALS distinguishes itself through its flexible, tailored solutions – privacy, for instance, is achieved by distributing user documents, not sharing them on a central server – the project nevertheless needs to ask itself if it is simply building an online platform similar to those already widely available. This in fact raised questions about OPAALS outputs. If compared with the Linux business model, is the OKS model more compatible with regional-based economies because of its no-license costs, or what is the business model of OPAALS outputs?

Questions such as these, it was felt, could be more properly addressed in a workshop aimed to gather and share the experiences of different regions with which the project is concerned. Such a workshop was suggested for June 2010. Also, the reviewers recommended amplifying the scientific aspects of project by maintaining a conference presence, but increasing journal-article publications, by capturing the knowledge generated by the project in a book or special-issue journal (such as IEEE) and by pursuing the formation of an association of Digital Ecosystems.



Many good things came out of the Third Annual Review. While the consortium has a lot of challenges ahead in defining its paths of sustainability, our work-plan for the final phase of the project was approved, all year-three deliverables were accepted and the project has been granted a three-month extension! With both this encouraging outcome and the work that lies ahead, there is plenty to do before the final project review in October 2010.

[back to top](#)

IN THIS ISSUE

- [Hollywood or Reality?](#)
- [Third Annual OPAALS Review](#)
- [Future Internet Enterprise Systems Cluster Meeting](#)
- [Work Package News](#)

Diary Dates

OPAALS 2010

The 3rd International OPAALS Conference on Digital Ecosystems: 22-23 March 2010, Aracaju, Brazil

Call for Papers: OPAALS 2010

Deadline for submissions to the 3rd International OPAALS Conference on Digital Ecosystems: 5 January 2010. See [here](#) for more information.

Next Edition of 'The Opal'

Issue 7, May 2010. Stay tuned!

Useful Links

[OPAALS-OKS](#)

[OPAALS Website](#)

[File Repository](#)

Profile: Tampere ('Manse'), Finland

Home of OPAALS Partner TUT



Tampere is home to OPAALS partner Tampere University of Technology (TUT) and its Hypermedia Laboratory: a research, education and service unit at TUT which since 1994, has been working actively in the field of hypermedia research and development. Drawing on work from the DBE project, Hypermedia Laboratory continues to define and visualise the OKS using semantic web principles. Hypermedia Laboratory collaborates on research in Digital Ecosystems languages and ontologies, as well as in common research community integration activities. Apart from the work of our Finnish partners, there are some interesting facts to know about Tampere itself:

Tampere is the most populous inland Nordic city with a population of close to 300,000 in the city and over 340,000 in the metropolitan area; it is the third most populous city in Finland, after Helsinki and neighbouring Espoo

Tampere is known as the 'Manchester of Finland' for its industrial past as the former centre of Finnish industry; this has given rise to its Finnish nickname 'Manse'

Tampere was founded in 1775 as a marketplace on the banks of the Tammerkoski channel by Gustav III of Sweden

During a general strike in 1905, the famous Red Declaration was proclaimed by the Tsar of Russia on Tampere's central square, the Keskustori, leading to universal suffrage in Finland and larger freedoms to Finns

Though Tampere was known for textile and metal manufacturing, these have been largely replaced by information technology and telecommunications industries

Tampere also has an old theatre tradition with institutions such as Tampereen Työväen Teatteri, Tampereen Teatteri and Pyykin Kesäteatteri, an open-air theatre with the oldest revolving auditorium in Europe

The local culinary speciality is mustamakkara, which in keeping with Tampere's nickname, resembles a black pudding of northern England.

Future Internet Enterprise Systems Cluster Meeting



The cluster of EU projects concerned with Future Internet Enterprise Systems (FinES) met in Brussels on 12th November to consider the research roadmap, which will form input to the next call for proposals. This cluster has now absorbed the former Digital Ecosystems cluster.

OPAALS organised this meeting and Project Coordinator Paolo Dini took the opportunity to explain the work and far-reaching implications of OPAALS research. Sergio Gusmeroli then explained how FinES was being represented on the Future Internet Assembly by the COIN and iSurf projects. The other presentations during the morning focussed on the key question of the development of business models and interoperability.

Coming from outside the research field, Charlotte Stausholm presented on financing for start-up and early stage companies. This surprised delegates who raised the issue of how new business models may struggle to appeal to traditional investors, in particular as most Future Internet scenarios are based on open standards, without the monopolistic IPR protection and market capture that many investors see as essential.

The afternoon was devoted to four parallel 'Knowledge Cafés' to progress elements of the roadmap, which at version 1.3 is already partly drafted and was presented by Michele Missikoff of the COIN project.

Finally, Cristina Martinez, the Commission's cluster leader, wrapped up the day by pointing out the short timeframe for input and involvement, and the factors, such as the Lisbon agenda and other high-profile EU objectives, that would need to be addressed directly, or complemented in the new research programme. The outputs of the meeting and any other input received will be incorporated in a final version of the FinES input in December.

[back to top](#)

Work Package News

WP1: Biological Design Patterns of Autopoietic Behaviour in Digital Ecosystems

The objectives of WP1 in its recent and ongoing work have been to continue developing a mathematical framework for bio-computing, to perform lab experiments that continue the characterisation of the p53-mdm2 regulatory cycle, and to develop biological design patterns for autopoietic software systems. Much of this can be described as a continuation of work begun in earlier phases of the project, namely the exploration of autopoietic architectural principles and design patterns.

Some of the biggest challenges faced by WP1 in its current work are choosing the right abstraction level for modelling the discrete nature of cell biology, designing experimental techniques that do not induce cellular oscillations, capturing automata equivalent of non-linear dynamical properties of cells, and beginning to map computational challenges posed by autopoietic behaviour.

What makes the work of WP1 particularly unique is its radical interdisciplinary collaboration between biologists, mathematicians and computer scientists. This has included juxtaposing non-linear dynamical systems and finite-state automata algebraic perspectives of cellular behaviour; solidifying algebraic formalisation of regularity of structure and behaviour in cellular biology as the basis of algorithmic self-organisation; and the use of autopoiesis concepts to explore the boundaries of Turing computability. This work has particular value in terms of establishing new classification schemes of the fundamental properties of biology (structure, function, organisation); integrating theoretical frameworks that support mathematics, biology and computer science research; and clarifying the role of markers in inducing undamped oscillations in p53-mdm2 cycle.

As an unexpected outcome of our research, we had not realised that software architecture and autopoietic organisation were so close conceptually. This has speeded up the process and has stimulated IITK to join WP1 in Phase III of the project. As such, impact on Phase III work can be summarised as analysing the algebraic structure of transaction trees in WP3; providing structural constraints to enable the dynamic instantiation of business workflows from SBVR declarative specifications; and generating new ideas for software architectures.

Within Phase III of the project, we plan to create a definition of interaction machine and of corresponding benchmarking computational example problem; conduct algebraic analysis of automata derived from p53-mdm2 and related pathways; continue experimental characterisation of p53-mdm2 and related pathways; and define different levels of autopoietic behaviour in terms of corresponding architectural characteristics.

External activities initiated by WP1 include applying for FET Open and Complexity.Net proposals to continue funding the research, beginning an intense collaboration with the BIONETS project, and starting to enlarge the collaboration network beyond OPAALS and BIONETS.

[back to top](#)

Tampere has a long-standing rivalry with the city of Turku: for years, Tampere students have made an annual excursion to Turku to jump on the market square, undoing its post-glacial rebound and push Turku back under the sea

'Manserock' is the general term for rock music from Tampere, and Tampere has a long-standing and lively rock-music scene

Tampere hosts one of the last museums in the world dedicated to Vladimir Ilyich Lenin, who moved to Tampere in 1905 where he met Joseph Stalin for the first time

Among Tampere's sister cities are Essen, Germany; Kiev, Ukraine; Linz, Austria; Miskolc, Hungary; Saskatoon, Canada; and Syracuse, United States

Information and photo from Wikipedia

WP2: Prototype of a Web-based User Interface with Existing SBVR Tools

Recent efforts of WP2 have focussed on verifying the correctness of assumptions made in our previous work and on providing simple and real use-cases. Our work is focussed on automatic generation of executable workflow models from an SBVR model, as well as on dynamic modifications of the workflow instances while running and without inconsistencies. Our matured experience in this declarative approach to SBVR will be useful for future work on the definition and composition of services in the context of Digital Ecosystems.

Some of the challenges we currently face are the intrinsic ambiguity and semantic richness of natural language. Another is the lack of SBVR in supporting temporal logics, which presents a problem in defining workflows, as well as a lack of features in many current Open Source workflow management solutions (particularly regarding dynamic aspects). However, we have completed a theoretical study of workflow reconfiguration issues (namely, identifying common reconfiguration patterns and defining graphical notation to visualise and manage them). Finally, we have come up with a prototypical implementation of a module for workflow reconfiguration, although we are still missing a complete solution, due to the lack of Open Source workflow engines.

The uniqueness of our approach is in its ability to define the workflow model in a natural controlled language such as SBVR Structured English (SBVR SE), but at the same time, formal enough so that machine-readable representations can be automatically derived. This opens the way for creating software platforms that are more accessible to business communities and in particular SMEs, for whom workflows and their dynamic reconfigurations are of great interest.

Going forward, we plan to leverage expertise derived from studies done on SBVR use for RESTful services description and composition, which will involve applying the expressive power of SBVR SE as a RESTful Service Description Language.

[back to top](#)

WP3: Implementation of Identity, Trust and Accountability Models

WP3's primary objective has been to provide implementations of distributed Identity, Trust and Accountability models in support of the technologies of Digital Ecosystems.

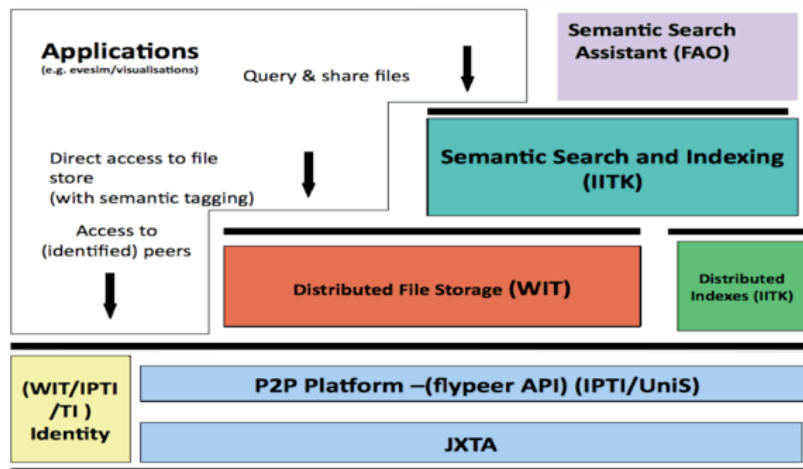
As recent achievements we have established JXTA bindings for IdentityFlow; created authenticators for LDAP, XMPP and Guigoh; and implemented a Trust algorithm plug-in framework. Additionally, an Identity Operation Model has been implemented using a state machine approach. What we have yet to achieve, however, is a significant implementation of an Accountability model.

The special features of our work are decentralised identity management support for heterogeneous platforms and multiple identity authenticators; decentralised accountability for composed services; integrated trust and reputation with identity providers; and a plug-in algorithm architecture for subjective context dependent trust evaluation.

Going forward, we plan to continue the work above and pursue external activities already initiated, such as Open Source projects and other research proposals. We expect that applications of our work in the future will include using Trust to improve Semantic Search rankings and to improve the selection of alternative services in a Distributed Transaction.

[back to top](#)

WP5: Integration with the Digital Ecosystem Platform



WP5's recent work overseeing integration within the DE platform has realised some major science and technology achievements. First, Sirona is completed and is now being deployed outside of the OPAALS network, both commercially within two large Spanish banks and non-commercially within the EU DEN4DEK project. Second, Flypeer has evolved to provide an important reference for implementation of WP3's P2P architecture. And third, the collaborative document-editing tool found on Guigoh puts to effective use WP3's lock model.

This work reflects WP5's increased cooperation and mutual influence with other WPs. In addition to the tight coupling now in place with WP3, WP5 is collaborating with WP1 on biological design patterns, with WP10 on the OKS, with WP11 on two of its case studies, and finally with WP12 both directly and indirectly via WP12's relation with WP11.

As far as the dissemination and exploitation of our results, the OKS Collaboration Space is now available at <>, the DE infrastructure is scheduled for trial by Aragon SMEs starting in March 2010, and aspects of the OKS have been trialed during the RTS (Social Technologies Network) in Brazil in August.

[back to top](#)

WP6: Socio-Constructivism and Language

WP6 has had some major achievements in its work recently in the disciplines of science and technology. We have developed a real case for dynamic service composition in the IT sector based on legal aspects of a contract. We have also developed a software tool to translate from a natural-based contract to an e-contract in legalXML, have worked to create a tool with the ability to visualise and validate those e-contracts, and have developed another tool to search for the most optimal IT service based on the user's request criteria.

Additional WP6 research work of note is the creation of an e-contract legalXML ontology; the specification and implementation of processing software for working with canonical RDF (Wille(2) service), and the Multilingual Search Assistant.

Our cooperation and mutual influence with other WPs has grown. Between WP6 and WP2, we have collaborated on the integration of the Stanford Parser (Constituency Grammar) in the GUI of a web-based SBVR Editor, as well integration of Dependency Grammar in the GUI of that editor. The two WPs have also worked together to integrate WordNet into the SBVR Editor. Between WP2, WP6 and WP10 we have worked together to integrate the SBVR Editor into Guigoh; and with WP11, we have gathered information from SMEs to model and automate parts of their business processes, particularly their legal contracts.

In collaboration with WP10, WP6 has developed the use of semiotic triangulation in data visualisation (a visualisation metaphor for a system and its components, and visualisation of that data). We have also worked together on a collocation analysis for socio-constructivist research on the OPAALS community, as well as developed, designed, and piloted a survey study. With the help of WP9, those survey results on community building, community development and social networks were disseminated.

Future developments for WP6 will include pursuing an integrative language approach with input for the social science and computer science domain; continuing to work on AGROVOC; visualising language and knowledge as an evolving process; and improving upon Semantic Services Search Capabilities.

[back to top](#)

WP9: Communication and Dissemination



In the earlier phases of the project we have been modest in our publicity and disseminated largely within the digital ecosystems community. In our final year of the project, however, we need to ensure that our knowledge is more widely disseminated, and that our outputs become public.

The first press releases have been forged in a slow process. This revealed a kind of interdisciplinary barrier between the world of research, which is concerned about factuality and measured claims, and that of publicity and media, which is concerned about exciting the reader with an interesting story. However, we

now have a good understanding of the task and, with the help of the LSE Press Officer, are set to produce further information using a slightly more organised methodology.

As well as work on individual press releases, we have produced a media information and resource pack, and are currently creating standard presentation material for use by new partners and interested regions.

The major event on the horizon is the public conference, which is now confirmed for Brazil in March 2010. There is likely to be great interest in this, and potential presenters are advised to make sure they get their papers in by the December 15th deadline.

[back to top](#)

WP10: Sustainable Community Building



In recent months, some of WP10's biggest accomplishments have included creation of the OKS Entry Pages, fulfilling key externalisation and adoption enablement requirements set forth in the project.

Additionally, we have arrived at a prioritisation of OKS requirements, continued testing and validation of the main OKS collaboration tool, Guigoh, participated in the RTS (Brazil) launch of and engagement with the tool, and gathered significant learnings from the Agropedia project.

Current OKS usage is a reflection of our community-building exercise at the Phase III Kick-Off meeting in Salzburg, Austria in June. Consortium adoption of the OKS tools is growing as overall functionality stabilises. Examples of this are particularly seen in usage of Guigoh as an ICT, in new (virtual) community establishment, in the use of the document-editing tool, in the chat functionality replacing in-person or teleconferenced meetings, in semi-external adoption by partners' university students, and through cluster usage via FiNES (see above).

As far as themes of sustainability and community building, we are now on the path from leaving OPAALS and arriving at an (OPAALS) OKS. This includes identifying models of governance to serve as a legal entity that could support the continuity of OPAALS after the funded lifetime of the project, as well as continuing with plans to amalgamate engagement with a number of regions that have already engaged in DE sustainability such as Aragon, Lazio and Trento.

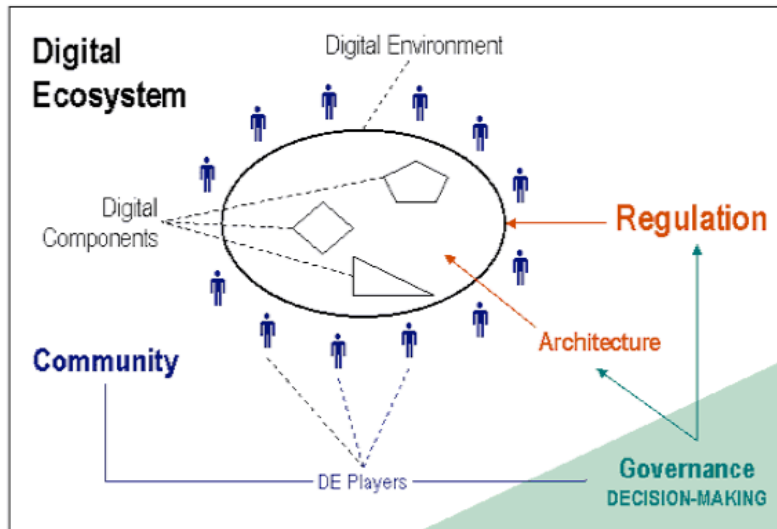
Our next steps include continuing to fix bugs and deploy tools on Guigoh, to fine-tune the OKS Entry Pages, to continue implementation of sustainability and governance plans through community-building, and to consider drafting a paper on learnings from this OPAALS OKS community-building experience to hand over to future OPAALS legal entities and other similar communities. Finally, our work continues on externalisation of WP10 via WP9 and the accompanying amalgamation of the two WPs, which in part has been fostered by our own self-reflection on community-building, communication, and collaboration in the NoE.

[back to top](#)

WP11: Bridging Digital Ecosystems Research with Regional Development and Innovation in the Knowledge Economy

A primary concern of WP11 is to take OPAALS from a project to a legal organisation: a legal organisation to be established before projects ends, in accord with EEIG or AISBL guidelines, and, as a general rule, as a nonprofit organisation. In terms of the organisation and governing bodies that WP11 is working towards, this would include a small membership fee (diversified per type of organisation) and would support basic running costs in exchange for basic service (such as publications, workshop attendance, etc.).

OPAALS sustainability is a multifaceted issue. Among its components are discontinuity, where some research 'lines' might develop divergent perspectives; financial sustainability, with various aspects of community sustainability, code-base sustainability and regional sustainability; intervention at multiple levels such as research, regional development, ICT, etc.; the development of business plans towards understanding what we can actually support; and finally media strategies, fund-raising strategy and events (for instance, workshops, annual conferences and higher education) as income-generating activities.



Despite these larger issues, OPAALS has put sustainability into practice. Through its multi-stakeholder approach to network management; a public-scientific roadmap; regional extensions such as Den4Dek, Aragon, Lazio, Wales and Trento DE-planning actions, regional evaluating strategies; structured research exchange programmes with other institutions; and international (non European) cooperative links and common initiatives in Brazil (MCI, Sergipe), India (Agropedia), the Australian Bureau of Statistics and other South American links (MCI Brasil, Eulaks project) OPAALS is bridging DE research with regional development and innovation.

[back to top](#)

WP12: Foundations of the Theory of Associative Autopoietic Digital Ecosystems

The most recent work of WP12 has been completion of the third in a series of three theoretical deliverables, all of which aim to develop an integrated theory of associative, autopoietic Digital Ecosystems. The work of WP12 has relevance to all other project WPs: it holds a common reference point for the greater activities of the research community.

Some of the special features of WP12's most recent research can be described as: an innovative synthesis of theoretical and empirical insights in order to build a coherent, multidisciplinary theoretical framework for DEs; a self-consistent ontological, epistemological and methodological theoretical framework that accommodates all epistemological perspectives; the integration of philosopher Karl Popper and sociologist Anthony Giddens's perspectives; an outline of new research perspective in non-equilibrium economics; and the clarification and location of roles of non-linearity and evolutionary behaviour within an overall framework. Recently, WP12's research has received positive evaluation from the Venezuelan Institute of Scientific Research.

Going forward, we anticipate having a greater impact on Phase III work, namely a greater clarity on an epistemological framework; and continuing to define an associative autopoietic theoretical ecosystem as complementary to development of DEs in various applied contexts. Expected applications of our work are a renewal of theoretical apparatus through inflow of new ideas and perspectives from outside Europe, and testing and development of theory through ongoing empirical work.

Our recent external activities have included delivering three conference papers at IEEE-DEST 2009 in Istanbul, Turkey and ACM MEDES 2009 in Lyon, France.

[back to top](#)