INESCPORTO

INSTITUTO DE ENGENHARIA DE SISTEMAS
E COMPUTADORES DO PORTO
LABORATÓRIO ASSOCIADO

RELATÓRIO DE ACTIVIDADE
DAS UNIDADES

ACTIVITY REPORT OF INESC PORTO UNITS

This part of INESC Porto Report presents the report of scientific and technological activities.

The report of scientific and technological activities begins with a section presenting the Scientific Council, followed by the detailed description of the scientific and technological units of the institute, namely:

- Manufacturing Systems Engineering Unit
- Optoelectronics and Electronic Systems Unit
- Power Systems Unit
- Information and Communications Systems Unit
- Telecommunications and Multimedia Unit
- Innovation and Technology Transfer Unit

R1. SCIENTIFIC COUNCIL

President: Manuel António Cerqueira da Costa Matos

R1.1 INTRODUCTION

In the year 2008, the Scientific Council developed its activity through plenary meetings and e-mail conferencing. The regular activity of the Council included the contribution to reports, the formulation of opinions about institutional reports and plans and the validation of the publication prizes paid to those authors with papers published in scientific journals that are indexed in reference databases.

R1.2 SUMMARY OF ACTIVITIES

The Council analyzed and issued an opinion on the report of 2007 and on the plan for 2009 (both for the General Council of INESC Porto), and also on the report of 2007 and plan for 2008 (in the framework of FCT multiyear funding).

The Council focused its attention in the publication activity of the units and researchers, through the compilation and analysis of data from the period 2001-07. A report was prepared by the president in order to launch the debate in the Council and among researchers, and the record of publication prizes (2004-2007) was also distributed to ease the analysis. These elements should have been used to discuss the publication activity at units' level, but eventually the discussion was postponed to 2009.

R2. UNIT: UESP – MANUFACTURING SYSTEMS ENGINEERING

R2.1 SHORT DESCRIPTION OF THE UNIT

The main goal of the Manufacturing Systems Engineering Unit (UESP) is to contribute to the performance improvement of industrial enterprises through R&D projects, consulting, technology transfer and training services. Along with a strong application focus, the Unit is committed to conduct high quality research projects.

The Unit main competences are related to Operations Management and Enterprise Information Systems applied to industrial companies and to enterprise collaborative networks. The Unit main activity areas include: Enterprise Cooperation Networks, Operations Management and Production Planning, Internal Logistics, Optimization of Cutting and Packing, Systems integration, and consulting services.

The Unit's activity is grounded on research in the following scientific domains:

- Cooperative Enterprise Networks Management: build-to-order strategies for complexity and variety, dynamic capacity management, early warning management, operations co-ordination in dynamic supply networks, semantic and technical interoperability, collaborative performance management, life-cycle support of self-forming business networks.

- Information and Knowledge Management in Collaborative Networks: socio-technical analysis models in organizational networks, collaborative processes in organizational networks, information and knowledge management in organizational networks.

- Operations Management and Production Planning: structuring of decision processes; optimization methods; Combinatorial Optimization and meta-heuristics; optimization for planning and scheduling problems; Simulation; Decision Support Systems.

- Optimization of Cutting and Packing: incorporation of real-world constraints and objectives in cutting and packing optimization models, integrated resolution of cutting and packing problems and related tactical and operational problems, use of meta-heuristic techniques, often in their multi-objective versions, hybridization of meta-heuristics and exact methods.

The Unit promotes and participates in applied research projects, in partnership with software houses and equipment producers, aiming at the development of innovative products, and provides consulting services to industrial companies. Consulting services include the analysis and optimization of business processes, requirements analysis of IT systems, selection of IT systems (ERP and others), change management and support in the implementation phase. These services follow a proprietary methodology, developed over many years of experience. The Unit has also a large experience in the fields of manufacturing systems integration.

The Unit plays also a role in the promotion of the utilization of advanced technologies by industrial enterprises through dissemination, training and consulting actions, aiming at creating awareness of the advantages and limitations of new technological solutions, identifying new requirements, and supporting their implementation. The Unit provides R&D services to develop innovative products to technology suppliers, software houses, systems integrators and producers of manufacturing equipment.

Table of correspondence between know-how and industrial sectors

Know-how	Status (*)	Enterprise Collaboration Networks	Manufacturing	Software houses	Equipment producers
Structuring of decision processes	I	X	X	X	X
Business Models	I	X			
Information Systems Analysis	I	X	X	X	X
Socio-organizational Analysis	I	X	X	X	
Optimization	I	X	X	X	X
Simulation	I	X	X		X
IS development methodologies	I			X	
IS advanced applications	I	X	X	X	
Databases	I			X	X
Enterprise integration and frameworks	I	X	X	X	
Communications	I / O		X		X
Automation	I		X		X

(*) I - Internal; O - Existing in another Unit of INESC Porto; E - External; C – To be created

Coverage of the Innovation Process

Activity Area	Research	Development	Consulting	Training	Marketing and support	Evolutionary maintenance	Use
Enterprise Collaboration Networks	UESP	UESP, Sistrade, Oficina de Soluções	UESP	UESP	Sistrade, Oficina de Soluções	Sistrade Oficina de Soluções	Footwear Metalworking Cork Automobile
Logistics	UESP	UESP LIREL	UESP	UESP LIREL	LIREL	UESP LIREL	Footwear Metalworking Furniture
Planning	UESP	UESP, Softi9, Oficina de Soluções	UESP	UESP	Softi9, I68, CPC	UESP	Automobile Metalworking Footwear
Optimization	UESP	UESP	UESP	UESP	UESP, Lirel	UESP	Textile Paper Metalworking
Enterprise engineering and process optimization	UESP	UESP	UESP	UESP	UESP		All

Description of the Unit's organisational structure

The Manufacturing Systems Engineering Unit coordination is jointly undertaken by Luís Maia Carneiro and Jorge Pinho de Sousa.

Currently the areas with more significant activity are Enterprise Cooperation Networks, Internal Logistics, Operations Management and Cutting and Packing. Consulting services are structured and provided by a specific group in the Unit.

R2.2 ACTIVITIES DEVELOPED IN 2008

R2.2.1 National programmes

During 2008, 10 projects have been executed with the support from national RTD programmes, representing 32,9% of the year income.

The research projects PLCoolNet (A multi-paradigm approach to performance management in collaborative networks) and CROME (Criativity in optimisation with Meta-heuristics) started in the end of 2007 and will go through the end of 2009.

The projects CEC-MadeShoe-prime (large project for the shoe industry, complementary to the CEC-Madeshoe European project allowing a further application and demonstration of the previous results) and SIMULOG (Simulation framework for the rapid development of simulation models of internal logistics automation systems) were supported by the PRIME programme.

The SIDAT project supported the preparation of a patent in the field of internal logistics automation.

The Competence Network on ICT for the Fashion clusters - TECMODA - started in 2006 with the aim of activating a knowledge community for the fashion industries, able to follow the state of the art, to develop technical visions for the future, and to promote research projects in the area. Moreover the Unit participated in the competence network for MOBILITY. These activities were supported by Agência de Inovação.

The collaborative research projects SIBAP (Integrated system for complex production systems balancing) and AGILPLAN (An agile planning system for footwear companies and networks) started with the support of Agência de Inovação. The Unit participated also in the EPREV (Forecast of wind power generation) project, in partner ship with INESC Porto Power Systems Unit.

R2.2.2 European programmes

During 2008 the Unit participated in 4 European projects accounting for 31% of its global activity.

The CEC-Made-Shoe project (large integrated project improving materials, processes, machines and ICT in the shoe industry) was supported jointly by the IST and by the Growth programmes of the EC.

AC/DC is a large project that started in November 2006 and is supported by the Transports European programme. It aims at creating the conditions to produce cars in five days, from the car specification by the customer to its delivery. INESC Porto participates in the supply chain optimisation and decision support tools for this scenario.

The IRC Portugal project (promotion of trans-national technology transfer) was supported by the INNOVATION programme.

The e-biz-tcf - Harmonizing eBusiness processes and data exchanges for SMEs in the textile/clothing and footwear sectors in the Single Market - was directly funded by the European Commission and aimed at the definition of architectures for ebusiness integration and at the implementation of pilot projects at a European level.

R2.2.3 Other programmes, consulting, services

The main consulting and technology transfer projects during 2008 were:

- o PRONIC - definition and management of technical standards for the construction industry, and IT support tools.

- o SAPIR - Aggregate planning system for shoe supply networks, developed for the Aerosoles Group.

- o Izaro Grey – Improvement in the scheduling optimization engine previously designed and developed.
- o Consulting contracts to support several companies (Durit, Siclave, Cifial, Silampos, Digital Partners) in analyzing their business processes, identifying their requirements in IT, supporting the selection and implementation of the selected solutions.
- o Technical support to the systems and applications previously installed at SONAFI.
- o Technical support to the implementation of internal logistic systems produced by the partner company Lirel.

R2.3 SUMMARY OF RESULTS OF THE RESEARCH ACTIVITIES OF THE TEAM MEMBERS

Projects

Summary of projects developed in 2008

Type of Activity (1)	No. Projects (2)			Total Income (€)
	N	E	I	
R - Research	10	2		525.900
D - Development	3			61.100
C - Consulting	5	1		125.880
A – Advanced training				
T – Technology Transfer	2	1		30.100
O - Other			2	49.900
TOTAL	20	4	2	792.880

Summary of relative distribution of sources of income

Financing (3)	Status (4)			Total Income (€)
	S - Started	OG– On-going	C - Concluded	
NP – National Programmes	5,85%	4,59%	22,46%	260.900
EP – European Programmes		10,39%	20,60%	245.700
CS – Consulting and services	8,07%	10,81%	17,23%	286.280
O – Other R&D sources				
OS – Other sources				
Total	13,92%	25,79%	60,28%	792.880

Summary of projects developed in 2008

Name of the project	Respons.	Type proj. (1)	Degree of intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
CONSULTORIA	A. C. Alves	C	N	CS	-	-	Several contracts	OG
LIREL	P. S. Marques	T	N	CS	-	-	Renewable	OG
SONAFI	Paula Silva	D	N	CS	-	-	Renewable	OG
IRCPortugal	A. C. Alves	T	E	EP	Innovation	04-2004	03-2008	F
CEC Made Shoe	Rui Diogo	R	E	EP	Growth	10-2004	09-2008	F
CEC-MadeShoe-Prime	Rui Diogo	R	N	NP	Prime	10-2004	06-2008	F
DURIT AD	A. C. Alves	C	N	CS	Demtec	12-2004	05-2008	F
PRONIC	Luís Guardão	R	N	CS	-	01-2006	03-2008	F
SIDAT	Luís Guardão	T	N	NP	SIUPI	01-2006	06-2008	F
RCM	J.P. De Sousa	R	N	NP	Redes Cp.	07-2006	06-2008	F
AC/DC	J.P. De Sousa	R	E	EP	IST	10-2006	09-2010	OG
IZARO GREY	Luís Guardão	D	N	CS	-	01-2007	10-2010	OG
TecModa	C. Toscano	R	N	NP	Prime	01-2007	07-2008	F

Name of the project	Respons.	Type proj. (1)	Degree of intern. (2)	Financ. Type (3)	Financ. Prog.	Starting date	Conclusion (prediction)	Status (4)
SIMULOG	Paulo Marques	R	N	NP	Prime	02-2007	06-2008	F
SAPIR	Rui Diogo	D	N	CS	-	06-2007	06-2008	F
PMCOLNET	A. Soares	R	N	NP	FCT	11-2007	12-2009	OG
CROME	J. S. Ferreira	R	N	NP	FCT	12-2007	12-2009	OG
BASYS	Américo Azevedo	O	I	CS	-	01-2008	07-2008	F
ERIMA	J.P. De Sousa	O	I	CS	-	01-2008	11-2008	F
SIBAP	Rui Diogo	R	N	NP	I&D Coop.	06-2008	12-2009	S
e-BIZ-TCF	C. Toscano	C	E	CS	-	07-2008	06-2009	S
EPREV	Luís Carneiro	C	N	CS	-	07-2008	03-2009	S
AGILPLAN	Rui Rebelo	R	N	NP	I&D Coop.	12-2008	06-2010	S
Digitalpartners	Luis Carneiro	C	N	CS	Vale Inov.	12-2008	06-2009	S
Enabler-plan	Abdur Rais	R	N	CS	I&D Ind.	12-2008	12-2009	S
Silampos	A. C. Alves	C	N	CS	Vale Inov.	12-2008	11-2009	S

(1) Type of Project: R – Research; D – Development; C – Consulting; A – Advanced Training; T – Technology Transfer; O - Other

(2) Degree of internationalization: N – National; E – European; I – International *(Select one)*

(3) Source of financing: NP – National Programmes; EP – European Programmes; CS – Consulting and services; O – Other R&D financing sources; OS – Other sources

(4) Status: S – Starting: activities initiated in 2008 and continuing in 2009; OG – On-going: activities started earlier than 2008 and continuing in 2009; F – Finished: activities ending in 2008.

Summary of publications

Summary of publications in 2008

Type of publication	Number
Theses concluded in 2008 by members of the unit	4
Books (author)	
Chapter/paper in books	1
Publications (editor)	
Papers in International Journals with scientific referees	8
Papers in National Journals with scientific referees	
Conference Proceedings in events with scientific referee and selection	13
Other publications (National meetings, local journals, etc.)	1
Total	27

Summary of post-graduation activities

Summary of theses supervised by members the unit in 2008

Type	Starting	On-going	Concluded	Total
Master	12	9	23	44

Type	Starting	On-going	Concluded	Total
Doctoral	4	11	4	19
Total	16	20	27	63

Summary of Advanced Training Actions

Summary of Advanced Training Actions organized for external trainees in 2008

Type	Number
Training for graduation students *(estágios curriculares)*	3
Training for others *(estágios extra-curriculares)*	
Professional training actions *(estágios profissionais)*	1
Other actions	
Total	4

Summary of activities of cooperation or dissemination

Summary of items

Type	Number
Organizing conferences or meetings	6
Collaboration in papers authored by INESC Porto researchers	18
External persons directly involved in actions organized by INESC Porto	24

Human resources in 2008

Summary of Unit personnel at the end of 2008

Type	Education				Total	Variation (*)
	PhD.	MSc.	BSc.	Other		
R&D						
University or Polytechnic Staff	11	5	1		17	0
INESC Porto Grant Holders		2	2		4	-2
Other Grant Holders					0	-1
Employees	1	2	10	2	15	+2
Trainees			2	2	4	+2
Other						
Administrative			2		2	0
Total	12	9	17	4	42	+1

(*)   Relative to 2007, in absolute numbers.

R2.4 LIST OF PUBLICATIONS IN 2008

R2.4.1 Theses concluded by members of the unit

Claudia Melania Chituc, Self-organization in enterprises and business networks and behavior semantics, FEUP, PhD thesis.

Dora Simões, Socio-technical Models for the formation and dissolution of Cooperation Networks of Small and Medium Enterprises, FEUP, PhD thesis.

João Claro, Multiobjective metaheuristic approaches for mean-risk combinatorial optimization with applications to capacity expansion, FEUP, PhD thesis.

Maria Teresa do Valle Moura da Costa, New approaches to the periodic placement of irregular shapes, FEUP, PhD thesis.

R2.4.2 Books (Author)

Blank.

R2.4.3 Chapter/paper in Books

Eduarda Pinto Ferreira, José F. Oliveira, Fekete and Schepers' graph-based algorithm for the two-dimensional orthogonal packing problem revisited, in Intelligent Decision Support - Current Chalenges and Approaches, Andreas Bortfeldt, Jörg Homberg, Herbert Kopfer, Giselher Pankratz e Reinhard Strangmeier (Eds.), Gabler Edition Wissenschaft, pp 15-31, 2008.

R2.4.4 Publications (Editor)

Blank.

R2.4.5 International Journals with scientific referees

José António Crispim, Jorge Pinho de Sousa, Partner selection in virtual enterprises, International Journal of Production Research, Nov 2008.

Claudia Chituc, César Toscano, Américo Azevedo, Interoperability in Collaborative Networks: independent and industry specific initiatives - The case of the footwear industry, Computers in Industry, vol.59, no.7, pp.741-757, Setembro, 2008.

Bernardo Almada Lobo, José Fernando Oliveira, Maria Antónia Carravilla, A note on "the capacited lot-sizing and scheduling problem with sequence-dependent setup costs and setup times", Computers and Operations Research, vol.35, no.4, pp.1374-1376, Abril, 2008.

António Carrizo, Luís Maia Carneiro, Catarina Selada, Defining the regional innovation strategy for the year 2015: the case of the ITCE clusters in the North of Portugal, International Journal of Innovation and Regional Development, Inderscience, vol.1, no.1, pp.66-89, Janeiro, 2008.

Julia A. Bennel, José Fernando Oliveira, The geometry of nesting problems: A tutorial, European Journal of Operational Research, vol.184, no.2, pp.397-415, Janeiro, 2008.

Ana Viana, Jorge Pinho de Sousa, Manuel Matos, Fast solutions for UC problems by a new metaheuristic approach, Electric Power Systems Research, vol.78, no.8, pp.1385-1395, 2008.

F. Parreño, R. Alvarez-Valdes, José F. Oliveira, J.M. Tamarit, A maximal-space algorithm for the container loading problem, INFORMS Journal on Computing, vol.20, no.3, pp.412-422, 2008.

Bernardo Almada-Lobo, José F. Oliveira, Maria Antónia Carravilla, Production Planning and Scheduling in the glass container industry: a VNS approach, International Journal of Production Economics, vol.114, no.1, pp363-375, 2008.

R2.4.6 National Journals with scientific referees

Blank.

R2.4.7 Conference Proceedings with scientific referees

Soeiro Ferreira, J., ""Creativity in Optimisation - some ideas"", IV SELASI - IV SEMINARIO EURO-LATINOAMERICANO DE SISTEMAS DE INGENIERÍA, December 2008, Havana, Cuba.

Carla Pereira, António Lucas Soares, Ontology Specification in Collaborative networks as a process of social construction of meaning, OTM'08 - On The Move Federated Conferences & workshops 2008, Monterrey, México, Novembro, 2008.

João Pedro Santos, Rui Rei, Mikio Kubo, Simulation-based optimization for steel stacking, MCO'08 - Modelling, Computation and Optimization in Information Systems and Management Sciences, Metz, France, Setembro, 2008.

António Miguel Gomes, Marisa Oliveira, Eduarda Pinto Ferreira, A survey on floorplan representations and algorithms in ASIC design, in Proceedings of IFORS 2008 - 18th Triennial Conference of the International Federation of Operational Research Societies, Sandton, África do Sul, Julho, 2008.

Claudia Chituc, Américo Azevedo, César Toscano, An analytical approach for comparing collaborative business frameworks, BASYS'08 - 8th IFIP International Conference on Information Technology for Balanced Automation Systems , vol.266, no.2008, pp.137-144, Porto, Portugal, Julho, 2008.

António Pereira, Frederico Cunha, Pedro Malheiro, Américo Azevedo, ebXML – OVERVIEW, INITIATIVES AND APPLICATIONS, BASYS'08 - 8th IFIP International Conference on Information Technology for Balanced Automation Systems , Porto, Portugal, Julho, 2008.

Célia Talma Martins, Américo Azevedo, H. Sofia Pinto, Eugénio Oliveira, TOWARDS AN ONTOLOGY MAPPING PROCESS FOR BUSINESS PROCESS COMPOSITION, BASYS'08 - 8th IFIP International Conference on Information Technology for Balanced Automation Systems , Porto, Portugal, Julho, 2008.

António Lucas Soares, Cristovão Sousa, USING CONCEPT MAPS FOR ONTOLOGY DEVELOPMENT: A CASE IN THE WORK ORGANIZATION DOMAIN, BASYS'08 - 8th IFIP International Conference on Information Technology for Balanced Automation Systems, Porto, Portugal, Junho, 2008.

Ana Santos, J. Soeiro Ferreira, Scheduling in the Textile Industry, III SELASI - European Latin American Workshop on Engineering Systems, April 30 to May 3, 2007, Curicó, Chile.

José Fernando Oliveira, António Miguel Gomes, Research support tools in cutting and packing: a survey, in Proceedings of 5th ESICUP Meeting, L´Aquila, Itália, Abril, 2008.

Oliveira, J.F., Gomes, A.M., "Research support tools in cutting and packing: a survey", in Proceedings of 5th ESICUP Meeting, April 2008, L´Aquila, Itália.

Crispim, J.A. and Pinho de Sousa, J., 2008, "Partner Selection In Virtual Enterprises An Exploratory Approach", in IFIP International Federation for Information Processing, Volume 266, Innovation in Manufacturing Networks; ed. A. Azevedo; (Boston: Springer), pp. 115–124.

Pereira-Klen, A.A., Klen, E. R., Loss, L., Crispim, J. A., and Sousa, J. P., "Selection of a virtual organization coordinator", in Collaborative Networks: Reference Modeling, ed. Luis M. Camarinha-Matos and Hamideh Afsarmanes; (Springer US), pp 297-310.

R2.4.8 Other Publications

J. Soeiro Ferreira, Creative and Participative Problem Solving – The Art and the Science, René Valqui, 2006, 184 pages, Book Review, European Journal of Operational Research, vol. 185-2, pp. 899-900, 2008.

R2.5 LIST OF JOURNALS

Journal	Number of papers
Computers in Industry	1
Computers and Operations Research	1
International Journal of Innovation and Regional Development	1
European Journal of Operational Research	1
Electric Power Systems Research	1
INFORMS Journal on Computing	1
International Journal of Production Economics	1
International Journal of Production Research	1
TOTAL	8

R2.6 LIST OF PATENTS

Name: The One Step Production Process
Developed under (Project Name): CEC-Made-Shoe
Demo Place: Kyaia
Development Period: 2006-2008
Type (National or International): National
Submission Date: June 2008

A2.7 LIST OF PROTOTYPES

Name: Framework for the rapid development of simulation models of internal logistics automation systems
Developed under (Project Name): SIMULOG
Demo Place: Lirel
Development Period: 2007-2008

Name: Aggregate planning system for shoe supply networks (final prototype)
Developed under (Project Name): SAPIR
Demo Place: Aerosoles Company

Development Period: 2007-2008

Name: System for the management of standard technical processes in the construction industry at national level (final prototype)
Developed under (Project Name): PRONIC
Demo Place: INESC Porto
Development Period: 2006-2008

Name: One-Step production process Logistic automation system (final prototype)
Developed under (Project Name): CEC-Made-Shoe
Demo Place: Kyaia
Development Period: 2005-2008

Name: Workflow system supporting collaboration processes in footwear supply chains (final prototype)
Developed under (Project Name): CEC-Made-Shoe
Demo Place: GestVar
Development Period: 2006-2007

Name: System for business documents reliable exchange in the footwear industry
Developed under (Project Name): eBiz-tcf
Demo Place: Fivelarte, Cindicalfe, Centenário, Lusocal
Development Period: 2008

Name: Application for the management of diabetic patients and foot pressure test results
Developed under (Project Name): Walkingsense
Demo Place: Tomorrow Options
Development Period: 2008

R2.8 LIST OF THESES SUPERVISED BY MEMBERS OF THE UNIT DURING 2008

PhD Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Claudia Chituc	FEUP	Américo Azevedo	INESC Porto/FEUP	Self-organization in enterprises and business networks and behavior semantics	2008
Dora Simões	FEUP	António Lucas Soares	INESC Porto/FEUP	Socio-technical Models for the formation and dissolution of Cooperation Networks of Small and Medium Enterprises.	2008
João Claro	FEUP	Jorge Pinho de Sousa	INESC Porto/FEUP	Multiobjective metaheuristic approaches for mean-risk combinatorial optimization with applications to capacity expansion	2008
Maria Teresa Costa	FEUP	José Fernando Oliveira António Miguel Gomes	INESC Porto/FEUP	New approaches to the periodic placement of irregular shapes	2008
Célia Talma Matins	FEUP	Eugénio Oliveira Américo Azevedo	FEUP INESC Porto/FEUP	Collaborative Business in Enterprise Networks: Inter-organizational processes.	2009
José Crispim	FEUP	Jorge Pinho de Sousa	INESC Porto/FEUP	Contributions for a multi-criteria model for supporting the creation of collaborative enterprise networks	2009

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Ana Maria Rodrigues	FEUP	José Soeiro Ferreira	INESC Porto/FEUP	Combinatorial Optimization with Metaheuristics	2010
Bruno Prata	FEUP	Jorge Pinho de Sousa Teresa Galvão	INESC Porto/FEUP FEUP	Integrated vehicle and driver scheduling in public transport systems: a multi objective approach	2010
Maria do Rosário Moreira	FEUP	José Soeiro Ferreira	INESC Porto/FEUP	Combinatorial Optimisation in Graph Problems	2010
Marisa Oliveira	FEUP	António Miguel Gomes Eduarda Pinto Ferreira	INESC Porto/FEUP	Positioning and Routing Problems in the design of Integrated Circuits (VLSI e ASICs)	2010
Nazaré Rego	FEUP	Jorge Pinho de Sousa	INESC Porto/FEUP	Hospital supply chain configuration using multiobjective metaheuristics	2010
Roberto Piedade	FEUP	Américo Azevedo	INESC Porto/FEUP	Performance Management and Alignment on Collaborative Networks in SME's	2010
Teresa Neto	FCUP	João Pedro Pedroso Miguel Constantino	INESC Porto/FCUP FCUL	Mathematical models and algorithms for forest management	2010
Carla Sofia Pereira	FEUP	António Lucas Soares	INESC Porto/FEUP	Information and knowledge sharing in collaborative networks as a process of social construction of meaning: a theory and practical approach	2011
Fernando Cosme	FEUP	M. Antónia Carravilla	INESC Porto/FEUP	Gestão estratégica de sistemas de transporte de passageiros	2011
Marta Soares Rocha	FEUP	José Fernando Oliveira M. Antónia Carravilla	INESC Porto/FEUP	Hospitality Management - optimization and heuristic algorithms for human resources management	2011
Fernando Teodósio	FEUP	António Lucas Soares	INESC Porto/FEUP	Construction and reconstruction of learning content in collaborative networks using epistemic networks	2012
Manuel Fernando Silva	FEUP	Rute Costa António Lucas Soares	UNL INESC Porto/FEUP	Terminology contributions for the development and operation of semantic platforms supporting knowledge communities	2012
Rui Jorge Gomes	FEUP	Jorge Pinho de Sousa Teresa Galvão	INESC Porto/FEUP FEUP	Route planning for flexible transportation systems: a multiobjective metaheuristic framework	2012
1	*2*	*3*	*4*	*5*	*6*

1 – Name of the post-graduation student
2 – Institution where the thesis is submitted; if the host institution for the student is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

MSc Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Ana Carla Fernandes Damião Madeira	FEUP	Maria Antónia Carravilla José Fernando Oliveira Carlos Costa	INESCPorto/FEUP	Desenvolvimento de Indicadores de Sustentabilidade para Instituições de Ensino Superior	2008
António José Bessa de Oliveira	FEUP	António Miguel Gomes Maria Alice Pereria Ferreira	INESC Porto/FEUP	Optimização de uma Linha de Produção na Blaupunkt Auto Rádio Portugal, Lda	2008
Bruno Miguel Caetano Amorim	FEUP	Américo Azevedo	INESC Porto/FEUP	Optimization of the source process in the area of SMD	2008
Guilherme Cardoso Lopes	FEUP	Américo Azevedo	INESC Porto/FEUP	Ticketing system in the operation area	2008
Hugo Vara	FEUP	António Lucas Soares	INESC Porto/FEUP	Creativity and idea management in collaborative networks: the role of information management	2008
Inês Souto e Castro	EGP	Américo Azevedo	INESC Porto/FEUP	Definition of a cost model: application to the cork transforming industry	2008
Joana Conceição	FEUP	José Fernando Oliveira	INESC Porto/FEUP	Modelos de logística inversa para a indústria farmacêutica	2008
Joana Garcia Duarte Ferreira Rodrigues	FEUP	Américo Azevedo	INESC Porto/FEUP	An analysis and evaluation of Discrete Production Systems: a Simulation based approach	2008
João Pimentel Peixoto Coentro	FEUP	Américo Azevedo	INESC Porto/FEUP	Service Quality Management Model in Information Systems Development	2008
José Miguel Sereno da Rocha Machado Espregueira	FEUP	Américo Azevedo	INESC Porto/FEUP	Analysis and implementation of the support services for Cofanor IT system	2008
José Pedro Coelho Rodrigues	FEUP	Maria Antónia Carravilla José Fernando Oliveira	INESC Porto/FEUP	Sistema de Apoio à elaboração de horários em Unidades de Cuidados Continuados	2008
Karla Gurgell	FEUP	António Lucas Soares	INESC Porto/FEUP	The contribution of requirements engineering in the specification of onthologies: application in collaborative networks	2008
Manuel Maria Aranha Furtado de Mendonça	FEUP	Américo Azevedo	INESC Porto/FEUP	Process and project management: the case of the design and development processes in a technological based SME	2008
Mark Odrich Macedo	FEUP	Américo Azevedo	INESC Porto/FEUP	Specification and development of a collaborative tool to support the implementation of RTD projects	2008
Miguel Andrade	EGP	Jorge Pinho de Sousa	INESC Porto/FEUP	A multi-criteria framework for the design and assessment of Demand Response Transport services	2008
Miguel Angelo	UA	Américo Azevedo	INESC Porto/FEUP	Definição de Modelo de Gestão de Recursos numa Empresa Multimunicipal de Saneamento: Aplicação a um Caso Prático	2008
Miguel João Mota Dinis Marques	FEUP	Américo Azevedo	INESC Porto/FEUP	Study of the decision making process in production systems, using process modelling techniques	2008
Nuno Abreu	FEUP	António Miguel Gomes	INESC Porto/FEUP	IP-Nest — Geometric Library for Nesting Problems	2008
Ricardo Jorge Machado Neves	FEUP	Américo Azevedo	INESC Porto/FEUP	Development of a quality system in a technology based company	2008

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Tiago Ramos Duarte Gomes	FEUP	Américo Azevedo	INESC Porto/FEUP	Creation of automatic processes in the simulation of industrial logistic systems	2008
Tomé Costa	FEUP	António Miguel Gomes	INESC Porto/FEUP	Cutting Paths in Dynamic Graphs	2008
Vitor Santos	FEUP	António Lucas Soares	INESC Porto/FEUP	Collaborative information management in the Gondomar Library	2008
Vitor Simoes	FEUP	Américo Azevedo	INESC Porto/FEUP	Critical Factors of Lean Implementation	2008
Alexandre Ferreira	FEUP	Maria Antónia Carravilla	INESC Porto/FEUP	Rotas de "Milk run" no aprovisionamento externo da Bosch Termotecnologia SA	2009
Bruno Paulino	FEUP	António Lucas Soares	INESC Porto/FEUP	Strategies for information classification in RTD organizations	2009
Fábio Freitas	ISEP	Ana Viana Adriana Alvim	INESC Porto/ISEP UNIRIO (Brazil)	POPMUSIC (Partial Optimization Metaheuristic Under Special Intensification Conditions) para problemas de rotas de veículos.	2009
Gabriela Soares	INESC	José Soeiro Ferreira João P. Pedroso	INESC Porto/FEUP	Tools for Metaheuristics Experience Planning	2009
Hugo Caldeira	FEUP	José Soeiro Ferreira	INESC Porto/FEUP	Logistic Pallet and Packing problems	2009
Inês Santos	FCUP	João Pedro Pedroso	INESC Porto/FCUP	Specification and development of a collaborative agenda with minimisation of penalties	2009
Joana Hora	INEGI	José Soeiro Ferreira	INESC Porto/FEUP	Desenvolvimento e Implementação do Processo de Gestão de Projectos	2009
João Miguel Oliveira Castro Ferreira	FEUP	José Soeiro Ferreira	INESC Porto/FEUP	Análise, Definição e Implementação de Medidas Correctivas dos INPUTs num MRP	2009
João Miguel Rodrigues Carneiro	FEUP	José Fernando Oliveira	INESC Porto/FEUP	Estudo de melhoria do processo de subcontratação na ADIRA	2009
João Ricardo Pires Teixeira	FEUP	José Fernando Oliveira	INESC Porto/FEUP	Supply Chain Planning na Qimonda	2009
Jorge Silva	FEUP	António Lucas Soares	INESC Porto/FEUP	Management of information of performance of organizational networks: The case of virtual communities	2009
José Augusto	FEUP	António Lucas Soares	INESC Porto/FEUP	Approach for the implementation of knowledge communities in enterprise associations	2009
Leticia da Silva Loureiro	FEUP	José Soeiro Ferreira	INESC Porto/FEUP	Water Spider – Balanceamento de linhas de produção	2009
Luís Miguel Machado Lima Branco	FEUP	António Miguel Gomes	INESC Porto/FEUP	Implementação de cartas de controlo nos equipamentos de produção	2009
Mauro Henrique Alves Pereira	FEUP	António Miguel Gomes	INESC Porto/FEUP	Melhoria dos planos e métodos de manutenção preventiva	2009
Pedro Igor Matilde da Cunha	FEUP	José Soeiro Ferreira	INESC Porto/FEUP	RIP & Slow moving Inventory	2009
Roberto Colazingari	FCUP	João Pedro Pedroso Abdur Rais	INESC Porto/FCUP INESC Porto	Implementation of a simulator for assembly lines	2009
Rui Pinto Ferreira	FEUP	António Lucas Soares	INESC Porto/FEUP	Development of multi-criteria collaborative decision model for performance management in networks of organizations	2009
Rui Rei	FCUP	João Pedro Pedroso Peter Madera	INESC Porto/FCUP Qimonda	Development of an OSS Shop-Floor Simulation Engine'	2009
Suzy Vasconcelos da Silva	FCUP	João Pedro Pedroso Abdur Rais	INESC Porto/FCUP INESC Porto	Systems for resource planning and optimisation	2009

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Tiago Leite	ISEP	Ana Viana	INESC Porto/ISEP	Técnicas heurísticas para sequenciamento multi-projecto	2009
1	*2*	*3*	*4*	*5*	*6*

1 – Name of the post-graduation student
2 – Institution holding the course where this student in enrolled in; if the host institution is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

R2.9 ORGANISATION OF INTERNATIONAL SCIENTIFIC EVENTS

The following evens were organised by team members:

- BASYS'08 - 8th IFIP International Conference on Information Technology for Balanced Automation Systems , Porto, Portugal, July, 2008 (Organisation and presidency)

- Workshop Manufuture: Beyond Lean Manufacturing, Porto, July 2008 (Organisation)

- ERIMA 08 - European Symposium on Innovative Management Practices, Porto November 2008 (Organisation and presidency)

- IFORS 2008, Sandton, South Africa, July 2008 (Organisation of the "Cutting and Packing" stream)

- OR 50 Conference, York, United Kingdom, September 2008 (Organisation of the "Cutting and Packing" stream)

- 5th ESICUP Meeting, L'Aquila, Italy, April – 2008 (Programme committee Presidency)

R2.10 ADVANCED TRAINING

Blank.

R2.11 OTHER CONTRIBUTIONS TO THE OBJECTIVES OF ASSOCIATE LABORATORY

UNIT: UESP – MANUFACTURING SYSTEMS ENGINEERING	Thematic Line
The AC/DC European Integrated Project started by the end of 2006, and produced innovative concepts and solutions for planning and management of complex supply chains (applied in the automotive industry for the fast production of customized cars).	Enterprise Cooperation Networks
Research on multi-criteria approaches for partner selection in Virtual Organizations and Collaborative Networks.	
The project e-biz-tcf - Harmonising eBusiness processes and data exchanges for SMEs in the textile/clothing and footwear sectors in the Single Market - defined architectures for ebusiness integration and implemented pilot projects at European level.	
Within the SAPIR project an Aggregate planning system for shoe supply networks was design, developed and demonstrated in the Aerosoles Group.	

R2.12 ANALYSIS AND ASSESSMENT OF DEVIATIONS RELATIVE TO FORMER PLANNING

R2.12.1 Comparison with strategic actions or policy lines defined in the plan of the previous year
The main deviation from the plan was a reduction of the activity level by near 20%. This was due to the simultaneous end of national and European programmes and to the delayed expected start of new projects. However, for 2009 there are already very positive perspectives, as described below.

R2.12.2 Cases of success, problems met, internal and external conditioning factors
As mentioned above the main difficulty faced during 2008 was the closing of many national and European projects and the delayed start of the projects in the new programmes. This was partially compensated by direct contracts with companies but, associated with the problems in the economic environment in industry, led to a reduction in the activity level by near 20%.

This very difficult environment motivated a strong effort in promoting new projects, with significant good results. At the end of 2008, 14 new RTD and innovation projects with national SME's were approved for funding, and 4 new large and strategic European research projects were approved. One of this large European projects was proposed and will be coordinated by the Unit. These facts alone already assure a significant increase in the activity level, in such a way that an operation larger than in the previous years is expected.

In 2008 important achievements were fulfilled, namely:

- The "scheduler" developed by INESC Porto and integrated in the IZARO-GREY system; marketed by SOFTI9 and I68 (Spain) followed the commercial success of the first year of existence. The distribution network was extended to a large Portuguese ERP vendor and one company selling in Germany and Austria. At the moment more than 20 licences have already been sold by I68.

- In the CEC-Made-Shoe project an innovative concept and system for internal logistic automation for shoe production in one-step was developed. This new system induces an important improvement of the productivity (in the demonstrator more than 20% improvement in productivity was achieved) and flexibility of production lines (assembly, finishing and packaging). This new system was patented this year.

- The project e-biz-tcf - Harmonising eBusiness processes and data exchanges for SME's in the textile/clothing and footwear sectors in the Single Market - defined architectures for ebusiness integration and implemented pilot projects at a European level.

- Within the SAPIR project an aggregate planning system for shoe supply networks has been designed, developed and demonstrated in the Aerosoles Group.

R3. UNIT: UOSE – OPTOELECTRONICS AND ELECTRONICS SYSTEMS

R3.1 SHORT DESCRIPTION OF THE UNIT

The Unit develops its activity in the areas of Optoelectronics and Electronic Systems Integration, mainly in the domain of optical fibre technology. The Electronics section is essentially oriented towards the process of technology transfer to industrial Portuguese companies, the integration of optoelectronic systems. The scientific research made by the Unit is directed to the research in the domain of Optoelectronics, particularly the applied research in optical fibre sources, optical communications, optical fibre sensors and micro fabrication (thin films and integrated optics). In the framework of its activity it proportionate the adequate environment to the integration of post-graduate students, mainly coming from the Physics Department of the Sciences Faculty of the University of Porto and the Electro technical and Computer Engineering Department of the Engineering Faculty of the same University. Throughout the years, R&D collaborations have been made with prestigious institutions, national and international (Universities, Institutes or companies), very often within the framework of R&D joint projects. Nowadays, the Unit priorities are: strengthen its competences in its areas of activity, through crossed fertilization actions among them beginning with a careful and adequate selection of R&D projects to be submitted, as well as institutional links with other organizations, to develop actions in order to maintain a minimum number of PhD researchers able to frame all the Unit R&D activity, to define the process of equipment renewal of the Unit with the goal of keeping a modern laboratory in optoelectronic technologies.

The main vectors of the Unit activity development are presented:

- Research, development and technology transfer in the area of the optical fibre sensors;
- Development and technology transfer in systems integration;
- Research in sol-gel technology;
- Research in optical filtering using fused coupler technology, Bragg gratings and long-period gratings;
- Research in optical coherent tomography for medical applications;
- Research and development in SPR based optical fiber sensors;
- Research and development in micro packaging;
- Research and development in photovoltaic cells;
- Research in energy harvesting and scavenging for sensing.

Table of correspondence between know-how and the Industrial Sectors

Know-how	Status(*)	Instrumentation	Telecommuni cations	Environment	Energy	Health
Scientific Know-how						
Optical fiber sensors	I	X		X	X	X
Microfabrication	I					
Optical fiber sources	I, E		X			
Civil engineering structures modelization	E	X				
Energy networks management	O	X				X
Chemical pollutants detection	E			X		
Biomedicine	E					X

Know-how	Status(*)	Instrumentation	Telecommuni cations	Environment	Energy	Health
Technology Know-how						
Electronic systems project and development	I	X	X	X	X	X
Electronic systems integration	I	X	X	X	X	X

(*)   I – Internal; O – Existing in another Unit of INESC Porto; E – External; C – To be created

Coverage of the Innovation Process

Activity Area	Research	Development	Consulting	Training	Marketing and Support	Evolutionary Maintenance	Use
Instrumentation	UOSE/Lab. Structures FEUP	UOSE/Lab. Structures FEUP	UOSE/Lab. Structures FEUP	UOSE/Lab. Structures FEUP	FiberSensing	FiberSensing	Civil engineering structures instrumentation
Telecommunica-tions	UOSE, UTM	UOSE, UTM	UOSE, UTM	UOSE, UTM			Optical fiber communication systems
Environment	UOSE/Dep. Química FCUP	UOSE/Dep. Química FCUP	UOSE/Dep. Química FCUP	UOSE/Dep. Química FCUP			Pollutants detection and monitoring systems
Energy	UOSE, USE	UOSE, USE	UOSE, USE	UOSE, USE			Energy networks management systems
Health	UOSE, ITQB	UOSE, ITQB	UOSE, ITQB	UOSE, ITQB			Biomedical sensors

Description of the Unit's organizational structure

The Unity is organized around technological and scientific competences. Each one of these competences is coordinated by a PhD who, in close collaboration with the Unit's coordinator, defines strategies and partnerships. The motivation to this organizational scheme is rooted on the crucial relevance of scientific competence as the activity thrust.

R3.2 ACTIVITIES DEVELOPED IN 2008

R3.2.1 National programmes

During 2008 the Unit was involved in 13 R&D national projects. Two of these projects dealt with microfabrication issues, eight were concerned with optical fibre sensors principles and applications, two dealwith monitoring of biomedical signals and the other one is an application in the optical fiber communications area. Microfabrication projects developed fundamental technology for sensors and communications devices in optical fiber and integrated optics that will enable further developments in these areas. Namely, add-drop multiplexers for optical communications, piezoelectric films in optical fibers for sensing and actuation and other novel devices were developed. The microfluidics range of devices and the feasibility of manufacturing them in-house are being evaluated. The sensors projects were dedicated to applications in acoustic emission detection by optical fibers, salinity and temperature monitoring in the geophysical domain, characterization of optical fiber sensing heads for civil engineering applications, measurement of carbon dioxide in algae cell culture, measurement of dissolved oxygen by fluorescence and biochemical sensors. The biomedical signals projects intend to acquire meaning from physiological sinals obtained from image processing and embedded smart textiles sensors.

The Unit was also involved in two technology transfer projects: one related to micropackaging of optoelectronic components with FiberSensing and a national network of excellence dealing with microfabrication issues.

R3.2.2 European programmes

The Unit took part in two European projects during 2008. FIDELIO, that finished its activities, intended to develop the next generation of lidar onboard detection systems for aeronautics and the Unit contribution was in fundamental issues of nonlinear optics. The project NextGenPCF arises from the observation that progress and continuing technological development in many fields will depend on new ways of producing and guiding light, and mastering its interaction with the environment. Photonic Crystal Fibre (PCF) technology has the potential to become an enabling optical component. This project integrates the key European industrial and academic groups, from raw material developers to final users. It aims at being the incubator of key devices in three fields of applications that corresponds to three IST strategic fields: Biomedical, Telecom and Sensors. The Unit contribution followed the roots of previous years, namely design and realization of the optical source for gas sensing, sensing head and full sensing system.

R3.2.3 Other programmes, consulting, services

The Unit continued the contract with Fibersensing in the framework of its first phase of development. Consultancy in monitoring systems for critical infrastructures and perimetric security and the development of an experimental monitoring system for land sliding to be used in transport infrastructure were the subjects considered.

Consultancy in printed circuit board design and implementation was the subject of another contract with FiberSensing.

In partnership with FiberSensing the Unit was involved in a technology transfer project with a national mould manufacturer intending to develop "smart moulds" that will enable the optimization of its economical full life cycle exploitation.

In the framework of the European Space Agency, specifically Flight Hardware Activities and Long-Term Research and Development, the Unit managed to get a contract R&D project, on a competitive basis (ESA Announcement of Opportunity 1-4669/05/NL/HE). The ESA-ONE project is dedicated to technology development for integrated micro-optic filter to address optical signal detection in LIDAR applications. The research program will target future development of spaceborne LIDAR systems, thus providing a compact rugged integrated package with minimal size, weight, and power requirements but still fulfilling mechanical and thermal constrains for space applications. The primary goal of the proposed research program is to demonstrate and characterize the performance of an ultra narrowband optical fiber Bragg grating filter at 1600 nm, which corresponds to the CO_2 vapor lines of interest for space-based DIAL measurements. The project objectives were completely fulfilled, which will be presented in a formal session to be held at ESA Headquarters in Holland during April 2009.

R3.3 SUMMARY OF RESULTS OF THE RESEARCH ACTIVITIES OF THE TEAM MEMBERS

Projects

Summary of projects developed in 2008

Type of Activity (1)	No. Projects (2)			Total Income (€)
	N	E	I	
R - Research	13	3		257.229
D - Development				
C - Consulting	1			
A – Advanced training			1	5.000
T – Technology Transfer	4			199.590
O - Other		1	2	6.194
TOTAL	18	4	3	468.013

Summary of relative distribution of sources of income

Financing (3)	Status (4)			Total Income (€)
	S - Started	OG– On-going	C - Concluded	
NP – National Programmes	15,56%	11,02%	10,29%	172.544
EP – European Programmes	0,35%	10,17%	0,66%	52.337
CS – Consulting and services	0,53%		50,35%	238.132
O – Other R&D sources				
OS – Other sources			1,07%	5.000
Total	16,45%	21,19%	62,37%	468.013

Summary of projects developed in 2008

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
FIDELIO	M. J. Marques	R	E	EP	6PQ	12-2004	05-2008	F
ESA-ONE	F. Araújo	R	E	CS	ESA	01-2006	12-2008	F
MICROPACK	F. Araújo	T	N	NP	IDEIA	01-2006	05-2008	F
NEXTGENPCF	L. A. Ferreira	R	E	EP	6PQ	01-2006	05-2009	OG
OXIGÉNIO	J. L. Santos	R	N	NP	FCT	01-2006	06-2008	F
CEMICRO	Paulo Marques	T	N	NP	AdI	07-2006	07-2008	F
AMDRAPHYD	P. Jorge	R	N	NP	FCT	03-2007	02-2009	OG
OPTIC-ALGAE	J. M. Baptista	R	N	NP	FCT	06-2007	05-2010	OG
WELDING	O. Frazão	R	N	NP	FCT	07-2007	06-2009	OG
BIOPELVIC	L. A. Ferreira	R	N	NP	FCT	01-2008	12-2009	S
CostActions	J. L. Santos	O	E	EP	7PQ	01-2008	12-2009	S
ENDURANCE	F. Araújo	R	N	NP	FCT	01-2008	12-2010	S
EWOFS2010	J. L. Santos	O	I	CS		01-2008	12-2010	S
FiberSensing08	J. L. Santos	T	N	CS		01-2008	12-2008	F

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
FS-CAD	Ireneu Dias	C	N	CS	PS	01-2008	12-2008	F
GRICES	J. L. Santos	O	I	NP	FCT	01-2008	12-2009	S
IMOLDE	F. Araújo	T	N	CS	SIME INOV	01-2008	06-2008	F
MOTION	O. Frazão	R	N	NP	FCT	01-2008	11-2009	S
Nanocrystalline	M. J. Marques	R	N	NP	FCT	01-2008	12-2009	S
OREO2	P. V. Marques	R	N	NP	FCT	01-2008	12-2009	S
SENROS	P. Jorge	R	N	NP	FCT	01-2008	12-2010	S
SmartBio	O. Frazão	R	N	NP	FCT	01-2008	05-2010	S
Biomotion	M. Correia	R	N	NP	FCT	04-2008	03-2011	S
BIOSWIM	M. Correia	R	N	NP	FCT	04-2008	09-2010	S
Sschool	J. L. Santos	A	I	OS		06-2008	12-2008	F

(1) Type of Project: R – Research; D – Development; C – Consulting; A – Advanced Training; T – Technology Transfer; O - Other

(2) Degree of internationalization: N – National; E – European; I – International *(Select one)*

(3) Source of financing: NP – National Programmes; EP – European Programmes; CS – Consulting and services; O – Other R&D financing sources; OS – Other sources

(4) Status: S – Starting: activities initiated in 2008 and continuing in 2009; OG – On-going: activities started earlier than 2008 and continuing in 2009; F – Finished: activities ending in 2008.

Summary of publications

Summary of publications in 2008

Type of publication	Number
Theses concluded in 2008 by members of the unit	3
Books (author)	
Chapter/paper in books	1
Publications (editor)	1
Papers in International Journals with scientific referees	26
Papers in National Journals with scientific referees	
Conference Proceedings in events with scientific referee and selection	17
Other publications (National meetings, local journals, etc.)	58
Total	106

Summary of post-graduation activities

Summary of theses supervised by members of the unit in 2008

Type	Starting	On-going	Concluded	Total
Master			3	3
Doctoral	3	12		15
Total	3	12	3	18

Summary of Advanced Training Actions

Summary of Advanced Training Actions organized for external trainees in 2008

Type	Number
Training for graduation students *(estágios curriculares)*	2
Training for others *(estágios extra-curriculares)*	
Professional training actions *(estágios profissionais)*	2
Other actions	1
Total	5

Summary of activities of cooperation or dissemination

Summary of items

Type	Number
Organizing conferences or meetings	2
Collaboration in papers authored by INESC Porto researchers	51
External persons directly involved in actions organized by INESC Porto	30

Human resources in 2008

Summary of Unit personnel at the end of 2008

Type	Education				Total	Variation (*)
	PhD.	MSc.	BSc.	Other		
R&D						
University or Polytechnic Staff	14	1			15	0
INESC Porto Grant Holders		7	1		8	+3
Other Grant Holders		7		8	15	+8
Employees	5		4	1	10	0
Trainees		7			7	-3
Other	3				3	+2
Administrative				1	1	0
Total	22	22	5	10	59	+10

(*)   Relative to 2007, in absolute numbers.

R3.4 LIST OF PUBLICATIONS IN 2008

R3.4.1 Theses concluded by members of the unit

Carina Correia, High power guided optics for telecommunications and sensors applications, Univ. da Madeira

Carlos Gouveia, Biossensors, Univ. da Madeira

Carla Domingues, Optical Coherence Tomography, FCUP

R3.4.2 Books (Author)

Blank.

R3.4.3 Chapter/paper in Books

DIAS, I., OLIVEIRA, R., FRAZÃO, O., "Intelligent Optical Sensors Using Artificial Neural Network Approach", May 2008, Innovation in Manufacturing Networks, vol.266, p.289-294.

R3.4.4 Publications (Editor)

HUSSAIN, NANDYALA SOORAJ, Physics & chemistry of rare-earth ions doped glasses.

R3.4.5 International Journals with scientific referees

FRAZÃO, O., MARQUES, B., JORGE, P., BAPTISTA, J.M., SANTOS, J.L., "High birefringence D-type fiber loop mirror used as refractometer", SENSORS AND ACTUATORS B-CHEMICAL, December 2008, vol.135, no.1, p.108-111.

FRAZÃO, O., BAPTISTA, J.M., SANTOS, J.L., KOBELKE, J., SCHUSTER, K., "Strain and temperature characterisation of sensing head based on suspended-core fibre in Sagnac interferometer", ELECTRONICS LETTERS, December 2008, vol.44, no.25, p.1455-1456.

FRAZÃO, O., EGYPTO, D., BITTENCOURT, L., GIRALDI, M.T.M.R., MARQUES, M.J., "Temperature sensor using Hi-Bi erbium doped fiber loop mirror', Microwave and Optical Technology Letters,", Microwave and Optical Technology Letters , December 2008, vol.50, no.12, p.3152-3154.

FRAZÃO, O., SILVA, S.O., BAPTISTA, J.M., SANTOS, J.L., STATKIEWICZ-BARABACH, G., URBANCZYK, W., WOJCIK, J., "Simultaneous measurement of multi-parameters using a Sagnac interferometer with polarization maintaining side-hole fiber", APPLIED OPTICS , September 2008, vol.47, no.27, p.4841-4848.

REGO, G., "SIMULTANEOUS MEASUREMENT OF TEMPERATURE AND STRAIN BASED ON ARC-INDUCED LONG-PERIOD FIBER GRATINGS. A CASE STUDY", Microwave and Optical Technology Letters , September 2008, vol.50, no.9, p.2472-2474.

REGO, G., SANTOS, L.M.N.B.F., SCHRÖDER, B., "Estimation of the fibre temperature during an arc-discharge", Microwave and Optical Technology Letters, August 2008, vol.50, no.8, p.2020-2025.

SILVA, S.O., FRAZÃO, O., SANTOS, J.L., FERREIRA, L.A., ARAÚJO, F., "Interrogation of a Fibre Fabry-Pérot Interferometer using a pi-Shifted Bragg Grating", Measurement Science % Tecchnology, August 2008, vol.19, no.8, p.85302-85305.

REGO, G., "Long-Period Fiber Gratings Mechanically-Induced by Winding a String around a Fiber/Grooved Tube Set", Microwave and Optical Technology Letters, August 2008, vol.50, no.8, p.2064-2068.

FRAZÃO, O., EGIPTO, D., BITTENCOURT, L., GIRALDI, M., MARQUES, M.J., "Strain and Temperature Discrimination using High Birefringence Erbium Doped Fiber Loop Mirror with High Pump Power Laser", IEEE Photonics Technology Letters, June 2008, vol.20, no.12, p.1033-1035.

FRAZÃO, O., BAPTISTA, J.M., SANTOS, J.L., ROY, P., "Curvature sensor using a highly birefringent photonic crystal fiber with two asymmetric hole regions in a Sagnac interferometer", APPLIED OPTICS, May 2008, vol.47, no.13, p.2520-2523.

SILVA, S.O., FRAZÃO, O., SANTOS, J.L., ARAÚJO, F., FERREIRA, L.A., "Fibre Bragg Grating Structure in a Braid Twisted Configuration for Sensing Applications", Journal of Optics A: Pure and Applied Optics, May 2008, vol.10, no.5, p.531-534.

SILVA, S.O., FRAZÃO, O., CALDAS, P., SANTOS, J.L., ARAÚJO, F., FERREIRA, L.A., "Optical Fibre Refractometer based on a Fabry-Pérot Interferometer", Optical Engineering, May 2008, vol.47, no.5, p.1-5.

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R3.4.6 National Journals with scientific referees

Blank.

R3.4.7 Conference Proceedings with scientific referees

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R3.4.8 Other Publications

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LIMA, S.E., FRAZÃO, O., FERREIRA, L.A., ARAÚJO, F., SANTOS, J.L., "Sensor em fibra óptica para detecção acústica de descargas parciais em transformadores de potência", Física 2008 - 16ª Conferência Nacional de Física 2008, Costa da Caparica, Portugal.

GOUVEIA, C.A., SILVA, S.O., CASTANHEIRA, M., AGUILAR, G., JORGE, P., BAPTISTA, J.M., "Sensor interferometrico em fibra óptica para detecção de ácido acético", Física 2008 - 16ª Conferência Nacional de Física 2008, Costa da Caparica, Portugal.

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REGO, G., CALDAS, P., SALGADO, H., SANTOS, J.L., "Simultaneous measurement of temperature e strain. A case study", Física 2008 - 16ª Conferência Nacional de Física 2008, Costa da Caparica, Portugal.

MAGALHÃES, F., CARVALHO, J., FERREIRA, L.A., ARAÚJO, F., SANTOS, J.L., "Sistema de Detecção de Metano baseado em Espectroscopia por Modulação de Comprimento de Onda e em Fibras Ópticas Microestruturadas de Núcleo Oco", JETC08 - JETC08 - Jornadas de Engenharia de Electrónica e Telecomunicações e de Computadores 2008, Lisboa, Portugal.

VIEGAS, J., MAYEH, M., MARQUES, P., SANTOS, J.L., FARAHI, F., "Sloted multimode interference device for chemical e biochemical sensing", Física 2008 - 16ª Conferência Nacional de Física 2008, Costa da Caparica, Portugal.

HUSSAIN, N., JORGE, P., AGUILAR, G., FRAZÃO, O., SANTOS, J.L., "Synthesis e Optical Properties of Laser Glass doped with Nd3+ ion", Física 2008 - 16ª Conferência Nacional de Física 2008, Costa da Caparica, Portugal.

CALDAS, P., REGO, G., IVANOV, O., SANTOS, J.L., "Temperature-insensitive bending measurement using a single grating", Física 2008 - 16ª Conferência Nacional de Física 2008, Costa da Caparica, Portugal.

R3.5 LIST OF JOURNALS

Journal	Number of papers
Analytica Chimica Acta 2008	2
Applied Optics	2
Electronics Letters	1
IEEE Photonics Technology Letters	1
IEEE Sensors Journal	1
Journal of Optical Society of America A	1
Journal of Optics A: Pure and Applied Optics	1
Lasers & Photonics Review 2008	1
Measurement Science % Technology	2
Microwave and Optical Technology Letters	8
Optical Engineering	2
Optics Communications	2
Photonics Technology Letters	1
Sensors and Actuators B-Chemical	1
TOTAL	26

R3.6 LIST OF PATENTS

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R3.7 LIST OF PROTOTYPES

Name: High resolution interferometric imaging system for thin film monitoring in the plastic bottle manufacturing process

Developed under (Project Name): N/A

Demo Place: INESC Porto

Development Period: 1/1/2008 to 31/12/2008

R3.8 LIST OF THESES SUPERVISED BY MEMBERS OF THE UNIT DURING 2008

PhD Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Askari Ghasempor Khordoni	FCUP	Paulo Garcia / José Luís Santos	INESC Porto/FCUP	Guided Optics for Astronomic Interferometry	2009
Daniel Alexandre	FCUP	Paulo Marques	INESC Porto/FCUP	Fabrication of integrated optics devices by laser direct writing	2009
Dionísio Pereira	FCUP	Manuel J. Marques	INESC Porto/FCUP	Optical fiber technologies	2009
Jaime Ribeiro Viegas	FCUP	Paulo Marques / José Luís Santos	INESC Porto/FCUP	Integrated optics	2009
Michael Leitner	FCUP	Carla Rosa	INESC Porto/FCUP	Optical coherence tomography	2009

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Orlando Frazão	FCUP	José Luís Santos	INESC Porto/FCUP	Optical fiber sensors	2009
Sanderson Emanuel Uchôa de Lima	FCUP	José Luís Santos Vladimiro Miranda	INESC Porto/FCUP INESC Porto/FEUP	Optical fiber sensors	2009
Cesar Maule	FCUP	Pedro Jorge / Carla Rosa	INESC Porto/FCUP	Fluorescence for Optical Sensing	2010
Diana Viegas	FCUP	Francisco Araújo / José Luís Santos	INESC Porto/FCUP	Microoptics	2010
Joel Carvalho	FCUP	José Luís Santos / José Manuel Baptista	INESC Porto/FCUP	Photonic crystal fibers	2010
Paulo Caldas	FCUP	José Luís Santos / Gaspar Rego	INESC Porto/FCUP	Optical structures for environmental applications	2010
Yonny Barcelay	FCUP	Javier de La Cruz	INESC Porto	Magneto-electric thin films	2010
Filipe Magalhães	FEUP	Miguel Correia	INESC Porto/FCUP	Image processing	2011
Luís André Neves Paiva Fernandes	FCUP	Paulo Marques	INESC Porto/FCUP	Integrated optics	2011
Raquel Barbosa Queirós	FCUP	Gerardo Aguilar	INESC Porto	Chemical detection of bacteria in water	2011
1	2	3	4	5	6

1 – Name of the post-graduation student
2 – Institution where the thesis is submitted; if the host institution for the student is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

MSc Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Carina Correia	Univ. da Madeira	José Manuel Baptista	INESC Porto/Univ. da Madeira	High power guided optics for telecommunications and sensors applications	2008
Carla Domingues	FCUP	Carla Rosa	INESC Porto/FCUP	Optical coherence tomography	2008
Carlos Gouveia	Univ. da Madeira	José Manuel Baptista	INESC Porto/Univ. da Madeira	Biossensors	2008
1	2	3	4	5	6

1 – Name of the post-graduation student
2 – Institution holding the course where this student in enrolled in; if the host institution is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

R3.9 ORGANISATION OF INTERNATIONAL SCIENTIFIC EVENTS

SEON2008 (José Luís Santos, Ariel Guerreiro, Paulo Marques, Manuel Joaquim Marques, Orlando Frazão, Ireneu Dias)

International Symposium for Micromanufacturing and Nanomaterials (Paulo Marques, Ireneu Dias)

R3.10 ADVANCED TRAINING

Training Course in Optical Fibre Technology and Applications

R3.11 OTHER CONTRIBUTIONS TO THE OBJECTIVES OF ASSOCIATE LABORATORY

UNIT: UOSE – OPTOELECTRONICS AND ELECTRONICS SYSTEMS	Thematic Line
Hiring of 3 PhD researchers to the areas of optical fiber sensors and microfabrication that will increase the capacity of tutoring pre and post-graduate students in the framework of R&D and TT projects Increase of multidisciplinarity of competences in optical fiber sensors for biological and environmental applications	Fiber Optic Devices and Networks for Multi-Parameter Sensing

R3.12 ANALYSIS AND ASSESSMENT OF DEVIATIONS RELATIVE TO FORMER PLANNING

R3.12.1 Comparison with strategic actions or policy lines defined in the plan of the previous year

The policy line of increasing the integration and development of PhDs in the context of the Associated Laboratory framework was fulfilled and is continuing as it is part of a pluriannual, long-term effort.

The assessment of medium/long term R&D new opportunities: negative refractive index materials; sensor networks; photovoltaic materials, was made with different degrees of depth and success. The internal project concerning photovoltaic cells based on thin films, technical feasibility evaluation, search of industrial partners and venture capital funding, was carried out and the new funding opportunities provided by QREN will take it off ground.

Despite to the fact that the Associated Laboratory status renewal process was postponed to 2008, the Unit carried out a thoughtful analysis of its performance during the contract partly in the form of a SWOT analysis. This self evaluation process will enable the preparation of a proposal of a plan for the next period.

New opportunities in technology transfer were strongly searched for with possibilities of implementation during the next year in the areas of sensing systems for the water sector, public supply and aquaculture, as well as high resolution interferometric imaging in industrial quality control systems. This last area was successful in getting approved a technology transfer project within QREN framework.

R3.12.2 Cases of success, problems met, internal and external conditioning factors

The researcher's motivation and technological infrastructure capabilities are important assets and positive conditioning factors. The level of international networking already achieved gives the Unit a visibility that has proved to be a very positive factor in getting into relevant European consortia.

Concerning problems, the expensive running costs of a technological infrastructure is the most relevant. Secondly the splitting of activities between two locations (FCUP, FEUP), necessary for the motivation of students to engage in these activities, creates the need of replication of some equipment that single place localization will enable to profit from.

The low level of private R&D investment continues to inhibit further technology transfer projects.

The most important external factor that may have a positive or negative, yet to know, influence in the development of Unit's activity is the restructuring of Porto University R&D environment.

A very promising factor is the on-going MSc degree in Physics Engineering that may help to recruit students with the right profile and capacities to engage in R&D work.

The new national and European funding opportunities, QREN and FP7, are believed to enable a sustainable growth in this burgeoning area.

R4. UNIT: USE – POWER SYSTEMS

R4.1 SHORT DESCRIPTION OF THE UNIT

The Power Systems Unit focuses its activity in some of the key (emerging) areas of the electric sector: regulatory issues and electricity markets, integration of distributed generation (namely wind power and other renewable energy sources) and electric vehicles, technical and economic management of distribution systems, use of GIS and other IT in regional energy planning, microgeneration and microgrids. Most of these activities are understood in the framework of the Smart Grids paradigm. The Unit develops research in different topics and integrates the results in models that address high level problems in a way suitable for technology transfer to utilities, system operators, industrial companies and regulators.

The researchers develop existing know-how in techniques and methodologies like Artificial Neural Networks, Fuzzy Sets, Machine Learning techniques, Evolutionary Programming, Meta-Heuristics, Negotiation and Decision-aid methodologies etc., inside and outside formal projects and contracts. At the same time, MSc and PhD level training remain a major objective, in order to create internal excellence in the salient research areas and to provide the industry with highly qualified professionals, capable of dealing with the challenges of new electricity sector organization. Finally, consulting activities allow the unit to promote the use of modern and efficient methodologies to manage power systems, thus contributing to the dissemination of research and development results, namely in the areas of renewable energy sources and integration of distributed generation.

Table of correspondence between know-how and the Industrial Sectors

Know-how	Status (*)	Network Management Systems	GIS Energy Planning	Electricity Markets and Regulation	Wind Power integration	Microgrids and V2G	Advanced Training
Static and dynamic network analysis	I	X		X	X	X	X
Soft computing	I	X	X				X
Optimization and decision	I+O	X	X	X	X		X
Forecasting	I		X				X
Electric energy systems	I	X		X	X	X	
GIS	I+O		X				X
Programming	I	X	X				
Internet and Web	I		X	X			

(*)   I – Internal; O – Existing in another Unit of INESC Porto; E – External; C – To be created

Coverage of the Innovation Process

Activity Area	Research	Development	Consulting	Training	Marketing and Support	Evolutionary Maintenance	Use
Network Management Systems	USE	USE		USE	EFACEC	USE EFACEC	Utilities
GIS Energy Planning	USE	USE		USE	(USE)	(USE)	Energy Agencies, Planners
Electricity Markets and Regulation	USE		USE	USE			ERSE, DGGE, Utilities

Activity Area	Research	Development	Consulting	Training	Marketing and Support	Evolutionary Maintenance	Use
Wind Power integration	USE		USE	USE			DGGE, REN, EDP, Promoters
Microgrids and V2G	USE	USE		USE	(USE)	(USE)	EDP, Manufacturers
Advanced Training				USE			REN, EDP, International market

Description of the Unit's Organizational Structure

The Unit organizes its activity in projects, under the direct supervision of the unit's leaders. It is possible to cluster the activities in the following areas (this definition is informal and would only be formalized if appropriate).

- *Development of advanced modules for DMS and EMS* – the Unit has been committed to working in this area in the last decade, namely in a successful partnership with EFACEC, but also in European projects. Software development has been a drive to new research.

- *Wind power and DG integration* – besides the analysis of the local and global impact of DG integration, this area covers research on wind power forecasting, ancillary services provision, virtual power plants and other emerging topics.

- *Micro-generation, micro-grids and electric vehicles integration* – this is an emerging and fast growing area, where the Unit has a leading role, in the framework of the Smart Grids concept. Related topics like smart metering are also included here.

- *Electricity Markets, Regulation and System Operation* – area that covers the support of public entities like ERSE, DGGE and similar entities in the Autonomous Regions of Portugal, but also research on models and methodologies for the different agents of the electric sector, in particular the TSO and DSO.

- *Advanced Training* – horizontal area where the Unit and its members are recognized at an international level (EES-UETP consortium, tutorials in conferences, TEMPUS projects, training projects in Latin America).

R4.2 ACTIVITIES DEVELOPED IN 2008

R4.2.1 National programmes
In 2008, projects EPSO and MILES (FCT funded) were concluded. Significant scientific results and training of young researchers were achieved in both projects. The most relevant results were published in international journals.

PLASM, also a FCT funded project, continued, with the preparatory research towards its aim of designing electricity markets simulation frameworks.

R4.2.2 European programmes
In 2008, the project ANEMOS.PLUS, dedicated to the development of Advanced Tools for the Management of Electricity Grids with Large Scale Wind Generation, continued.

The project MORE MICROGRIDS also continued. This project aims at increasing the penetration of Microgeneration in electrical networks through the exploitation and extension of the Microgrids concept, involving the investigation of alternative micro generator control strategies and alternative

network designs, development of new tools for multimicrogrids management operation (involving Distribution Management Systems architectures and new software adaptation) and standardization of technical and commercial protocols.

Two others projects, SECEEN and JADES (both in the framework of the TEMPUS programme), also continued. JADES aims at enhancing the research capabilities in the area of sustainable energy systems and SECEEN will help in the development of joint continuing education curricula and coordinated continuing education organizational structure. Both projects support countries of the South East Europe.

R4.2.3 Other programmes, consulting, services
The main consulting and development activities in 2008 were the following:

- Development of new modules for the DMS/EMS system of EFACEC, in the framework of a sustained partnership of more than ten years.

- The support to ONS (National System Operator of Brazil) regarding the effects of wind power integration in the transmission network and definition of technical conditions for wind generator connection to the grid, was concluded.

- Phase I of the project TSO-Reservas, contracted with the Iberian TSO (REN and REE), dedicated to the evaluation of the security of supply in the long term for the Iberian Peninsula and operational reserve planning until 2025, concluded. Phase II will be mainly a development contract, to end in 2009.

- The project PrevEol, contracted with APREN (Portuguese Association of the Renewable Generation), in collaboration with INEGI, CESA and FCUL, had its second phase, where the operational development of the advanced tool for wind power forecasting for the next 72 h, previously developed, was undertaken.

- Support to RAVE (High Speed Train Infrastructure Company) regarding network reinforcements to support the new high speed railroad development.

- Project REN-Recep, contracted with REN (Portuguese TSO) to estimate limits for the acceptance of new generation in the system nodes, continued.

- INOVGRID, a project contracted with EDP Distribution, continued. The project deals with intelligent metering, microgrid development support and responsive load management, in the framework of the European concept of Smart Grids.

- Support to the Hungarian Electricity Regulator, through the project HEO-WIND, in the definition of acceptable levels for wind integration in Hungary.

- The project contracted with ENERCON to define control parameters of wind generators for new wind parks continued.

- A new project contracted with ENEOP2 was launched. The objective of the project is the development of a methodology for loss allocation in a common grid connection infrastructure of multiple wind farms.

R4.3 SUMMARY OF RESULTS OF THE RESEARCH ACTIVITIES OF THE TEAM MEMBERS

Projects

Summary of projects developed in 2008

Type of Activity (1)	No. Projects (2)			Total Income (€)
	N	E	I	
R - Research	3	4		207.900
D - Development	3			163.500
C - Consulting	7	1	2	432.100
A – Advanced training			1	26.122
T – Technology Transfer				
O - Other	1		1	310.000
TOTAL	14	5	4	1.139.622

Summary of relative distribution of sources of income

Financing (3)	Status (4)			Total Income (€)
	S - Started	OG– On-going	C - Concluded	
NP – National Programmes		2,63%	2,84%	62.400
EP – European Programmes		12,77%		145.500
CS – Consulting and Services	6,54%	38,86%	6,86%	595.600
O – Other R&D sources				
OS – Other Sources		1,40%	28,09%	336.122
Total	6,54%	55,67%	37,80%	1.139.622

Summary of projects developed in 2008

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
EFACEC	J. Pereira	D	N	CS	-	04-2001	-	OG
EDA_Desp	J. P. Lopes	C	N	CS	-	2004	2008	F
ONS	J. P. Lopes	C	I	CS	-	05-2005	04-2008	F
EPSO	V. Miranda	R	N	NP	FCT	07-2005	04-2008	F
MILES	J. Pereira	R	N	NP	FCT	07-2005	11-2008	F
TSO-Reservas	M. Matos	C	E	CS	-	09-2006	09-2009	OG
More-MGrids	J. P. Lopes	R	E	EP	NNE	2006	12-2009	OG
PrevEol	C. Monteiro	D	N	CS	-	2006	2009	OG
JADES	V. Miranda	R	E	EP	TEMPUS	09-2007	08-2009	OG
SECEEN	V. Miranda	R	E	EP	TEMPUS	09-2007	08-2009	OG
Anemos Plus	J. P. Lopes	R	E	EP	TREN	2007	06-2011	OG
Coord. EES-UETP	J. P. Lopes	O	I	OS	-	2007	2009	OG
ENERCON	J. P. Lopes	C	N	CS	-	2007	2009	OG
HEO-wind	J. P. Lopes	C	I	CS	-	2007	2008	F

Name of the	Respons.	Type	Degree of	Financ.		Starting	Conclusion	Status
InovGrid	J. P. Lopes	C	N	CS	-	2007	2009	OG
PLASM	V. Miranda	R	N	NP	FCT	2007	10-2010	OG
RAVE	J. P. Lopes	C	N	CS	-	2007	2009	OG
REN-Recep	J. P. Lopes	C	N	CS	-	2007	2009	OG
Carcons	M. Matos	D	N	CS	-	06-2008	07-2009	S
CONSULTORIA	J. P. Lopes	C	N	CS	-	2008	2008	F
EES-UETP	J. P. Lopes	A	I	OS	-	2008	2008	F
Eneop2	J. P. Lopes	C	N	CS	-	2008	2009	S
ENERGIA	M. Matos	O	N	OS	-	2008	2008	F

(1) Type of Project: R – Research; D – Development; C – Consulting; A – Advanced Training; T – Technology Transfer; O - Other

(2) Degree of internationalization: N – National; E – European; I – International *(Select one)*

(3) Source of financing: NP – National Programmes; EP – European Programmes; CS – Consulting and services; O – Other R&D financing sources; OS – Other sources

(4) Status: S – Starting: activities initiated in 2008 and continuing in 2009; OG – On-going: activities started earlier than 2008 and continuing in 2009; F – Finished: activities ending in 2008.

Summary of publications

Summary of publications in 2008

Type of publication	Number
Theses concluded in 2008 by members of the unit	9
Books (author)	
Chapter/paper in books	5
Publications (editor)	
Papers in International Journals with scientific referees	11
Papers in National Journals with scientific referees	
Conference Proceedings in events with scientific referee and selection	38
Other publications (National meetings, local journals, etc.)	
Total	63

Summary of post-graduation activities

Summary of theses supervised by members of the unit in 2008

Type	Starting	On-going	Concluded	Total
Master		6	65	71
Doctoral	12	6	6	24
Total	12	12	71	95

Summary of advanced training actions

Summary of Advanced Training Actions organized for external trainees in 2008

Type	Number
Training for graduation students *(estágios curriculares)*	2
Training for others *(estágios extra-curriculares)*	3
Professional training actions *(estágios profissionais)*	1
Other actions	
Total	6

Summary of activities of cooperation or dissemination

Summary of items

Type	Number
Organizing conferences or meetings	2
Collaboration in papers authored by INESC Porto researchers	46
External persons directly involved in actions organized by INESC Porto	

Human resources in 2008

Summary of Unit personnel at the end of 2007

Type	Education				Total	Variation (*)
	PhD.	MSc.	BSc.	Other		
R&D						
University or Polytechnic Staff	12	3			15	+2
INESC Porto Grant Holders		2	4		6	0
Other Grant Holders		3	6	2	11	0
Employees		1		1	2	0
Trainees				1	1	-2
Other	2	1			3	-1
Administrative				1	1	0
Total	14	10	10	5	39	-1

(*)   Relative to 2007, in absolute numbers.

R4.4 LIST OF PUBLICATIONS IN 2008

R4.4.1 Theses concluded by members of the unit

MARQUES, P., "Dynamic security assessment in interconnected power systems with large scale integration of wind generation", PhD Thesis, Faculdade de Engenharia da Universidade do Porto, December, 2008.

MOREIRA, C., "Identifying and Developing Emergency Procedures for the Operation of Micro-Generators in Isolated Grids and Participation in Black-Start Strategies", PhD Thesis, Faculdade de Engenharia da Universidade do Porto, November, 2008.

MENDONÇA, Â., "Development of Robust Control Systems for Stabilizing Power Oscillations in Systems with Large Scale Wind Power Integration", PhD Thesis, Faculdade de Engenharia da Universidade do Porto, September, 2008.

BESSA, R., "Wind Power Forecasting Based on Information Entropy-Related Concepts and Data Stream Techniques", Faculdade de Economia da Universidade do Porto, July, 2008.

CARVALHO, L., "Using Evolutionary Swarms (EPSO) in Power System Reliability Indices Calculation", Faculdade de Engenharia da Universidade do Porto, July 2008.

COSTA, L., "Application of Evolutionary Swarms and Autoencoders to Wind-Hydro Coordination", Faculdade de Engenharia da Universidade do Porto, July 2008.

GUIMARÃES, M., "Using Evolutionary Swarms (EPSO) in Power System Reliability Indices Calculation", Faculdade de Engenharia da Universidade do Porto, July, 2008.

DE OLIVEIRA JESUS, P., "Remuneration of Distributed Generation - A Holistic Approach", PhD Thesis, Faculdade de Engenharia da Universidade do Porto, May, 2008.

SOUSA, J., "Power Forecast in Wind Farms", MSc Thesis, Faculdade de Engenharia da Universidade do Porto, May, 2008.

R4.4.2 Books (Author)

Blank.

R4.4.3 Chapter/paper in Books

DIMITROVSKI, A., MATOS, M., "Fuzzy present worth analysis with correlated and uncorrelated cash flows", in Fuzzy Engineering Economics with Applications, C. Kahraman (Ed.), Studies in Fuzziness and Soft Computing 233, pp. 11-41, Springer, ISBN 978-3-540-70809-4, 2008.

MATOS, M., DIMITROVSKI, A. "Case studies using fuzzy equivalent annual worth analysis", in Fuzzy Engineering Economics with Applications, C. Kahraman (Ed.), Studies in Fuzziness and Soft Computing 233, pp. 83-95, Springer, ISBN 978-3-540-70809-4, 2008.

MIRANDA, V., LEE, ED. KWANG Y., EL-SHARKAWI, M. A., "Fundamentals of Evolution Strategies and Evolutionary Programming", Ch. 3 in "Modern Heuristic Optimization Techniques – Theory and application to Power Systems", IEEE Press/Wiley, ISBN 978-0471-45711-4, 2008.

MIRANDA, V., LEE, LEE, ED. KWANG Y., EL-SHARKAWI, M. A., "Hybrid Systems", Ch. 19 in "Modern Heuristic Optimization Techniques – Theory and application to Power Systems", IEEE Press/Wiley, ISBN 978-0471-45711-4, 2008.

MIRANDA, V., LEE, LEE, ED. KWANG Y., EL-SHARKAWI, M. A., ET AL., "Applications to System Planning", Ch. 14 in "Modern Heuristic Optimization Techniques – Theory and application to Power Systems", IEEE Press/Wiley, ISBN 978-0471-45711-4, 2008.

R4.4.4 Publications (Editor)

Blank.

R4.4.5 International Journals with scientific referees

COSTA, P. M., MATOS, M. A., PEÇAS LOPES, J. A., "Regulation of microgeneration and microgrids", Energy Policy, vol.36, no.10, p.3893-3904, October 2008.

DE OLIVEIRA-DE JESUS, P. M., CASTRONUOVO, E. D., DE LEÃO, M. T. P., "Reactive power response of wind generators under an incremental network-loss allocation approach" IEEE Transactions on Energy Conversion, 23 (2), pp. 612-621, June, 2008.

GOMES, M. H., SARAIVA, J. T., "An active reactive bid-based market model using fuzzy sets", International Journal on Engineering Intelligent Systems, vol.16, no.2, p.121-131, June 2008.

YUSTA, J. M., DE OLIVEIRA-DE JESUS, P. M., KHODR, H. M., "Optimal energy exchange of an industrial cogeneration in a day-ahead electricity market" Electric Power Systems Research, 78 (10), pp. 1764-1772, May, 2008.

BROWN, P., PEÇAS LOPES, J. A., MATOS, M. A., "Optimization of Pumped Storage Capacity in an Isolated Power System With Large Renewable Penetration", IEEE Transactions on Power Systems, vol.23, no.2, pp.523-531, May, 2008.

LEITE DA SILVA, A., DE RESENDE, L. C., DA FONSECA MANSO, L. A., MIRANDA, V., "Well-being analysis for composite generation and transmission systems based on pattern recognition techniques", Generation, Transmission & Distribution, IET Volume 2, Issue 2, pp.202 - 208, March, 2008.

VIANA, A., DE SOUSA, J.P., MATOS, M. A., "Fast solutions for UC problems by a new metaheuristic approach "Electric Power Systems Research, 78 (8), pp. 1385-1395, March, 2008.

ESTANQUEIRO, A., CASTRO, R., FLORES, P., RICARDO, J., PINTO, M., RODRIGUES, R., PEÇAS LOPES, J. A., "How to Prepare a Power System for 15% Wind Energy Penetration: the Portuguese Case Study", Wind Energy, vol.11, no.1, pp.75-84, February, 2008.

MATOS, M. A., GOUVEIA, E., "The fuzzy power flow revisited", IEEE Transactions on Power Systems, vol.23, no.1, pp.213-218, February, 2008.

MIRANDA, M., KEKO,H., JARAMILLO JUNIOR, A., "Stochastic Star Communication Topology in Evolutionary Particle Swarms (EPSO)", International Journal of Computational Intelligence Research, vol.4, no.2, 2008.

PEREIRA, J., VIANA, A., LUCUS, B. G., MATOS, M. A., "A meta-heuristic approach to the unit commitment problem under network constraints", International Journal of Energy Sector Management, vol.2, no.3, pp.449-467, 2008.

R4.4.6 National Journals with scientific referees

Blank.

R4.4.7 Conference Proceedings with scientific referees

MONTEIRO, R., FERREIRA, C. M., MACIEL BARBOSA, F., "Electric power system's dynamic voltage stability improvement through a thyristor controlled series compensation strategy", the 2nd IEEE International Power & Energy Conference, PENCON, Johor Bahru, Malaysia, December 2008.

GOMES, B.A., SARAIVA, J. T., NEVES, L., "Fuzzy Modeling of Load and Cost Uncertainties and their Impact on Power Systems Operation", MedPower2008 - 6th Mediterranean Conference and Exhibition on Power Generation, Salonika, Greece, November, 2008.

MATOS, M. A., FIDALGO, N., RIBEIRO, L., "Building and Using Load Profiles in Energy Market Operation", MedPower2008 - 6th Mediterranean Conference and Exhibition on Power Generation, Salonika, Greece, November, 2008.

SOARES, R., CASTRO, A., OLIVEIRA, R., MIRANDA, V., "Error Entropy and Mean Square Error Minimization Algorithms for Neural Identification of Supercritical Extraction Process", SBRN'08, 10th Brazilian Symposium on Neural Networks, pp.75-80, October, 2008.

FONSECA, I., FARINHA, J. M. T., MACIEL BARBOSA, F., "A Maintenance Software System for Healthcare Facilities", the 20th International Federation of Hospital Engineering (IFHE) International Congress, Barcelona, Spain, October 2008.

ALMEIDA, J., MACIEL BARBOSA, F., "Analysis of the wind power output of a Portuguese wind farm", 43rd International Universities Power Engineering Conference – UPEC 2008, Padua University, Padua, Italy, September 2008.

BRANDÃO, R. M., CARVALHO, J. B., MACIEL BARBOSA, F., "Fault Detection on Wind Generators", 43rd International Universities Power Engineering Conference – UPEC 2008, Padua University, Padua, Italy, September 2008.

FAUSTINO AGREIRA, C. I., ALMEIDA, S., PESTANA, R., FERREIRA, C. M., MACIEL BARBOSA, F., "Portuguese transmission system contingencies analysis using the rough set theory", 43rd International Universities Power Engineering Conference – UPEC 2008, Padua University, Padua, Italy, September 2008.

PEREIRA, R. M. M., PEREIRA, A. J. C., FERREIRA, C. M., e MACIEL BARBOSA, F., "Dynamic voltage stability assessment of an electric power network using composite load models", 43rd International Universities Power Engineering Conference – UPEC 2008, Padua University, Padua, Italy, September 2008.

VALDEZ, M. T., FAUSTINO AGREIRA, C. I., FERREIRA, C. M., MACIEL BARBOSA, F., "Electrical Power System Security analysis using problem-based learning", 43rd International Universities Power Engineering Conference – UPEC 2008, Padua University, Padua, Italy, September 2008.

BESSA, R. J., MIRANDA, V., GAMA, J., "Improvement in Wind Power Forecasting Based on Information Entropy-Related Concepts", IEEE 2008 PES GM - IEEE Power & Energy Society 2008 General Meeting, Pittsburgh, Pennsylvania, USA, July, 2008.

BURKLEY, C., HOFFMANN, M., PARQUET, D., MACIEL BARBOSA, F., "Accreditation processes in Electronic and Information Engineering", SEFI 36th Annual Conference, Aalborg, Denmark, July, 2008.

GIL, N., PEÇAS LOPES, J. A., "Exploiting Automated Demand Response, Generation and Storage Capabilities for Hierarchical Frequency Control in Islanded Multi-Microgrids", Proceedings of PSCC2008 - 16th Power Systems Computation Conference, Glasgow, Scotland, July, 2008.

DE OLIVEIRA-DE JESUS, P. M., DE LEÃO, M. T. P., "Fuzzy Incremental Transmission Loss Pricing", Proceedings of PSCC2008 - 16th Power Systems Computation Conference, Glasgow, Scotland, July, 2008.

FARINHA, J. M. T., FONSECA, I., SIMÕES, A., VIEGAS, J., MACIEL BARBOSA, F., "New approaches on predictive maintenance based on an environmental perspective: The cases of wind generators and diesel engines", The 12th WSEAS International Conference on SYSTEMS, Heraklion, Crete Island, Greece, July, 2008.

FONSECA, I., FARINHA, J. M. T., MACIEL BARBOSA, F., "A computer system for predictive maintenance of wind generators", The 12th WSEAS International Conference on COMPUTERS, Heraklion, Crete Island, Greece, July, 2008.

GOMES, M., SARAIVA, J. T., "Active/reactive Market Model Based on Adjustment Bids and Integrating Capacitor Banks and Transformer Taps", Proceedings of PSCC2008 - 16th Power Systems Computation Conference, Glasgow, Scotland, July, 2008.

HILBER, P., MIRANDA, V., MATOS, M. A., BERTLING, L., "Multiobjective optimization applied to maintenance policy for electrical networks" Power and Energy Society General Meeting - Conversion and Delivery of Electrical Energy in the 21st Century, 2008 IEEE pp.1 - 1, 20-24 July, 2008.

MATOS, M. A., PEÇAS LOPES, J. A., DA ROSA, M., FERREIRA, R., "Probabilistic Evaluation Of Reserve Requirements Of Generating Systems With Renewable Power Sources: the Portuguese and Spanish Cases", Proceedings of PSCC2008 - 16th Power Systems Computation Conference, Glasgow, Scotland, July, 2008.

PAPADOURAKIS, G., BURKLEY, C., HOFFMANN, M., PARQUET, D., TSIRIOTIS, G., KIRIAKIDES I., MACIEL BARBOSA, F., "Clustering Analysis on Questionnaire Data for Program Accreditation", 9th EAEEIE Annual Conference, Tallinn, Estonia, June/July 2008.

VALDEZ, M. T., TAVARES, P. F., FAUSTINO AGREIRA, C. I., FERREIRA, C. M., MACIEL BARBOSA, F., "A Practical Approach to Circuit Theory Course in an Electric Engineering Programme", 9th EAEEIE Annual Conference, Tallinn, Estonia, June /July, 2008.

FARINHA, J. M. T., FONSECA, I., MACIEL BARBOSA, F., "New approaches on predictive maintenance based on a renewable perspective for wind generators", the 4th IASME/WSEAS International Conference on Energy, Environment, Ecosystems And Sustainable Development (EEESD'08), Algarve, Portugal, June, 2008.

BESSA, R. J., MIRANDA, V., GAMA, J., "Wind Power Forecasting using streaming techniques", ISF2008 - International Symposium on Forecasting, Nice, France, June, 2008.

CORREIA PEREIRA, A., SARAIVA, J. T., "Probabilistic Power Generation Expansion Planning in a Competitive Electricity Market", Proceedings of PMAPS'2008 - 10th International Conference on Probabilistic Methods Applied to Power Systems, Rincon, Puerto Rico, May 2008.

BESSA, R. J., MIRANDA, V., GAMA, J., "Wind Power Forecasting With Entropy-Based Criteria Algorithms", Proceedings of PMAPS'2008 - 10th International Conference on Probabilistic Methods Applied to Power Systems, Rincon, Puerto Rico, May, 2008.

FAUSTINO AGREIRA, C. I., FERREIRA, C. M., MACIEL BARBOSA, F., "Electric Power System Multiple Contingencies Analysis Using the Rough Set Theory", 10th International Conference on Probabilistic Methods Applied to Power Systems, PMAPS 2008, Rincon, Porto Rico, May, 2008.

GOMES, B. A., SARAIVA, J. T., NEVES, L., "Modelling Costs and Load Uncertainties in Optimal Power Flow Studies", Proceedings of the IEEE 5th International Conference on the European Electricity Market, Lisbon, Portugal, May, 2008.

LEITE DA SILVA, A. M., RESENDE, L. C., MANSO, L. A. F., MIRANDA, V., "Artificial Neural Networks Applied to Reliability and Well-being Assessment of Composite Power Systems", Proceedings of PMAPS'2008 - 10th International Conference on Probabilistic Methods Applied to Power Systems, Rincon, Puerto Rico, May, 2008.

PEREIRA, A. C., SARAIVA, J. T., "Probabilistic Power Generation Expansion Planning in a Competitive Electricity Market", Proceedings of the 10th International Conference on Probabilistic Methods Applied do Power Systems, PMAPS, Porto Rico, May, 2008.

RESENDE, L. C., LEITE DA SILVA, A., MANSO, L. A. F., MIRANDA, V., "Avaliação da Confiabilidade Composta Baseada em Simulação Monte Carlo e Redes Neurais Artificiais", Proceedings of SBSE 2008 – Simpósio Brasileiro de Sistemas Eléctricos 2008, Belo Horizonte (MG), Brasil, April, 2008.

VALDEZ, M. T., FAUSTINO AGREIRA, C. I., FERREIRA, C. M., MACIEL BARBOSA, F., "A Practical Approach to Lighting Design Course in an Electrical Engineering Programme", 3rd International Conference on Interactive Mobile and Computer Learning, IMCL2008 Conference, Amman, Jordan, April, 2008.

MIRANDA, V., "Controlo de tensão e reactiva com inteligência computacional: controlo difuso e enxames evolucionários" [Voltage/VAR control with computational intelligence: fuzzy control and evolutionary swarms], Proceedings of SBSE 2008 – Simpósio Brasileiro de Sistemas Eléctricos 2008, Belo Horizonte (MG), Brasil, April, 2008.

VALDEZ, M. T., AGREIRA, C. F., FERREIRA, C. M., BARBOSA, F. M., "A B-Learning Approach in an electrical circuit theory course using a web-based educational tool" INTERTECH 2008 - X International Conference on Engineering and Technology Education, March , 2008.

FAUSTINO AGREIRA, C. I., FERREIRA, C. M., MACIEL BARBOSA, F., "Transient Stability Preventive Control of an Electric Power System Using a Hybrid Method", the 12th International Middle Easter Power Systems Conference, MEPCON 2008, Aswan, Egypt, March, 2008.

MACIEL BARBOSA, F., "Energy Systems – a critical national infrastructure", Today and Projections for the Future, Scientific Colloquium: Decision making principles in building of electric power sources, Sarajevo, Bosnia & Herzevinia, March, 2008.

CORREIA PEREIRA, A., SARAIVA, J. T., "Modeling Long-term Uncertainties in Generation Investment Projects in Competitive Electricity Markets", MedPower2008 - 6th Mediterranean Conference and Exhibition on Power Generation, Salonika, Greece, 2008.

COSTA, P. M. A., MATOS, M. A., "Impact of a High Penetration of Microgeneration and µGrids in the Security of Supply", MedPower2008 - 6th Mediterranean Conference and Exhibition on Power Generation, Salonika, Greece, 2008.

LOPES, P., MATOS, M., CABRAL, P., FERREIRA, M., MARTINS, N., ARTAIZ, C., SOTO, F., LOPEZ, R., DA ROSA, M., FERREIRA, R., LEITE DA SILVA, A., SALES, W., RESENDE, L. C., MANSO, L., "Dealing with intermittent generation in the long-term evaluation of system adequacy and operational reserve requirements in the Iberian Peninsula", Proceedings CIGRE 2008, Paris, France, 2008.

R4.4.8 Other Publications

Blank.

R4.5 LIST OF JOURNALS

Journal	Number of papers
Electric Power Systems Research	2
Energy Policy	1
Generation, Transmission & Distribution	1
IEEE Transactions on Energy Conversion	1
IEEE Transactions on Power Systems	2
International Journal of Computational Intelligence Research	1
International Journal of Energy Sector Management	1
International Journal on Engineering Intelligent Systems	1
Wind Energy	1
TOTAL	11

R4.6 LIST OF PATENTS

Blank.

R4.7 LIST OF PROTOTYPES

DSM modules

Developed under EFACEC-DMS
Demo Place: EFACEC
Development Period: 1999-2008

Reserve evaluation tool

Developed under TSO-Reservas
Demo Place: INESC Porto
Development Period: 2006-2008

MMG Dynamic Simulation Platform

Developed under More_Microgrids EU Project
Demo Place: INESC Porto
Development Period: 2006-2008

R4.8 LIST OF THESES SUPERVISED BY MEMBERS OF THE UNIT DURING 2008

PhD Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Ângelo Mendonça	FEUP	João Peças Lopes	INESC Porto/FEUP	Development of Robust Control Systems for Stabilizing Power Oscillations in Systems with Large Scale Wind Power Integration	2008
Carlos Moreira	FEUP	João Peças Lopes	INESC Porto/FEUP	Identifying and Developing Emergency Procedures for the Operation of Micro-Generators in Isolated Grids and Participation in Black-Start Strategies	2008
Paulo Jesus	FEUP	Maria Teresa de Ponce Leão	INESC Porto/FEUP	Remuneration of distributed generation: a holistic approach	2008
Paulo Mendes da Silva	FEUP	Maria Teresa de Ponce Leão	INESC Porto/FEUP	Integrated Methodologies for Distribution Planning	2008
Paulo Moisés	FEUP	Manuel Matos	INESC Porto/FEUP	Regulation of the integration of microgeneration and microgrids in electrical distribution systems	2008
Pedro Marques	FEUP	João Peças Lopes	INESC Porto/FEUP	Dynamic security assessment in interconnected power systems with large scale integration of wind generation	2008
Adelino Pereira	FEUP	João Tomé Saraiva	INESC Porto/FEUP	Reference Planning of the Expansion of the Power Generating System in a Market Environment	2009
André Madureira	FEUP	João Peças Lopes	INESC Porto/FEUP	Coordinated and Optimized Management of Distribution Networks with Multi-Microgrids	2009
Bruno Gomes	FEUP	João Tomé Saraiva	INESC Porto/FEUP	Uncertainty Modeling in Generating Costs and Load Powers in Market Mechanisms and in the Calculation of Nodal Marginal Prices in Power Systems	2009
Eduardo Gouveia	FEUP	Manuel Matos	INESC Porto/FEUP	Adequacy evaluation of a transmission network in a liberalized environment	2009
Mauro da Rosa	FEUP	Vladimiro Miranda	INESC Porto/FEUP	Reliability of Power Systems with distributed generation	2009
Nuno Gil	FEUP	João Peças Lopes	INESC Porto/FEUP	Elaboration of Procedures and Criteria for Definition of Limits of Eligibility of Acceptance of Renewable Production in Isolated Networks	2009
Inácio Fonseca	FEUP	Maciel Barbosa	INESC Porto/FEUP	Manutenção de Sistemas de Geração de Energia Renovável Eólica através de Redes IP	2010
Lígia Alves	FEUP	Maciel Barbosa	INESC Porto/FEUP	Implementação de Medidas para a Eficiência Energética dos Consumidores Domésticos	2010
Antero da Silva	FEUP	João Peças Lopes	INESC Porto/FEUP	Strategies for energy storage and sustainable mobility in isolated power systems	2011
Filipe Joel Soares	FEUP	João Peças Lopes	INESC Porto/FEUP	Impact of V2G systems in grid operation and expansion	2011
Julija Vasiljevska	FEUP	João Peças Lopes	INESC Porto/FEUP	Evaluation of environmental, economic and technical impacts of large scale integration of microgrids, including responsive demand, in electrical grids	2011
Manuel Rocha	FEUP	João Tomé Saraiva	INESC Porto/FEUP	Transmission expansion planning – a multiyear approach considering uncertainties	2011
Manuel Valdez	FEUP	Maciel Barbosa	INESC Porto/FEUP	Novas Metodologias no Ensino e Aprendizagem na Área da Engenharia Electrotécnica	2011

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Paula Vide	FEUP	Maciel Barbosa	INESC Porto/FEUP	Estimação de Estado de um Sistema Eléctrico de Energia, usando Medidas Fasoriais, com Recurso a Metodologias Evolutivas	2011
Pedro Almeida	FEUP	João Peças Lopes	INESC Porto/FEUP	Impact of Vehicle to Grid in the Power System Dynamic Behaviour	2011
Rita Pereira	FEUP	Maciel Barbosa	INESC Porto/FEUP	Estudo da Estabilidade Dinâmica de Tensão em Redes com Elevada Penetração de Energia Eólica	2011
Roque Brandão	FEUP	Maciel Barbosa	INESC Porto/FEUP	Assinatura Digital de Aerogeradores	2011
Susana Almeida	FEUP	Maciel Barbosa	INESC Porto/FEUP	Incidentes na Rede Eléctrica Nacional - Avaliação do Risco	2011
1	2	3	4	5	6

1 – Name of the post-graduation student
2 – Institution where the thesis is submitted; if the host institution for the student is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

MSc Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
André Almeida Soares	FEUP	Maria Helena Vasconcelos	INESC Porto/FEUP	O Impacto da Estruturação de Dados Operacionais em Tempo Real no Comportamento do Indivíduo na Tomada da Decisão	2008
André da Cunha Araújo	FEUP	Maciel Barbosa	INESC Porto/FEUP	Análise da Fiabilidade de um Parque Eólico	2008
André Freire Duarte	FEUP	Tomé Saraiva	INESC Porto/FEUP	Previsão de Preços de Energia Eléctrica em Mercados de Electricidade – Horizonte de 1 semana	2008
André Magalhães Costa	FEUP	Maciel Barbosa	INESC Porto/FEUP	Índices de Estabilidade de Tensão num Sistema Eléctrico de Energia	2008
António Dias Redondo	FEUP	Manuel Matos	INESC Porto/FEUP	Método Analítico Cronológico para Avaliação da Adequação de um Sistema Produtor	2008
António Ferreira Santos	FEUP	João Peças Lopes	INESC Porto/FEUP	Analysis of the Behavior of the Power Network of Porto Refinery - Petrogal	2008
Bruno Gomes Silva	FEUP	Peças Lopes	INESC Porto/FEUP	Estudo de Soluções Alternativas de Armazenamento de Energia para Diferentes Horizontes Temporais	2008
Carlos Dias Ferreira	FEUP	José Rui Ferreira	INESC Porto/FEUP	Desenvolvimento de um Sistema de Monitorização da Produção do Gerador Eólico Instalado na FEUP	2008
Catarina da Silva	FEUP	Maciel Barbosa	INESC Porto/FEUP	Estudo da Eficiência Luminosa e Energética do Sistema de Iluminação Pública da Cidade do Porto	2008
Cátia Farinha Andrade	FEUP	Tomé Saraiva	INESC Porto/FEUP	Aplicação para Tratamento de Congestionamentos em Redes de Transporte de Energia Eléctrica Utilizando Market Splitting	2008
Célia Tenente	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Project optimization of Building Integrated Photovoltaics	2008

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Clara Teixeira Gouveia	FEUP	Helder Leite	INESC Porto/FEUP	A Qualidade de Serviço na Optimização de Pequenas Subestações de Distribuição. Metodologia orientada para pequenas subestações remotas e inacessíveis	2008
Claudino Franklin Pereira Mendes	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Optimização do Planeamento Energético para um Sistema Insular Integrando Produção Híbrida Diesel/Eólico/FV	2008
Cristina Campos Loureiro	FEUP	Maciel Barbosa	INESC Porto/FEUP	Análise dos Dados Históricos de Ocorrência de Trovoadas e sua Relação com os Incidentes na RNT	2008
Daniel Castro	FEUP	João Peças Lopes	INESC Porto/FEUP	Simulation of Intelligent Active Distributed Networks	2008
Diana Moreira da Costa	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Metodologias e Sistemas de Gestão de Contabilidade Energética Municipal	2008
Filipa da Costa Trigo	FEUP	Peças Lopes	INESC Porto/FEUP	Estudo de Procedimentos Eficientes de Contagem de Energia Provenientes de Parques Eólicos	2008
Filipe Andrade da Rocha	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Definição de um Guia de Procedimento de Medição e Verificação de Projectos de Eficiência Energética.	2008
Filipe Cunha Viana	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Optimização de Configuração de um Projecto Tipo para Microgeração Fotovoltaica.	2008
Filipe Daniel Rocha	FEUP	Manuel Matos	INESC Porto/FEUP	Avaliação da Capacidade de Recepção de uma Rede de Transporte	2008
Filipe Latourrete Alves	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Medidas de Eficiência Energética na Iluminação Integrando Luz Natural	2008
Frederico Mendes Fonseca	FEUP	José Rui Ferreira	INESC Porto/FEUP	Sistemas de Controlo e Exploração de um Parque Eólico	2008
Hélder Dias Freitas	FEUP	Helder Leite	INESC Porto/FEUP	Desenvolvimento de Metodologia para Análise da Eficiência Energética em Edifícios Quando Passam a ser Alimentados em Média Tensão	2008
Hélder da Silva Heitor	FEUP	Tomé Saraiva	INESC Porto/FEUP	Harmonização dos Serviços de Sistema entre Portugal e Espanha	2008
Hélder dos Santos Dantas	FEUP	Tomé Saraiva	INESC Porto/FEUP	Estimativa da Remuneração Marginal da RNT em 2004	2008
Henrique Ferraz Cunha Simas	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Previsão de Comportamentos de Ofertas de Venda de Energia em Mercados de Electricidade	2008
Joana Almeida	FEUP	Maciel Barbosa	INESC Porto/FEUP	Impacto na Fiabilidade do Sistema de Produção da Interligação de Parques Eólicos na Rede	2008
João Guincho	FEUP	João Tomé Saraiva	INESC Porto/FEUP	Marginal Remuneration of RNT – Evaluation from 1998 to 2005	2008
João Manuel Mendes	FEUP	José Rui Ferreira	INESC Porto/FEUP	Produção de Mini-Eólica em Espanha - Implantação de um Parque Eólico com Potência Instalada <100kW	2008
João Manuel Monteiro de Sá Couto	FEUP	Helder Leite	INESC Porto/FEUP	Model development and analysis for strategic investment on sustainable electricity networks on a city environment	2008
João Matos Carção	FEUP	José Rui Ferreira	INESC Porto/FEUP	Estudo e Projecto de Protecções para uma Unidade Industrial Envolvendo Co-Geração	2008
João Nuno Sousa	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Modeling of Short-term Wind Power Forecasting	2008
João Ribeiro da Silva	FEUP	Tomé Saraiva	INESC Porto/FEUP	Dimensionamento de Cabos Eléctricos de AT (até 150 kV) e Elaboração do Projecto Eléctrico de Instalação	2008
Joel da Silva Ramires	FEUP	José Rui Ferreira	INESC Porto/FEUP	Projecto de linha de alta tensão – Estudo do Comportamento Eléctrico	2008

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Jorge Miguel Oliveira	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Medidas de Gestão Eficiente de Consumos Baseadas em Estratégias de Comercialização de Potência Contratada	2008
José Carlos Sousa	FEUP	João Tomé Saraiva	INESC Porto/FEUP	Estimate of the Remuneration of Hydro Station in Electricity Markets	2008
José Cunha Barros	FEUP	Helder Leite	INESC Porto/FEUP	Desenvolvimento de Controlo Cooperativo e Coordenado para a Produção Dispersa	2008
José Gonçalves Soares	FEUP	Maciel Barbosa	INESC Porto/FEUP	Caracterização do Desempenho das Linhas Aéreas da RNT	2008
José Luís Pascoal	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Geocomputational Reliability Analysis of Power Distribution Systems	2008
José Manuel Loureiro	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Desenvolvimento de Modelos de Previsão a Longo Prazo de Preços de	2008
Júlio Paulo Delgado	FEUP	Peças Lopes	INESC Porto/FEUP	Avaliação da Eficácia e do Valor Social de Estratégias de DSM com Novas Opções Tarifárias	2008
Leonel Carvalho	FEUP	Vladimiro Miranda	INESC Porto/FEUP	Using Evolutionary Swarms (EPSO) in Power System Reliability Indices Calculation	2008
Lúcio Portela dos Santos	FEUP	Helder Leite	INESC Porto/FEUP	Development of a State Estimation Algorithm for Distribution System with high penetration of Generation	2008
Luís de Azevedo Costa	FEUP	Vladimiro Miranda	INESC Porto/FEUP	Application of Evolutionary Swarms and Autoencoders to Wind-Hydro Coordination	2008
Luís Marques da Silva	FEUP	Peças Lopes	INESC Porto/FEUP	Impact of Wind Generation on the Operation of the Cyprus Isolated Power System	2008
Marco Lopes Geraldes	FEUP	Maria Helena Vasconcelos	INESC Porto/FEUP	Manual de Utilização de Seccionadores da Rede MT	2008
Mário de Sousa Neto	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Remuneration of renewable energy technologies	2008
Miguel Guimarães F. Gomes	FEUP	Tomé Saraiva	INESC Porto/FEUP	Using Evolutionary Swarms (EPSO) in Power System Reliability Indices Calculation	2008
Natália A. da Costa	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Metodologia de Análise Técnica e Económica de Melhoria de Eficiência Energética Resultante da Utilização de Controladores VEV em Motores Eléctricos.	2008
Nuno C. de Medeiros	FEUP	José Rui Ferreira	INESC Porto/FEUP	Sistemas de Controlo e Exploração de um Parque Fotovoltaico	2008
Nuno Pinto Correia	FEUP	Tomé Saraiva	INESC Porto/FEUP	Serviços de Sistema – Determinação dos Níveis Requeridos, Metodologias de Alocação e Princípios de Harmonização	2008
Paulo Freixo Quesado	FEUP	Helder Leite	INESC Porto/FEUP	Coordenação de Relés de Máximo de Intensidade Homopolares e Homopolares Direccionais utilizando o Algoritmo Evolucionário EPSO	2008
Pedro Brito Parreira	FEUP	Cláudio Monteiro Vladimiro Miranda	INESC Porto/FEUP	Error Distribution Optimization of Wind Power Forecasting Models	2008
Pedro Faria Landolt	FEUP	Helder Leite	INESC Porto/FEUP	Wide-Area Measurements onto the Portuguese Transmission Network	2008
Pedro Lima	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Optimization of Large Photovoltaics Power Plants.	2008
Pedro Oliveira Ramalho	FEUP	Helder Leite	INESC Porto/FEUP	Wind Park Protection Scheme to Permit Ancillary Services to the Network	2008
Ricardo Barreira Rodrigues	FEUP	Maria Helena Vasconcelos	INESC Porto/FEUP	Análise de Indicadores de Continuidade de Serviço em Redes de Distribuição de Energia Eléctrica para Alocação de Recursos de Investimento	2008
Ricardo Bessa	FEP	João Gama	INESC Porto/FEP	Wind Power Forecasting Based on Information Entropy-Related Concepts and Data Stream Techniques	2008

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Ricardo Vasco Fernandes	FEUP	Maciel Barbosa	INESC Porto/FEUP	Deslastre Frequencimétrico – Coordenação entre a RNT e a RND com Minimização de Perda de Produção em Regime Especial (PRE)	2008
Ricardo Vilas Boas de Azevedo	FEUP	Helder Leite	INESC Porto/FEUP	Model development and analysis for strategic investment on sustainable electricity networks on a rural environment	2008
Rita Chaves Rebelo	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Desenvolvimento de um Sistema de Ajuda à Decisão para Avaliação de Propostas de Eficiência Energética em Edifícios de Serviços	2008
Rui da Silva Azevedo	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Desenvolvimento de um Sistema de Ajuda à Negociação de Contratos de Performance para Medidas de Eficiência Energética	2008
Rui F. M. dos Santos	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Detecção de Mudança da Característica de Produção de Parques Eólicos	2008
Rui Framegas Araújo	FEUP	Maria Helena Vasconcelos	INESC Porto/FEUP	Selecção de Características para Avaliação de Segurança de Sistemas Eléctricos Interligados com Elevada Produção Eólica Recorrendo a Redes Neuronais Artificiais	2008
Sérgio da Costa Mendes	FEUP	José Rui Ferreira	INESC Porto/FEUP	Impact of Wind Generation on the Operation of the Cyprus Isolated Power System	2008
André Moreira	FEP	Jorge Pereira	INESC Porto/FEP	Market Simulation	2009
Filipe Tadeu Oliveira	FEUP	Manuel Matos	INESC Porto/FEUP	Investments and quality of service in regulated electric distribution systems	2009
Helena Maria Soares	FEUP	Cláudio Monteiro	INESC Porto/FEUP	Small Wind Turbines Integration in Urban Environment	2009
Marco Paulo Ferreira	FEUP	Manuel Matos	INESC Porto/FEUP	Fast evaluation of the security of supply at the Generation level	2009
Ricardo Ferreira	FEUP	Manuel Matos	INESC Porto/FEUP	Reserve adequacy in Power Systems with a high penetration of wind power	2009
Tiago Morais	FEUP	João Peças Lopes	INESC Porto/FEUP	Study of the operation of wave energy conversion systems	2009
1	2	3	4	5	6

1 – Name of the post-graduation student

2 – Institution holding the course where this student in enrolled in; if the host institution is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester

3 – Name of supervisor or supervisors

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5 – Title of the thesis

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R4.9 ORGANISATION OF INTERNATIONAL SCIENTIFIC EVENTS

Organization of a conference on Modeling and Forecasting in Liberalized Electricity Markets, organized in Oporto in 15th and 16th May 2008.

R4.10 ADVANCED TRAINING

The unit keeps the coordination of the training activities of the European training consortium EES/UETP, and a member of the unit chair the course programme committee.

The course Developing Microgeneration and Microgrids was held at INESC Porto, from the 19th to the 21st of May, 2008.

R4.11 OTHER CONTRIBUTIONS TO THE OBJECTIVES OF ASSOCIATE LABORATORY

UNIT: USE – POWER SYSTEMS	Thematic Line
Support to public and institutional entities in performing studies and consulting actions related to the development of public policies for energy. Participation in the advisory board of the "Technological Plan", a government initiative. Participation in the implementation of the projects MIT-Portugal (Energy and Sustainability area) and CMU-Portugal, launched by the Portuguese government. Participation in the Mirror Group of the SmartGrids European Technology Platform.	Electric sector and integrated territorial planning

R4.12 ANALYSIS AND ASSESSMENT OF DEVIATIONS RELATIVE TO FORMER PLANNING

R4.12.1 Comparison with strategic actions or policy lines defined in the plan of the previous year

The activity in 2008 followed closely the medium-term strategic lines defined for the unit, but it was not possible to develop some of the strategic activities mentioned in the action plan for 2008, mainly due to the high volume of activity in development and consultancy projects.

R4.12.2 Cases of success, problems met, internal and external conditioning factors

In 2008, it should be pointed out the successful conclusion of phase I of the project TSO-Reservas, with important results on security of supply and operating reserve adequacy transferred to the Iberian TSO. A phase II was already contracted.

On the other hand, the conclusion in the 2008 of the operational phase of project PrevEol (whose scientific development took place in 2007) is also to emphasize, since it corresponded to an important technology transfer to the industry that may later lead to a spin-off company.

The main challenge of the unit continues to be maintaining a coherent basis of human resources able to cope with the many requests for collaboration and consultancy, without endangering the scientific research and development work.

R5. UNIT: USIC – INFORMATION AND COMMUNICATIONS SYSTEMS

R5.1 SHORT DESCRIPTION OF THE UNIT

The Information and Communication Systems Unit (USIC) is mainly involved in Advanced Information Systems Engineering, with some activities in Communication Systems Engineering and Strategic IT Consulting. Its main R&D areas are Location Based Information Systems Engineering and Software Engineering.

The Unit performs several types of activity, namely: research, development, technology transfer, consulting, auditing and advanced training.

These activities are carried out in several sectors. Important partners and clients may be referenced in the following areas: public administration (local, regional and central government), healthcare, telecommunications, transport and industry, commerce and services sectors. The most relevant application area in the past years has been eGovernment.

The Unit is composed by a heterogeneous team, composed by 22 collaborators, with skills in diversified areas: computer systems, office automation, telecommunications, computing sciences, software engineering and geographic engineering. This mix is complemented by a group of academic researchers active in Advanced Information Systems Engineering that lead USIC's scientific activities.

Its mission is to contribute to the modernization of enterprises and institutions using advanced ICT solutions. Our challenge is to link market needs with research objectives, creating innovative solutions based on excellent research results.

Table of correspondence between know-how and the Industrial Sectors

| Know-how	Status (*)	Public Admin	Healthcare	Telecom	Transport	Industry, Commerce and Services
Analysis, Specification, Development and Deployment of Information Systems	I	X	X	X		X
Analysis, Specification, Development and Deployment of GIS Solutions	I	X		X	X	
Analysis, Specification and Deployment of Communication Systems	I	X	X		X	X

(*)   I – Internal; O – Existing in another Unit of INESC Porto; E – External; C – To be created

Coverage of the Innovation Process

Activity Area	Research	Develop	Consulting	Training	Marketing and Support	Evolutionary Maintenance	Use
Public Admin.	USIC	USIC	USIC	USIC MEDIATA PH Informatics	MEDIATA PH Informatics	MEDIATA PH Informatics	Local, Regional and Central Public Administration
Healthcare	USIC	USIC	USIC	USIC	To Be Defined	To Be Defined	Ministry of Health Caretakers
Telecom.		USIC	USIC	USIC PT IN	PT IN	PT IN	PT Group
Transport		USIC	USIC	USIC			Operators Central Public Administration
Industry, Commerce and Services		USIC	USIC	USIC			

Description of the Unit's organizational structure

The Unit is structured into coordination, secretarial support and two scientific areas (Location Based Information Systems and Software).
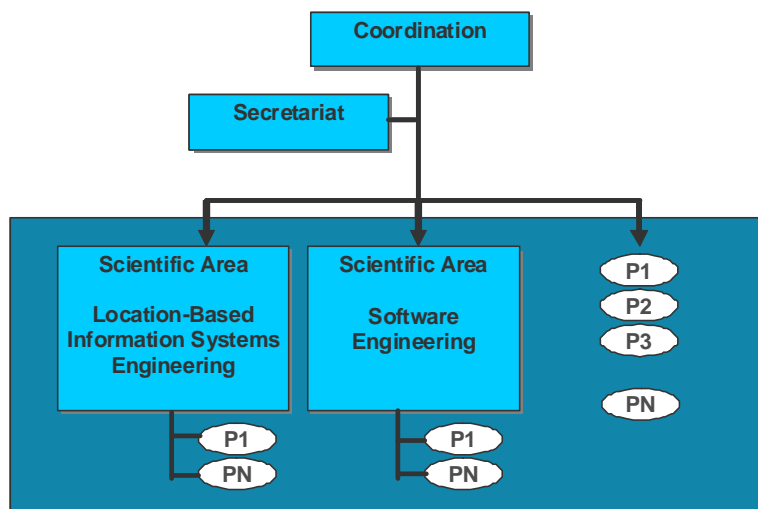
USIC's organigram.

Specific projects are linked to any of the scientific areas or directly to the coordination.
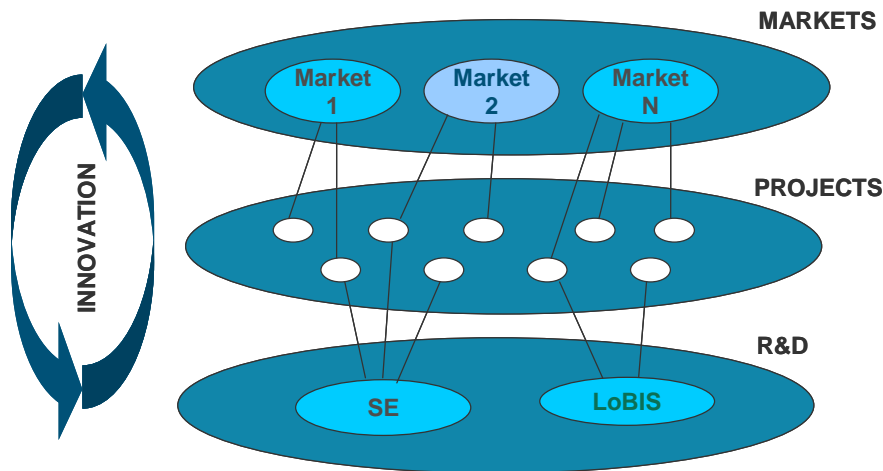
USIC's positioning.

R5.2 ACTIVITIES DEVELOPED IN 2008

R5.2.1 National programmes

IVY- A model-based usability analysis environment - POSC/EIA/56646/2004 (FCT) – Development of a model based tool for the analysis of interactive systems.

RCM – Participation in the Mobility Excellence Network, which involves several companies and institutions involved in the area of Mobility (Public Transport, Planning, Software Houses, etc).

CEDT – Participation in the Transaction Dematerialization Excellence Network, which involves several enterprises producing products and services with an important software component and focused on the virtualization of business transactions.

EI-NAUTILUS – The EI-NAUTILUS is a project in co-promotion with the enterprise NAUTILUS, funded by the QREN and aims the development of two new products that will improve the Nautilus offer in the interactive school area. The first product, named ERGOS_NETPAD + NETPHONE, will be an innovative product for school furniture with technological integration of a system that allows applying in the context of the classroom the concept of interactive room.

The second product, called NET_SCHOOL, will consist of a set of applications, which allows the integration of all equipment in the classroom (UNI_NET, ERGOS, ERGOS_NETPAD + NETPHONE), thus creating a virtual environment of the classroom interactive enhancing the following features to students and teachers: room management, management class in the classroom, content management, knowledge management and community of knowledge.

Palco Principal – This project aims to develop the base platform of an already existing music content portal (http://palcoprincipal.com/), by promoting and maximizing automation and innovation in several processes, such as content identification, automatic classification, selective research, organization, sharing, recommendation and intelligent treatment of all types of data involved (music, preferences, texts, photographs, posts, among others).

R5.2.2 European programmes

CAALYX- Complete Ambient Assisted Living Experiment – 6FP-IST - CAALYX's main objective is to develop a wearable light device able to measure specific vital signs of the older person, to detect falls and to communicate automatically in real time with his/her caregiver in case of an emergency, wherever the older person happens to be, at home or outside.

R5.2.3 Other programmes, consulting, services

Consultoria – Small consulting activities.

Geoforum – Support for the commercialization of an e-democracy product for public discussion of plans incorporating georeferenced information. It was initially applied to the public discussion phase of city master plans.

PROT-OVT – Platform for the elaboration and public discussion of a regional master plan (Oeste e Vale do Tejo) and participation in the thematic working group ICT for the same regional master plan. Platform for the revision and public discussion of the Lisbon's Metropolitan Area regional master plan.

SEGALAB – Modernization of SEGALAB Information System, including activities such as business process modeling and reengineering, specification, technology transfer and training. Innovative approaches were introduced, such as collaboration with customers and suppliers via Web and mobility support for field teams. SEGALAB is a laboratory specialized in food safety and veterinary tests.

CCRDN-TIC – Implementation of collaborative platforms for Norte Regional Coordination and Development Commission, the regional branch of the Environment, Territory Planning and Regional Development Ministry: Norte em Rede, supporting the implementation of the strategic regional plan;Espaço Atântico, supporting the corresponding INTERREG initiative and PROT-N, supporting the elaboration of the regional development plan. USIC also participated in the elaboration of this last plan in the New Technologies expert team,

IVDP-Consulting on Geographic Information Systems for the Porto and Douro wine industry.

SAGAWEB - Reengineering of SAGA CASE tool, keeping business rules and enabling the creation of web 2.0 based applications.

EOLOS – Specification and implementation of a framework for radio electric coverage interference analysis caused by wind generators parks.

Observatório da Mobilidade – Specification of Lisbon's Metropolitan Mobility Observatory, taking into account three views: mobility policies and strategies, economical feasibility and information systems.

SIVIDA - Specification of an Information System for AIDS data collection and processing, for the Healthcare High Commissioner.

Colloquium – Organization of "The New Knowledge Forge", an international colloquium on wikis, hypertext and social software, for knowledge management.

CCDRN-RJUE – Specification and implementation support of a regional interoperability platform between municipalities and central administration, in the area of urbanization and building construction licensing.

Plataforma ATL – Implementation of a collaborative platform for the Lisbon Tourism Association (ATL).

R5.3 SUMMARY OF RESULTS OF THE RESEARCH ACTIVITIES OF THE TEAM MEMBERS

Projects

Summary of projects developed in 2008

Type of Activity (1)	No. Projects (2)			Total Income (€)
	N	E	I	
R - Research	3	1		179.438
D - Development	5			68.177
C - Consulting	9			455.859
A – Advanced training	1			1.638
T – Technology Transfer				
O - Other				
TOTAL	18	1		705.112

Summary of relative distribution of sources of income

Financing (3)	Status (4)			Total Income (€)
	S - Started	OG– On-going	C - Concluded	
NP – National Programmers	5,83%		4,76%	74.696
EP – European Programmers			19,61%	138.297
CS – Consulting and Services	12,55%	26,30%	30,71%	490.481
O – Other R&D sources				
OS – Other Sources			0,23%	1.638
Total	18,38%	26,30%	55,31%	705.112

Summary of projects developed in 2008

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
IVY	Pascoal Faria	R	N	NP	FCT	07-2005	06-2008	F
Consultadoria	P. Monteiro	C	N	CS		01-2006		OG
Geoforum	Artur Rocha	D	N	CS	Medidata	02-2006	12-2008	F
PROT-OVT	A.Gaspar	C	N	CS	CCDR-LVT	07-2006	09-2008	F
RCM	A. Gaspar	D	N	NP	CE-ADI	07-2006	06-2008	F
SEGALAB	Rui Barros	C	N	CS	Segalab	10-2006	03-2008	F
CCDRN-TIC	A. Gaspar	C	N	CS	CCDR-N	12-2006	12-2008	F
CAALYX	Artur Rocha	R	E	EP	FP6-IST	01-2007	12-2008	F
IVDP	A.Gaspar	C	N	CS	IVDP	01-2007	03-2009	OG
SAGAWeb	Rui Barros	D	N	CS	Medidata	07-2007	07-2008	F
EOLOS	A. Gaspar	C	N	CS	ENEOP2	12-2007	06-2009	OG
CEDT	A.Gaspar	D	N	NP	CE-ADI	01-2008	07-2008	F
Observ. Mob.	A.Gaspar	C	N	CS	CCDRLVT	01-2008	07-2008	F
SIVIDA II	José Correia	C	N	CS	CNSIDA	01-2008	12-2009	S

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
Coloquium	A.Aguiar	A	N	OS		04-2008	07-2008	F
EI-Nautilus	A.Gaspar	R	N	NP	POFC-QREN	06-2008	06-2010	S
CCDRN-RJUE	Rui Barros	C	N	CS	CCDRN	07-2008	12-2009	S
Platafor. ATL	A.Gaspar	D	N	CS	ATL	09-2008	12-2008	F
Palco 3.0	A.Gaspar	R	N	NP	PON-QREN	12-2008	11-2011	S

(1) Type of Project: R – Research; D – Development; C – Consulting; A – Advanced Training; T – Technology Transfer; O - Other

(2) Degree of internationalization: N – National; E – European; I – International *(Select one)*

(3) Source of financing: NP – National Programmes; EP – European Programmes; CS – Consulting and services; O – Other R&D financing sources; OS – Other sources

(4) Status: S – Starting: activities initiated in 2008 and continuing in 2009; OG – On-going: activities started earlier than 2008 and continuing in 2009; F – Finished: activities ending in 2008.

Summary of publications

Summary of publications in 2008

Type of publication	Number
Theses concluded in 2008 by members of the unit	1
Books (author)	
Chapter/paper in books	
Publications (editor)	2
Papers in International Journals with scientific referees	1
Papers in National Journals with scientific referees	
Conference Proceedings in events with scientific referee and selection	7
Other publications (National meetings, local journals, etc.)	
Total	11

Summary of post-graduation activities

Summary of theses supervised by members of the unit in 2008

Type	Starting	On-going	Concluded	Total
Master	5	11	16	32
Doctoral	1	9	0	10
Total	6	20	16	42

Summary of advanced training actions

Summary of advanced training actions organized for external trainees in 2008

Type	Number
Training for graduation students *(estágios curriculares)*	2
Training for others *(estágios extra-curriculares)*	
Professional training actions *(estágios profissionais)*	
Other actions	1
Total	3

Summary of activities of cooperation or dissemination

Summary of items

Type	Number
Organizing conferences or meetings	5
Collaboration in papers authored by INESC Porto researchers	2
External persons directly involved in actions organized by INESC Porto	

Human resources in 2008

Summary of Unit personnel at the end of 2008

Type	Education				Total	Variation (*)
	PhD.	MSc.	BSc.	Other		
R&D						
University or Polytechnic Staff	4	1			5	0
INESC Porto Grant Holders		2	2		4	0
Other Grant Holders						
Employees		3	8		11	0
Trainees						
Other			1		1	0
Administrative			1		1	0
Total	4	6	12		22	0

(*)   Relative to 2007, in absolute numbers.

R5.4 LIST OF PUBLICATIONS IN 2008

R5.4.1 Theses concluded by members of the unit

Oliveira, M.A.,"Distributed and Interoperable Acess to Geographic Information to Support Critical Infrastructures Management", Fevereiro 2008, MSc Thesis

R5.4.2 Books (Author)
Blank.

R5.4.3 Chapter/paper in Books
Blank.

R5.4.4 Publications (Editor)

RAMALHO, J.C., CORREIA LOPES, J., ABREU, S., "Proceedings da XATA 2008- XML: Aplicações e Tecnologias Associadas", XATA 2008 – XML: Aplicações e Tecnologias Associadas, February 2008, Évora, Portugal.

PALMA, J.L., DAYDÉ, M., AMESTOY, P., MATTOSO, M., CORREIA LOPES, J., "Proceedings da VECPAR 2008", *VECPAR'08 – VECPAR'08 – 8th International Meeting –High Performance Computing for Computational Science* 2008, LNCS, vol.5336, Toulouse, França.

R5.4.5 International Journals with scientific referees

CARVALHO, A., DE SOUSA, A.A., RIBEIRO, C., COSTA, E., "A Temporal Focus + Context Visualization Model for Handling Valid-Time Spatial Information", Information Visualization, October 2008, vol.7, no.3, p.265-274.

R5.4.6 National Journals with scientific referees
Blank.

R5.4.7 Conference Proceedings with scientific referees

RODRIGUES, V., CORREIA LOPES, J., MOREIRA, A., "An Hybrid Design Solution for Spacecraft Simulators", *CaiSE'08 – The 20th International Conference on Advanced Information Systems Engineering*, June 2008, Proceedings of the Forum at CaiSE'08, Montpellier, França, p.29-32.

SILVA, M.J., PESTANA, B., CORREIA LOPES, J., "Using a Mobile Phone and a Geobrowser to Create Multisensory Geographic Information", *IDC'08 – The 7th International Conference on Iteraction Design and Children*, June 2008, Chicago, Estados Unidos da América.

CARVALHO, A., DE SOUSA, A.A., RIBEIRO, C., "A Temporal Focus + Context Visualization Model for Handling Valid Time Spatial Information", *AGILE2008 – 11th AGILE International Conference on Geographic Information Science*, May 2008, Girona, Espanha.

RESTIVO, A., AGUIAR, A., "Disciplined Composition of Aspects Using Tests", *AOSD.NET – AOSD.NET 4th International Linking Aspect Tecnhnology and Evolution Workshop*, April 2008, Proccedings of the 4th International Linking Aspect Technology and Evolution Workshop, Bruxelas, Bélgica.

CRUZ, A.M., PASCOAL FARIA, J., "Automatic Generation of Interactive Prototypes for Domain Model Validation", *ICSOFT 2008 – 3rd International Conference on Software and Data Technologies* 2008, Porto, Portugal.

GASPAR, A., "Observatório de Mobilidade numa Região Metropolitana", *IV Encuentro Ingenieria Civil – I Congresso Internacional Engenharia Civil e Território Norte de Portugal- Galiza* 2008, Vigo, Espanha.

FLORES, N., AGUIAR, A., "Patterns for Framework Understanding", *PLOP 2008 + OOPSLA 2008 – PLOP2008-15th Conference on Pattern Languages of Programs* 2008, Nashville, Estados Unidos da América.

R5.4.8 Other Publications

Blank.

R5.5 LIST OF JOURNALS

Journal	Number of papers
Information Visualization	1
TOTAL	1

R5.6 LIST OF PATENTS

Blank.

R5.7 LIST OF PROTOTYPES

Name: Public discussion forum for regional development plans
Developed under (Project Name): PROT-OVT
Demo Place: Internet (public discussion phase of Oeste e Vale do Tejo regional development plan – PROT-OVT)
Development Period: 2008

Name: CAALYX project prototype
Developed under (Project Name): CAALYX
Demo Place: Ancona, Italy (demonstrator) and Brussels, Belgium (final review meeting)
Development Period: 2007-2008

Name: Wine plot management system
Developed under (Project Name): IVDP
Demo Place: IVDP premises
Development Period: 2007-2008

Name: SAGAweb CASE tool
Developed under (Project Name): SAGAweb
Demo Place: Medidata
Development Period: 2007-2008

R5.8 LIST OF THESES SUPERVISED BY MEMBERS OF THE UNIT DURING 2008

PhD Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
André Restivo	FEUP	Ademar Aguiar Ana Moreira	INESC Porto/FEUP UNL/FCT	Disciplined Reuse of Aspect	2010
António Miguel R.S.R. Cruz	FEUP	João Pascoal Faria	INESC Porto/FEUP	Automatic Generation of User Interfaces from Rigorous Domain and Use Case Models	2010
Artur Rocha	FEUP	Ademar Aguiar Augusto Sousa	INESC Porto/FEUP	Cooperative and Distributed Location-Based Decision Support	2010
Daniel Oancea	FEUP	João Correia Lopes Rui Moreira	INESC Porto/FEUP INESC Porto/UFP	An Adaptive Cross-Layer Framework for Media Delivery over Heterogeneous Networks	2010
Fernando Sérgio Barbosa	FEUP	Ademar Aguiar	INESC Porto/FEUP	Generic Roles: Reducing Code Replication	2010
Filipe Figueiredo Correia	FEUP	Ademar Aguiar	INESC Porto/FEUP	Revising Literate Programming	2010
Hugo José Sereno Lopes Ferreira	FEUP	Ademar Aguiar João Pascoal Faria	INESC Porto/FEUP INESC Porto/FEUP	Adaptive Object Modelling: Patterns, Tools and Applications	2010
Marco Aurélio A. Oliveira	FEUP	Ademar Aguiar	INESC Porto/FEUP	Adaptiveness on Distributed Location-Based Services	2010
Nuno Honório Rodrigues Flores	FEUP	Ademar Aguiar	INESC Porto/FEUP	Patterns and Tools for improving Framework Understanding: a Collaborative Approach	2010
Pedro Miguel Correia Mendes	FEUP	João Pascoal Faria Ana Paiva	INESC Porto/FEUP FEUP	Automatic Testing of Graphical User Interfaces Based on UML Behavioral Models	2010
1	*2*	*3*	*4*	*5*	*6*

1 – Name of the post-graduation student

2 – Institution where the thesis is submitted; if the host institution for the student is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester

3 – Name of supervisor or supervisors

4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid

5 – Title of the thesis

6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

MSc Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
André Filipe M.L.Silva	FEUP	Ademar Aguiar	INESC Porto/FEUP	WaaS: Wiki as a Service- INOVA-RIA	2008
André Lessa	FEUP	João Pascoal Faria	INESC Porto/FEUP	CMMI Metrics Solution	2008
Bruno Miguel Meira Pestana	FEUP	João Correia Lopes Maria João Silva	INESC Porto/FEUP ESSE/IPP	Interfaces Lúdicas para Comunicação Multissensorial Ubíqua no 1º ciclo do Ensino Básico	2008
Carlos Eduardo Tavares	FEUP	Ademar Aguiar	INESC Porto/FEUP	Context Awareness in an Adaptive Personal Health Assistant	2008
Claudio Sagres	FEUP	João Pascoal Faria	INESC Porto/FEUP	Modelação e Simulação de um Sistema de Sinalização Ferroviarias	2008
Gilles Rodrigues	FEUP	João Pascoal Faria	INESC Porto/FEUP	Estudo da plataforma Rational Software Architect (RSA) para abordagens Model Driven Development (MDD)	2008

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Hernâni Fernandes	FEUP	João Pascoal Faria	INESC Porto/FEUP	Reengenharia de Ferramenta de Desenvolvimento Rápido de Aplicações para Ambiente Web 2.0	2008
João Paulo Martins Rocha	FEUP	Ademar Aguiar	INESC Porto/FEUP	Wiki for Kids-Uma plataforma colaborativa para Escolas EB1	2008
João Pedro Magalhães do Vale	FEUP	João Correia Lopes	INESC Porto/FEUP	HUMS vs MMS SOAP Interface and Simlator	2008
Joaquim Rendeiro	FEUP	João Pascoal Faria	INESC Porto/FEUP	Operations research Modeling Environment for an ERP System	2008
Mário Filipe A.F.O. Lopes	FEUP	Ademar Aguiar	INESC Porto/FEUP	Conception and Development of a Social Web Product-Spateo	2008
Nelson Tiago Remoaldo Oliveira	FEUP	João Correia Lopes	INESC Porto/FEUP	Integração do "Sistema Integrado de Gestão de Inscritos em Cirurgia" com o "ALERT ORIS"	2008
Nuno António da Silva Rocha	FEUP	Ademar Aguiar	INESC Porto/FEUP	Documentação de Software: Integração de Ferramentas de Modelação e Processamento de Textos- Critical Software	2008
Pedro Miguel Rosário Alves	FEUP	João Correia Lopes	INESC Porto/FEUP	Avaliação da Plataforma de Integração Oracle Retail	2008
Pedro Strecht	FEUP	João Pascoal Faria	INESC Porto/FEUP	Metodologia para equipas de Desenvolvimento de Requisitos de Sistemas de Informação	2008
Ricardo Ferreira Rodrigues Pinto	FEUP	Ademar Aguiar	INESC Porto/FEUP	Plataforma de Gestão e Documentação Agil de Auditorias	2008
António José T.Gaspar	FEUP	João Pascoal Faria	INESC Porto/FEUP	A orientação aos Processos de Negócio nos Sistemas de Informação da Administração Pública.	2009
Cláudia Lopes Simões Madureira	FEUP	Ademar Aguiar	INESC Porto/FEUP	Integração e Avaliação do Impacto de uma ITIL/CMDB	2009
Joana Rodrigues Coelho de Sousa	FEUP	João Correia Lopes Almiro Amorim	INESC Porto/FEUP ESAD	Publicidade como Evento/Instalação Tecno-Artística	2009
José Carlos de Queiroz Pinto	FEUP	Ademar Aguiar	INESC Porto/FEUP	Ambiente de Trabalho Portátil	2009
Licínio Venâncio Feiteira Mano	FEUP	Ademar Aguiar	INESC Porto/FEUP	PUSL – Plataforma Unificada de Serviços de Localização para Situações de Crise ou Emergência	2009
Luís Amaral	FEUP	João Pascoal Faria	INESC Porto/FEUP	A Gap Analysis Methodology for the Team Software Process	2009
Luís Filpe Ferreira	FEUP	Ademar Aguiar	INESC Porto/FEUP	A Practical Framework for Rapid Application Development	2009
Maria Conceição Vilas Boas	FEUP	Ademar Aguiar	INESC Porto/FEUP	Método de Avaliação Ex-post de Projectos de Sistemas de Informação na Administração Pública	2009
Miguel Gomes Rodrigues	FEUP	João Correia Lopes	INESC Porto/FEUP	Arquitecturas de Integração de Mediadores com Companhias de Seguros	2009
Nelson Manuel Faria Freire	FEUP	João Correia Lopes Paulo J. Oliveira	INESC Porto/FEUP ISEP	Reutilização de Operações de Limpeza da Dados	2009
Nuno Miguel Moreira Baldaia Queiroz	FEUP	Ademar Aguiar	INESC Porto/FEUP	Extending Eclipse to Support Agile Documentation	2009
Pedro Miguel Ribeiro Veloso Gomes	FEUP	João Pascoal Faria Ademar Aguiar	INESC Porto/FEUP INESC Porto/FEUP	Integração de modelos de desenvolvimento de software mais e menos ágeis	2009
Pedro Castro Henriques	FEUP	Pascoal Faria	INESC Porto/FEUP	Strategic Planning and Acquisition Management of Information Systems	2009

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Ricardo Miguel S. Leandro	FEUP	João Correia Lopes	INESC Porto/FEUP	Sage Report Description Language	2009
Rui Sanches da Costa Barros	FEUP	Ademar Aguiar	INESC Porto/FEUP	Definição de uma Framework para Municípios de Pequena Dimensão	2009
Tiago Gil B. Silva Cunha	FEUP	João Correia Lopes	INESC Porto/FEUP	iPortalDoc Light	2009
1	*2*	*3*	*4*	*5*	*6*

1 – Name of the post-graduation student

2 – Institution holding the course where this student in enrolled in; if the host institution is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester

3 – Name of supervisor or supervisors

4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid

5 – Title of the thesis

6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

R5.9 ORGANISATION OF INTERNATIONAL SCIENTIFIC EVENTS

XATA 2008 – XML: Aplicações e Tecnologias Associadas
Évora, Portugal, February 14-15, 2008
João Correia Lopes - Organizing Committee; Web chair

VECPAR'08 – 8th International Meeting High Performance Computing for Computational Science

Toulouse, France, 24-27 June, 2008
João Correia Lopes - Organizing Committee; Web chair

PLOP 2008 – 15th Conference on Pattern Languages of Programs, co-located with OOPSLA'2008

Nashville-Tennessee, USA, October 19-23, 2008
Ademar Aguiar – Program Chair

WIKISYM'2008 – International Symposium on Wikis

Porto, Portugal. September, 8-10, 2008
Ademar Aguiar: Conference Chair

Wikis for Software Engineering, Workshop of WIKISYM'2008

Porto, Portugal, September, 8-10, 2008
Ademar Aguiar: Co-Organizer

R5.10 ADVANCED TRAINING

Blank.

R5.11 OTHER CONTRIBUTIONS TO THE OBJECTIVES OF ASSOCIATE LABORATORY

UNIT: USIC – INFORMATION AND COMMUNICATIONS SYSTEMS	Thematic Line
Collaborative platform for the revision and public discussion of Lisbon's Metropolita Area regional development master plan.	Power Sector and Integrated Territorial Planning
Collaborative plaform for the implementation of the Norte strategic development plan –	

Norte em Rede	
Collaborative plataform to support the Espaço Atântico INTERREG initiative	
Specification of a regional interoperability platform between municipalities and central administration for urbanization and building construction licensing	
Specification of Lisbon's Metropolitan Mobility Observatory	

R5.12 ANALYSIS AND ASSESSMENT OF DEVIATIONS RELATIVE TO FORMER PLANNING

R5.12.1 Comparison with strategic actions or policy lines defined in the plan of the previous year

1 - Develop the Unit's scientific activity

During 2008 efforts were developed to reinforce the research team and at the same time to increase coherence of research activities in the software area. The outcome was the formal transfer in January 1st 2009, of 4 software researchers from UTM to USIC. Afterwards two new researchers showed interest in joining INESC Porto, since they usually collaborate with these new team members. As a consequence, we expect to increase the number of PhDs from 4 to 11 in 2009! We expect to fully exploit synergies among the existing team and new members only in 2010, but we might see some improvements in our scientific activity already in 2009, particularly at the project submission level.

2 – Achieve a sustainable balanced economic performance

In 2008 USIC fully complied with its budget, with only a 1% deviation.

R5.12.2 Cases of success, problems met, internal and external conditioning factors

Although 2008 was a favorable year, 2009 and the global economic crisis challenges the sustainability of the results obtained. Therefore an effort must be made to increase scientific and economic results in a difficult environment where enterprises and partners will be focused only on short term results.

Additionally the Unit will rethink its name and format in order to fully take advantage of new competences.

Scientific coordination and the vacant scientific coordinator position are issues that must be addressed in 2009.

R6. UNIT: UTM – TELECOMMUNICATIONS AND MULTIMEDIA

R6.1 SHORT DESCRIPTION OF THE UNIT

The Telecommunications and Multimedia Unit carries out research and development, consulting, technology transfer and advanced training in scientific and technological areas that fostered the convergence between the traditional telecom and broadcast worlds, the Internet and multimedia.

It has a multi and interdisciplinary nature and, for this reason, it is internally organized in four Areas, for management and scientific purposes. Each Area carries out basic and applied research in related topics, under a common strategy and goals determined by the market sector it covers:

- Multimedia Technologies and Systems: media processing (music, audio, video and image), content management, advanced multimedia services.

- Wireless and Mobile Networks: multicast and mobility management, quality of service, mesh and ad-hoc networks, cross-layer optimization.

- Internet Architectures and Networking: novel Internet architectures, community networking design, disruptive communication models.

- Optical and Electronics Technologies: optical communications and microwaves, microelectronics.

Coordination at Unit level allows the exploitation of complementary technical and scientific skills developed by each Area as well as the synergies necessary to design solutions and to develop and integrate HW/SW components in networked multimedia systems and services, suitable for dynamic and heterogeneous environments characterized by:

- the need of end-users to access multimedia content, anytime, anywhere;

- the increased mobility of end-users and devices;

- heterogeneous access networks;

- high-speed transmission systems;

- new networking paradigms;

- new business roles played both by traditional customers and providers, as well as by new (Internet) stakeholders.

The Unit pursues a high-level of scientific excellence, with international recognition. An important part of its activity is oriented towards the international market and is carried out under contract and in partnership with telecom and network operators, service providers, broadcasters, content producers and providers, equipment manufacturers, software houses, system integrators, universities and research institutions.

The exploitation of results is carried out by means of R&D contracts, technology transfer and consulting and plays an important role in the incubation of start-up companies.

Table of correspondence between know-how and target customers

Know-how	Status (*)	Category						
		User		Access / Core		Services		
		Customers						
		Vendors	Communities	Vendors	Operators	ASPs	Virtual operators	ISPs
Transmission systems	I	X	X	X	X			X
Modulation and coding	I	X	X	X	X			X
Radio resource management	E		X	X	X			
Signal Processing	I	X	X	X	X	X		
Design and test of electronic systems	I	X	X	X	X			
Reconfigurable systems	I	X	X	X	X			
Microwave and RF circuit design	I	X	X	X	X			X
Cognitive radio	E	X	X	X	X		X	
Cooperative networking	I	X	X	X	X		X	X
Grassroots trust management	C	X	X	X	X		X	X
Distributed path computation algorithms	I			X	X		X	
Wireless technologies	I		x	x	x	x		x
Radio-aware networking	I		x	x	x	x		
Cross-layer design	I		x	x	x	x		
Mesh networks	I		x	x	x	x		x
Mobility management	I		x	x	x	x		x
Network security	I		x	x	x	x		x
Traffic monitoring	I		x	x	x	x		
Overlay networks	I		x	x		x		x
Audiovisual analysis	I	X	X			X	X	
Machine learning	I	X	X			x	x	
Multimedia processing	I	X	X			X	X	
Distributed technologies	I					X	X	X
Information systems and metadata	I	x	X			X	X	X
Ontological reasoning	I	X	X			X	X	

(*) I - Internal; O - Existent in another Unit of INESC Porto; E - External; C – To be created

Description of the Unit's organizational structure

The Telecommunications and Multimedia Unit is now organized in four Areas, as a result of a process that has been matured during the last years, but still needs to be consolidated in the future.

The *Multimedia Technologies and Systems* Area was created to integrate and coordinate well established R&D activities in Media Processing (Audio, Video and Image) and Multimedia Distributed Systems. This was mainly driven by the need to allow a broader and unified scope of intervention in all aspects related with multimedia content value chains, namely generation, description, manipulation, adaptation, transmission and distribution of multimedia content over heterogeneous platforms. This

activity has been mainly carried out in projects funded by EC programmes and is also tightly connected to ongoing post-graduate research programmes.

The *Wireless and Mobile Networks* (WiMobNet) Area has for the past years focused its research activity on mobile networks and addresses innovative architectural solutions (e.g., Quality of Service, mobility, security) required by these networks, as well as new communications paradigms that they make possible. This activity has been strengthened with the participation in projects funded by EC programmes and constitutes a natural framework for post-graduate students to carry out their research work (mainly at PhD level).

The *Internet Architectures and Networking* (IAN) Area was brought to UTM in November 2007 by two PhD researchers that were already pursuing the goal of addressing disruptive Internet paradigms abroad. INESC Porto lacked such know-how and agreed to host the new area as part of UTM. Technologically, IAN is focused upon user-centric trends that are emerging in several fields of *Information and Communication Technology (ICT)*, OSI Layers 2 and 3. IAN's mission relates to a simple and yet highly disruptive approach: nomadic people become the center of the networking system. Users on the move are part of communities and will not only be consumers but also active providers of different Internet services. As in other grassroots movements, the user will have an active say concerning services provided and consequently, concerning the techno-social environment that surrounds him/her.

The research developed in IAN follows a two-fold scientific-technologic methodology. Having a long-range (10 year) perspective, IAN explores new technologies and advanced architectures, as well as disruptive communication models. On a short-range perspective (1-3 years) IAN fosters synergies with industry and relevant international research entities.

The *Optical and Electronics Technologies* Area was created with the main goal of defining and pursuing a strategy that could leverage existing and promising R&D activities with a technological intensive basis, namely in Optical Communications and Microwaves, and Microelectronics. This process is not yet complete and thus is still under evaluation. An important asset for research work in this Area is a recently equipped Photonics and Microwave laboratory, which allows supporting basic research and academic work as well as the development of pre-industrial prototypes for different application fields.

Although each Area has its own strategy and plan of activities (detailed in a separate section), synergies between them have been and will continue to be exploited, when possible and necessary. Similarly, there are examples of successful collaboration with other Units that are expected to continue and be reinforced in the coming years.

It is expected that during 2009 some global restructuring will take place at INESC Porto, with an impact on the composition of different Units. For this reason, a number of researchers may leave UTM. On the other hand, some researchers currently affiliated with UTM, but with no active involvement in projects and contracts in a regular basis, will be associated with INESC Porto under a different statute. Both facts are taken into account when considering the personnel figures foreseen at the end of 2009.

R6.2 ACTIVITIES DEVELOPED IN 2008

R6.2.1 National programmes

Most of the research projects carried out in 2008 were funded by FCT under the PRAXIS XXI programme, but other projects submitted to QREN were approved in 2008 and started early in 2009. The main goals and results achieved on each project will be described next.

The VOCAL project aims at studying acoustic, aerodynamic and electroglotographic data of voice production by patients suffering from unilateral vocal fold paralysis, in order to devise forms of treatment and rehabilitation that may complement speech therapy and surgery. The participation of

INESC Porto in the project concluded in September 2008 and included initially an evaluation of the state-of-the-art in related fields and, in a second phase, organizing and performing tests with selected patients.

The OMR (Optical Music Recognition) project aims at a) developing new OMR technology that facilitates the automated conversion of handwritten music scores to digital format and its representation in hierarchical fashion using MusicXML; b) developing a web-based system integrating OMR technology and providing seamless access to browsing, retrieval, search and analysis of the music scores stored in the system. During 2008 the following results were achieved: 1) improvements on the algorithms being developed on the project for a robust detection and removal of staff lines in a music score, a fundamental operation for a successful recognition of a music score; these results were published in a paper in the IEEE Transactions on Pattern Analysis and Machine Intelligence (the international reference journal on the research area) ; 2) development of algorithms for music symbols recognition, robust under typical artifacts on handwritten music scores; 3) improvements on a prototype system integrating OMR technology, database storage and search, with a web-base interface. A

The BCCT (Breast Cancer Conservative Treatment) project aims at: 1) developing new learning methodologies to predict the overall aesthetic result of breast cancer treatments; 2) developing an intelligent medical system for the aesthetic evaluation of breast cancer conservative treatment, integrating the new evaluation technology, database access and a friendly user interface. The following results were achieved during 2008: 1) development of algorithms for the automatic of fiducial points (nipple complex, breast contour and jugular notch of sternum) on the digital photographs of the patients; 2) improvements on the learning technology for the prediction of the overall aesthetic result; 3) improvements on a prototype workstation integrating the new evaluation technology and database access; 4) extension of the pattern recognition techniques to oncoplastic interventions on the breast; 5) development of techniques to predict the aesthetic result before the surgical intervention.

DBPreserve (Data Warehouses for the Long-term Preservation of Institutional Electronic Records and Databases) aims at exploring the application of DW technology to the preservation of complex electronic records like databases. During 2008 the activity of the project focused on two directions: 1) a wide scope review of the state-of-the-art in electronic documents, digital preservation and, especially, database preservation; 2) building an archive version of a database related with pedagogic opinion polls in high-level schools, using a data warehouse, as a means to allow a first validation of the basic intuition beyond the concept and to identify problems to solve.

URBIS (Efficient management and visualization of spatio-temporal urban data) aims at the development of a system for the representation, querying and visualization of urban information. According to the proposal, in 2008 the project concentrated in the first two tasks: "Spatio-Temporal Database Management System" and "Reference Model for Spatio-Temporal Urban Information". As a result of the first task, a state-of-the-art deep research has been performed and a prototype of a Spatio-Temporal Database Management System was developed. This includes a spatio-temporal data representation model that was used in the second task, resulting in a database model, based in the entities mentioned in the CityGML standard.

ROFWDM (Design and Optimisation of WDM Millimetre-Wave Fibre-Radio Systems) is being developed in partnership with Instituto de Telecomunicações (Aveiro and Porto) and Siemens SA. The main objectives of the project are to analyse, design and optimise FBGs for WDM millimeter-wave fibre-radio systems, with an emphasis on the coexistence of these systems with the existing telecommunications WDM optical network infrastructure. The main results achieved in 2008: 1) Simulation of FBG reflection and transmission responses on a variety of RF signaling schemes namely OFDM and UWB; 2) Evaluation of the performance of an interleaved OSSB-WDM system; 3) Derivation of the structure of the minimum mean-squared error (MMSE) receiver for non-linearly distorted orthogonal frequency division multiplexer (OFDM) signals in additive white Gaussian noise (AWGN).

The main goal of CFD (Custom Computing Architectures for Computational Fluid Dynamics) is to develop a custom computing machine capable of accelerating a Computational Fluid Dynamics software application used to simulate the wind flow over complex terrain. The research focused on a core function of the application that is responsible for the resolution of sparse systems of equations and accounts for the most part of the execution time during typical simulation runs. This function exhibits a regular structure of arithmetic computations and is thus adequate for experiment with its migration to a custom computing engine. The project concluded in 2008; although final results have achieved a digital implementation of the custom processing core for the section of code identified as critical in the original CFD code, this has not been integrated with the original software application because the partitioning strategy used to cope with realistic sized problems has shown to be not valid for the convergence of the iterative process executed in the CFD simulation.

The main objective of IAMA (Implementation of a biologically realistic associative memory in analogue CMOS-VLSI) is the analogue implementation of a set of coupled oscillators for memory association. The fundamental blocks of the project have been designed in 2006, while during 2007 the design and implementation of a multiplexed KII network in analogue VLSI was undertaken. All building blocks, such as current memories, filters and multiplexing scheme, were simulated and an integrated circuit was designed and sent for fabrication. The project concluded with success in 2008; during the final year a prototype was built with a full network in current mode.

The general goal of the project Dr-VidS (Dynamic reconfiguration of logical resources for real time foreground/background video segmentation) is to show the feasibility and effectiveness of approaches based on dynamically reconfigurable logic for complex, multi-task applications with real-time constraints. Realistic constraints are ensured by application to video background/foreground segmentation problems. Conversely, research on video segmentation algorithms is oriented to optimise the use of dedicated hardware. The workplan for 2008 was executed and the expected outcomes achieved, namely: 1) provision of Linux support for dynamic reconfiguration of FPGAs, which delivered a preliminary implementation together with a performance evaluation; 2) work on algorithms for using depth information for image segmentation (real-time depth map extraction from stereo images and low-level processing of image using dynamic reconfiguration of hardware).

The main objective of the project VECTOR is to develop a set of software compilation and hardware synthesis tools to enable an automatic translation of MATLAB applications into high-performance custom designed vector processors. The team of INESC Porto is responsible for the hardware component of the work, and will create a set of tools to assist the automatic synthesis of floating-point datapaths as well as all the other building blocks required for assembling custom vector processors. During 2008 a datapath synthesis tool was developed that builds automatically floating-point datapaths from dataflow specifications, targeting XILINX FPGAs. This will be later integrated in a tool for the assembly of custom vector processors, along with other customizable blocks (memories, register files, instruction decoders and controllers).

Within the scope of NSRF/QREN SI I&DT funded activities, two projects in co-promotion (involving a consortium of several partners) were proposed focused upon the topics of cooperative networking and of Future Internet experimental platforms. One of these projects was already accepted. It is expected that these activities (to be started in 2009) will lead to the following results: 1 national experimental platform; 2 pre-release prototypes; 1 advanced prototype; 4 products; 3 European patents; publications; organization of 5 national workshops; participation in CeBit 2010.

R6.2.2 European programmes

Six research projects funded by the European Commission under the IST programme (FP6) were active in 2008. Four such projects have concluded by the end of 2008 (ENTHRONE II, MOSAICA, DAIDALOS II and UROOF), while the other two (VISNET II and EDCINE) will complete their activities on June 2009. Moreover, a new project (ACEOLE) under the Marie Curie Initial Training Network (ITN) programme has

started in 2008 and continues in 2009. A brief description of goals and results of each project follows. Other initiatives to promote new consortia to submit new project in FP7 calls during 2009 will also be mentioned.

ENTHRONE II (End-to-End QoS through Integrated Management of Content, Networks and Terminals) is an Integrated Project partially funded by the European Union under FP6-IST. ENTHRONE proposes an integrated management solution covering the entire audiovisual service distribution chain, including protected content handling, distribution and terminal reception. It aims at delivering an open and flexible end-to-end architecture enabling business actors to enhance their services, better satisfying users' expectations. For that purpose the project extensively employs MPEG-21 for Digital Item declaration, usage environment description, DRM, data communication and content adaptation. The main contributions of INESC Porto during the last year of the project were: software tools to manipulate MPEG-21 Digital Items; software sub-system to attend and monitor users' requests, coordinating the actions of the other ENTHRONE modules to deliver the requested content adapted to specific context of usage. Moreover, INESC Porto actively participated in the integration and demonstration of the whole ENTHRONE system.

MOSAICA (Semantically Enhanced, Multifaceted, Collaborative Access to Cultural Heritage) is a STREP project partially funded by the EC under FP6-IST. MOSAICA objective was to develop tools to promote the efficient dissemination of cultural heritage multimedia contents. The project has developed tools to allow users to annotate relevant contents using specific and comprehensive ontologies, tools to allow users to perform semantic searches of relevant content, tools to build virtual expeditions using the retrieved content and tools to allow users to donate their contents to a wide community thus offering storage and downloading capabilities. During 2008 (the final year of the project) INESC Porto completed the development of the software content management system, which is based on distributed technologies, namely p2p, distributed databases and Web Services. The system offers its functionality as a set of Web Services, covering semantic-based search, upload of content and metadata and download of content.

EDCine (Enhanced Digital Cinema) is an Integrated Project partially funded by the EC under FP6-IST. EDCine is developing tools for the digital cinema content value chain, using the JPEG-2000 standard for the compression of moving pictures and the use of efficient wireless techniques for the secured distribution of digital cinema to digital theatres. The main results achieved during 2008 were: 1) specification of a complete metadata model fulfiling the requirements of the complete digital cinema content value chain; 2) development of software tools to map between distinct metadata models and to create profiles of users within the different phases of the digital cinema content value chain.

VISNET II (Networked audiovisual media technologies) is a Network of Excellence partially supported by the European Commission within the FP6, with a clear vision for integration, research and dissemination plans. VISNET II aims at strengthening scientific and technological excellence on the area of networked audiovisual media technologies by integrating resources and expertise on that topic and includes a wide range of jointly executed research activities that are clustered in three themes: video coding, audiovisual processing and security. During 2008 the following main results were achieved: development of a two-layer ontology for context knowledge representation and manipulation; development of a complete functional architecture of an adaptation decision engine (ADE) based on an ontological model and on MPEG-21; development of software tools to process contextual information and generated additional knowledge about the usage context; development of OWL-based (Web Ontology Language) software tools to manipulate and reason with the acquired contextual knowledge; development of Web Services based interfaces for the ADE system; development of an extension to the QoS architecture and testbed to support passive and active measurements intended for performance monitoring and triggering of QoS control functions (e.g., admission control).

DAIDALOS II (Designing Advanced network Interfaces for the Delivery and Administration of Location independent, Optimised personal Services) aimed at designing and developing a Beyond 3G (B3G)

communications framework and addressed secure, personalized and pervasive services built on heterogeneous wireless network and service infrastructures for the mobile user. INESC Porto contributed to four topics: a) support of user mobility between heterogeneous wireless networks using IEEE 802.21 techniques extended with QoS information; b) integration of ad-hoc with infrastructure networks; c) traffic monitoring and its usage in session admission control; d) new business models. During 2008 the following results were achieved: a) the QoS Abstraction Layer (QoS-AL) module was finalized and integrated into the DAIDALOS testbed and mobility tests were carried out for testing this module; b) two other modules (MAGINFO and GW-MT-AUTOCONF) were tested and integrated into the testbed, to aid in the integration of ad-hoc network with the network infrastructure; c) the network monitoring components, used to aid in the admission control algorithms, were also finalized and integrated in the testbed; d) definition and exploitation of a new business model that took into account business scenarios previously identified and the relationships between the various actors that are involved in the value chain of the communications system promoted by DAIDALOS II.

UROOF (Photonic components for Ultra-Wideband radio over optical fiber) is a STREP project partially funded by the EC under FP6-IST. The key goal of UROOF was to investigate building blocks for enabling the delivery of Ultra-wideband (UWB) radio signal over low-cost optical fiber. The aims wee therefore to study, develop, test and implement very low cost conversion solutions for direct optical-to-UWB (O/UWB) and UWB-to-optical (UWB/O) based on innovative microwave photonic concepts. Unlike state of the art radio-over-fiber (RoF) technologies that are used in the backbone of the wireless access systems, UROOF addresses the challenges of the low-cost wireless personal area networks (WPAN). During 2008 the activities of INESC Porto focused on a set of topics and produced the following main results: 1) assessment of bi-directional operation over single mode fiber and multiple access in the photonic domain; 2) investigation of VCSEL distortion characteristics under optical feedback in the access node; 3) analytical assessment of impairments on the simultaneous access of several channels to the optical medium; 4) extraction of parameters for a 1.3 μm single mode VCSEL through fitting analytical results to experimental data, providing the required data to detailed sub/system level simulation; 5) modeling of the optical/RF impairments in Ultra-Wideband Radio over Fiber and identification of guidelines for improved operation performance; 6) development and implementation in MATLAB of models of the MZ, EAM and VCSEL. These models were later incorporated in UROOF system simulation.

ACEOLE (Data Acquisition, Electronics, and Optoelectronics for LHC Experiments) is a mono-site Marie Curie Initial Training Network (ITN), with CERN as main host institution, and offering research training in the application of advanced microelectronics, optoelectronics, networking and real-time data processing technologies in the world's state-of-the-art particle detector systems at the Large Hadron Collider (LHC), and a future upgraded Super-LHC (SLHC). INESC Porto collaborates with CERN on an individual research training project to develop a low-phase noise low-bandwidth Phase-Locked Loop (PLL) to synthesize clocks with high spectral purity (less than 10 ps rms jitter), survive high radiation levels (~1 MGy) and be immune to Single Event Upsets, and a 12-bit analogue to digital converter. These circuits will be fabricated in an advanced commercial-grade 130 nm CMOS technology, will use both full-custom and standard cell design techniques, and employ the radiation-tolerance-by-design methods developed at CERN for the LHC. Built-in self test features will be also included in order to detect degradation of the ASIC performance. The collaboration also includes the experimental characterization of semiconductor laser devices and the optimization of their electrical matching to the laser driver ASIC. During 2008, INESC Porto hosted an Experienced Researcher (ER) for 2 months; work was carried out concerning the modeling and characterization of VCSEL laser diodes.

Cost Action on "Sonic Interaction Design"(SID) entered into force on March 2007 and will end on June 2011. Sonic Interaction Design is the exploitation of sound as one of the principal channels conveying information, meaning, and aesthetic/emotional qualities in interactive contexts. The SID Action serves as a networking platform for sixteen European countries to proactively contribute to the creation and consolidation of new design theories, tools, and practices in this innovative and interdisciplinary

domain. A member of the Unit is Delegate for Portugal on the Management Committee of the SID Action.

A Cost Action on "User-provided networking" was submitted. The Cost Action is expected to ignite discussion around challenges and advantages for the deployment of user-centric architectures. The main expected results are: dissemination of know-how around the topic of user-centric networking; joint collaborations with other European institutions; organization of international events.

Within the context of ICT 2008, a networking event was proposed and organized by INESC Porto. This event aimed at promoting a debate on opportunities and challenges related to user-centric wireless networks, both in technical and in business terms (e.g. the development of a micro-operator role). The ultimate goal was to provide an open debate on potential opportunities that these networks may bring to Europe in particular, and to the Internet globally. The event had the active participation of Telenor and of Huawei and resulted in the development of a consortium having in mind a proposal to be submitted to FP7 call 4 or 5.

1st EIFFEL Think-Tank – the FP7 EIFFEL Support Action aims to contribute to the definition of a dynamic architecture that will allow the Internet to accommodate diversity. Such diversity is brought mainly by the widespread of wireless access technologies, whose efficiency can be highly increased by enabling the transmission of radio signals directly over optical fiber. INESC Porto was invited to participate in EIFFEL, and expects to disseminate the results of the current proposal in the follow-up EIFFEL events, as well as to propose new concepts based upon the current proposal. This participation resulted in the following results: dissemination of know-how around the topic of user-centric networking; joint collaborations with other European institutions; organization of international events.

INESC Porto is an active participant and contributor to the European eMobility platform. eMobility aims at bringing together European organisations to address, as a community, the challenges of future networks, building on Europe's success in mobile communications. INESC Porto intends to divulge results related to the architecture developed in this project across the different working groups of eMobility. The outcome of this participation in 2008 was the exchange of know-how with relevant European partners, leading to internationalization and to the development of consortiums related to European programme activities.

The Eureka/CELTIC AWARE (Aggregation of Wireless Resources) project focuses on technical and legislation issues related to the aggregation of privately owned WLANs. AWARE aims at high bandwidth mobile networks in urban areas leveraging on private WLANs, making industry and telecommunication actors ready to deploy their services on top of this new network infrastructure. The AWARE consortium gathers telecom operator, industrials, SMEs, research institutes and universities that bring in their skills in network architecture, wireless technologies and exploitation, as well as economical analysis. INESC Porto was invited to join AWARE due to the ICT networking event organized in Lyon. The project is expected to start in June 2009 and will result in the following: 1 prototype, publications, internationalization and standardisation.

R6.2.3 Other programmes, consulting, services

In the following a brief description will be given of other activities that are not covered in the previous sections (National and European programmes).

In the framework of the Innovation Plan of the Portugal Telecom (PT) group a contract was signed with PT Inovação (PTIN), following previous projects under the same topic (multicast communications in access networks). This new project (GrCLIFmcast - management of multicast sessions with origin on clients) aimed at implementing a new service which enables a user to define and create video channels for a small group of receivers. The service has been defined and integrated in the IMS platform of PTIN.

The Unit has participated (together with the Power Systems Unit) in the INOVGRID project, under contract with EDP. The project had as main goals to develop a set of functionalities and new systems for providing the current energy distribution network with a level of intelligence that will allow a more efficient use of energy, with benefits both for clients and utilities. A key topic in the project was smart metering. The UTM team integrated the Communications group within the project, which had the responsibility of selecting and defining the networks (WAN, LAN and HAN) needed for communications between the system components and defining the respective interfaces. The following topics were covered: identification and analysis of requirements; definition of the system architecture analysis of available technologies; study of scenarios and technologies for the HAN (specific responsibility); system specification (components and interfaces). These contributions are included in internal reports of the project.

Digitópia (Platform for the Development of Digital Music Communities) is a collaboration between Casa da Música, INESC Porto, ESMAE and Escola das Artes (UCP). The project aims at exploring "active relationships" with music in a facility implemented in the main entrance hall of Casa da Música: 1) to develop music and creativity amongst a range of ages and social conditions, and mostly amongst youth; 2) to foster the development of free music software; 3) to promote social inclusion, and lead to the emergence of multicultural communities of music makers/lovers; 4) to promote free musical content.

Cooperation between INESC Porto and some Brazilian research institutions (UFPA, IME, UFES and UFF) was settled in the framework of a GRICES/CNPq programme. The main goal of this project is to improve the scientific ability of the partners in the photonic area, more specifically on the theory and design of Raman amplifiers for optical communications. The project also aims at strengthening the collaboration between the Brasilian institutions and INESC Porto and the exchange of researchers and students. During 2008 researchers from Brasil have visited INESC Porto in July and two researchers from INESC Porto have visited UFPA and IME in Brasil, in September. Meetings have taken place where the current state of the work was discussed. A Raman amplifier was developed within the project and system tests have been conducted.

In addition to the regular framework, INESC Porto is also developing R&D activities under direct funding from partners, namely, sub-hiring activities. Specifically within the topics of cooperative networking and radio spectrum optimization, two activities were pursued leading to the negotiation of two proposals with two different Portuguese access operators (cable and ADSL). Globally, these activities (to be started in 2009) will lead to the following results: 2 prototypes; 2 patents; 1 pilot; publications.

U-NET (User-provided networking: challenges and opportunities) is a workshop proposed and organized by INESC Porto, collocated with ACM CoNext 2009, Rome. The workshop is expected to ignite discussion concerning the role of the Internet end-user as a micro-provider of networking services. The workshop encompasses a regular call for papers as well as an industrial panel with internationally renowned peers both from industry and from academia. Main expected results: dissemination and exchange of know-how, internationalization.

CMU Portugal R&D Activities - together with Nokia-Siemens Networks Portugal S.A. and with Instituto de Telecomunicações (Aveiro), and with CMU USA, INESC Porto is developing activities that lead, among other exchange of know-how, to the submission of one project to CMU Portugal in 2008. The project, which falls under the R&D tracks of mobility management and cooperative networking, was not accepted. Nonetheless, the activities are being pursued, being other sources of financing under analysis. Main results: development of long-term activities involving NSN and IT Aveiro, within the topics of cooperative networking.

Besides the R&D activities carried out under contract it is also worth mentioning other research activities linked with PhD and MSc theses.

R6.3 SUMMARY OF RESULTS OF THE RESEARCH ACTIVITIES OF THE TEAM MEMBERS

Projects

Summary of projects developed in 2008

Type of Activity (1)	No. Projects (2)			Total Income (€)
	N	E	I	
R - Research	10	6		663.500
D - Development	1			18.000
C - Consulting	1			25.000
A – Advanced training				
T – Technology Transfer				
O - Other				
TOTAL	12	6		706.500

Summary of relative distribution of sources of income

Financing (3)	Status (4)			Total Income (€)
	S - Started	OG– On-going	C - Concluded	
NP – National Programmes	1,22%	11,75%	1,98%	105.600
EP – European Programmes		28,49%	50,47%	557.900
CS – Consulting and services	2,55%		3,54%	43.000
O – Other R&D sources				
OS – Other sources				
Total	3,77%	40,24%	55,99%	706.500

Summary of projects developed in 2008

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
IAMA	V. Tavares	R	N	NP	FCT	06-2004	01-2008	F
DAIDALOS 2	M. Ricardo	R	E	EP	FP6	01-2006	12-2008	F
MOSAICA	M.T. Andrade	R	E	EP	FP6	06-2006	11-2008	F
UROOF	H. Salgado	R	E	EP	FP6	07-2006	12-2008	F
VISNET II	J. Ruela	R	E	EP	FP6	07-2006	06-2009	OG
ENTHRONE 2	M.T. Andrade	R	E	EP	FP6	09-2006	11-2008	F
EDCINE	M.T. Andrade	R	E	EP	FP6	07-2007	06-2009	OG
CFD	J. C. Alves	R	N	NP	FCT	05-2005	06-2008	F
VOCAL	A. Ferreira	R	N	NP	FCT	09-2007	09-2008	F
BCCT	J. Cardoso	R	N	NP	FCT	10-2007	09-2010	OG
DBPreserve	G. David	R	N	NP	FCT	10-2007	09-2009	OG
OMR	J. Cardoso	R	N	NP	FCT	10-2007	09-2010	OG
ROFWDM	H. Salgado	R	N	NP	FCT	10-2007	09-2009	OG

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ.		Starting date	Conclusion (prediction)	Status (4)
				Type (3)	Prog.			
DR-VidS	J. C. Ferreira	R	N	NP	FCT	11-2007	05-2010	OG
VECTOR	J. C. Alves	R	N	NP	FCT	11-2007	11-2010	OG
INOVGRID	J. Ruela	C	N	CS	–	01-2008	12-2008	F
URBIS	A. A. Sousa	R	N	NP	FCT	02-2008	07-2010	S
GrCLIFmcast	M. Ricardo	D	N	CS	–	03-2008	02-2009	S

(1) Type of Project: R – Research; D – Development; C - Consulting; A – Advanced Training; T – Technology Transfer; O - Other

(2) Degree of internationalization: N – National; E – European; I – International *(Select one)*

(3) Source of financing: NP – National Programmes; EP – European Programmes; CS – Consulting and services; O – Other R&D financing sources; OS – Other sources

(4) Status: S – Starting: activities initiated in 2008 and continuing in 2009; OG – On-going: activities started earlier than 2008 and continuing in 2009; F – Finished: activities ending in 2008.

- **Summary of publications**

Summary of publications in 2008

Type of publication	Number
Theses concluded in 2008 by members of the unit	7
Books (author)	1
Chapter/paper in books	4
Publications (editor)	1
Papers in International Journals with scientific referees	22
Papers in National Journals with scientific referees	
Conference Proceedings in events with scientific referee and selection	67
Other publications (National meetings, local journals, etc.)	7
Total	109

- **Summary of post-graduation activities**

  - *Summary of theses supervised by members of the unit in 2008*

Type	Starting	On-going	Concluded	Total
Master	16	9	60	85
Doctoral	3	38	2	43
Total	19	47	62	128

- **Summary of Advanced Training Actions**

Summary of advanced training actions organized for external trainees in 2008

Type	Number
Training for graduation students *(estágios curriculares)*	38
Training for others *(estágios extra-curriculares)*	3

Type	Number
Professional training actions *(estágios profissionais)*	5
Other actions	
Total	46

Summary of activities of cooperation or dissemination

Summary of items

Type	Number
Organizing conferences or meetings	20
Collaboration in papers authored by INESC Porto researchers	> 100
External persons directly involved in actions organized by INESC Porto	20

Human resources in 2008

Summary of Unit personnel at the end of 2008

Type	Education				Total	Variation (*)
	PhD.	MSc.	BSc.	Other		
R&D						
University or Polytechnic Staff	31	5			36	+1
INESC Porto Grant Holders		2	3		5	-6
Other Grant Holders		9	17		26	+2
Employees	3	1			4	0
Trainees						
Other						
Administrative				1	1	0
Total	34	17	20	1	72	-3

(*)   Relative to 2007, in absolute numbers.

R6.4 LIST OF PUBLICATIONS IN 2008

R6.4.1 Theses concluded by members of the unit

VIANA, P., "Media Asset Management in Broadcasting – New Approaches to Enable the Effective Management of Physical Resources and Media Objects", July 2008, PhD thesis.

SOUSA, F. "Monitoring of multicast traffic in heterogeneous networks", July 2008, MSc thesis.

LIMA, N., "Estruturas EBG em Circuitos Microstrip" (EBG structures in microstrip circuits), July 2008, MSc thesis.

REBELO, L., "Avaliação automática do resultado estético do tratamento conservador do cancro da mama" (Automatic evaluation of the aesthetic result of conservative treatment of breast cancer), July 2008, MSc thesis.

ANDRADE, M. T., "Architectural Support for Ubiquitous Access to Multimedia Content", March 2008, PhD thesis.

BARBOSA, V. H., "Ontologies for Context-Aware Applications", March 2008, MSc thesis.

SALTA, N., "Security extensions to the TCP/IP stack for the support of congestion", March 2008, MSc thesis.

R6.4.2 Books (Author)

GOUYON, F., "Computational Rhythm Description", April 2008, VDM Verlag, ISBN 978-3836477697.

R6.4.3 Chapter/paper in Books

LOPES TEIXEIRA, L., CORTE REAL, L., "Joint Coding of Multiple H.264 Video Programs", *Lecture Notes in Computer Science*, September 2008, Progress in Pattern Recognition, Image Analysis and Applications, vol.5197, p.741-748.

FREIRE, M., MONTEIRO, P., SILVA, H., RUELA, J., "Ethernet Passive Optical Networks", August 2008, *Encyclopedia of Multimedia Technology and Networking*, Second Edition.

NUNES, S., RIBEIRO, C., DAVID, G., "Use of Temporal Expressions in Web Search", *Lecture Notes in Computer Science*, March 2008, vol.4956, p.580-584.

GOUYON, F., HERRERA, P., GÓMEZ, E., CANO, P., BONADA, J., LOSCOS, A., AMATRIAIN, X., SERRA, X., "Content processing of music audio signals" 2008, *Sound to sense, sense to sound: A state-of-the-art*, Roccheso D., Polotti P. (eds), Logos Verlag.

R6.4.4 Publications (Editor)

KAMINSKA, B., LUBASZEWSKI, M., MACHADO DA SILVA, Special issue of the VLSI Design Journal with selected papers from the International Mixed Signals Testing Workshop and GHz/Gbps Test Workshop, *VLSI Design*, March 2008.

R6.4.5 International Journals with scientific referees

CAMPOS, M.J., MAGALHÃES, A., ALMEIDA, T., COSTA, S., VRIELING, C., CHRISTIE, D., JOHANSEN, J., SANTOS CARDOSO, J., "Is Face-Only Photographic View Enough for the Aesthetic Evaluation of Breast Cancer Conservative Treatment?", *Breast Cancer Research and Treatment*, December 2008, vol.112, no.3, p.565-568.

SOFIA, R., MENDES, P., "User-provided networks: Consumer as Provider", *IEEE Communications Magazine*, December 2008, Feature Topic on Consumer Communications and Networking - Gaming and Entertainment, Volume 46, Issue 12, December 2008, pp. 86-91.

LOPES CAMPOS, R., PEREIRA RICARDO, M., "A fast algorithm for computing minimum routing cost spanning trees", *Computer Networks*, October 2008, vol.52, no.17, p.3185-3306.

OLIVEIRA, J.M., CARRAPATOSO, E., "Dynamic Generation of SMIL-Based Multimedia Interfaces", *Journal of Multimedia*, October 2008, vol.3, no.4, p.14-25.

CERQUEIRA, E., VELOSO, L., NETO, A., CURADO, M., MONTEIRO, E., MENDES, P., "QoS Support for Multi-user Sessions in IP-based Next Generation Networks", *ACM-Springer Mobile Networks and Applications Journal*, Volume 13, Issue 3-4 (August 2008), pp. 366-384.

LOYOLA, L., MENDES, P., JIMENEZ ABELLEIRA, M., "Organizational virtual zones: Control of Internet edges using multi-level flat identifiers", *Elsevier Computer Communications*, July 2008, vol.31, no.11.

VELOSO, L., CERQUEIRA, E., MENDES, P., MONTEIRO, E., "Mobility and QoS Support for Multi-user Sessions over Heterogeneous Networks", *Journal of Internet Engineering*, Vol. 2, No. 1, pp. 167-180, June 2008.

ARAÚJO, A.J., ALVES, J.C, "A project based methodology to teach a course on advanced digital systems design", *WSEAS Transactions on Advances in Engineering Education*, June 2008, vol.5, no.6, p.437-446.

FONSECA, T., RIBEIRO, C., GRANJA, C., "Vital Signs in Intensive Care: Automatic Acquisition and Consolidation into Electronic Patient Records", *Journal of Medical Systems*, May 2008 (published on-line).

PINTO, A.A., PEREIRA RICARDO, M., "Multicast deflector", *TELECOMMUNICATION SYSTEMS*, April 2008, vol.37, no.4, pp. 145-156.

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CAMPOS, M.J., SANTOS CARDOSO, J., WILD, T., KROIS, W., FITZAL, F., "Comparing two objective methods for the aesthetic evaluation of breast cancer conservative treatment", *European Journal of Cancer Supplements*, vol.6, no.7, pp. 209-209, April 2008.

IMMINK, M., PUTTER, H., VISSER, J., BARTELINK, H., SANTOS CARDOSO, J., CAMPOS, M.J., NOORDIJK, E.M., POORTMANS, P.M., WARLAM-RODENHUIS, C.C., STRUIKMANS, H., "Long-term cosmetic changes after breast conserving therapy for patients with stage I and II breast cancer treated in the EORTC "boost versus no boost" trial", *European Journal of Cancer Supplements*, vol.6, no.7, p.134-134, April 2008.

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283451.

KAMINSKA, B., LUBASZEWSKI, M., MACHADO DA SILVA, J., "Selected Papers from the International Mixed Signals Testing and GHz/Gbps Test Workshop" (editorial), *VLSI Design*, March 2008, Article ID 165673

SOUSA MENDONÇA, H., MACHADO DA SILVA, J., SILVA MATOS, J., "Estimation of ADC's SINAD after the Code Histogram Method", IET Journal on Science, March 2008, *Measurement & Technology*, vol.2, no.2, p.96-99.

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LAGRANGE, M., MARTINS, L.G., MURDOCH, J., TZANETAKIS, G., "Normalized Cuts for Predominant Melodic Source Separation", *IEEE Transactions on Audio, Speech and Language Processing*, February 2008, vol.16, no.2, p.278-290.

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MARTINS, A.C., FARIA, L., VAZ DE CARVALHO, C., CARRAPATOSO, E., "User Modeling in Adaptive Hypermedia Educational Systems", *Journal of Educational Technology & Society*, vol.11, Issue 1, January 2008, pp.194-207.

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Blank.

R6.4.7 Conference Proceedings with scientific referees

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RODRIGUEZ, V., CARRERAS, A., BARBOSA, V.H., DELGADO, J., ANDRADE, M.T., "A Semantic Model for the Authorisation of Context-Aware Content Adaptation"*, SAMT 2008 - 3rd International Conference on Semantic and Digital Media Technologies*, December 2008, Koblenz, Germany.

CERQUEIRA, E., VELOSO, L., CURADO, M., MONTEIRO, E., MENDES, P., "Quality Level Control for Multi-user Sessions in Future Generation Networks"*, IEEE Globecom 2008*, November 2008, New Orleans, USA.

COSTA, B., GOUYON, F., SARMENTO, L., "A Prototype for Visualizing Music Artist Networks"*, ARTECH 2008 - 4th International Conference on Digital Arts*, November 2008, Porto, Portugal.

LOYOLA, L., MENDES, P., ROMERO, F., "Multi-level Distributed Name Resolution System based on Flat Identifiers", *IEEE Globecom 2008*, November 2008, New Orleans, USA.

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OLIVEIRA, J., GOUYON, F., REIS, L., "Robot Dance based on Online Automatic Rhythmic Perception", *iRobot 2008 - 3rd International Workshop on Intelligent Robotics, IBERAMIA Conference*, October 2008, Lisbon, Portugal.

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SOUSA, R.J., SANTOS CARDOSO, J., PINTO DA COSTA, J.F., CARDOSO, M.J., "Breast Contour Detection with Shape Priors", *ICIP 2008 - 2008 IEEE International Conference on Image Processing*, October 2008, San Diego, USA, p.1440-1443.

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ALMEIDA, T., MAGALHAES, A., COELHO, F.E., SOUSA, R.J., SANTOS CARDOSO, J., CAMPOS, M.J., "Is Asymmetry Enough for the Aesthetic Evaluation of Breast Cancer Conservative Treatment (BCCT)?"*, ORBS2008 - The International Meeting of Oncoplastic and Reconstructive Breast Surgery*, September 2008, Nottingham , UK.

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SANTOS, A.P., PINTO, A.A., PEREIRA RICARDO, M., ALMEIDA, T., FONTES, F., "Admission Control in IP Multicast over Heterogeneous Access Networks"*, NGMAST 2008 - Second IEEE Conference and Exhibition on Next Generation Mobile Applications*, September 2008, Cardiff, Wales, UK.

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R6.4.8 Other Publications

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ALMEIDA, F.L., "CREATING VALUE WITH OPEN SOURCE SOFTWARE", *BusSustain 2008 - International Conference on Business Sustainability*, June 2008, Ofir, Portugal.

PEREIRA, M.R., SALGADO, H., PEREIRA, J.R., "Synthesis of Microstrip Electromagnetic Bandgap Structures", *SEON 2008 - VI SYMPOSIUM ON ENABLING OPTICAL NETWORKS*, June 2008, Porto, Portugal.

ARAÚJO, A.J., CARLOS ALVES, J., "A utilização de FPGAs no ensino de sistemas digitais na FEUP", *REC 2008 - IV Jornadas Sobre Sistemas Reconfiguráveis*, February 2008, Braga, Portugal.

FERREIRA, P., CANAS FERREIRA, J., CARLOS ALVES, J., "Arquitecturas Paralelas Heterogéneas em Sistemas Reconfiguráveis", *REC 2008 - IV Jornadas Sobre Sistemas Reconfiguráveis*, February 2008, Braga, Portugal.

SILVA, M.L., CANAS FERREIRA, J., "Exploiting the Run-Time Use of IP Cores on Dynamically Reconfigurable Systems", *REC 2008 - IV Jornadas Sobre Sistemas Reconfiguráveis*, February 2008, Braga, Portugal.

R6.5 LIST OF JOURNALS

Journal	Number of papers
ACM-Springer Mobile Networks and Applications Journal	1
Breast Cancer Research and Treatment	1
Computer Networks	1
Elsevier Computer Communications	2
European Journal of Cancer Supplements	3
IEEE Transactions on Audio, speech and Language Processing	1
IEEE Communications Magazine	1
IEEE Transactions on Information Theory	1
IET Journal on Science	1
International Journal of Advanced Media and Communication	1
Journal of Educational Technology & Society 2008	1
Jounal of Internet Engineering	1
Journal of Medical Systems	1
Journal of Multimedia	1
Neural Networks	1
VLSI Design	2
Telecommunication Systems	1
WSEAS Transactions on Advances in Engineering Education	1
TOTAL	22

R6.6 LIST OF PATENTS

Blank.

R6.7 LIST OF PROTOTYPES

Peak Clustering
Developed under internal project
Demo Place: INESC Porto (and distributed in open-source framework MARSYAS)
Development Period: January 2008 – December 2008

RAMA (Relational artist maps)
Developed under internal project
Demo Place: ARTECH Conference (and available online at http://pattie.fe.up.pt/RAMA/)
Development Period: April 2008 – June 2008

Dancing Robot
Developed under internal project
Demo Place: ARTECH Conference
Development Period: February 2008 – July 2008

Web based system for the creation and management of a music corpus
Developed under OMR project
Demo Place: INESC Porto
Development Period: January 2008 – June 2008

System for the automatic processing of Portuguese cheques
Developed under internal project
Demo Place: INESC Porto
Development Period: January 2008 – June 2008

Intelligent medical system for the aesthetic evaluation of breast cancer conservative treatment
Developed under BCCT project
Demo Place: INESC Porto
Development Period: January 2008 – December 2008

People tracking algorithm for single camera
Developed under VISNET II
Demo Place: INESC Porto
Development Period: January 2008 - December 2008

Framework for the evaluation of video segmentation and tracking algorithms
Developed under VISNET II
Demo Place: INESC Porto
Development Period: January 2008 - December 2008

Distributed content management system based on p2p and Web Services technologies
Developed under MOSAICA
Demo Place: INESC Porto
Development Period: January 2008 - December 2008

Software tools to manipulate complex multimedia digital objects in the form of MPEG-21 Digital Items
Developed under internal project
Demo Place: INESC Porto
Development Period: March 2008 - October 2008

Software tools to support context-aware access to multimedia content
Developed under ENTHRONE II
Demo Place: INESC Porto
Development Period: January 2008 - September 2008

Spatio-Temporal Data Base Management System
Developed under URBIS
Demo Place: INESC Porto
Development Period: January 2008 - December 2008

QoS extensions to IEEE 802.21
Developed under Daidalos II
Demo Place: Portugal Telecom
Development Period: January – December 2008

Demonstrator of End-to-end QoS solution for heterogeneous wireless access networks
Developed under VISNET II and internal project
Demo Place: INESC Porto
Development Period: January – December 2008

Routing technique for personnal and small area wireless mesh networks
Developed under internal project
Demo Place: INESC Porto
Development Period: January – December 2008

NS-3 simulator for IEEE 802.11s
Developed under internal project
Demo Place: INESC Porto
Development Period: January – December 2008

NS-2 simulator for multi-channel management in 802.11s wireless mesh networks
Developed under internal project
Demo Place: INESC Porto
Development Period: January – December 2008

NS-3 simulator for moving vehicles
Developed under internal project
Demo Place: INESC Porto
Development Period: January – December 2008

Monopole fractal antenna
Developed under PhD programme
Demo Place: INESC Porto
Development Period: July - December 2008

Chebyshev reflective microwave filter synthesized using the layer peeling algorithm
Developed under PhD programme
Demo Place: INESC Porto
Development Period: July - December 2008

MSE algorithm for channel estimation in nonlinear distorted signals
Developed under ROFWDM
Demo Place: INESC Porto
Development period: January-July 2008

Phase estimation and dispersion compensation algorithm
Developed under PhD programme
Demo Place: INESC Porto
Development period: January-December 2008

VCSEL model with optical feedback
Developed under UROOF
Demo Place: INESC Porto

Development period: January-July 2008

EAM model
Developed under UROOF
Demo Place: INESC Porto
Development period: January-July 2008

An adaptive scheme for testing, non-linearity correction, and estimation of RF amplifiers' nonlinearities
Developed under PhD programme
Demo place: INESC Porto
Development period: January 2008 – December 2008

Current mode multiplexed KII Network Chip
Developed under IAMA
Demo place: INESC Porto
Development period: January 2008 – December 2008

R6.8 LIST OF THESES SUPERVISED BY MEMBERS OF THE UNIT DURING 2008

PhD Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Paula Viana	FEUP	Artur P. Alves	INESC Porto/FEUP	Media Asset Management in Broadcasting – New Approaches to Enable the Effective Management of Physical Resources and Media Objects	2008
Teresa Andrade	FEUP	Artur P. Alves	INESC Porto/FEUP	Architectural Support for Ubiquitous Access to Multimedia Content	2008
Alexandre Carvalho	FEUP	A. A. Sousa	INESC Porto/FEUP	Visualization of Spatiotemporal Database Systems	2009
António C. Martins	FEUP	E. Carrapatoso	INESC Porto/FEUP	Adaptive Hypermedia Systems	2009
Catalin Calistru	FEUP	Gabriel David M. Cristina Ribeiro	INESC Porto/FEUP	Data organization and search in multimedia databases	2009
Filipe Lameiro Abrantes	FEUP	Manuel Ricardo	INESC Porto/FEUP	Explicit Congestion Control Algorithms for Time-Varying Capacity Media	2009
Jaime Sousa Dias	FEUP	Manuel Ricardo	INESC Porto/FEUP	Security in Mobile IP Networks with Multicast Traffic	2009
João Manuel Barbosa de Oliveira	FEUP	H. Salgado	INESC Porto/FEUP	Design and Optimisation of Fibre Radio Systems	2009
João Paulo Sousa	UTAD	E. Carrapatoso	INESC Porto/FEUP	Dynamic Composition of Services	2009
Luís Filipe Teixeira	FEUP	Luís Corte-Real Aníbal Ferreira	INESC Porto/FEUP	Automatic description of video based on multimodal analysis	2009
Luís Gustavo Martins	FEUP	Aníbal Ferreira	INESC Porto/FEUP	A computational framework for sound segregation in music signals	2009
Luís Miguel Teixeira	FEUP	Artur P. Alves Luís Corte-Real	INESC Porto/FEUP	Joint Source Video Coding	2009
Miguel Magalhães Silva	FEUP	João C. Ferreira José Carlos Alves	INESC Porto/FEUP	Management of dynamically reconfigurable resources in CPU/FPGA systems	2009
Pedro Manuel Marques	FEUP	Sílvio Abrantes	INESC Porto/FEUP	MIMO Transmission Techniques in 4G Systems	2009

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Pedro Miguel do Vale Moreira	FEUP	A. A. Sousa	INESC Porto/FEUP	Management and Visualization of Very Complex 3D Models and Scenes	2009
Pedro Mota	FEUP	J. Machado Silva	INESC Porto/FEUP	In-circuit testing of adaptive RF front-end circuits	2009
Rui Campos	FEUP	Manuel Ricardo	INESC Porto/FEUP	Multi-technology personal area networks	2009
Tânia Calçada	FEUP	Manuel Ricardo	INESC Porto/FEUP	Integration of ad-hoc with infrastructured networks	2009
António Abel Castro	FEUP	E. Carrapatoso Carlos V. Carvalho	INESC Porto/FEUP ISEP/IPP	Use of multimedia learning objects with a semantic context for the Health area	2010
António Alberto Santos Pinto	FEUP	Manuel Ricardo	INESC Porto/FEUP	Key Management for Secure Group Communications	2010
António Pedro Fortuna Santos	FEUP	Manuel Ricardo	INESC Porto/FEUP	Very large Mobile Networks	2010
Daniel Oancea	FEUP	João C. Lopes Rui Moreira	INESC Porto/FEUP INESC Porto/UFP	Adaptive multimedia components in distributed environments	2010
Fernado L. Almeida	FEUP	José M. Oliveira José M. Cruz	INESC Porto/FEP FEUP	Creation of Value with Open Source Software in the Telecommunications Field	2010
Gustavo Carneiro	FEUP	Manuel Ricardo	INESC Porto/FEUP	Simulation framework for very large multitechnology wireless mesh networks	2010
Hélder Castro	FEUP	Artur P. Alves	INESC Porto/FEUP	Peer-to-peer strategies for secure TV content distribution	2010
Hermes Irineu Del Monego	FEUP	José Oliveira Manuel Ricardo	INESC Porto/FEP INESC Porto/FEUP	Multi radio resource management	2010
Isabel S. Azevedo	FEUP	E. Carrapatoso Carlos V. Carvalho	INESC Porto/FEUP ISEP/IPP	Semantic contextualization of educational objects	2010
José Fernando Martins	FEUP	A. A. Sousa	INESC Porto/FEUP	3D Modeling in Augmented Reality Environments	2010
Lucian Ciobanu	FEUP	Luís Corte-Real	INESC Porto/FEUP	Distributed video coding for systems with multiple cameras	2010
Luis Manuel de Sousa Pessoa	FEUP	H. Salgado	INESC Porto/FEUP	Compensation of Fibre Impairments in Coherent Optical Systems	2010
Manuel Cândido Santos	FEUP	Vítor G. Tavares	INESC Porto/FEUP	Ultra-low power RF circuits for wireless sensor networks	2010
Mário Rui Silveira Pereira	FEUP	H. Salgado	INESC Porto/FEUP	Electromagnetic Bandgap Antennas and Components for Broadband Communications	2010
Paulo Alexandre Duarte Ferreira	FEUP	José Carlos Alves João C. Ferreira	INESC Porto/FEUP	Computational systems based on heterogeneous parallel architectures	2010
Pedro Miguel Carvalho	FEUP	Luís Corte-Real	INESC Porto/FEUP	Analysis and representation of video based on 3D models	2010
Ricardo Sousa	FEUP	Aníbal Ferreira	INESC Porto/FEUP	Audio signal processing applied to speech rehabilitation	2010
Bruno G. Marques	FEUP	Manuel Ricardo	INESC Porto/FEUP	Application Driven Wireless Sensor Networks	2011
Hernâni Gonçalves	FCUP	José A. Gonçalves Luís Corte-Real	FCUP INESC Porto/FEUP	Multi-spectral satellite images identification	2011
João Paulo Rodrigues	FEUP	Artur P. Alves	INESC Porto/FEUP	Peer-to-peer networks for corporate TV environments	2011
Nuno Fonseca	FEUP	Aníbal Ferreira Ana Paula Rocha	INESC Porto/FEUP FEUP	Transcription from natural singing to synthetic singing	2011
Nuno Pedro Rodrigues	U. Minho	José Mendes Luís Corte-Real	U. Minho INESC Porto/FEUP	Real time control and surveillance system	2011

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Nuno Salta	FEUP	Manuel Ricardo	INESC Porto/FEUP	Optimizing the Transmission of P2P Video Distribution over Wireless Mesh Networks	2012
Qi Luo	FEUP	H. Salgado	INESC Porto/FEUP	Design Synthesis and Optimization of Single and Multiband Electromagnetic Band-Gap Structures for Microwave Circuits and Antenna Applications	2012
Saravanan Kandasamy	FEUP	Manuel Ricardo Ricardo Morla	INESC Porto/FEUP INESC Porto/FEUP	Utilizing Smart Antennas for Improving the Performance of Mobile Wireless Mesh Network	2012
1	2	3	4	5	6

1 – Name of the post-graduation student
2 – Institution where the thesis is submitted; if the host institution for the student is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

MSc Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
André A. Silva	FEUP	Manuel Ricardo	INESC Porto/FEUP	Simulation of Telecommunication Networks for Public Transportation Systems	2008
Adriano S. Pinho	FEUP	Manuel Ricardo	INESC Porto/FEUP	Implementation of IEEE 802.21 in the NS3 simulator	2008
Alberto R. Barroso	FEUP	João C. Ferreira	INESC Porto/FEUP	Techniques of auto-test (BIST) and auto-repair (BISR) for synchronous RMA memories	2008
Brígida Faria	FEUP	A. A. Sousa	INESC Porto/FEUP	Light Field - Image Based Rendering	2008
Bruno Filipe Oliveira	FEUP	José Ruela Jorge Mamede	INESC Porto/FEUP INESC Porto/ISEP	Architecture and services of IP networks for communities of users	2008
Carlos Guilherme Araújo	FEUP	José Ruela	INESC Porto/FEUP	Implementation of a module for authentication and management of user profiles	2008
Constantino Antunes	FEUP	Ricardo Morla	INESC Porto/FEUP	Routing optimization for Delay-Tolerant Networks in Intelligent Environments	2008
Daniel Marcos Sousa	FEUP	José Ruela	INESC Porto/FEUP	Virtual One-hop Ad-hoc Networks	2008
Daniel M. Durães	FEUP	Luís Corte-Real	INESC Porto/FEUP	Architecture of an integrated video surveillance system	2008
Daniel M. Gonçalves	FEUP	E. Carrapatoso	INESC Porto/FEUP	Geographic localization based on a GPS equpped PDA and interaction with the ambient	2008
Eduardo L. Sá	FEUP	Henrique Salgado	INESC Porto/FEUP	Implementation of a system for optimizing microwave power amplifiers, based on a solid state impedance tuner	2008
Elisabete S. Barbosa	FEUP	Manuel Ricardo	INESC Porto/FEUP	Simulation framework for WLAN and UMTS networks	2008
Filipe M. Guedes	FEUP	Ricardo Morla	INESC Porto/FEUP	Co-location of Mobile Devices with Audio and wireless interfaces	2008
Filipe Miguel Sousa	FEUP	Manuel Ricardo	INESC Porto/FEUP	Monitoring of multicast traffic in heterogeneous networks	2008

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Filipe Tiago Magalhães	FEUP	Henrique Salgado	INESC Porto/FEUP	Development of gas detection systems based on microstructured optical fibres	2008
Hélder Barroso da Silva	FEUP	José Ruela	INESC Porto/FEUP	Quality of Service in VoIP calls	2008
Inês Moreira de Sá	FEUP	Ricardo Morla	INESC Porto/FEUP	Digital Receipts for local transactions in commercial spaces	2008
Jacinto M. Brás	FEUP	Ricardo Morla	INESC Porto/FEUP	Mixed-reality Interactive Content support on Second Life	2008
Joana S. Almeida	FEUP	E. Carrapatoso	INESC Porto/FEUP	Application for mixing digital video signals	2008
João C. Fernandes	FEUP	M. T. Andrade	INESC Porto/FEUP	Intelligent system for the management of videoconference heterogeneous services	2008
João Diogo Araújo	FEUP	Manuel Ricardo	INESC Porto/FEUP	Algorithms for explicit congestion control in shared access media	2008
João M. S. Oliveira	FEUP	Luís P. Reis Fabien Gouyon	FEUP INESC Porto	Robot swarm sincronizado com música	2008
João Pedro Maia	FEUP	Manuel Ricardo	INESC Porto/FEUP	Dynamic auto-configuration of next generation personal networks	2008
José Carlos Ribeiro	FEUP	Ricardo Morla	INESC Porto/FEUP	Identification and control of objects in indoor environments	2008
José Manuel Lopes	FEUP	Aníbal Ferreira	INESC Porto/FEUP	Robust analysis environment of the main voice qualitative parameters	2008
João R. Meixedo	FEUP	António J. Araújo	INESC Porto/FEUP	Low-power project methodologies for FPGA-based implementation	2008
Jorge Amílcar Lopes Teixeira	FEUP	José Ruela	INESC Porto/FEUP	Network traffic sampling for improved signature and anomaly based intrusion detection	2008
Jorge Gomes da Silva	FEUP	José Ruela	INESC Porto/FEUP	IP Traffic Measurements between IP Service Providers (ISP)	2008
José Alberto Marques	FEUP	Henrique Salgado	INESC Porto/FEUP	Development of a machine for automatic alignment of micro-optics components	2008
Luís C. Sousa	FEUP	E. Carrapatoso	INESC Porto/FEUP	Educational multimedia applications and their impact on society	2008
Luís Filipe Reis	FEUP	E. Carrapatoso	INESC Porto/FEUP	Creation of next generation IMS networks using open source products	2008
Luís Miguel Marques	FEUP	Henrique Salgado	INESC Porto/FEUP	Optimization of production processes of Bragg sensors in optical fibres	2008
Luís Miguel Leite	FEUP	Aníbal Ferreira	INESC Porto/FEUP	Virtual marionettes – Real-time interactive animation	2008
Luís S. Baptista	FEUP	Jaime Cardoso	INESC Porto/FEUP	System for automatic processing of Portuguese cheques	2008
Luís T. Rebelo	FEUP	Jaime Cardoso	INESC Porto/FEUP	Automatic evaluation of the aesthetic result of conservative treatment of breast cancer	2008
Mara P. Carvalho	FEUP	Aníbal Ferreira	INESC Porto/FEUP	Interactive game for training of Portuguese vowels	2008
Marc P. Antunes	FEUP	João C. Ferreira	INESC Porto/FEUP	Calculus of depth maps for real-time stereo images using FPGAs	2008
Marinho P. Duarte	FEUP	Henrique Salgado	INESC Porto/FEUP	Data receiver and transmitter system for the SSETI-ESEO control station	2008
Mário Cordeiro	FEUP	Cristina Ribeiro	INESC Porto/FEUP	Ad-hoc annotation of audiovisual content – reuse of low and high level descriptors for knowledge extraction	2008
Miguel Gata	FEUP	E. Carrapatoso	INESC Porto/FEUP	3D technology applied to the preservation of historic heritage	2008

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Nuno André Lima	FEUP	Henrique Salgado	INESC Porto/FEUP	EBG (Electromagnetic Band Gap) structures in microstrip circuits	2008
Nuno Dantas Faria	FEUP	M. T. Andrade	INESC Porto/FEUP	Testing methodologies for DRM-enabled content mediation platforms	2008
Nuno F. Dantas	FEUP	Manuel Ricardo	INESC Porto/FEUP	Use of computer virtualization techniques for supporting laboratory experiments in computer networks and services	2008
Nuno Gonçalo Salta	FEUP	Manuel Ricardo	INESC Porto/FEUP	Security extensions to the TCP/IP stack for the support of congestion	2008
Pedro J. Leite	FEUP	Ricardo Morla	INESC Porto/FEUP	Building Mobile and Pervasive Applications in Second Life	2008
Pedro M. Oliveira	FEUP	Ricardo Morla	INESC Porto/FEUP	Remote laboratory of computer networks	2008
Pedro P. Cipriano	FEUP	M. T. Andrade	INESC Porto/FEUP	Web services for processing and management of audiovisual content in Professional TV environments	2008
Pedro S. Allegro	FEUP	Jaime Cardoso Fabien Gouyon	INESC Porto/FEUP INESC Porto	Describing voice in musical signals	2008
Pedro Vieira	FEUP	Luís Corte-Real	INESC Porto/FEUP	Scaleable video and interoperability in multimedia networks	2008
Ricardo A. Salgado	FEUP	E. Carrapatoso	INESC Porto/FEUP	Wireless transmission of DVD/HD video	2008
Ricardo M. Costa	FEUP	J. Machado Silva	INESC Porto/FEUP	RFID identification, weighing and database registration in a gas jars production line	2008
Ricardo S. Garrido	FEUP	Ricardo Morla	INESC Porto/FEUP	Pro-active multimedia and control system in a residential context	2008
Ricardo P. Lopes	FEUP	Ricardo Morla	INESC Porto/FEUP	Overlay networks for intelligent transportation systems	2008
Rui S. Rocha	FEUP	M. T. Andrade	INESC Porto/FEUP	Digital Item Processing	2008
Sérgio Pinto Lopes	FEUP	Manuel Ricardo	INESC Porto/FEUP	Automatic and dynamic connection to the Internet of next generation personal networks	2008
Simão C. Machado	FEUP	Henrique Salgado	INESC Porto/FEUP	Bragg gratings for dispersion compensation and wavelength selection in WDM fibre-radio systems	2008
Tiago V. Ferreira	FEUP	J. Machado Silva	INESC Porto/FEUP	Betronic accesses control and "time clock" integrated system	2008
Valter Manuel Martins Mónica	FEUP	José Ruela	INESC Porto/FEUP	Implementation and validation of a model for certification and distribution of keys for authentication of TLS sessions based on DNSSEC	2008
Vítor Hugo Barbosa	FEUP	M. T. Andrade	INESC Porto/FEUP	Ontologies in multimedia applications sensitive to the utilization context	2008
Vitor Manuel Silva	FEUP	José Ruela Rui Moreira	INESC Porto/FEUP INESC Porto/UFP	Analysis and design of secure Linux servers	2008
Alexandre Fernandes	FEUP	M. T. Andrade	INESC Porto/FEUP	Mobile Environment Context Agent	2009
Ana Mafalda Cortez	FEUP	J. Machado Silva	INESC Porto/FEUP	Design, simulation, and electrical characterization of mechanically moving components (MEMS) in SOI	2009
Ana Raquel Faria	FEUP	Manuel Ricardo	INESC Porto/FEUP	Robust header compression in IEEE 802 networks	2009
André Passos Baltazar	FEUP	Jaime S. Cardoso	INESC Porto/FEUP	Extraction of rhythmic information of dance movement by means of a video signal	2009
André A. Moreira	FEUP	J. Machado Silva	INESC Porto/FEUP	Reliability of Non-Volatile Devices During Process Development	2009

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
André C. Mendes	FEUP	Artur P. Alves	INESC Porto/FEUP	IPTV Project	2009
Bruno Falcão Dantas	FEUP	Hélio Mendonça	INESC Porto/FEUP	Dynamically reconfigurable modules for processing of video images	2009
Bruno Monteiro	FEUP	João C. Ferreira	INESC Porto/FEUP	Linux support for dynamic reconfiguration of hardware	2009
Daniel Ramos	FEUP	José Ruela	INESC Porto/FEUP	Scheduling algorithm for QoS differentiation in MPLS / DiffServ networks	2009
Francisco Basadre	FEUP	José C. Alves	INESC Porto/FEUP	Integration of flash memory units in embedded systems over FPGA platforms	2009
Francisco M. Barbosa	FEUP	M. T. Andrade	INESC Porto/FEUP	Integration of Web services in Peer-to-Peer (p2p) clients	2009
Filipe Sousa	FEUP	J. Machado Silva	INESC Porto/FEUP	Radiation Tolerant Low power 12 bit ADC in 130 nm CMOS technology	2009
Hugo Reboredo	FEUP	Henrique Salgado M. Rodrigues	INESC Porto/FEUP FCUP	Processing of Turbo signal in optical communications systems	2009
João Neves Viana	FEUP	J. Ruela	INESC Porto/FEUP	Technologies for monitoring the flow of people and control of accesses	2009
João Nuno Pereira	FEUP	João C. Ferreira	INESC Porto/FEUP	Application of network coding to link routing in VLSI circuits	2009
M. Raquel Patrício	FEUP	E. Carrapatoso	INESC Porto/FEUP	Evaluation of the usability of a child's portal – a new interactive multimedia application	2009
Nuno Farias Rodrigues	FEUP	Manuel Ricardo	INESC Porto/FEUP	Wireless Mesh Networks in Metropolitan Scenarios	2009
Nuno Pássaro	FEUP	Manuel Ricardo	INESC Porto/FEUP	Management of multicast sessions with origin on clients (GeCLIFmcast)	2009
Nuno T. Pinto	FEUP	E. Carrapatoso	INESC Porto/FEUP	eTSP– Pedagogic module on problems of combinatorial optimization based on TSP	2009
Pedro Miguel Alves	FEUP	João C. Ferreira	INESC Porto/FEUP	Flexible programmable cores for SOC applications	2009
Pedro Miguel Oliveira	FEUP	Manuel Ricardo	INESC Porto/FEUP	Service integration in multi-use communications platforms	2009
Ricardo A. Veiga	FEUP	J. Machado Silva	INESC Porto/FEUP	In-circuit observation of RF amplifier's distortion	2009
Ricardo Jorge Duarte	FEUP	José Ruela	INESC Porto/FEUP	End-to-end Quality of Service for heterogeneous, wireless access networks	2009
Sebastian Tabarce	FEUP	Vítor G. Tavares	INESC Porto/FEUP	Analogue implementation in CMOS-VLSI of a network of coupled oscillators	2009
Tiago Azevedo	FEUP	Henrique Salgado	INESC Porto/FEUP	Study of techniques for pre-compensation of downlink impairments in "Wireless Radio-over-Fiber" systems, using OFDM signals	2009
1	*2*	*3*	*4*	*5*	*6*

1 – Name of the post-graduation student
2 – Institution holding the course where this student in enrolled in; if the host institution is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

R6.9 ORGANISATION OF INTERNATIONAL SCIENTIFIC EVENTS

IEEE Globecom 2008
New Orleans, USA
November 30 – December 4, 2008
Paulo Mendes – member of Technical Program Committee

ICT 2008, Networking Event on "User-centric wireless networks: challenges and opportunities"
Lyon, France
November 25-27, 2008
Rute Sofia – coordinator, Paulo Mendes - participant

DCIS 2008 - XXIII Conference on Design of Circuits and Integrated Systems
Grenoble, France
November 12-14, 2008
José Silva Matos – member of Steering Committee

ARTECH 2008 - International Conference on Digital Arts
Porto, Portugal,
November 7-8, 2008
Fabien Gouyon – member of Programme Committee

1st EIFFEL Think-Tank
Lingen, Germany
September 30 - October 1, 2008
Paulo Mendes - Invited Speaker

WikiSym 2008 – the 4th International Symposium on Wikis
Porto, Portugal
September 8-10, 2008
Gabriel David – member of Symposium Committee (in charge of WikiWalk)

11th EUROMICRO Conference on Digital System Design (DSD)
Parma, Italy
September 3-5, 2008
José Silva Matos – member of Programme Committee

IEEE NEW2AN 2008
St. Petersburg, Russia
September 3-5, 2008
Paulo Mendes – member of Technical Program Committee

IEEE LANMAN 2008
Cluj-Napoca, Transylvania, Romania
September 3-6, 2008
Paulo Mendes – member of Technical Program Committee

Workshop on Machine Learning and Music (International Conference on Machine Learning)

Helsinki, Finland
July 5-9, 2008
Fabien Gouyon – member of Programme Committee

IEEE WoWMoM 2008
NewPort Beach; CA, USA
June 23-26, 2008
Paulo Mendes – member of Technical Program Committee

LSAS 2008 - Workshop on Learning the Semantics of Audio Signals
Paris, France
June 21, 2008
Fabien Gouyon – member of Programme Committee

SEON 2008 - VI Symposium on Enabling Optical Networks
Porto, Portugal
June 20, 2008
Henrique Salgado – member of Scientific Committee

14th International Mixed-Signals, Sensors, and Systems Test Workshop (IMS3TW)
Vancouver, Canada
June 18-20, 2008
José Machado da Silva – member of the Programme Committee

ACM NOSSDAV'08 - 18th International workshop on Network and Operating Systems Support for Digital Audio and Video
Braunschweig, Germany
May 28-30, 2008
Paulo Mendes - Invited Speaker

WWIC 2008
Tampere, Finland
May 28-30, 2008
Paulo Mendes – member of Technical Program Committee

Networking 2008 - 7th IFIP TC6 Networking Conference
Singapore
May 5-9, 2008
José Ruela, Paulo Mendes – members of Technical Program Committee

3rd Design and Technology of Integrated Systems in the Nanoscale Era (DTIS)
Tozeur, Tunisia
March 25-28, 2008
José Machado da Silva – member of the Programme Committee

Design, Automation and Test in Europe (DATE) – track Test Methods, Tools and Innovative Experiences - Mixed-Signal Testing
Munich, Germany

10-14 March 2008
José Machado da Silva – member of the Technical Program Committee

REC 2008 - IV Jornadas sobre Sistemas Reconfiguráveis
U. Minho, Braga, Portugal
February 7-8, 2008
José Silva Matos, José Carlos Alves, João Canas Ferreira – members of Scientific Committee

R6.10 ADVANCED TRAINING

Seminars and invited talks

Fabien Gouyon
 "Sound and Music content processing at INESC Porto"
Centre for Informatics and Systems of the University of Coimbra, Portugal
15 October 15, 2008

Fabien Gouyon
"Music content processing"
Pontifícia Universidade Católica do Paraná, Curitiba, Brasil
June 26, 2008

Various researchers of the Unit actively participated in lecturing courses as well as in invited talks of the PhD programme in Telecommunications (MAP-Tele) jointly offered by the Universities of Minho, Aveiro and Porto (MAP-Tele).

Filipe Sousa
"Network monitoring"
MAP-Tele Seminar, Instituto de Telecomunicações, Aveiro
February 8, 2008

Paulo Mendes
"Delay Tolerant Networking: Communication over challenged networks"
MAP-Tele Seminar, Instituto de Telecomunicações, Aveiro
February 13, 2008

Rui Campos
"Spanning trees in communication networks"
MAP-Tele Seminar, Instituto de Telecomunicações, Aveiro
February 15, 2008

Rute Sofia
"Global Mobility in Multi-access Networks"
MAP-Tele Seminar, Instituto de Telecomunicações, Aveiro
February 27, 2008

Paulo Mendes

"Cooperative Networking: an Approach to User-centric Radio Networks"
MAP-Tele Seminar, U. Minho, Guimarães
December 12, 2008

Courses

Collaboration in the organization and teaching of the advanced training course on "Fabrico e produção de memórias DRAM: Um curso livre FEUP / Qimonda" ("Fabrication and production of DRAM memories: FEUP / Qimonda open course").

Training visits

In the context of joint research and integration activities carried out in FP6/IST Network of Excellence (NoE) VISNET II, some visits of INESC Porto researchers to other partners took place during 2008. These visits were intended to perform integration work and to install tools and platforms developed by INESC Porto and give training on its use. Vítor Barbosa visited Universitat Politecnica de Catalunya in June 2-5, 2008, and University of Surrey (UniS) in December 8-12, 2008. Filipe Sousa visited UniS and Thales Research and Technology UK (TRTUK) during the same week in December.

R6.11 OTHER CONTRIBUTIONS TO THE OBJECTIVES OF ASSOCIATE LABORATORY

UNIT: UTM – TELECCOMUNICATIONS AND MULTIMEDIA	Thematic Line
Consolidation of research work in "Wireless and mobile communications" (security, QoS and mobility management, congestion control, multi-technology wireless mesh networks) and in "Advanced services for universal access to multimedia content" (context and QoS-awareness and distributed paradigm to develop advanced multimedia services, context-aware content adaptation, semantic search in P2P networks); these activities were mainly carried out in the framework of research projects funded by FP6 and national programmes, were supported by on-going and newly started PhD and MSC theses in related topics, and gave rise to a large number of scientific papers, prototypes and demonstrators.	Support technologies for networked audiovisual applications
Strengthening the research work in "Fiber Supported Microwave/Radio Systems" supported by a Photonics and Microwave laboratory setup during 2005 and 2006.	
Continuation of research activities in media processing, namely audio and music analysis (spectral clustering for sound segregation, music cognition, movement and computational modeling, collaborative music creation), image analysis (optical music recognition, and video analysis (features selection, segmentation and tracking for visual surveillance applications).	
Starting of research activities in a new area (Internet Architectures and Networking) led by two senior PhD researchers that joined the Unit, in the scope of the Associated Laboratory contract; these activities are focused on novel Internet architectures and advanced networking paradigms, such as cooperative networking, disruptive Internet paradigms, advanced forwarding/routing and global mobility management.	
Execution of R&D contracts, covering consultancy, development, technology transfer and advanced training activities.	

R6.12 ANALYSIS AND ASSESSMENT OF DEVIATIONS RELATIVE TO FORMER PLANNING

R6.12.1 Comparison with strategic actions or policy lines defined in the plan of the previous year

The activity of the Unit in 2008 was carried out according to the plan, without major deviations in what concerns running projects and expected scientific results. The number of papers both in international journals and conference proceedings with scientific refereeing largely exceeded the values that had

been planned for 2008 as well as those of previous years, thus meaning a steady increase over the last years that is worth mentioning.

The large number of MSc theses completed in 2008 is due to the fact that students now complete their five year course with an MSc degree (integrated MSc course), whose fulfillment requires submission and public presentation and discussion of a dissertation. Researchers of the Unit were deeply involved in the supervision of these students and in many cases these students have carried out their work in the Unit, integrated in research teams. The number of PhD theses concluded in 2008 was below the expectations; however this deviation is not critical since some theses have already been submitted by the end of 2008 (or beginning of 2009) and it is expected that other theses will be submitted during 2009 as planned.

During 2008 the Unit was still deeply involved in European projects, which continued to play an important role in reaching a high level of scientific excellence as well as in establishing strategic partnerships. They provide a very rich environment for training young researchers, in particular in association with MSc and PhD programmes, and allow creating critical mass of the research teams. As previously mentioned some of these projects have concluded their activities by the end of 2008, with a successful participation of INESC Porto teams.

During 2008 a number of proposals were submitted in the framework of QREN (*Quadro de Referência Estratégico Nacional*), in partnership with SMEs. Four such proposals (RECooP, AHRS, Semantic PACS and Palco3.0) were approved and have started their activities in the beginning of 2009.

Four proposals have been submitted to the Innovation Plan of the Portugal Telecom (PT) group; one project has been approved to start in March 2009 under a contract with PT Inovação.

Researchers of the Unit have been deeply involved in submitting proposals in the framework of the collaboration programmes with CMU and University of Texas at Austin. Moreover, by the end of 2008 the Unit started to prepare submission of new research projects to the call launched by FCT (*Fundação para a Ciência e a Tecnologia*), closing in February 2009.

A new research area (*Internet Architectures and Networking*) was created in November 2007, led by two senior PhD researchers that joined the Unit, in the scope of the Associated Laboratory contract. The main activities and results in this area during 2008 have been described in detail in this report.

Researchers of the Unit continued active in promoting the National Thematic Network in the area of Mobile Communications (RTCM), contributing with technical presentations in workshops organized by the network.

Regular open meetings, organized at the Unit (Lab Meetings) or Area level, continued to take place and were mainly used to present results of on-going research projects, MSc and PhD theses, or results being published in journals or conferences, as well as to discuss scientific issues that cross different areas and thus require the active participation of different research groups.

R6.12.2 Cases of success, problems met, internal and external conditioning factors

The cases of success were already pointed out in the previous section. At a global level the scientific results were rather positive, as proven by various performance indices.

The INESC Porto teams that participated in FP6 projects made important contributions at various levels: specification, development, integration and test of prototype systems and demonstrators, technical reports, deliverables and scientific papers. This can be confirmed by the successful results of the technical audits that took place in four European projects that concluded during the last term of 2008.

The participation and results achieved in National and European research projects constitute the major cases of success, to which it is possible to add the partnership with PTIN in R&D contracts and the new partnerships that have been established in the framework of QREN, either those that led to approved contracts or those that are in course for the submission of new proposals to the calls open in 2009.

The main problems met by the Unit lie in the difficulties of establishing stable partnerships and R&D contracts with the industry and operators, either for consulting, development or technology transfer. There have also been some difficulties in recruiting new researchers at MSc or PhD level, which in some cases led to delays in starting the activities planned in approved projects or contracts.

Following a successful participation in FP6 (both in the number of approved projects and results), the expectations for the FP7 calls are moderate and this of course will change the role that European projects have played in the strategy of the Unit. New partnerships established in the framework of QREN or in direct contracts with the industry are in course to overcome these problems, thus means that the Unit is now trying to reinforce the participation in contracts and projects at national level.

R7. UNIT: UITT – INNOVATION AND TECHNOLOGY TRANSFER

R7.1 SHORT DESCRIPTION OF THE UNIT

R&D Institutions that intend to take advantage of the economic opportunities of their R&D programmes should leverage their innovation potential through appropriate strategies and management processes which might allow them to manage and promote their R&D results outside the organization, in order to create economic value.

The purpose of the Unit is to consolidate last years' investments and experience of INESC Porto in the development of internal processes and tools to manage their R&D results, and organize this knowledge and competences in a transversal Unit that can take responsibility and leadership of the process of knowledge valorisation.

In this context, the main goal of the UITT is to develop and promote innovation management practices, acting directly in the internal processes, supporting entrepreneurship activities helping business development as well as incubation.

The Unit also plays a role in the creation and increase of knowledge in the scientific area of Innovation Management, Technology Transfer and Entrepreneurship. Thus, advanced training - MSc and PhD level training –constitutes a major objective aiming at creating internal excellence in the relevant research areas and to provide the industry with highly qualified professionals, capable of dealing with the challenges of entrepreneurial innovation.

The Unit main Research and Development areas and activities are:

- The Innovation Management:

  o Act directly in the internal innovation process and practices, by developing, in collaboration with other R&D Units, processes and tools that enable an efficient management of R&D projects results in order to maximize the valorisation opportunities.

  o Provide consulting services to companies, concerning the implementation of R&D+I management systems according to NP 4457:2007. These services follow a proprietary methodology, developed in the context of COTEC Portugal project.

  o Provide training to companies in order to increase awareness and knowledge concerning the NP R&D+I management systems and methodologies.

  o Development research projects in order to increase emergent knowledge that supports internal and external activities.

- Entrepreneurship:

  o Promote an entrepreneurship culture behind academic researchers

  o Create entrepreneurial awareness through the organization of training actions, development of tools, and giving direct support to promoters in the process of turning ideas into business.

  o Supply of incubation services through the recently created incubator LET-IN.

Table of correspondence between know-how and External and Internal application

Know-how	Status (*)	Internal Units	Companies	Entrepreneurs
NPD	I/E	X	X	X
R&D + Innovation Management System	I	X	X	
Creativity	E	X		X
Business Concept Development	I/E	X	X	X
Business Plan Development	I/O/E	X		X
Management of "proof of concept" projects	I	X	X	X
Commercial Feasibility studies	I	X		X
Technology Feasibility studies	O	X	X	X
Technology Transfer	C	X	X	
Innovation Metrics	I/E	X	X	
Open Innovation	I/E	X	X	X

(*)   I - Internal; O – Existing in another Unit of INESC Porto; E - External; C – To be created

Potential Coverage of the Innovation Process

Activity Area	Research	Development	Consulting	Training	Internal Use
Development of R&D + innovation management systems	X	X	X	X	X
Implementation of innovation processes			X	X	X
Business Plan methodologies and tools			X	x	X
Definition and development of methodologies to analyse and protect R&D results	X	X		X	X
Definition and development of methodologies to analyse and control R&D+I management systems	X	X	X	X	X
Technology Feasibility studies			X	X	X
Commercial Feasibility studies			X	X	X
Innovation Metrics	X		X	X	X
Open Innovation	X			X	X
Technology transfer Practices	X	X		X	X

Description of the Unit's organizational structure

The Unit's management is jointly assumed by Alexandra Xavier e Aurora Teixeira with direct support of the Board of Direction.

The Unit is focused on the areas: Innovation Management, Business Development and Entrepreneurship, and Technology Transfer.

The main activities are:

- Training actions.

- Consulting services for companies in order to increase their potential for Innovation.

- Helping entrepreneurs and R&D Units in the process of evaluation of opportunities and in the development of "Commercial Feasibility Studies" and "Business Plans".

- Implementing process and tools for an efficient management of R&D projects concerning IP protection, evaluation and technology transfer.

- Development of R&D activities in order to increase Knowledge and sustain the overall activity.

The Unit works in collaboration with the others R&D Units, with the Board of Directors, and with entrepreneurs.

R7.2 ACTIVITIES DEVELOPED IN 2008

R7.2.1 National programmes

FORMINOV: Integrated Training for Innovation Management and R&D valorization (participants: IBMC, IPATIMUP, INEGI, INEB, TEC Minho, PIEP).

EI- Nautilus: R&D project focused on developing a management classroom system. The Unit carried out the following activities in the project: opportunity assessment and definition of a value strategy.

R7.2.2 European programmes

Blank.

R7.2.3 Other programmes, consulting, services

- UTEN - University Technology Enterprise Network: metrics for innovation with University Texas Austin (US)

- OPEN INNOVATION, Do firms actually do "Open Innovation"? Survey Results from Five Countries and Some New Ideas (China, Finland, Portugal, Spain, and Russia), with Carl Joachim Kock (Instituto de Empresa, Maria de Molina, Spain), Marko T. Torkkeli (Lappeenranta University of Technology, Finland), Pekka A. S. Salmi (Lappeenranta University of Technology, Finland), Juha Väätänen (Lappeenranta University of Technology, Finland), Maria Smirnova (St. Petersburg State Universit, Russia), Sergei Kouchtch (St. Petersburg State Universit, Russia)

- DIGITAL MEDIA - University Texas Austin (US), UNL, UP

- Creative Industries – Outline of a proposal draft for a Centre of Excellence for Creative Industries and Innovation in the North of Portugal

Consulting/Services:

- Coordination of a training programme on " Idea generation and opportunity analysis"

- CIFIAL – R&D+I – Implementation of Innovation Management Systems
- OMLX – Definition of a valorization strategy for the "Mobility Observatory for the LVT Region"

Incubation Services:

- SmartWatt –start-up in energy consulting area
- Process –net – development of a new service in the ICT area
- Next To You
- Xarevision
- Tomorrow Options
- Audolici
- Pre- incubation services: Feasibility Studies (Technology and Market) for the projects:
    - Sonicability
    - TV- Energia
    - K-Home
    - Roupa didática
    - Catavento
    - Himmove
    - Dalphin Cam
    - ESVI
    - WemoveU
    - Escolinhas

- Training
    - Executive Training on " Innovation Management Systems" organized by Cotec
    - Coordination of an Executive Training on "Innovation Management Systems", organized jointly by INESC Porto and the IPP in partnership with the Cranfield Universitiy.

- Workshops
    - "How to do business bringing science, technology and arts together", Kirk Woolford, Lancaster University.
    - "Entrepreneuship and Small Business", Bruce Savage, Nottingham Business School.
    - Corporate Venturing and Open Innovation bootcamp at a company, Marko Torkelli, Lappenranta University

R7.3   SUMMARY OF RESULTS OF THE RESEARCH ACTIVITIES OF THE TEAM MEMBERS

- Projects

Summary of projects developed in 2008

Type of Activity (1)	No. Projects (2)			Total Income (€)
	N	E	I	
R - Research			2	
D - Development				
C - Consulting	4			135.736
A – Advanced training	2			35.690
T – Technology Transfer				
O - Other	7			27.270
TOTAL	13		2	198.696

Summary of relative distribution of sources of income

Financing (3)	Status (4)			Total Income (€)
	S - Started	OG– On-going	C - Concluded	
NP – National Programmes	1,96%		12,95%	29.635
EP – European Programmes				
CS – Consulting and Services	5,65%	63,99%	15,45%	169.061
O – Other R&D sources				
OS – Other Sources				
Total	7,61%	63,99%	28,41%	198.696

Summary of projects developed in 2008

Name of the project	Respons.	Type Proj. (1)	Degree of Intern. (2)	Financ. Type (3)	Financ. Prog.	Starting date	Conclusion (prediction)	Status (4)
Tomorrow Options	Alex. Xavier	O	N	CS	-	03-2006	08-2008	F
FORMINOV	Alex. Xavier	A	N	NP	ON Norte	10-2006	03-2008	F
CONSULTORIA-UITT	Alex. Xavier	C	N	CS	-	02-2007	-	OG
Feasibility Studies	Alex.Xavier	C	N	CS	-	02-2007	12-2008	F
NEXT2You	Alex. Xavier	O	N	CS	-	02-2007	12-2009	OG
XAREVISION	Alex. Xavier	O	N	CS	-	04-2007	01-2008	F
CIFIAL I&D+I	Alex. Xavier	C	N	CS	-	06-2007	01-2008	F
I&D UTEN	A. Teixeira	R	I	CS	-	11-2007	06-2008	F
OPEN INNOVATION	A. Teixeira	R	I	EP	-	11-2007	12-2008	F
AUDOLICI	Alex. Xavier	O	N	CS	-	01-2008	03-2008	F
Formação IPP	Alex. Xavier	A	N	CS	-	01-2008	02-2008	F
SmartWatt	Alex. Xavier	O	N	CS	-	01-2008	02-2009	S
Process.net	Alex. Xavier	O	N	CS	-	05-2008	12-2009	S
OMLX	Alex. Xavier	O	N	CS	-	06-2008	12-2008	F
EI-Nautilus	Alex. Xavier	C	N	NP	QREN	06-2008	06-2010	S

(1) Type of Project: R – Research; D – Development; C – Consulting; A – Advanced Training; T – Technology Transfer; O - Other

(2) Degree of internationalization: N – National; E – European; I – International *(Select one)*

(3) Source of financing: NP – National Programmes; EP – European Programmes; CS – Consulting and services; O – Other R&D financing sources; OS – Other sources

(4) Status: S – Starting: activities initiated in 2008 and continuing in 2009; OG – On-going: activities started earlier than 2008 and continuing in 2009; F – Finished: activities ending in 2008.

Summary of publications

Summary of publications in 2008

Type of publication	Number
Theses concluded in 2008 by members of the unit	1
Books (author)	3
Chapter/paper in books	3
Publications (editor)	3
Papers in International Journals with scientific referees	8
Papers in National Journals with scientific referees	
Conference Proceedings in events with scientific referee and selection	17
Other publications (National meetings, local journals, etc.)	10
Total	45

(*) papers co-authored with researchers of other Units

Summary of post-graduation activities

Summary of theses supervised by members of the unit in 2008

Type	Starting	On-going	Concluded	Total
Master		15	7	22
Doctoral			1	1
Total		15	8	23

Summary of advanced training actions

Summary of advanced training actions organized for external trainees in 2008

Type	Number
Training for graduation students *(estágios curriculares)*	
Training for others *(estágios extra-curriculares)*	
Professional training actions *(estágios profissionais)*	
Other actions	
Total	

Summary of activities of cooperation or dissemination

Summary of items

Type	Number
Organizing conferences or meetings	
Collaboration in papers authored by INESC Porto researchers	
External persons directly involved in actions organized by INESC Porto	

Human resources in 2008

Summary of Unit personnel at the end of 2008

Type	Education				Total	Variation (*)
	PhD.	MSc.	BSc.	Other		
R&D						
University or Polytechnic Staff	2				2	0
INESC Porto Grant Holders			2		2	-1
Other Grant Holders						
Employees			1		1	-1
Trainees			1		1	+1
Other	1				1	+1
Administrative						
Total	3		4		7	0

(*)   Relative to 2007, in absolute numbers.

R7.4 LIST OF PUBLICATIONS IN 2008

R7.4.1 Theses concluded by members of the unit

CARDOSO, Andreia, Nos trilhos da Individualização religiosa: Um estudo de caso sobre duas comunidades religiosas sociologicamente distintas, Porto[s.n], December 2008. Master Thesis in Sociology presented to Faculdade de Letras da Universidade do Porto.

R7.4.2 Books (Author)

TEIXEIRA, A. A.C. (org.) A Economia Portuguesa em Retrospectiva, March 2008, Editora da UP, 2008.

OECD (national expert for Finland TORKKELI, M.), 2008, Open Innovation in Global Networks, ISBN 978-92-64-04767-9

TORKKELI MARKO, HILMOLA O., PEKKA, S., HANNU, V. (2008) Avoin innovaatio Suomessa: Yritysten, korkeakoulujen ja julkisen sektorin vuorovaikutus ja yhteistyö, Tekesin katsaus 233/2008, Helsinki 2008, 101 p. (in Finnish)

R7.4.3 Chapter/paper in Books

TEIXEIRA, A.A.C., "Entrepreneurial Potential In Engineering And Business Courses … Why Worry Now? ", Innovation in Manufacturing Networks, IFIP International Federation for Information Processing, Vol. 266 [DOI 10.1007/978-0-387-09492-2]; 2008.

OLIVEIRA, M., FERREIRA, J., BARANDAS, H.: "Innovation And Entrepreneurship: What Professors From Leading Universities Say"; Innovation in Manufacturing Networks, IFIP International Federation for Information Processing, Vol. 266 [DOI 10.1007/978-0-387-09492-2]; 2008.

FERREIRA, J., Sousa, M., Oliveira J.: "Creative Entrepreneurial Abrasion in Higher Education"; Innovation in Manufacturing Networks, IFIP International Federation for Information Processing, Vol. 266 [DOI 10.1007/978-0-387-09492-2]; 2008

R7.4.4 Publications (Editor)

HUIZINGH E., TORKKELI M., STEFFEN, C. IAIN, B. Managing Innovation in a Connected World: Proceedings of The I ISPIM Annual Symposium Singapore, 14-17 Dec 2008.

EELKO, H., TORKKELI, M, CONN, S., IAIN, B. Open Innovation – creating products and services through collaboration: Proceedings of The XVIX ISPIM Annual Conference, Tours, France, 15-18 June 2008. ISBN 978-952-214-594-9

HUIZINGH EELKO, MARKO TORKKELI, CONN STEFFEN, AND BITRAN IAIN, Open Innovation – creating products and services through collaboration: book of abstracts ISBN 978-952-214-593-2

R7.4.5 International Journals with scientific referees

TEIXEIRA, A. A.C.;"Entrepreneurial potential in Chemistry and Pharmacy courses. Results from a large survey", Journal of Business Chemistry, Vol. 5, No. 2, June 2008.

SILVA, S. T.; TEIXEIRA, A. A.C., "On the divergence of evolutionary research paths in the past fifty years: a comprehensive bibliometric account", Journal of Evolutionary Economics, DOI 10.1007/s00191-008-0121-9; 2008.

SILVA, E.; TEIXEIRA, A.A.C., "Surveying structural change: Seminal contributions and a bibliometric account", Structural Change and Economic Dynamics, Vol. 19 (4): 273-362; 2008.

TEIXEIRA, A. A.C., SANTOS, P.; BROCHADO, A., "International R&D cooperation between low-tech SMEs: the role of cultural and geographical proximity", European Planning Studies, Volume 16 Issue 6, 785-810; 2008.

TEIXEIRA, A. A.C.; ROCHA, M., "Academic cheating in Iberia: an empirical assessment", International Journal of Iberian Studies, Vol. 21, No. 1, pp. 3-22; 2008

VILLE, O. PEKKA S.I, TORKKELI, M., Motives, Cross-Border Acquisitions in Technical Engineering Sector: Motives, Trends and Effects in Finnish Consultancies, International Journal of Management Science and Engineering Management (Vol. 3 (2008) No. 2, pp. 151-160); 2008.

BITRAN I., STEFFEN, C., TORKKELI M.; InnovationEnterprizer - System for evaluating and managing corporate innovation, International Journal Entrepreneurship and Innovation Management, (vol 8, no 2, 2008, pp. 142-153); 2008.

Pekka Salmi, Marko Torkkeli, Ville Ojanen, Olli-Pekka Hilmola (2008), "New product creation process of KIBS firms: a case study". IJSS 4(1): 16-32; 2008.

R7.4.6 National Journals with scientific referees

Blank.

R7.4.7 Conference Proceedings with scientific referees

SALMI PEKKA, TORKKELI MARKO, AND KOCK CARL: Open innovation practices in Finnish firms: A survey, ISPIM 2008 Symposium, 14-17.12.2008 Singapore.

TORKKELI MARKO, PODMETINA DARIA, Väätänen Juha, Smirnova Maria, Kouchtch Sergei, Innovativeness and International Operations. Case of Russian R&D Companies, ISPIM 2008 Symposium, 14-17.12.2008 Singapore

KUTVONEN ANTERO AND TORKKELI MARKO, External Commercialization of Non-core Technologies: a Literature Review on Pre-commercialization Activities, ISPIM 2008 Symposium, 14-17.12.2008 Singapore.

PODMETINA DARIA, SMIRNOVA MARIA, VÄÄTÄNEN JUHA, TORKKELI MARKO, KOUCHTCH SERGEI, Innovativeness and International Operations. Case of Russian R&D Companies, ISPIM 2008 Symposium, 14-17.12.2008 Singapore.

CARL KOCK, PEKKA SALMI AND TORKKELI MARKO, Open Innovation across Systems – The case of China, Finland and Spain, Madrid Spain, September 19-20, 2008

PENI HENRIIKKA AND TORKKELI MARKO, Innovations on Mobile Music Recommendations and Viral Marketing, EBRF 2008, September 22-24, 2008.

KOCK CARL AND TORKKELI MARKO, Open Innovation – A "Swingers' Club" or "Going Steady?", Academy of Management Annual Meeting 2008, Anaheim, USA, 8-13.8, 2008.

CARL KOCK, PEKKA SALMI AND TORKKELI MARKO, The Limits of the "Open Innovation" Paradigm, or: When Does It Pay to Be Open? , Academy of Management Annual Meeting 2008, Anaheim, USA, 8-13.8, 2008.

ALVES, PAULO JORGE AFONSO, PINTO FERREIRA, JOÃO JOSÉ: "Value Creation by leveraging interoperability between virtual and real-world business environments" Workshop: Value Proposition for Enterprise Interoperability at 14th International Conference on Concurrent Enterprising, ICE 2008, held in Lisbon, Portugal on 23-25 June 2008.

OLIVEIRA, MANUEL PINTO FERREIRA JOÃO JOSÉ, BARANDAS HORTÊNSIA: "Innovation And Entrepreneurship: What Professors From Leading Universities Say"; BASYS 2008 - 8th IFIP International Conference on Information Technology for Balanced Automation System, 23, 24 and 25 June 2008, Porto, Portugal.

FERREIRA, JOÃO JOSÉ SOUSA, MILTON OLIVEIRA JOSÉ: "Creative Entrepreneurial Abrasion in Higher Education"; BASYS 2008 - 8th IFIP International Conference on Information Technology for Balanced Automation System, 23, 24 and 25 June 2008, Porto, Portugal.

TEIXEIRA, AURORA A.C., "Entrepreneurial potential in engineering and business courses … why worry now? ", BASYS 2008, 8th IFIP International Conference on Information Technology for Balanced Automation Systems, Hotel Ipanema, 23rd June 2008.

TEIXEIRA, AURORA A.C "Entrepreneurial potential in engineering and business courses … why worry now? ", XVIII Jornadas Luso-Espanholas de Gestão, Porto, 7-8 February 2008.

VIEIRA, PEDRO; TEIXEIRA, AURORA A.C "Are Finance, Management, and Marketing Autonomous Fields of Scientific Research? An Analysis Based on Journal Citations", XVIII Jornadas Luso-Espanholas de Gestão, Porto, 7-8 February 2008.

SALMI PEKKA, CARL KOCK AND TORKKELI MARKO, Absorptive Capacity and Open Innovation, International Working Seminar on Production Economics 2008, Innsbruck, Austria, Feb 3-7, 2008.

PENI HENRIIKKA AND TORKKELI MARKO, Innovations on Mobile Music Recommendations and Viral Marketing, International Working Seminar on Production Economics 2008, Innsbruck, Austria, Feb 3-7, 2008.

MARKO TORKKELI, ANNA-MARI YLÄ-KOJOLA, JUHA VÄÄTÄNEN, Daria Podmetina, and Tuuli Mirola, Knowledge Absorption in Russia –Role of Foreign Direct Investors, Global Business Innovation and Development Conference (GBID 2008), 16-19.1.2008 Rio de Janeiro, Brazil.

R7.4.8 Other Publications

TEIXEIRA, AURORA A.C.; DAVEY, TODD "Attitudes of Higher Education students to new venture creation: a preliminary approach to the Portuguese case", October 2008.

SANTOS, CRISTINA; ALMEIDA, ALEXANDRE; TEIXEIRA, AURORA A.C. "Searching for clusters in tourism. A quantitative methodological proposal", September 2008.

ALMEIDA, ALEXANDRE;TEIXEIRA, AURORA A.C. "One size does not fit all… An economic development perspective on the asymmetric impact of Patents on R&D", September 2008.

PASSOS, ANDREIA, "A secularização a diferentes velocidades: ortodoxia versus heterodoxia religiosa (estudo de caso)", In: *VI Congresso Português de Sociologia, Mundos Sociais: Saberes e Práticas,* Área Temática: Crenças e Religiosidades, Universidade Nova de Lisboa, Faculdade de Ciências Sociais e Humanas, Junho de 2008.

DIEGUEZ, TERESA;TEIXEIRA, AURORA A.C., "ICTs and Family Physicians Human Capital Upgrading. Delightful Chimera or Harsh Reality?", May 2008.

TEIXEIRA, AURORA A.C. "National Systems of Innovation: a bibliometric appraisal", April 2008.

TEIXEIRA, AURORA A.C "Which dimensions of proximity matter most for university-firm interactive learning and innovation?", Invited speaker of the cicle of conferences associated with "Conhecimento e Instituições", PhD Program 'Governação, Conhecimento e Inovação' (CES and Faculdade de Economia, Universidade de Coimbra), 7th March 2008.

TEIXEIRA, AURORA A.C "Potencial Empreendedor dos estudantes finalistas da UP", Seminários da FEP, 13rd February 2008.

TEIXEIRA, AURORA A.C; DELGADO, ANA"Creative Industries and Creative Classes. Economic and social importance in the Northern Region", Porto-Cidade-Região, Palácio da Bolsa, 26 Janeiro 2008.

KOCK, CARL JOACHIM AND TORKKELI, MARKO T., "Open Innovation: A 'Swingers' Club' or 'Going Steady'?" IE Business School Working Paper WP08-11. Madrid, Spain.

R7.5 LIST OF JOURNALS

Journal	Number of papers
European Planning Studies	1
International Journal of Management Science and Engineering Management	1
International Journal of Entrepreneurship and Innovation Management	1
International Journal of Iberian Studies	1
IJSS	1
Journal of Business Chemistry	1
Journal of Evolutionary Economics	1
Structural Change and Economic Dynamics	1
TOTAL	8

R7.6 LIST OF PATENTS

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R7.7 LIST OF PROTOTYPES

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R7.8 LIST OF THESES SUPERVISED BY MEMBERS OF THE UNIT DURING 2008

PhD Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Ester Maria dos Reis Gomes da Silva	FEP- UP	Aurora Teixeira Mário Rui Silva	INESC Porto/FEP FEP	Structural Change and Economic Growth. The role of technological paradigms	2008
1	*2*	*3*	*4*	*5*	*6*

1 – Name of the post-graduation student
2 – Institution where the thesis is submitted; if the host institution for the student is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
4 – Affiliation institutions of supervisors – ex: INESC Porto/FEUP, FCTUC, P. Univ. Comillas Madrid
5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

MSc Dissertations

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Carla Simão	FEUP	Aurora Teixeira	INESC Porto/FEUP	"Inovação e Design em Indústrias Tradicionais. O Caso do Sector do Mobiliário de Paredes e Paços de Ferreira"	2008
Cristina Santos	FEP-UP	Aurora Teixeira	INESC Porto/FEP	Identificando Clusters. Uma Proposta Metodológica com Aplicação Empírica ao Sector do Turismo	2008
Fernando Manuel Monteiro Gomes	FEUP	João José Pinto Ferreira	INESC Porto e FEUP	"Oportunidades de Inovação na Aplicação de Redes de Comunicação Móvel a Sistemas de Automação de Redes de Distribuição de Energia"	2008
José Silva	FEUP	Aurora Teixeira	INESC Porto/FEP	O Estado-da-Arte da Literatura em Gestão da Inovação e Tecnologia. Um Estudo Bibliométrico	2008
Mafalda Vaz Pinto Moreira	FEUP	João José Pinto Ferreira Katja Tschimmel	INESC Porto e FEUP ESAD	"Gestão do Processo Criativo na Inovação ao Nível dos Serviços de Consultadoria em Sistemas de Informação e Comunicação"	2008
Margarida Maria da Silva Rodrigues Fachada	FEUP	João José Pinto Ferreira	INESC Porto e FEUP	"Integração de um Modelo de Comunidade Virtual "Peer-to-Peer" em Conteúdos Tutorias Multimédia, usando Ferramentas de Authoring, para e-Learning"	2008
Sara Cruz	FEP-UP	Aurora Teixeira	INESC Porto/FEP	Surveying Clusters: A comprehensive bibliometric account	2008
Carlos Cordeiro	FEP-UP	Aurora Teixeira	INESC Porto/FEP	Spin-outs universitários. Que impacte ao nível da internacionalização da economia	2009
Cristiana Pedrosa	FEUP	Aurora Teixeira	INESC Porto/FEP	Assessing the range of influence of technology transfer research institutions. The case of INESC Porto	2009
Elsa Ferreira	FEP-UP	Aurora Teixeira	INESC Porto/FEP	Human Capital and Entreprenuership. An International Database Assessement	2009
Wei Heyuan	FEP/UP	Aurora Teixeira	INESC Porto e FEP	A importância do capital humano para a atracção do IDE - uma aplicação ao caso Chinês"	2009*
Joana Coutinho	UMINHO	Aurora Teixeira	INESC Porto e UMINHO	"Qualifications and mobility into the higher education systems. The perception of students"	2009
José Sequeira	FEP-UP	Aurora Teixeira	INESC Porto/FEP	Mapping the scientific network of INESC Porto. An international overview	2009
Mafalda Soeiro	FEP/UP	Aurora Teixeira	INESC Porto e FEP	"Valuing risk reduction reduction benefits of crime prevention: the economic value of life. A contingent valuation study"	2009
Margarida Catarino	FEP/UP	Aurora Teixeira	INESC Porto e FEUP	"The role of R&D+I Intermediates in international firms R&D cooperation"	2009
Maria do Céu Moreira Lobarinhas	FEUP	João José Pinto Ferreira	INESC Porto e FEUP	"Empreendedorismo, o MIETE no Contexto de uma Aprendizagem ao Longo da Vida"	2009
Maria Oliveira	FEUP	Aurora Teixeira	INESC Porto e FEUP	"Technology Transfer Offices: which factors are determinant in increasing their efficiency?"	2009
Mariana Lopes	FEP-UP	Aurora Teixeira	INESC Porto/FEP	Open Innovation. Are technological intermediate countries different from the frontier ones?"	2009
Natália Martins	FEUP	Aurora Teixeira	INESC Porto/FEUP	O papel dos Parques Empresariais no desenvolvimento do empreendedorismo local	2009

Author	Instit.	Supervisor	Instit.	Title or topic	Conc. Date
Odília Meneses	FEP-UP	Aurora Teixeira	INESC Porto/FEP	"Is innovation in tourism a way out poverty? The forgotten Sub-Saharan Africa depressed economies"	2009
Shu Li	FEP-UP	Aurora Teixeira	INESC Porto/FEP	"A intensidade do capital humano nas empresas inovadoras Chinesas: comparação entre multinacionais e empresas domésticas"	2009
Teresa Martins	FEUP	Aurora Teixeira	INESC Porto/FEP	Cooperação empresarial em ID+I. O papel das Instituições de Apoio ao ID+I em Portugal	2009
1	2	3	4	5	6

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2 – Institution holding the course where this student in enrolled in; if the host institution is other than INESC Porto, write the name in brackets. Ex. FEUP, for a student enrolled in a course at FEUP and having INESC Porto as host institution; FCUP (Univ. Manchester), for a student enrolled in a course at FCUP and staying at the University of Manchester
3 – Name of supervisor or supervisors
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5 – Title of the thesis
6 – Predicted year of conclusion and delivery – will be taken in account in summary tables

R7.9 ORGANISATION OF INTERNATIONAL SCIENTIFIC EVENTS

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R7.10 ADVANCED TRAINING

Supervision of 1 PhD thesis (concluded in 2008) and 22 (15 ongoing and 7 concluded) Master Theses.

R7.11 OTHER CONTRIBUTIONS TO THE OBJECTIVES OF ASSOCIATE LABORATORY

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R7.12 ANALYSIS AND ASSESSMENT OF DEVIATIONS RELATIVE TO FORMER PLANNING

R7.12.1 Comparison with strategic actions or policy lines defined in the plan of the previous year

The Unit is still in its first years of existence and the year of 2008 was mainly dedicated to test and validate some activities and functions, both internally and externally.

At the end of 2008, the Unit made a small SWOT analysis to capture the knowledge and experience gathered during these two years of existence and to launch a strategic definition for the future:

Strengths

- Past experience in the implementation of processes and tools concerning the innovation process.
- Competences in the area of IP and technology transfer process.
- Competences in the area of R&D + Innovation management systems.
- Experience and competence concerning business development process.

- Experience and competence in advanced training in the area of innovation, technology transfer and entrepreneurship.

- Good relationship between the Unit and researchers.

- Good relationships between the Unit and some entrepreneurship advanced training courses.

- Good relationships between the Unit and pilot companies which implemented the certification on innovation management (NP 4457:2007).

Weaknesses

- Incipient international networking for the development of R&D projects.

- Inefficient commercial approach and lack of adequate staff to meet the expected increase of consulting activities in the area of innovation management systems.

Opportunities

- Collaboration with other International Research Unit in European Projects (Lappeenranta University of Technology, Texas Austin University, IC2, WIFO), which will foster the Unit scientific output.

- Increasing awareness by public (Portuguese Government – QREN) and private (COTEC and Portuguese largest firms) entities of the need of innovation and R&D+I management training and certification.

Threats

- Relative scarcity of entrepreneurial culture and empowerment of Portuguese economic agents in general and researchers in particular.

- Increasing competition in the area of R&D+I related training and consulting.

R7.12.2 Cases of success, problems met, internal and external conditioning factors

(Refer to the previous point)