	OPAALS PROJECT Contract n° IST-034824
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WP9: Communication and Dissemination

Del 9.15 – 3rd OPAALS Conference Proceedings

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Contract Number: IST-034824**Project Acronym:** OPAALS**Deliverable N°:** 9.15**Due date:** May, 2010**Delivery Date:** July, 2010**Short Description:** This deliverable presents the proceedings of the 3rd OPAALS conference, held in Aracaju, Brazil, during March the 22nd and 23rd of 2010.**Author:** Fernando A.B. Colugnati**Partners contributed:** None**Made available to:** General audience

VERSIONING		
VERSION	DATE	NAME, ORGANIZATION
1	19/7/2010	Fernando Colugnati - IPTI
2	11/8/2010	Fernando Colugnati – IPTI

Quality check**Internal Reviewers:** Paolo Dini , Anne English

Dependencies:

Achievements*	The conference happened according to the consortium schedule and expectations
Work Packages	This is related to all WPs, a dissemination of main results
Partners	All partners
Domains	All domains
Targets	To disseminate abstracts of papers presented in the conference.
Publications*	This report just present the abstracts of all papers presented. The complete articles were published in the "Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, Vol. 67", by Springer publishers.
PhD Students*	Not applicable
Outstanding features*	Not applicable
Disciplinary domains of authors*	Fernando Colugnati, IPTI, Statistician, Social Network Analyst

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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1. An overview of the Conference

The third OPAALS conference, entitled “3rd International OPAALS conference on Digital Ecosystems” was held in Aracaju, Sergipe state, in Brazil, during March 22nd and 23rd of 2010. This was the last conference of OPAALS as a NoE. This conference was organised by Research Institute for Technology and Innovation – IPTI, based in Sergipe and São Paulo, and had this city as host due to the extensive activities of this institution in Sergipe.

The conference also had the sponsorship of the “*Sergipe State Agency for Research, Technology and Innovation*” (FAPTEC), and the “*Institute for Computer Sciences, Social Informatics and Telecommunication Engineering*” (ICTS). The first institution helped with funding mainly for the infrastructure of the venue and social programs. The second had a scientific relevance, since ICTS agreed to publish the conference proceedings in the *Lectures of ICTS*, a series of books edited by Springer Publishers that presents all conferences sponsored and supported by ICTS. Since the papers presented are all generated from tasks of OPAALS work packages, that are fully presented in other deliverables with open access in NoE repositories, we believe that this copyright does not conflict with the values of OPAALS. This book will also give the consortium more visibility and credibility, making this decision worthwhile in terms of communication and dissemination.

This deliverable presents the proceedings of this conference, presenting titles, authors and abstracts of the papers presented. The conference had 25 attendees, from which 18 were speakers who presented 22 papers in four sessions. Figure 1 presents the website of the conference. Topics 2 and 3 give the committees and conference program, respectively. Following, section 4 brings together all paper abstracts.



3rd International OPAALS Conference on Digital Ecosystems

22 to 23 of March - 2010 - Aracaju - SE - Brazil



[call for papers](#)

[important dates](#)

[submissions](#)

[registration](#)

[committees](#)

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[contact](#)

Welcome to the OPAALS 2010 website!

The 3rd International OPAALS (Open Philosophies for Associative Autopoietic Digital Ecosystems) Conference on Digital Ecosystems is a public workshop that has established itself as an opportunity to explore and discuss Digital Ecosystems Research issues as well as emerging and future trends in the field.

Digital Ecosystems is an approach inspired by natural ecosystems to study emerging complex open socio-technical systems. This field has been used recently for economic dynamics and business modelling pertaining to local development of SMEs and interaction between them stimulating multidisciplinary innovative research in natural, computer and social sciences among others.

The conference is organized by IPTI - Instituto de Pesquisas em Tecnologia e Inovação. IPTI is currently a member of OPAALS Network of Excellence. The workshop will be held in the city of Aracaju, Sergipe, located in the northeast part of Brazil on 22nd and 23rd of March 2010. Aracaju is the capital of Sergipe located on the coast, presenting tropical vegetation, rivers and specially mangroves. The weather is tropical as well, with high temperatures and humidity all through the year. The city offers several beautiful scenarios and tourism services. Learn more at [location and accommodation](#).

Any project concerning any Digital Ecosystems theme is invited to attend to the conference, including research, academic and private-sector institutions. The purpose of OPAALS 2010 conference is to cover topics such as Digital Ecosystems adoption, technologies, theoretical research and models, among others. Authors are encouraged to submit multidisciplinary papers, pertaining to multiple areas and topics.

We look forward to seeing you in Aracaju!

News:

- **Deadline Extended:** paper submission deadline extended (15 Jan. 2010).
- **Deadline Extended:** paper submission deadline extended (10 Jan. 2010).
- **Deadline Extended:** paper submission deadline extended (01 Jan. 2010).
- **Call for Papers:** online paper submissions are now open (15 Oct. 2009).

Organized by:



<http://www.ipti.org.br/>

Sponsored by:






Figure 1- Conference webpage (www.ipti.org.br/opaals2010)

2. Committees

Chair:

Saulo F. A. Barretto - [Instituto de Pesquisas em Tecnologia e Inovação](#) (IPTI)

Organizing Committee:

Fernando A.B. Colugnati - [Instituto de Pesquisas em Tecnologia e Inovação](#) (IPTI)

Renata Piazzalunga - [Instituto de Pesquisas em Tecnologia e Inovação](#) (IPTI)

Ossi Nykänen - [Technical University of Tampere](#) (TUT)

Paolo Dini - [London School of Economics and Political Science](#) (LSE)

Frauke Zeller - [University of Kassel](#)

Thomas J. Heistracher - [Salzburg University of Arts and Science](#) (SUAS)

Jayanta Chatterjee - [Indian Institute of Technology Kanpur](#) (IITK)

Paul Krause - [University of Surrey](#)

Scientific Committee:

Neil Rathbone - [London School of Economics and Political Science](#) (LSE)

Lia Carrari Lopes - [Instituto de Pesquisas em Tecnologia e Inovação](#) (IPTI)

Chris Van Egeraat - [NUI Maynooth](#)

Declan Curran - [NUI Maynooth](#)

Thomas Kurz - [Salzburg University of Arts and Science](#) (SUAS)

Raimund Eder - [Salzburg University of Arts and Science](#) (SUAS)

Jaakko Salonen - [Technical University of Tampere](#) (TUT)

Jukka Huhtamäki - [Technical University of Tampere](#) (TUT)

Ingeborg van Leeuwen - [University of Dundee](#)

Paolo Dini - [London School of Economics and Political Science](#) (LSE)

Daniel Schreckling - [University of Passau](#)

Francesco Botto - [CREATE-NET](#)

Marco Bräuer - [University of Kassel](#)

Ingmar Steinicke - [University of Kassel](#)

Oxana Lapteva - [University of Kassel](#)

Amritesh - [Indian Institute of Technology Kanpur](#) (IITK)

Jayanta Chatterjee - [Indian Institute of Technology Kanpur](#) (IITK)

Gabor Horvath - [London School of Economics and Political Science](#) (LSE)

Attila Egri-Nagy - [University of Hertfordshire](#) (UH)

Paolo Dini - [London School of Economics and Political Science](#) (LSE)

Chrystopher Nehaniv - [University of Hertfordshire](#) (UH)

Maria Schilstra - [University of Hertfordshire](#) (UH)

Lorraine Morgan - [University of Limerick](#) (UL)

Paul Malone - [Waterford Institute of Technology](#)

Jimmy McGibney - [Waterford Institute of Technology](#)

Mark McLaughlin - [Waterford Institute of Technology](#)

Gerard Briscoe - [London School of Economics and Political Science](#) (LSE)

Paolo Dini - [London School of Economics and Political Science](#) (LSE)

Lorena Rivera Leon - [The London School of Economics and Political Science](#) (LSE)

Mark McLaughlin - [Waterford Institute of Technology](#)

Amir reza Razavi - [University of Surrey](#)

Paulo Siqueira - [Instituto de Pesquisas em Tecnologia e Inovação](#) (IPTI)

Fabio K Serra - [Instituto de Pesquisas em Tecnologia e Inovação](#) (IPTI)

Anne English – [London School of Economics and Political Science](#) (LSE)

3. Conference Program

Day 1 - March, 22nd 2010:

9:00	Opening session
9:30	Neil Rathbone. <i>The role of the region in knowledge transfer for economic development</i>
10:00	Amir reza Razavi, Paulo Siqueira, Fabio K Serra and Paul Krause. <i>Flypeer: a JXTA implementation of DE transaction</i>
10:30	Paolo Dini and Daniel Schreckling. <i>A Research Framework for Interaction Computing.</i>
11:00	Coffebreak
11:30	Attila Egri-Nagy, Paolo Dini, Chrystopher Nehaniv and Maria Schilstra. <i>Transformation Semigroups as Constructive Dynamical Spaces</i>
12:00	Lorraine Morgan and Kieran Conboy. <i>Exploring the Role of Value Networks for Software Innovation</i>
12:30	Paul Malone, Jimmy McGibney and Mark McLaughlin. <i>Implementing a Trust Overlay Framework for Digital Ecosystems</i>
13:00	Lunch
14:30	Gerard Briscoe and Paolo Dini. <i>Towards Autopoietic Computing</i>
15:00	Mark McLaughlin and Paul Malone. <i>A Practical Approach to Identity on Digital Ecosystems using Claim Verification and Trust</i>
15:30	Renata Piazzalunga and Fernando Colugnati. <i>Towards complex interface</i>
16:00	Coffebreak
16:30	Rodrigo Arthur de Souza Pereira Lopes, Lia Carrari Lopes and Pollyana Notargiacomo Mustaro. <i>SPAM Detection Server Model Inspired by the Dionaea Muscipula Closure Mechanism: An alternative approach for Natural Computing challenges</i>
17:00	Fernando Colugnati and Lia Carrari Lopes. <i>Analysing collaboration in OPAALS'wiki: A comparative study among collaboration networks</i>

Day 2 - March, 23rd 2010:

9:30	Lia Carrari Lopes, Saulo Barretto, Paulo Siqueira, Larissa Barros, Michelle Lopes and Isabel Miranda. <i>Fostering Social Technologies sharing through Open Knowledge Space: a Brazilian case study of Knowledge Network</i>
10:00	Chris Van Egeraat and Declan Curran. <i>Social Network Analysis of the Irish Biotech Industry: Implications for Digital Ecosystems</i>
10:30	Thomas Kurz, Raimund Eder and Thomas Heistracher. <i>Knowledge Resources</i>
11:00	Coffebreak
11:30	Jaakko Salonen and Jukka Huhtamäki. <i>Launching Context-Aware Visualisations</i>
12:00	Ingeborg van Leeuwen, Alastair Munro, Ian Sanders, Oliver Staples and Sonia Lain. <i>Numerical and Experimental Analysis of the p53-mdm2 Regulatory Pathway</i>
12:30	Gabor Horvath and Paolo Dini. <i>Lie Group Analysis of a p53-mdm2 ODE Model.</i>
13:00	Lunch
14:30	Amrithesh and Jayanta Chatterjee. <i>Digital Ecosystem for Knowledge and Learning: Exploring Socio-Technical Concepts and Adoption</i>
15:00	Francesco Botto, Antonella Passani and Venkata Kiran Yedugundla. <i>Digital Ecosystems Adoption at local level: a preliminary comparative analysis</i>
15:30	Frauke Zeller, Jayanta Chatterjee, Marco Bräuer, Ingmar Steinicke and Oxana Lapteva. <i>The diffusion of social media and knowledge management – towards an integrative typology</i>
16:00	Coffebreak
16:30	Lorena Rivera Leon. <i>Collaboration networks for innovation and socio-economic development: European and Latin American perspectives on Digital Ecosystems research, local readiness, deployment strategies and their policy implications</i>
17:00	OPAALS Activities, updates, warnings, etc
17:30	Closing session

4. Abstracts

The Role of the Region in Knowledge Transfer for Economic Development

Neil Rathbone

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Abstract. This paper outlines the increasingly important role of regions in Knowledge Transfer. Drawing on experiences from two ICT projects involving Digital Ecosystems, it explores why the regions are the best catalyst for knowledge transfer and suggests methodologies for the development of effective ICT strategies for regional economic development.

Keywords: ICT; regions; regional economic development; SMEs; knowledge transfer

SPAM Detection Server Model Inspired by the *Dionaea Muscipula* Closure Mechanism: An alternative approach for Natural Computing Challenges

Rodrigo A. S. P. Lopes ¹, Lia C. R. Lopes ², and Pollyana N. Mustaro ¹

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Abstract. Natural computing has been an increasingly evolving field in the last few years. Focusing on the interesting behaviours offered by nature and biological processes, this work intends to apply the metaphor of the carnivorous plant — *Dionaea muscipula* as a complementary defence system against a recurring problem regarding Internet and e-mails: spam. The metaphor model presents relevant aspects for further implementation and debate.

Keywords: natural computing; *Dionaea muscipula*; spam.

Social Network Analysis of the Irish Biotech Industry: Implications for Digital Ecosystems

Chris van Egeraat and Declan Curran

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Abstract. This paper presents an analysis of the socio-spatial structures of innovation, collaboration and knowledge flow among SMEs in the Irish biotech sector. The study applies social network analysis to determine the structure of networks of company directors and inventors in the biotech sector. In addition, the article discusses the implications of the findings for the role and contours of a biotech digital ecosystem. To distil these lessons, the research team organised a seminar which was attended by representatives of biotech actors and experts.

Keywords: Digital Ecosystems; Social network analysis; Innovation; Biotech

Knowledge Resources - A Knowledge Management Approach for Digital Ecosystems

T. Kurz, R. Eder, and T. Heistracher

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Abstract. The paper at hand presents an innovative approach for the conception and implementation of knowledge management in Digital Ecosystems. Based on a reaction to Digital Ecosystem research over the past years, an architecture is outlined that utilises Knowledge Resources as the central and simplest entities of knowledge transfer. After the discussion of the related conception, the result of a first prototypical implementation is described that aids the transformation of implicit knowledge to explicit knowledge for wide use.

Keywords: Digital Ecosystems; Knowledge Management, Knowledge Resources

Launching Context-Aware Visualisations

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Abstract. Web is more pervasive than ever: it is being used with an increasing range of browsers and devices for a plethora of tasks. As such, exciting possibilities for information visualisation have become available: data is potentially highly relevant, easy to access and readily available in structured formats. For the task of visualisation, the diversity of the Web is both a challenge and an opportunity: while rich data may be available in well-defined structures, it needs to be extracted from an open ecosystem of different data formats and interfaces. In this article, we will present how context-aware visualisations can be launched from target Web applications. Methods for accessing and capturing data and web usage context are presented. We will also present proof-of-concept examples for integrating launchable context-aware visualisations to target applications. We claim that by maintaining loose coupling to target Web applications and combining several data and context capturing methods, visualisations can be effectively launched from arbitrary Web applications with rich usage context information and input data.

Keywords: ubiquitous computing; information visualisation; context awareness; mobile Web; augmented browsing

Numerical and Experimental Analysis of the p53-mdm2 Regulatory Pathway

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Abstract. The p53 tumour suppressor plays key regulatory roles in various fundamental biological processes, including development, ageing and cell differentiation. It is therefore known as "the guardian of the genome" and is currently the most extensively studied protein worldwide. Besides members of the biomedical community, who view p53 as a promising target for novel anti-cancer therapies, the complex network of protein interactions modulating p53's activity has captivated the attention of theoreticians and modellers due to the possible occurrence of oscillations in protein levels in response to stress. This paper presents new insights into the behaviour of the p53 network, which we acquired by combining mathematical and experimental techniques. Notably, our data raises the question of whether the discrete p53 pulses in single cells, observed using fluorescent labelling, could in fact be an artefact. Furthermore, we propose a new model for the p53 pathway that is amenable to analysis by computational methods developed within the OPAALS project.

Keywords: Mathematical modelling, Systems Biology, Oscillations, Pulses, Cell Cycle, Cancer.

A Research Framework for Interaction Computing

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Abstract. This paper lays out an interdisciplinary research framework that integrates perspectives from physics, biology, mathematics, and computer science to develop a vision of interaction computing. The paper recounts the main insights and lessons learned in the past six years across multiple projects, gives a current definition of the problem, and outlines a research programme for how to approach it that will guide our research over the coming years. The avour of the research is strongly algebraic, and the bridge to specication of behaviour of automata through new formal languages is discussed in terms of category theory. The style of presentation is intuitive and conceptual as the paper is meant to provide a foundation widely accessible to an interdisciplinary audience forve threads of research in experimental cell biology, algebraic automata theory, dynamical systems theory, autopoietic architectures, and specication languages, the rst four of which are represented by more focussed technical papers at this same conference.

Keywords: Bio-Computing, Interaction Computing

Digital Ecosystems Adoption at local level: a preliminary comparative analysis

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Abstract. This article focuses on the process of Digital Ecosystem adoption at territorial level. We present our views on the European approach to Digital Ecosystem. We try to define the process of DE territorial adoption as it has been modeled in the last years. We carried out a preliminary analysis of ongoing comparative research about DE adoption and described the methodology used in the research process. With reference to the research's preliminary data, we project how and to what extent the theoretical model of DE adoption is elaborated upon in DBE and OPAALS projects and has been adapted and used at local level. The territorial process described here introduces DEs in different industrial sectors and originates from very diverse socio-economic situations. For this reason, interviewers introduce DE at local level by adapting the DBE model to local needs. A preliminary analysis of these strategies and of the actors involved in the process is presented. A first glance at the technological side of DE adoption in term of infrastructure used and service developed is also provided. From the analysis, we indicate steps for future research and delineate those open questions that deserve a deeper analysis in the near future.

Keywords: Digital Ecosystems, Social Science, DE Territorial adoption, Regions, Comparative analysis

The Diffusion of Social Media and Knowledge Management – Towards an Integrative Typology

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Abstract. This paper introduces a first outline of a typology of distributed knowledge co-creation in virtual communities based on Porter's typology of virtual communities. The typology is based on empirical results from the analyses of social media, and a discussion of case study results from India proves the adaptability as well as usefulness of the typology. At the same time, the case study serves as an example to depict a socio-economic perspective on social media and knowledge management in Digital Ecosystems.

Keywords: Social media; web 2.0; typology; knowledge management; knowledge co-creation; produsage; prosumption

Digital Ecosystem for Knowledge, Learning and Exchange: Exploring Socio-Technical Concepts and Adoption

Amritesh and Jayanta Chatterjee

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Abstract. Knowledge is an indispensable element that ensures healthy functioning of any socio-technical system. Despite a terminological ambiguity, it is discussed by many researchers. Learning is a process to seek and recreate knowledge within socio-technical systems. In this paper, we attempt to explicate the terminological ambiguities of knowledge and explore knowledge processing and creation cycles as relevant for socio-technical systems. Further we present insights about theories of learning discussed by different scholars. We extend the paper towards new models of knowledge exchange inspired by and flow inspired by digital ecosystem concepts.

Keywords: Digital Ecosystems, Knowledge, Learning, Socio-Technical Systems, Agriculture Innovation in India.

Lie Group Analysis of a p53-mdm2 ODE Model

Gabor Horvath and Paolo Dini

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Abstract. This paper presents a symmetry analysis based on Lie groups of a system of ordinary differential equations (ODEs) modelling the p53-mdm2 regulatory pathway. This pathway is being investigated across several research groups as a biological system from which to extract dynamical and algebraic characteristics relevant to the emerging concept of Interaction Computing. After providing a conceptual motivation for the approach and some biological background for the choice of pathway, the paper gives an intuitive introduction to the method of Lie groups for a non-mathematical audience. This is followed by a general statement of the problem of finding the symmetries of a general system of four 1st-order ODEs, and then by the analysis of one such system modelling the p53-mdm2 pathway. The system chosen does not appear to harbour any symmetries, and therefore the effectiveness of the Lie group method cannot be demonstrated on this particular example. The symmetry analysis, however, helped reduce the system to a single Riccati equation for a specific choice of parameters, whose oscillatory behaviour appears to be relevant to the bio-computing perspective being discussed in a companion paper.

Keywords: Lie group, p53, symmetry, oscillation

Transformation Semigroups as Constructive Dynamical Spaces

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Abstract. The informal notion of constructive dynamical space, inspired by biochemical systems, gives the perspective from which a transformation semigroup can be considered as a programming language. This perspective complements a longer-term mathematical investigation into different understandings of the nature of computation that we see as fundamentally important for the realization of a formal framework for interaction computing based on algebraic concepts and inspired by cell metabolism. The interaction computing perspective generalizes further the individual transformation semigroup or automaton as a constructive dynamical space driven by programming language constructs, to a constructive dynamical 'meta-space' of interacting sequential machines that can be combined to realize various types of interaction structures. This view is motivated by the desire to map the self-organizing abilities of biological systems to abstract computational systems by importing the algebraic properties of cellular processes into computer science formalisms. After explaining how semigroups can be seen as constructive dynamical spaces we show how John Rhodes's formalism can be used to define an Interaction Machine and provide a conceptual discussion of its possible architecture based on Rhodes's analysis of cell metabolism. We close the paper with preliminary results from the holonomy decomposition of the semigroups associated with two automata derived from the same p53-mdm2 regulatory pathway being investigated in other papers at this same conference, at two different levels of discretisation.

Keywords: Digital ecosystems, interaction computing, algebraic concepts, John Rhodes's formalism, holonomy decomposition

Exploring the Role of Value Networks for Software Innovation

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Abstract. This paper describes a research-in-progress that aims to explore the applicability and implications of open innovation practices in two firms – one that employs agile development methods and another that utilizes open source software. The open innovation paradigm has a lot in common with open source and agile development methodologies. A particular strength of agile approaches is that they move away from ‘introverted’ development, involving only the development personnel, and intimately involves the customer in all areas of software creation, supposedly leading to the development of a more innovative and hence more valuable information system. Open source software (OSS) development also shares two key elements of the open innovation model, namely the collaborative development of the technology and shared rights to the use of the technology. However, one shortfall with agile development in particular is the narrow focus on a single customer representative. In response to this, we argue that current thinking regarding innovation needs to be extended to include multiple stakeholders both across and outside the organization. Additionally, for firms utilizing open source, it has been found that their position in a network of potential complementors determines the amount of superior value they create for their customers. Thus, this paper aims to get a better understanding of the applicability and implications of open innovation practices in firms that employ open source and agile development methodologies. In particular, a conceptual framework is derived for further testing.

Keywords: networks, agile development, open source software, open innovation

Implementing a Trust Overlay Framework for Digital Ecosystems

Paul Malone, Jimmy McGibney, Dmitri Botvich, Mark McLaughlin

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Abstract. Digital Ecosystems, being decentralised in nature, are inherently untrustworthy environments. This is due to the fact that these environments lack a centralised gatekeeper and identity provider. In order for businesses to operate in these environments there is a need for security measures to support accountability and traceability. This paper describes a trust overlay network developed in the OPAALS project¹ to allow entities participating in digital ecosystems to share experience through the exchange of trust values and to leverage on this network to determine reputation based trustworthiness of unknown and initially untrusted entities. An overlay network is described together with sample algorithms and a discussion on implementation.

Keywords: trust, digital ecosystem, security

Towards Autopoietic Computing

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Abstract. A key challenge in modern computing is to develop systems that address complex, dynamic problems in a scalable and efficient way, because the increasing complexity of software makes designing and maintaining efficient and extensible systems increasingly difficult. Biological systems are thought to possess robust, scalable processing paradigms that can automatically manage complex, dynamic problem spaces, possessing several properties that may be useful in computer systems. The biological properties of self-organisation, self-replication, self-management, and scalability are addressed in an interesting way by autopoiesis, a descriptive theory of the cell founded on the concept of a system's circular organisation to define its boundary with its environment. In this paper, therefore, we review the main concepts of autopoiesis and then discuss how they could be related to fundamental concepts and theories of computation. The paper is conceptual in nature and the emphasis is on the review of other people's work in this area as part of a longer-term strategy to develop a formal theory of autopoietic computing.

Keywords: autopoiesis, computing, computability, structural coupling

Collaboration Networks for Innovation and socio-economic Development: European and Latin American perspectives on Digital Ecosystems research, local readiness, deployment strategies and their policy implications

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Abstract. International cooperation and knowledge transfer among countries has become increasingly important in the last decades, giving opportunity to a set of multiple interaction programs particularly amongst developed and developing regions. This paper discusses the feasibility of the adoption of Digital Ecosystems (DEs) in the Latin American context, based on the experience of deployment of DEs in the European Union. Different deployment experiences in the European context revealed the need of a methodology for planning and implementing DEs that resulted in a set of tools for measuring the maturity grade of localities related to the deployment of DEs and the need for an impact index for understanding its long-term implications of the dynamics of their implementation. This paper proposes a new methodological framework that integrates concepts related to ICT adoption, connectivity and absorption capacities and recognises the strong influence of social capital over these. The paper concludes with the description of a methodological tool oriented towards the mapping, evaluation and modification of scenarios related to ICT adoption process among multiple agents.

Keywords: collaboration networks; Digital Ecosystems; Latin America; quantitative qualitative methodological framework; ICT adoption; absorption capabilities; connectivity; social capital; sustainable socio-economic development; policymaking.

A Practical Approach to Identity on Digital Ecosystems using Claim Verification and Trust

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Abstract. Central to the ethos of digital ecosystems (DEs) is that Des should be distributed and have no central points of failure or control. This essentially mandates a decentralised system, which poses significant challenges for identity. Identity in decentralised environments must be treated very differently to identity in traditional environments, where centralised naming, authentication and authorisation can be assumed, and where identifiers can be considered global and absolute. In the absence of such guarantees we have expanded on the OPAALS identity model to produce a general implementation for the OPAALS DE that uses a combination of identity claim verification protocols and trust to give assurances in place of centralised servers. We outline how the components of this implementation function and give an illustrated workflow of how identity issues are solved on the OPAALS DE in practice.

Keywords: identity, trust, digital ecosystems, federated identity

Flypeer: a JXTA implementation of DE transactions

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Abstract. This paper introduces the Flypeer framework for transaction model in digital ecosystems. The framework tries to provide a fully distributed environment, which executes different type of order service compositions. The proposed framework is considered at the deployment level of SOA, rather than the realisation level, and is targeted to business transactions between collaborating SMEs as it respects the loose-coupling of the underlying services.

Keywords: Flypeer, transaction models, SOA

Analysing collaboration in OPAALS' wiki: A comparative study among collaboration networks

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Abstract. This work aims to analyse the wiki tool from OPAALS as a collaborative environment. To achieve that, methods from social network analysis and statistics are employed. The analysis is compared with other collaboration networks. The results obtained here show the evolution of the tool and that the adoption was successful.

Keywords: Social Network Analysis, collaborative process, Virtual Communities, wiki

Fostering Social Technologies sharing through Open Knowledge Space: a Brazilian case study of Knowledge Network

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Abstract. The paper presents a case study of ICT adoption for a Brazilian national program focused on enhancing the share of social technologies to improve socioeconomic development. The paper presents some experiences of IPTI in this field and describes the case study. The paper also presents the computational platform adopted for this experience. Finally it illustrates how the behaviour and configuration of the community can be studied with the use of social network analysis. The authors expect that this work will help other researchers in forthcoming projects and experiences of building knowledge communities and ICT adoption.

Keywords: knowledge network; social technologies; web

Towards the complex interface

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Abstract. This paper introduces a new concept for interfaces based on user perception, according to its definition in phenomenology framework. Based on studies about fractal aesthetics and its effect in human perception, an analogy is made with the scale-free topology of collaborative networks. Properties of this scale invariance characteristic should then be used for a computational implementation of a dynamic and optimised interface, adequate to the user preferences, feelings and perception.

Keywords: perception, interface, visualization, phenomenology, scale-free networks, fractal.