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Memoria Técnica de Acciones Complementarias
Modalidad B
(Acciones concertadas de carácter científico-técnico, redes)
Convocatoria 2010

Investigador Principal:	**Salto Alemany, Francisco**
Título de la Acción Complementaria:	**Pasos adicionales desde España para construir una comunidad virtual de estudios informacionales: DomusBITae**
Organismo solicitante:	**Universidad de León**
Organismos asociados:	**Instituto Nacional de Tecnologías de la Comunicación (INTECO), Universidad de Barcelona**
Área temática de gestión:	**Tecnologías Informáticas (TIN), de Servicios para la Sociedad de la Información (TSI) y e-Ciencia (ECI)**

Resumen de la actuación para la que solicita ayuda:

Se presenta primeramente el marco científico-tecnológico al que apela la iniciativa domusBITae, justificando su interés científico, tecnológico y social: el campo de los estudios informacionales y la promoción de una nueva ciencia de la información. Se describen los fundamentos y estrategia de la inicitiva, y se identifica la ayuda solicitada dentro del marco general, respondiendo a su desarrollo estratégico. Se presenta un plan de trabajo como paso fundamental de la estrategia internacional de domusBITae. Por último, se propone un diseño preliminar del sistema básico y se identifica el impacto potencial a modo de itinerario para el éxito de la iniciativa.

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Technical Annex of complementary action
Type B
(Coordinated actions in science and technology, networks)
Call 2010

Principal investigator:	**Salto Alemany, Francisco**
Title of the complementary action:	**Further national steps for building a global virtual community in Information Science**
Requesting institution:	**Universidad de León**
Asociated institutions:	**Instituto Nacional de Tecnologías de la Comunicación (INTECO), Universidad de Barcelona**
Managment thematic field:	**Computing Technologies, Services for the Information Society and e-Science**

Abstract

The scientific and technological frame to which domusBITae initiative addresses, i.e. the field of information studies and the furthering of a new science of information, is first presented and justified its scientific, technological and social interest. The fundamentals and strategy of the domusBITae initiative is subsequently described, and the requested support is identified within the whole frame and responding to its strategic deployment. The work-plan is developed as a fundamental step within domusBITae international strategy. A core system preliminary-design is depicted and the impact potentials are clearly identify as a road for the success of the initiative.

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Contents

1. Scientific and technological frame for the development of the action

1.1 The field of Information Studies: towards a paradigm shift, foundations of a new Science of Information

In contrast with the population in the iron age, who had no chance to understand the concept of iron, we are able in the "information age" to ask ourselves about the very nature of information, setting forth new ways of understanding its content, its measure and its value, as studied and applied in many different scientific, technical and practical contexts. It is said that there are information phenomena in cells, words, antennas, skin, cables, thoughts, electrons, brains, robots, communities, databanks, institutions… Hence talking about information is essentially trans-disciplinary. Moreover, on the one hand, the concept has gained a central role in many disciplines scattering its meaning and establishing gaps among them (Capurro 2003, 2009, Marijuán 2009); and on the other hand, an information theoretical approach may bridge apparently irreconcilable disciplines providing tools for the appraisal of current scientific open tasks (Lyre 2002, Doucette 2008, Hofkirchner 2009). Moreover the scattering effect on information meanings has driven to the belief that information can be useful for everything, while often it is not enough to cope with our current problems (Brier 2008). Since information appeals to the very core of different sciences, a deeper understanding of information phenomena rendering scientific and societal fruits must be multidimensional. The network envisaged within this project aims at precisely this objective.

The problems regarding such deeper understanding of information are: Is there a unified cluster of concepts of information under all these uses of "information"? How can we simultaneously grant the diversity of information phenomena and the rigour of its theoretical apprehension in a unifying framework? By which means, if any, is informational content measured? Could a refined concept of information bridge among matter and energy (physics), life (biology), cognition and consciousness (psychology and neuroscience) and social systems (sociology)? How can we preserve all practical interest regarding information (from the governing of nature or the implementation of technology to the preservation of social rights, cultural life, human dignity…)?

The state of the art regarding information theories includes distinct ongoing paradigms, such as: complexity (Algorithmic Information Theory, info-computation); entropy vs order (physics, chemistry); situated (infon theory); intentional (cognitive science, decision theory); semantic (linguistics, communication theory); system (cybernetics); evolution (biology, social theory)… i.e. different disciplines presuppose distinct paradigms (Capurro 2003, Lyre 2002, Díaz & Salto 2009). Bridging the community of information studies would be a first step for interweaving different scientific frameworks to deepen into the very landscape of information, searching for interdisciplinary treatment of theoretical, technical and practical problems. A community of scientists, interested in searching a common information-theoretical stage, already exists, but a proper structured link among separated groups is necessary to reach the objective. Thus a virtual community, in which any research group can collaborate in challenging scientific, societal and technological questions concerning information (by

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sharing resources and results, fostering discussion, scientific knowledge & innovation, disseminating results and promoting cooperative research) can be an optimal means for going in this direction which fruits in an information society can be of scientific, technical and social benefit.

Since the beginning of the 1990s serious efforts have been done in order to erect an interdisciplinary frame on information. Among them, it is worth mentioning actions coming from: "Foundations of Information Science" (FIS); "Unified Theory of Information" (UTI); "Institute for Logic, Language and Computation" (ILLC) of Amsterdam, and the "Science of Information Institute" (SoII) of Washington. But in the other hand, other groups (like the International Center for Information Ethics, ICIE) were created to veil for those interests concerning information that science and technology could be leaving apart, or may not be reached from an only scientific criteria. This segregation of scopes will be overcome in a virtual community since no particular point of view is imposed.

In 2008, an interdisciplinary research group on information, named BITrum (http://sites.google.com/site/ebitrum/), was founded in collaboration with many other international groups as those mentioned before and leaded by the proposer of this action (constitutional act attached). Creating the proposed virtual community may further a broad European network on information concerns, which might bridge results from different EU founded actions covering several issues within the realm of information concerns (eg. in the field of Information Technologies: COST-IC 276, 274, 292, 294, 298; COST-ICO 602, 603; in the field of Biomedical and Molecular Biosciences: COST-B 27, 30, -BM0605; EUROCORES-EuroSCOPE; RNP-FUNCDYN, -FFG; in the field of Individual, society, culture and health: COST-ISO 604, 807; EUROCORES-CNCC, EUROCORES - LogICCC; RNP-CompCog; FP6-ETHICBOTS project; FP7-ETICA).

The proposed action is linked to relevant international institutions and researchers in the field in order to achieve an optimal impact in the international community. A consortium among several of these institutions has been gathered to foster a programme within the European Research Area aiming at deploying such eInfrastructure. BITrum started in 2009 the development of the *Glossarium BITri*, a "Glossary of concepts, metaphors, theories and problems concerning information" aimed at providing a substratum for mutual understanding among different parts of the community (BITrum 2010).

As a further step in the vertebration of the community on information studies, the basis for a new science of information can be established be means of cooperation and mutual understanding within the virtual community. Foundations of Information Science, FIS (one of the first communities to be incorporated into the virtual community) maintains since the 1990s a scientific discussion among high qualified international scholars on such endeavour. Science of Information Science, SoII (also to be integrated within early stages of DomusBITae) proposes a vertebration programme of the many involved areas in information concerns as depicted in figure 1.
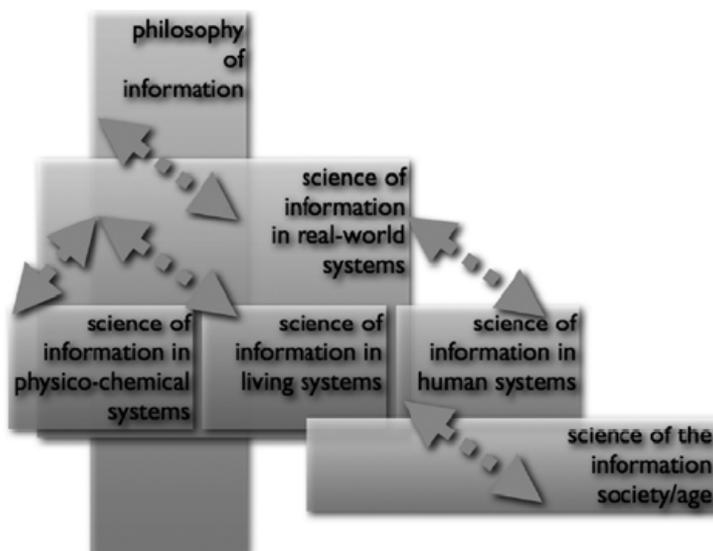
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Figure 1: Vertebration of Scientific Dommains for Information Reseach within the frame of a new
Science of Information (Doucette et al 2007)

1.1.2 Project frame (Domus BITae)

The DomusBITae initiative has been initially promoted at the end of 2009 by *BITrum Research Group*,
in collaboration with the *Spanish National Institute of Communication Technologies* (INTECO),
the *Science of Information Institute* (SoII, USA), *Foundations of Information Science* (FIS), *Unified
Theory of Information Research Group* (UIT, Austria), *University of León* (ULE, Spain), *University of
Barcelona* (UB, Spain), *University of the Aegean* (UAE, Greece), *Mälardalen University* (MDU,
Sweden). As it has been acknowledged, this initiative converges with several European objectives for
research support and some of the considered challenges for the Spanish Presidency (RISEPTIS
2009, rec.1, 2; ESFRI 2010).

It **aims at** developing a **virtual research community in information studies**, fostering the
constitution of a unifying new Science of Information as a frame where all the information studies do
effectively collaborate in challenging scientific, societal and technological questions concerning
information. It pursues horizontally bridging the whole community of information studies in order to
share resources and results, improve communication, foster discussion, scientific knowledge &
innovation, disseminate results and promoting cooperative research.

The **proposed system** –according to its preliminary design– should be constituted, as illustrated in
figure 2 by the following modules:

1. a knowledge oriented web-system adaptable for any community of information studies;
2. a directory of communities to serve as bridge between communities;
3. An institutional and thematic repository in Information Studies;

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4. A Toolkit for Working Groups, to facilitate collaborative research;

5. A shared glossary for conceptual clarification, theory disambiguation, and multi-facet approach to informational problems.
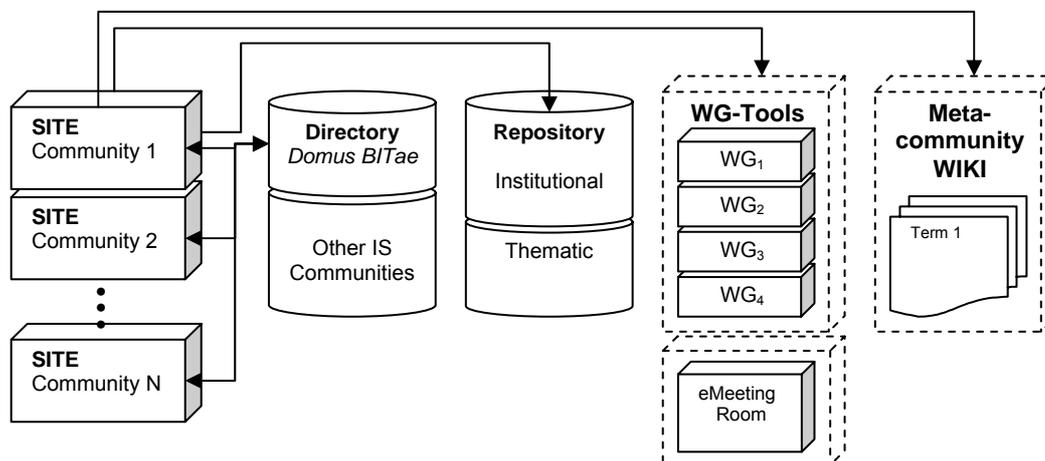

Figure 2: Structure of Domus BITae System

To achieve both a maximal effectiveness and impact, this design is planned to be carried out with a relevant representation of the **Scientific community**, looking for the consent of the community and the adaptation to their necessities. A **Scientific Committee** (representative of the Scientific Community) should bridge the technical development and the scientific usability.

The consortium has been convened to partake in the European 7th Frame Programme within the Infrastructures subprogramme (theme: Virtual Research Communities), although some other parallel lines within European Research Area have been envisaged as possible supporting lines: FP7 Intrastructures (theme: Repositories and Digital libraries); FP7 ICT-Chalenge 4 (digital libraries and content); FP7 ICT-FET open scheme, there is an open call; ICT PSP (theme: Digital libraries and open access).

1.2 Further and National steps in Domus BITae (asked support)

This proposal asks for support in preparatory and deployment stages after an explanatory phase in which:

a) a critical consortium has been met;

b) a full proposal has been developed, following EU support programme criteria and including scientific-technical objectives, work plan and dissemination strategy, as well as a electronic system for a further and cooperative development of the initiative, named stylusBITae (https://sites.google.com/site/stylusbitae/);

c) viable European support programmes has been identified and confirmed the fulfilment of eligibility by project officers;

d) **initial support is necessary** to achieve the required impact, critical community support and to be maximally competitive in the European Research Area.

Since one of the key factors to achieve a competitive e-Infrastructure is the potential **impact**, which is also a natural means for developing an effective virtual community with scientific and societal relevance, main effort is aimed at achieving the maximal commitment of the target community, whose potentials are the main pillar of the initiative viability (see §6).

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2. Objectives of the proposed action

Our plan for first stages pursues the following **objectives**:

1. A scientific committee is to be summoned to constitute a significant representation of the scientific and technological needs of the international community;
2. the initiative is to be supported by a critical mass of the international scientific community in information studies;
3. a core system is to be developed to meet the needs of the community;
4. for dissemination of the initiative, the scientific information of three representative communities at the international level is to be dumped in the developed core system;
5. the initiative is to be presented to appropriate combination of national and European support programmes.

The necessity of two of the worldwide most relevant communities in Information Science (*Foundations of Information Science*, **FIS**, and the *Science of Information Institute*, **SoII**, Washington) for renewing their web-systems bring us on an opportunity to achieve the necessary impact. Due to the audience and centrality of these two communities, the expected impact of objective 3 (by extension of the initiative as a whole) would be hard to obtain otherwise.

As mentioned above, the Glossarium BITri (BITrum 2010) corresponds to the aim of achieving a mutual and trans-disciplinary understanding among communities in information studies. The growing attention paid by the scientific community to this recently appeared tool might also contribute to the achievement of the necessary and expected impacts (§5), therefore this will be the third community to be incorporated within domusBITae.

Since FIS is leaded by a Spanish researcher who is also part of BITrum, SoII is integrated by two of the co-proponents, and BITrum is leaded by the principal proposer, the fulfilment of this action 1) promotes the Spanish community in information studies as a leading party in the international scientific community in the field; 2) further a scientific and technical frame of major social relevance.

3. Participants

3.1 Universidad de Leon (ULE)

The University of León has been recognised by the excellence of their information technologies infrastructures and has constituted the promoting and management centre of an open community in information studies around BITrum initiatives. The participants belonging to this institution are divided in two groups: the first devoted to the coordination, design and furthering of the DomusBITae initiative, and the second for the development of the repository and other documental tools.

3.1.1 Coordination and domusBITae gathering

The team proposed for the coordination of Domus BITae consortium belongs to the Department of Psychology, Sociology and Philosophy and has maintained a broad and intensive activity in gathering Information Science Research at the National and International Level.

Task: General project coordination, including: communication, approval, development control, calls, scientific gathering and secretary.

Experience: the team has carried out in the last years an intensive and well recognised activity in the promotion of the Information Science: Coordination of BITrum research group (over 60 members of 11 nationalities),

– Taking active part in many communities of Information Studies (SoII, UTI, ICIE, FIS, ICT & Society, Bertalanffy Center),

– Organizing International gatherings (First International Meeting of Experts in Information Theories, Colloquium BITae, Visiting lecturing),

– Fostering research projects (BITrum project, several proposals to the ESF and EC),

– Publishing activities (books, special issue, glossary),

– Virtual research within BITrum group by means of a self developed Internet environment composed by: 1) diffusion facilities (public site and blog of contributions), 2) working facilities (archives, discussion, agenda, etc.), 3) glossary edition system.

– Development of software Ithaca on game theory as academic and research tool.

– Educational activities for graduate and postgraduate studies in the field.

Caracterización semántica de lógicas alfabares cuantificadas: marcos canónicos, juegos, completad y aplicaciones | Entidad financiadora: Junta de Castilla y León 004A09 | Entidades participantes: Universidad de León, Universidad de Salamanca, Universidad de La Laguna | Duración, desde: 2009 hasta: 2011 Investigador responsable: F. Salto

Las lógicas constructivas básicas para cuatro conceptos de consistencia en la semántica relacional ternaria con un conjunto de mundos designados | Entidad financiadora: Ministerio de Ciencia y Tecnología, FFI2008-05859 | Entidades participantes: Universidad de Salamanca, Universidad de

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León y Universidad de La Laguna | Duración, desde: 2008 hasta: 2011 | Investigador responsable: J.M. Méndez.

Francisco Salto Alemany (Professor in the department of Psicology, Sociology and Philosophy)

Doctor in Philosophy by the *Universidad de Salamanca*. He studied in the *Ruhruniversität Bochum* (Germany) and was visiting scholar in Leuven (Belgium) and Princeton (New Jersey, USA). He is professor of Logic at the *Universidad de León* since 2002 and collaborates with the *Institute for Logic, Cognition, Language and Information* at the *University of the Basque Country*. He is coordinator of the *BITrum Research Group*, Scientific Advisor of the *Science of Information Institute* (SoII), member of the *Research Group on Philosophical Logic* at the Universidad de Salamanca, of the *Humanities Quality Research Group* at the Universidad de León, of the *Unified Theory of Information Research Group* of the Technische Universtät Wien, and others. His research on mathematical logic and philosophy has been published in different papers and journals. Among other contributions in the field is worth to mention: co-edition with J.M. Díaz Nafría and M. Pérez-Montoro the "Glossary of concepts, metaphors, theories and problems concerning information" (Universidad de León, 2010), where he has authored several articles; co-edition with F. Salto the special issue of the journal TripleC "What is really information? An interdisciplinary approach" (2009); as well as "¿Qué es información?" (Universidad de León, 2008).

Role within the propose action: *General Coordinator (GC)* must control the whole technical development, driving the different parts in their commitments, monitoring the decision making, the completion of objectives, signing approvals and summoning the concerned parts. The proposed GC has an interdisciplinary academic experience in humanities, and formal sciences, proven by academic awards and recognised work, as well as experience in the coordination of interdisciplinary activities (research, summoning, dissemination and academia), he has also proven experience in multidisciplinary development of edge technology. He is well centred in the international community of informational studies, belonging to several leading communities in the field.

José María Díaz Nafría (invited Professor in the department of Psicology, Sociology and Philosophy)

Doctor in Telecommunication Engineering by the *Technical University of Madrid* and graduated in Philosophy by the *UNED*. He is currently invited Professor in Logic and Philosophy of Science at the *University of León*, Spain. He worked as associate Professor in the *University Alfonso X*, and as researcher in the *Universidad Politécnica de Madrid*, Spain, and the *Technische Universität Wien*, Austria. He has been invited Professor by several universities in Germany and Austria. He is part of the board of directors of the *Science of Information Institute* (SoII), coordinator of BITrum Research Group and is member of the *Unified Theory of Information Research Group* (UTI), of the *International Center for Information Ethics* (ICIE) and belong to the editorial team of the Journal *TripleC*. Among his publishing contributions is worth to mention: co-edition with F. Salto and M. Pérez-Montoro the "Glossary of concepts, metaphors, theories and problems concerning information" (Universidad de

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León, 2010), where he has authored several articles; co-edition with F. Salto the special issue of the journal TripleC "What is really information? An interdisciplinary approach" (2009); as well as "¿Qué es información?" (Universidad de León, 2008). His research interests lie in the observation problem (both electromagnetic and general), and models of technological development (telecommunication; culture, society and man).

Role within the propose action: As *Technical and Scientific Coordinator (TSC)* 1) must control the whole technical development by assessing and developing the general design and 2) is also in charge of summoning the scholar and scientific community, bringing the Information Studies research interests and activities into the system, as well as disseminating results. For fulfilling this twofold task, he has interdisciplinary experience in both engineering (with proven experience in multidisciplinary development of edge technology) and interdisciplinary science and philosophy (coordination of international research activities) and is also well centred in the target community.

3.1.2 Team of Repository and other documental tools

The team proposed for the development of DomusBITae repository belongs to the University Library. It has provided information system support for the mentioned networking and research activities of ULE in the advancement of Science of Information.

Task: designing and first steps development of the repository by customisation and management of repository software; and dumping the pilot community archives into the system.

Leticia Barrionuevo Almuzara (Librarian at the Facultad de Filosofía y Letras)

Dipl. in Biblioteconomy and Documentation by the *Universidad de León,* and graduated Library and Information Science by the *Universidad Carlos III* (Madrid). She is in charge of the Library at the Faculty of Filosofía y Letras at the Universidad de León and currently works on her PhD. with a thesis about Evaluation of Institutional Repositories. Since 2005 she is responsible of the library of the faculty and has 9 years of professional experience in the field of document and library management. She partake in the "e-archivo unileon" project for designing and developing an open institucional archive, and provides training to university staff on e-resources and Open Access initiatives. Within BITrum research group, she is coordinator for virtual research and dissemination tools.

3.2 Instituto Nacional de Tecnologías de la Comunicación (INTECO)

The National Institute for Communication Technologies is a state company attached to the Spanish Ministry of Industry (www.inteco.es). It is a contracting party of the State Administration promoting the development of Information Society and ICT competitiveness.

Task: preliminary design of the e-meeting Room and Meta-glossary; design advice and assessment regarding security and accessibility, which is a transversal role to the other designs and developments.

Experience: INTECO has a wide proven activity in three main areas:

1) ICT Security. Promoting trust and preventing risks that affect people, the absence of regulation or operational capabilities within organizations. INTECO has received a mandate from the Cabinet Council on the 21st of December of 2007, to generate Internet trust among the public through awareness rising, and an operational centre with adequate support from law authorities, to generate trust and confidence in Internet among citizens. INTECO is a National Incident Response Center for SMEs, a National Security Office for the citizens - 24h support-line (OSI), and operates a Security Show-Room for SMEs. INTECO provides services on Security auditing (risk mitigation and consulting), System hardening (fortification of an organizational system), Forensic analysis of systems, Risk analysis, Security master plans, Managed security, and Integral security services.

2) Accesibility. Promoting accessible digital services in Spain. INTECO is the Reference in Web Standards, supports the National Centre of Accessibility (CENTAC), and develops Interactive Public Services for Digital TV. INTECO provides services on Accesibility auditing (comprehensive reports and validation after corrections), consulting, training, continuous operation (monitoring and methodology implementation, metrics follow up), Integral Management (System for Web Accessibility Management - SIGA).

3) Quality in digital services. Promoting standardization and service quality in Spain, spreading the culture of quality improvement. INTECO is a reference in quality of digital services and uses its national Laboratory for developing, testing and piloting projects. INTECO services its customers with a complete market offer, evaluating product and service quality and providing certification, consulting, training, operational support for a technical office (methodologies, organization, and tools), advice, design and implementation of management offices for software projects, and outsourcing (e2e operations to guarantee product and service quality).

As a public entity of the Spanish Government, INTECO develops various policies and initiatives in the area of the security, and in coordination with other agent and the European Union institutions. INTECO is a member of the European Network and Information Security Agency (ENISA) participating in different working groups, as well as providing its experience and initiatives.

The Institute is/has been involved in the following national projects:

– CERT, OSI, and Secure Technology Demo Centre
– Interactive OS iTV development for Accessible Set Top Boxes (IDTVOS)
– System development for a complete accessibility Management (SIGA)
– Sensor network development for monitoring malware.
– System development for automatic diagnosis of process areas in software development companies.

Within the ERA, the Institute is involved in the following international projects:

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- SAFER INTERNET | Call for proposal / Safer Internet Centres | INTECO SAFER ES | Building on current success to better protect children from risks online, by enhancing INTECO's operations and awareness raising activities

- FP7 ICT | Call 5 / Trustworthy ICT (Objective 1.4) | SACRED | Security Assurance through CollaboRative Exchange of Data

- FP7 ICT | Theme 10 – Security. Call FP7-SEC-2010.4.4-1 | EU-ReBaS | Supporting the Restoration of Basic Services in Europe

- FP7-SEC | 2010-1 SEC-2010.6.3-1 | REFSEC | Developing a reference framework for the European security culture: the perception of threats and the trust in public authorities and the police and the perception of security as a service

- CIP | ICT PSP WP 2010. Objective 2.5 – Open access to scientific information | domusBITae | Pilot network of research work related to scientific articles and associated datasets, monographs in the area of Unified Theory of Information and Trust.

- DG Justice, Freedom and Security | Prevention and fight against crime (ISEC) 2010 | ASASEC| Illegal use of Internet. Prevention, Preparedness and Consequence Management of risks related to Sexual exploitation of children on internet.

Félix Barrio Juárez.

Ph.D. in Science & Technology Management. With both a technical and humanistic background, Félix Barrio is a creative ICTS Manager, specialized in the organizational application of cutting edge Technologies and Research & Development. He is focused on the organization and implementation of New Technologies Programms, R&D Management and e-Accesibility.

He is currently working at the National Institute of Communication Technologies (INTECO) as Quality Software, eAccesibility and Industry Development Manager. He has worked as Director of Planning and Projects and as R&D Management in different Universities (León, Salamanca, Burgos), Foundations and Companies. Moreover, he has managed R+D university courses and enjoys expertise in programming.

3.3 Universitat de Barcelona (UB)

The University of Barcelona is the principal centre of university research at Spain and has become a European benchmark for research activity. The team part of the consortium constitutes a research group integrated at Faculty of Library and Information Science.

Task (within the project): The participation of UB's research group in the project's development is transversal and is involved in all work packages; but it is lead party of work package #1 Global design and coordination of module designs.

Mario Pérez-Montoro (professor in the department of Information Sciences)

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Doctor in Philosophy and Education Sciences by the Universidad de Barcelona, where he has been researcher at the Departamento de Lógica, Historia y Filosofía de la Ciencia. He studied in the Istituto di Discipline della Comunicazione in the Università di Bologna and was Visiting Scholar at the Center for the Study of Language and Information (CSLI) at Stanford University. He has been docent and researcher in several universities: Complutense de Madrid, Autònoma de Barcelona, Oberta de Catalunya and he is currently at the Departamento de Ciencias de la Información at the Universidad de Barcelona. Among other scientific contributions in the field is worth to mention: "The Phenomenon of Information "(Scarecrow Press, 2007, published in Spanish by Trotta), "Gestión del conocimiento en las organizaciónes" (Trea, 2008), co-edition with F. Salto and J.M. Díaz the "Glossary of concepts, metaphors, theories and problems concerning information" (Universidad de León, 2010), where he has authored several articles.

Expertise: 2008-2009: Project: "Success critical factors for the implantation of communities of practice in Public administration" funded by the School of Public Administration of Catalunya; 2005-2006: Project "Content and Knowledge Management Systems" funded by the Agency of University and Research Support of Catalunya (AGAUR); 2003-2005: Project "Taxonomy for Knowledge Organization in Information Society" funded by Biblioteca Digital de la Universitat Oberta de Catalunya; 2002-2004: Project "Knowledge Assets Identification and Methodologies of Implementation in Organizational Knowledge Management" funded by Internet Interdisciplinary Institute of Universitat Oberta de Catalunya; 2002-2003: Project "Campus Information System for students in Spanish Universities: characterization and análisis" funded by Ministerio de Educación; 2000-2002: Project LAGNIKS (Latin-American Government Network on Information and Knowledge Systems) funded by United Nations Development Programme NDP at UN and Generalitat de Catalunya.

The work of UB's research group is focussed on some of the diverse aspects (conceptual, semantic, epistemological, and practical) related to the subject of Information Science and Knowledge Management; and, in a particular way, on information visualization and architecture as well as collaborative environments development.

3.4 National and European programmes in which the proponents are involved

The following research is being currently developed by the proponents of the action:

— European projects: COST action "Bridging Domains: Multidimensonal Approach to Information" (in evaluation process), Main Researcher involved: José María Díaz Nafría

— Current National Project: "Lógicas constructivas básicas para conceptos de consistencia" FFI2008-05859 . Involved researcher: Francisco Salto.

— Recent Nacional Projects: "Negaciones mínima y submínima en la semántica relacional" HUM2005-05707, "Negaciones positivas para lógicas subestructurales" BBF2001-2066. (Involved researcher: Francisco Salto)

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— Other current competitive project directed by the group is: 004A09 "Caracterización semántica de lógicas alfabares cuantificadas: marcos canónicos, juegos, completad y aplicaciones"

— The reader may also consider multifaceted research activity of INTECO, referred above, within national and European programmes.

3.5 Other related research

BITrum members lead a number of relevant research projects related to domusBITae (the BITrum constitutional act is attached). Since this projects determin the scientific interest of the informational studies community we indicate here a selection, distinguishing if they belong to the National Research Plan (NRP) or to the European Research Area (ERA). Note this facts underlines BITrum active scientific stance.

BITrum member involved in the project	Description of the project	NRP / ERA
Manuel Liz	Plan Nacional de I+D+I, el proyecto de investigación titulado Mundo externo, experiencia y reflexión	NRP
Jorge Morato Lara	Desarrollo de un sistema de recuperación conceptual mediante niveles semánticos en la representación de esquemas metadatos. MINISTERIO DE EDUCACION Y CIENCIA SEC. DE ESTADO DE UNIVERSIDADES. 01/10/2007- 30/09/2010	NRP
	Filtrado Terminológico para el análisis de dominios mediante ontologías. 01/09/2009-31/08/2010. Ministerio de Ciencia e Innovación, Ayudas José Castillejo. Univ. Trento	NRP
Sonia Sánchez-Cuadrado	Sistema de definición de perfiles profesionales y de competencias de formación para estudiantes de Información y documentación: estudio comparativo para Brasil y España basado en la gestión semántica del conocimiento. MEC y MAE. Programa hispano-brasileño de cooperación interuniversitaria. (2008-2011).	NRP
	Desarrollo de un sistema de recuperación conceptual mediante niveles semánticos en la representación de esquemas de metadatos TIN2007-67153.	NRP
Jesús Ezquerro	Modularity, reasoning and social cognition: a critical analysis of Evolutionary Psychology (MoReSCEP) (FFI2009-08999).	NRP
	Management Committe of the Eurocores programme *Logic for Interacction, Communication, Cognition and Computation* (LogICCC)	ERA
Rafael Capurro	7th Frame Programme	EU Project ETICA (2009-2011): Ethical Issues of Emerging ICT Applications	ERA

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Christian Fuchs	EU COST Project "Living in Surveillance Societies (LiSS)" (ISO 807)	Funded by COST: European Cooperation in Science and Technology	Duration: 2009-2012	ERA
Juan Miguel Aguado Terrón	Convocatoria I+D+I 2009	Evolucion del medio movil en españa: actores, contenidos, modelos de negocio y percepcion de los usuarios	Referencia: CSO2009-07108 Subprograma SOCI	Investigador principal: Juan Miguel Aguado (Universidad de Murcia)	Duración: 2010-2012	NRP

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4. Work plan

The work plan for further and national steps support must be well articulated with the previewed plan for complete system development under EU support. Therefore before description of the work plan for first stages, the role played within the whole system deployment is as follows.
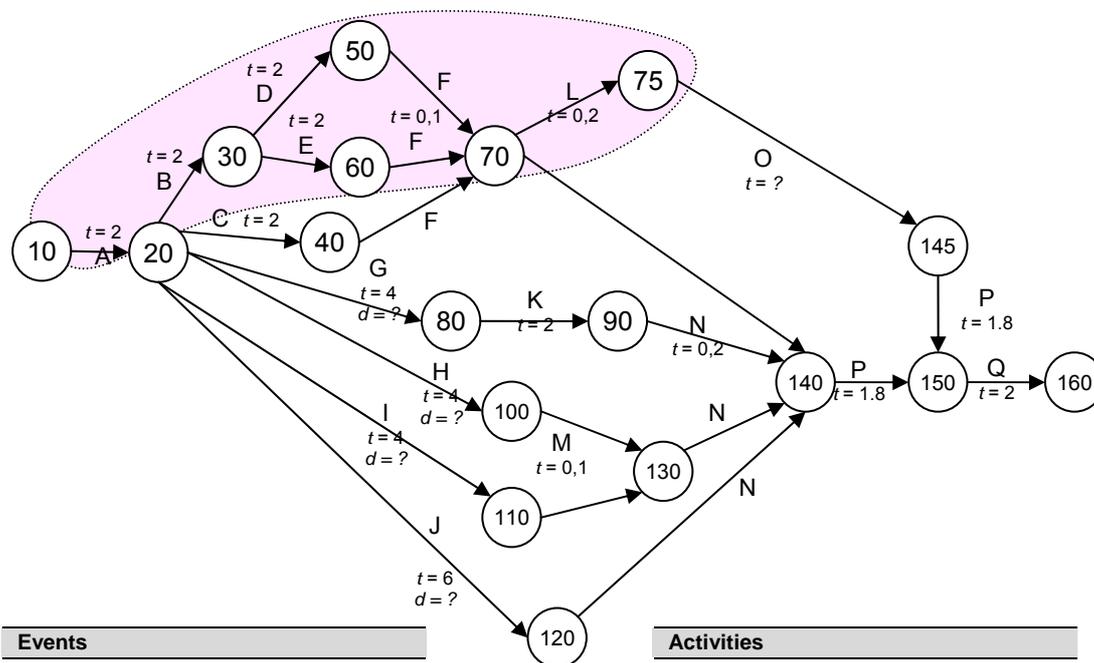
4.1 DomusBITae overall workplan

The plan envisaged for Domus BITae deployment is divided in the following work-packages

WP-1:   Design of the DomusBITae Knowledge System (specification of modules)

WP-2:   Development of Web Template

WP-3:   Development of Directory of Information Studies Communities

WP-4:   Dumping of FIS, SoII and BITrum into DomusBITae

WP-5:   Development of Repository: institutional and thematic

WP-6:   Dumping of preliminary contents into Repository

WP-7:   Development of Working Group Toolkit

WP-8:   Development of eMeeting Room

WP-9:   Development of Meta-community glossary

WP-10:   Integration and assessment of the DommusBITae system

WP-11:   Launching the DommusBITae system

WP-12:   Coordination and neetworking

The asked support for further and national stages mainly concern WP1 (for core system), WP2 and WP4. In the PERT diagram (figure 3), the relation among the different tasks for the whole system development and the work related to this first-stages proposal (shaded) is clearly shown.

A network-system for the collaborative work in proposals, fitted to the corresponding calls, has been developed and started to work in January 2010, named StylusBITae and announced to the involved institutions (users StylusBITae).

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Events	
10	Communication to consortium
20	Blueprint approval
30	Template approval
40	Directory approval
50	FIS system Launching
60	SoII system Launching
70	DomusBITae core launching
75	Open call for membership
80	Repository approval
90	Launching repository
100	WG toolkit approval
110	eMeeting room approval
120	Launching Glossary
130	Launching Toolkit system
140	DomusBITae approval
145	New members integration
150	Launching DomusBITae
160	Final Report

Activities	
A	System design
B	Template design
C	Directory development
D	SoII contents
E	FIS contents
F	Integration DomusBITae core
G	Repository development
H	WG toolkit development
I	eMeeting room development
J	Glossary development
K	Repository contents load
L	Open call diffusion
M	WG Toolkit integration
N	Modules integration
O	Member candidate submission
P	DomusBITae assessment
Q	Development of maintenance plan, reports, dissemination

Figure 3: PERT diagram for domusBITae development. Shaded the work corresponding to further and national steps proposal (this action)

4.2 Strategy for further and national steps development

To engage the necessary parts to develop the virtual community, we plan to make a combination of system development, community gathering and proposal advance, following next steps:

First, a critical team must be committed for the development of the demonstration and training system (including module 1 of the system depicted in figure 1); and a scientific and technical committees must be gathered for the supervision and approval of design and developments.

Second, the system is designed following target necessities and knowledge oriented system criteria.

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Third, the core system is developed and launched after instantiation of well centred international communities (FIS and SoII)

Forth, the initiative is disseminated for international support in the target community and the design is steered by means of a preliminary appraisal of the demonstration system from the target community.

Five, a consortium is elected and a kernel proposal (adaptable to different calls) agreed for international competition.

4.3 Work packages, Milestones and deliverables

Work-packages:

WP1:   Knowledge oriented system design, leaded by UB

WP2:   Development of web-templates according to system design and dumping of first communities for demonstration (SoII and FIS)

WP3:   Designing and development of demonstration modules of the planed e-Infrastructures for the virtual community. Assessment by a target community representation

WP4:   Call for international community support: scientific committee, open community, including design approval and consortium constitution (for that means, the participation in some international gathers, where coordinators act as co-organisers, is planned for promotion of domusBITae (see [BITrum site]>[3. activities]>[gathering & meetings]).

WP5:   Coordination of development, scientific and management committees.

Timing: (two degrees of activity are distinguished)

WP	Months:	1	2	3	4	5	6	7	8	9	10	11	12
1	Design				▲1								
2	Development								▲2				
3	eInfrastructures des.												
4	Community											▲3	
5	Coordination												▲4
	Months:	1	2	3	4	5	6	7	8	9	10	11	12

Milestones:

M1: System design approval

M2: Launching demonstration system with three representative communities

M3: eInfrastructure preliminary design approval

M4: Assessment and final report

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Deliverables:

D1: System blueprint (wireframes), WP1

D2: Template, WP2 (mid term)

D3: Core system demonstrator (with three communities), WP2

D4: eInfrastructures blueprint, WP3

D5: DomusBITae consortium constitutional agreement, WP4

D6: Final report (including: assessment report, strategy for ERA deployment, consortium constitution)

Resources to be committed:

WP1: 3 person-months / 2PC / SW (Marginal costs: 1.5 person-months, HW, SW)

WP2: 6 person-month / SW (Marginal costs: 5 person-month, SW)

WP3: 4 person-month / SW (Marginal costs: 2 person-month, SW).

WP4: 5 person-month / Travel expenses: 3 individual national displacements, 2 international displacements (Marginal costs: travel expenses)

WP4: 6 person-month / Travel expenses for working meetings and target community assessment and approval: 6 individual national displacements (Marginal costs: 2 person-month, SW, travel expenses)

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5. Preliminary core system design

After a **survey** on the necessities of several communities of information studies, a preliminary system design has been developed, conceived as a basis for further improvement and collaborative design through agreement of the target community.

The collection of tools of the proposed Domus BITae (illustrated in fig.2) aims at improving the virtual resources for the target global community in information studies. These tools should be specified in the competitive proposal but are not to be developed here. The technical-development purpose of this first stages proposal concerns what has been called "**core system**", i.e. which gives access to activities and resources within the community itself and to the other communities and resources within DomusBITae frame (showed on the right of fig.3).

According to preliminary design, the web site of any community within Domus BITae should be articulated in the **main sections**: Home, About us, Resources, Activities, Groups, News, Partnership & Links; and each section, should provide access to the following information, resources or facilities (if DomusBITae is mentioned, it concerns access to some of the modules to be developed under international support programme):

1. HOME should give a first and fast glance of:
   – Brief description of What is the community about?
   – What is going on? brief description of activities.
   – What is new? Latest news headlines.
   – Access to main site areas and pages.
   – Brief contact information and rights commentaries (CC, disclaimer link).
   – LOGIN box, giving the possibility to broaden accesses, tools.

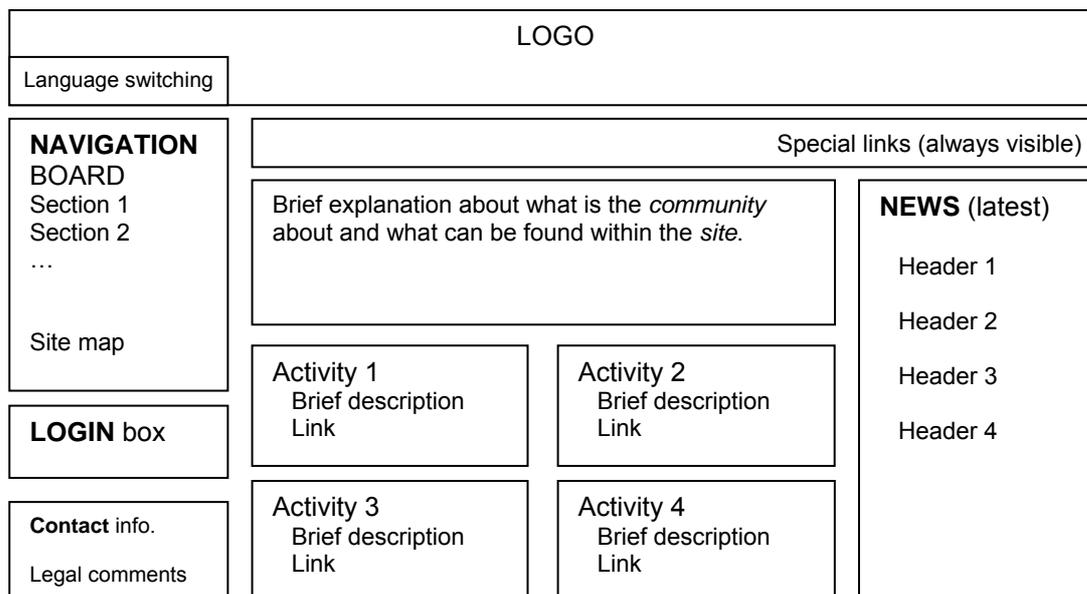   Which could be arranged as shown in the wire-frame of figure 2.

Figure 3: Home wire-frame

2. ABOUT US, should give access to information concerning the structure, project and people integrating the community:
   – Community STRUCTURE (boards…)
   – PURPOSES
   – MEMBERS: a) Membership types; b) LIST of members giving access to personal pages;
   – Information for APPLICANTS: information & application form
   – Contact us

3. RESOURCES, should provide open access to resources of scientific and social relevance and also to others of private scope concerning the activities within the community:
   – Access to *REPOSITORY* (Domus BITae)
   – Specific resources: a) public (documents published by the community); b) private (formats & procedures)
   – *SHARED GLOSSARY* (Domus BITae) for conceptual clarification, theory disambiguation, and multi-facet approach to informational problems

4. ACTIVITIES, should provide access to information concerning activities in which the community is or has been involved:
   – RESEARCH activities: a) Areas of interest; b) Projects; c) Applications (enterprises and public funding).
   – PUBLISING
   – ACADEMIC / educational
   – DISSEMINATION
   – FORUMS
   – GATHERINGS

5. GROUPS, should provide access to facilities enabling collaborative work, by sharing information, agenda, etc.:
   – Access to *WORKING GROUPS* (Domus BITae) sites
   – Access to *MEETING ROOM* (Domus BITae)

6. NEWS, related to community activities or the area of interest :
   – Resume panel
   – Archive of news

7. Partnership & LINKS
   – Access to *DIRECTORY OF COMMUNITIES* in Information Studies (Domus BITae)
   – Links to the most involved communities / institutions

Within this structure, any particular section might be highlighted in visible menus, in order to improve visibility, e.g., research, publishing or forum, depending on the importance within the group activity (for example, Discussion list in FIS, Glossarium in BITrum)

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6. Expected Domus BITae Impacts

As mentioned in § 2, the potentials of the target community summarized in tables 1 and 2 (compiled from a non exhaustive SoII's survey on relevant Communities of information studies, classified according to their field of research, 2007) concerning over 300 organizations in more than 40 countries, is a major pillar to achieve the impacts pursued in EU support programmes and therefore a guarantee to be supported.

The geographical and academic divide of the target community is a hinder to tackle important scientific and societal problems of our time (as for example in the frontiers between physical and biological sciences, between biological and cognitive sciences, between cognitive and social sciences, and between all of them and Technology). Thus the proposed Domus BITae e-Infrastructure, bringing together the target community, could contribute to **increase the effectiveness of European Research**.

Table 1: Number of communities of Information Studies classified in types (accounted by SoII)

Type of studies	Nº of communities
Artificial Intelligence	50
Cognitive Science	39
Communication Science and Media Studies	27
Computer Science	52
Cybernetics	26
Information Science	38
Information Society Research	64
Internet Research	16
Knowledge Studies	18
Library Science	16
Philosophy of Information and Infomation Ethics	20
Research on ICTs	12
Science of Complexity	22
Semiotics	13
Systems Theory	27

As shown in table 2, while in a global dimension the amount of communities is significant for erecting an appropriate stance to tackle the problems posed by the emerging Science of Information, in national levels (with the exception of the USA) the amount of initiatives are not enough to bring about the critical mass for confronting the regarding problems. Therefore the proposed infrastructures **empowers the European communities** (about the half) **to drive the emergence of a global virtual community** in information studies.

Much of the work wasted in the scientific research regarding information science concerns the redundancy of discussions, the dispersion of background, thought and proposals, the misunderstanding about used terms or scientific models, the relevancy of problems or phenomena, etc. Thus we believe the proposed **common tools** within Domus BITae infrastructure –by means of

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giving the possibility to share results, foundations, approaches, terminology disambiguation, etc.– might be a key factor to achieve the pursued effectiveness in information research as well as to foster effective synergies with education and industry. Concerning the appropriateness of **procedures & best practices**, the expertise of the proposed Scientific Committee will steer as well the architecture of the system as the conditions to participate in the different Domus BITae areas (Working Groups, Repository, Meta-Glossary).

By bringing in the managing structure the design councils concerning the issues of knowledge oriented design (UB), security, accessibility and software quality (Inteco) the consortium pursues to achieve the **increase of quality and attractiveness** of the proposed e-infrastructure.

A **roadmap to reach expected impacts** is planned within DomusBITae strategy. The present proposal for first stages support aims at achieving the first steps in such road. As mentioned in § 2, the opportunity of bringing FIS and SoII into DomusBITae system is a key measure to achieve the necessary impact for the effectiveness of the proposed system and to succeed in European support competition. Also the opportunities of the mentioned meetings for dissemination of the initiative and community gathering –considered within this proposal– are relevant in this sense.

Table 2: Number of communities of Information Studies per countries (accounted by SoII)

Country	No.	Country	No.	Country	No.
Argentina	1	France (EU)	3	Romania (EU)	1
Australia	7	Georgia	1	Singapore	1
Austria (EU)	10	Germany (EU)	25	Slovakia (EU)	1
Belarus	1	Greece (EU)	1	Slovenia (EU)	3
Belgium (EU)	6	Hungary (EU)	2	Spain (EU)	5
Brazil	1	Ireland (EU)	3	Sweden (EU)	8
Bulgaria (EU)	2	Israel	1	Switzerland	12
Canada	8	Italy (EU)	4	Taiwan	1
Chile	1	Japan	6	Thailand	1
Croatia	1	Lithuania	1	United Kingdom (EU)	43
Czech Republic (EU)	3	Netherlands (EU)	4	U.S.A.	106
Denmak (EU)	6	New Zealand	1	Venezuela	1
Estonia (EU)	1	Norway	1	No located	27
Finland (EU)	4	Portugal (EU)	1	**Total**	319

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7. Justification of the requested budget

The necessities, justified within the work-plan, implies as marginal costs:

– 1 junior developer for the different tools involved in the system

– HW: 2 computers for design and development at UB and ULE

– SW: specific tools for design and development at the three participants

– Travel costs for work coordination, dissemination and networking

– Consumables, not considered in the WPs, but emanated from many different tasks within the development of the action.

7.1 Budget per Work package

WP1:   necessary resources: 3 person-months / 2PC / SW

Following a design and deployment of the e-Infrastructure adapted to the peculiarities of the scientific work concerning innovative criteria of: usability and information architecture (Pérez-Montoro 2008), the proper system design requires as depicted in the introduction and section 5 requires: 3 person-months (1.5 PM by an specialist manager and 1.5 PM of a junior developer at ULE), as well as the use of special informatics means.

Marginal costs: staff: 1.5 x 1400 €/ person-month = 2100 €, HW: 2000€, SW: 1000€.

ULE: 3100 €

INTECO: 500 €

UB: 1500 €

WP2:   necessary resources: 6 person-month / SW

According to a an analysis – design – testing – implementation cycle (Morville et al. 2007) the deployment of the templates and the dumping of the three representative communities needs 6 person-month (1 by a supervisor and 5 by a junior developer at ULE), as well as the usage of specific SW.

Marginal costs: staff: 5 x 1400 €/ person-month = 7000 €, SW: 500 €

ULE: 7000 €

UB: 500 €

WP3:   necessary resources: 4 person-month / SW

The expert analysis of accessibility, usability and security issues is required as well as the development of demonstration modules for community assessment and approval. 2 person-months for supervision, 2 person-month by a junior developer at ULE, and specific SW.

Marginal costs: staff: 2 x 1400 €/p-m= 2800 €, SW: 1000 €.

ULE: 3300 €

INTECO: 500 €

WP4:   necessary resources: 5 person-month / Travel expenses: 3 individual national displacements, 2 international displacements.

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A scientific coordinator might gather international community support: scientific committee, design approval and consortium constitution. The participation in some international gathers celebrated in Spain and abroad will facilitate the mission.

Marginal costs: travel expenses: 150 € / national displacement x 3 + 600 € /international displacement x 2 = 1650 €

ULE: 1650 €

WP4: necessary resources: 6 person-month / Travel expenses for working meetings and target community assessment and approval: 6 individual national displacements

Development coordination, networking with community (assessment and agreement), system integration. 4 person-months for management, 2 person-month by junior assistant at ULE.

Marginal costs: staff: 2 person-month x 1400 €/p-m= 2800 €, travel expenses: 150 € / national displacement x 6 = 900 €

ULE: 3100 €

INTECO: 300 €

UB: 300 €

7.2 Total budget

Staff : 14700 €

Material resources: 2000 €/HW + 2500 €/SW = 4500 €

Consumables: 500 €

Travel expenses: 2550 €

Total: 14700 + 2000 + 2000 + 2550 = 21250 €

	ULE	INTECO	UB	Total
Staff	14,700	0	0	**14,700**
Material resources	1,500	1,000	2,000	**4,500**
Consumables	300	100	100	**500**
Travel expenses	1,950	300	300	**2,550**
Total	**18,450**	**1,400**	**2,400**	**22,250**

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References

BITrum (2008). Objetivos (del proyecto BITrum). [online] <http://sites.google.com/site/proyectobitrum/proyecto/1-2-objetivos> [acceso: 10/04/2010]

BITrum (2010). Glosary of concepts, metaphores, theories and problems concerning information. León: Universidad de León. [online] <http://sites.google.com/site/glosariobitrum/glossary> [acceso: 10/04/2010]

Brier, Søren (2008). *Cybersemiotics: why information is not enough.* Toronto: University of Toronto Press.

Capurro, Rafael; Hjørland, Birger (2003). The Concept of Information. *Annual Review of Information Science and Technology, 37(8)*, 343-411. [Draft version online] <http://www.capurro.de/infoconcept.html> [Accessed: 12/11/2009].

Capurro, Rafael (2009). "Past, present, and future of the concept of information". In: Díaz Nafría, J. M., Salto Alemany, F. (eds.). Special issue: "What is really information? An interdisciplinary approach". Triple C, 7(2), 125-141.

Diaz Nafría, J.M. y Salto Alemany, F. (2009). Introduction to the special issue: "What is really information? An interdisciplinary approach." *TripleC (Communication-Cognition-Cooperation), 7(2)*, i-v.

Diaz Nafría, J.M. y Salto Alemany, F. (2009). Special issue: "What is really information? An interdisciplinary approach." *TripleC (Communication-Cognition-Cooperation), 7(2)*.

Doucette, D., Hofkirchner, W., Bichler, R., Raffl, C. (2007). Toward a New Science of Information. In: Proceedings, CODATA 2006, *Data Science Journal, 6(7)*, pp. 198-205.

ESFRI (2009). *European Strategy Forum on Research Infrastructures. Annual report.* Brussels: European Commission.

Hofkirchner, W. (2009). "How to Achieve a Unified Theory of Information". In: Díaz Nafría, J. M., Salto Alemany, F. (eds.). Special issue: "What is really information? An interdisciplinary approach". *Triple C, 7(2)*, 357-368.

Janich, Peter (2008). Was ist Information? Kritik einer Legende [What is information? Critic of a legend]. Frankfurt: Suhrkamp.

Lyre, Holger (2002). *Informationstheorie. Eine philosophisch-naturwissenschaftliche Einführung* [Teoría de la información. Una introducción filosófica y naturalista]. Munich: Wilhelm Fink.

Marijuán, Pedro (2009). "The Advancement of Information Science". In: Díaz Nafría, J. M., Salto Alemany, F. (eds.). Special issue: "What is really information? An interdisciplinary approach". *Triple C, 7(2)*, 369-375.

Morville, P.; Rosenfeld, L. (2007). *Information Architecture for the World Wide Web: Designing Large-Scale Web Sites*. California: O'Really.

Pérez-Montoro, M. (2008). *Gestión del conocimiento en las organizaciones*. Gijón: Trea.

CONSTITUTION MEMORANDUM OF THE BITRUM PROJECT

Interdisciplinary elucidation of the information concept

In the evening of November the 7th 2008, gathered in the auditorium of the Sierra-Pambley Foundation, located in León (Spain), 47 researchers of 9 nationalities representing different interests and knowledge areas and open to further inclusions, explicitly agree to collaborate in an interdisciplinary approach in the following terms:

1st   Its general OBJECTIVE is to elucidate the information notions in a interdisciplinary manner, trying to define maximally general notions without neglecting particular interests or objectives sheltered by any point of view, and moreover, distinguishing different analytical levels: concepts, metaphors, theories, consequences and applications.

2nd   Its first interdisciplinary action consists in the creation of a GLOSSARY of concepts, metaphors, theories and problems concerning information, in which the editorial work is distributed among those member who want to be responsible for particular articles and using the entries proposed by any other member. It was also appointed: December 21st as *deadline* for term proposals for a *first distribution* of articles and editors; as *editorial coordination team*: Francisco Salto, Mario Pérez-Montoro and José María Díaz; and Rosa Macarro as responsible for the English edition. A first edition is expected for the following summer.

3rd   The interdisciplinary group articulates in disciplinary WORKING TEAMS {[Logic], [Semantics-ontology], [Ethics-legal], [Economy], [Sociology], [Technology], [Metaphors], [Information Management], [System Theory], [History], [Cognits], [.], [Unification]}. Each of them should determine –according to general objectives- their particular: objective, method and responsible person. These *representatives* constitute at the same time the "unification" team.

4th   For the ADMINISTRATION work, the following team is appointed:

    a)   *Scientific board*: J.M. Aguado (socio-cybernetics), B. Al-Hadithi (fuzzy system theory), J. R. Álvarez (philosophy of science and biology), R. Capurro (information ethics), J. Ezquerro (cognitive science), P. Fleissner (economy, system theory), L. Floridi (information philosophy), S. Gutierrez (Linguistics), W. Hofkirchner (system theory, information society studies), Pedro Marijuán (information science, bio-information), J. Lara (biology), T. Ortiz (neuroscience), J.M. Sagüillo (logic), J. Segal (history of science).

    b)   *General Coordination*: José María Díaz and Francisco Salto;

    c)   *Computer tools*: Leticia Barrionuevo;

    d)   *Editorial Team* –mentioned above– for the glossary and new publications;

    e)   *Representative* of each working team.

5th   An INTERNET TOOL for the collaborative job will be developed, which should include: a) public portal containing: project description, members, news, links, documents (starting with "What is information?"); b) Working teams area, in which every working team has: forum, member list, agenda, contact list, links, archive; c) Edition area for the glossary: an adapted wiki tool for our editorial particularity.

6th   As long term STRATEGY the group aims at becoming the Spanish group of reference in "information theories" while other bonds with European and international networks consolidate. Once this consolidation is reached, the project would try to define its programme in the frame of the European Science Foundation (Eurocores) or in the interdisciplinary European networks COST (ERA-NET). In a medium-term, it will be applied for the Spanish Programme of Internationalization of R+D and similar calls being compatible with members' research activities, and which may converge with the project programme.

7th   DISSEMINATION actions will be pursued in order to raise Group visibility. Among them:

   a)   Development of conceptual maps starting from the Proceedings book.

   b)   Special issue of "triple-C" (edited by Hofkirchner and Fuchs) relative to the Meeting, including all the English writing articles. For reviewing or translating purpose a month term is opened (until December 21st).

Member list, updated at XI/7th/2008, of the BITrum research Group, which welcomes the inclusion of new researchers:

Aguado Terrón, Juan Miguel	Fuchs, Christian	Moreiro González, José Antonio
Aguilar, Carlos	Gallego Lorenzo, Josefa	
Al Hadithi, Basil	García Álvarez, Julio	Ortíz Alonso, Tomás
Álvarez Bautista, Juan Ramón	Gejman, Roberto	Ostalé García, Julio
Barrio Juárez, Félix Antonio	Gutiérrez, Salvador	Pérez-Amat, Ricardo
Barrionuevo Almuzara, Leticia	Hofkirchner, Wolfgang	Pérez-Montoro Gutiérrez, Mario
Campos Havidich, Manuel	Lara, Juan	
Capurro, Rafael	Le Monde Diplomatique español	Robles, Gemma
Currás Puente, Emilia	Liz Gutiérrez, Antonio Manuel	Rodríguez Bravo, Blanca
Díaz Nafría, José María	Llamas Alonso, Rosa	Sagüillo Fernández-Vega, José Miguel
Fernández Esteban, Samuel	Macarro Asensio, Rosa	
Fernández Molina, Juan C.	Marcos, Alfredo	Salto Alemany, Francisco
Ezquerro, Jesús	Marijuán, Pedro	Sánchez Cuadrado, Sonia
Fleissner, Peter	Mastromatteo Lanza, Estela	Sánchez Gómez, Lydia
Floridi, Luciano	Méndez, José Manuel	Segal, Jérôme
	Morán, Marian	Serrano de Haro, Agustín
Florio, Anto	Morato Lara, Jorge	Vázquez Campos, Marga