The winning *strategy*

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The aim

➢**Successful participation in FP7**

&

➢**New knowledge and new technology**

&

➢**Create value for end users**

Few questions

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➢**Why bother? – why my project is important**

➢**What is novel about it? – how does it differenciate from alternatives**

➢**Who will benefit and how? – what is the value added of your project**

➢**Who are you? – why are you suitable to carry it out**

Would you invest your money into the project if the results were successful?

Example

- ➢ **Why bother?**
- ➢ **What is novel about it?**
- ➢ **Who will benefit and how?**
- ➢ **Who are you?**

NFC Robotrainer is hardware and software system of training children with disabilities to distinguish the colors, forms and symbols with the help of robot that identifies the objects and orients by NFC/RFID tags. NFC Robotrainer consists of robot that able to catch and transfer the items (special colored and formed toys with imprinted images on theirs surface and built-in NFC/RFID tags), PDA that identifies tags by built-in NFC-reader, computer that controls the training programs and (optionally) PDA for robot control by a teacher. NFC Robotrainer is a robotic system that uses NFC/RFID tags for recognition the type and character of item and navigates the robot in the training area by the orthogonal matrix of NFC/RFID tags. NFC Robotrainer increases the clearness of children teaching, makes the teaching more interactive and visual, attracts children to studying process because of using interactive playing forms of education with innovative technology application

Having a project idea...

Main showstoppers

➢**Is it in line with the workprogramme?**

    ➢**Understanding the requirements**

➢**Who will coordinate it?**

    ➢**Building consortium**

Evaluating the idea & preparations

4.2 Challenge 2: Cognitive Systems, Interaction, Robotics

Cheap, miniaturised sensors and abundant computing power have enabled industry to exploit the ability of machines to extract information from their environment and use it to achieve their tasks. These trends allow companies to further extend the autonomy of systems such as robots, smart cameras, autonomous vehicles and sensor networks as well as human-machine interfaces, speech recognition and translation systems, thus broadening their applicability.

European industrial *robot* manufacturers are diversifying their product offerings to enter new markets beyond traditional production environments, and with time the industrial robot market will converge with the burgeoning market for professional service robots. Both types of robots now require advanced visual and pressure sensing techniques to enable all sorts of tasks involving positioning, manipulation and navigation.

Smart cameras have reached widespread use not just in lending autonomy to manufacturing processes (eg inspection and handling), but also to non-manufacturing applications. The upsurge in manufacturing in China, the demand for upgrades to existing inspection installations in Europe as well as for high-end surveillance, monitoring and analysis applications, bode well for the strong EU supply industry.

Scientific and other endeavours are generating a growing demand for data-gathering, analysis and action in remote and hostile environments, which in turn drive autonomy requirements for underwater vehicles, unmanned air and ground vehicles. Spatially *distributed sensing* and acting elements can operate collectively towards overall goals such as identifying objects of interest, search & rescue, situation awareness and efficient resource usage.

Machines and other systems operating loosely structured environments and close to people will regularly be confronted with novelty, uncertainty and change. If their operation is to be robust and adaptive, they will not only have to be able to extract information from their environment but also reason and learn about it. There is a growing recognition that artificial systems will have to be endowed with many different 'cognitive' capabilities, including perception, recognition, learning, reasoning, planning, motivation, communication and self-understanding. The growing body of knowledge about how natural cognitive systems work is helping to fuel developments in this domain.

This also holds for the use of natural *language* as a means of communication and interaction. The success of any technology requiring language-based interaction with humans or supporting language-based interaction among people is largely dependent on how well the language understanding issue can be addressed. With 23 official languages, the EU is in the frontline of multilingualism. Moreover, the globalising economy puts ever greater demands on overcoming language barriers, requiring fresh attempts at automating natural language translation.

Recent advances in artificial intelligence, human-computer interaction and cognitive systems enable further progress in addressing remaining shortcomings of automated *translation*, making it more adaptive, capable of self-learning and more user-friendly. Automatic methods can significantly speed up the human translation process by continuous learning and improvement. On the other hand, the explosion of the amount of online multilingual content and the necessity to access it across languages means that fully automatic solutions are necessary and feasible where the highest translation quality is not an absolute requirement.

Why such priority? Learn the background...

Market Size ($1,000s)

Figure 1: Worldwide Robotics Market Growth

Robotics

www.euron.org
http://www.robotics-platform.eu.com/

- **Problem**: Elderly society vs productivity and quality of life, hazardous situations, routine work

- **Solution**: automate routine processes with contemporary IT means

- **Bottlenecks in technology**: systems are expensive, technology needs to be adaptive, higher intelligence incurs higher costs, limited ability to work in incomplete environment
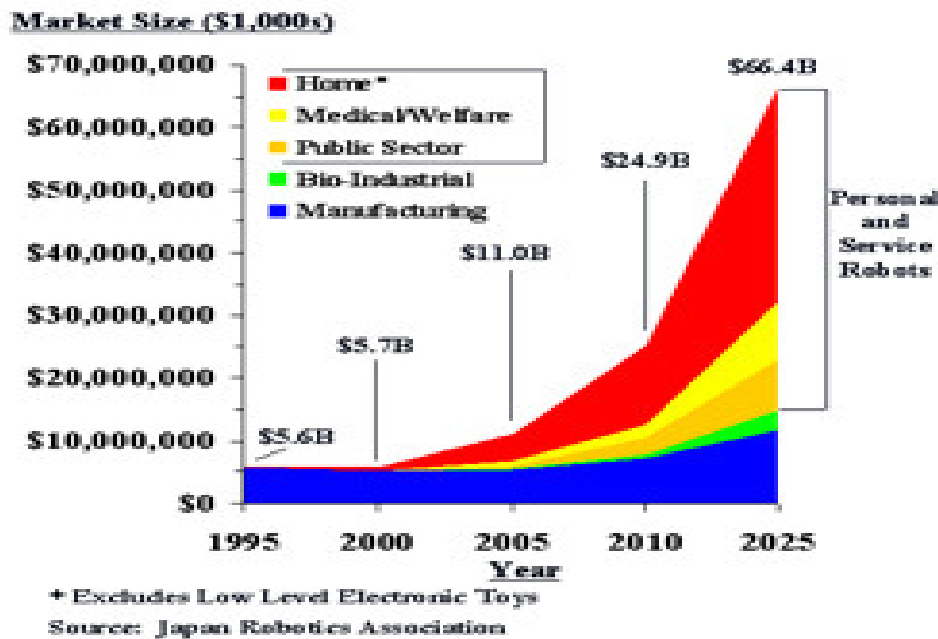
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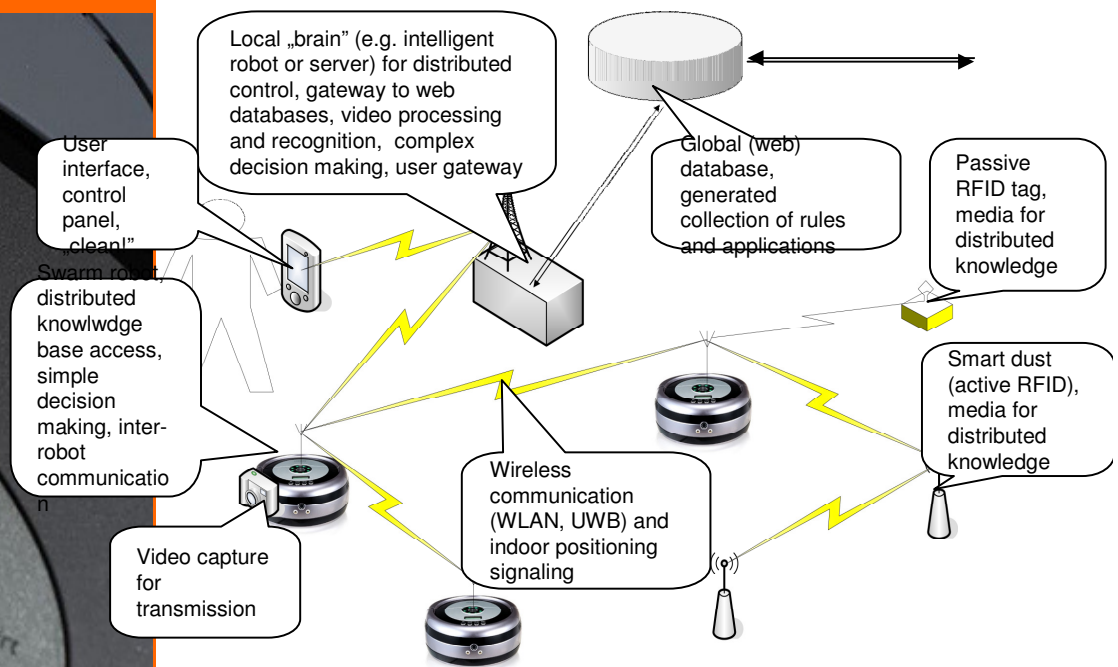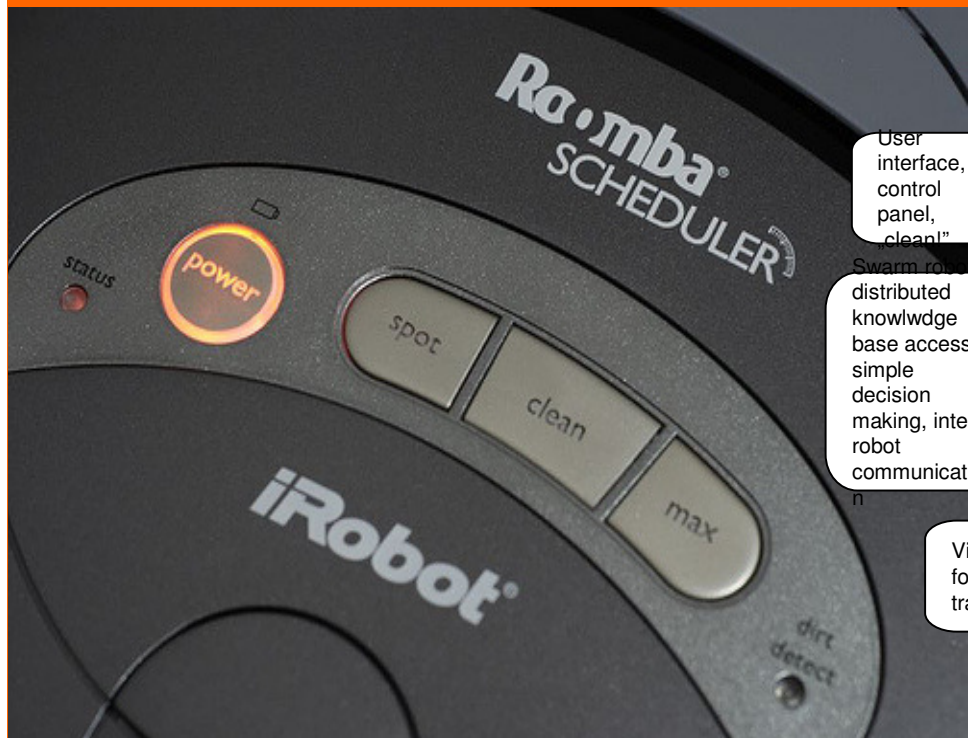
Example: extract from work-programme

Focus

Multi-disciplinary research based on a viable mix of scientific advancement and technology integration with focus on one or a combination of the following RTD themes[5]:

1. *Flexible robot systems* integrating lower-cost structures and materials and exhibiting rich sensory-motor skills and multi-sensory feedback based on advanced perception capabilities and adaptive control that enable such robot systems to reach higher levels of autonomy;

2. *Safe, robust and dependable* robot systems operating in human environments and co-operating with people; underlying design should affect any aspect of robot R&D from architectures to key component functionality.

3. *Networked and cooperating robots:* embedding robotic systems in surrounding smart IT infrastructure for enabling their integration, evolution and task/service provision in everyday environments;

4. *Advanced integrated modular robotics*; modular design and modelling of new, versatile "plug-and-play" robot systems based on the development of open reference system architectures with standardised hardware and software building blocks.

Offer solution...

**Focus is not on intelligence of individual robot, but intelligent environment**

a) **create 'smart environment' with resonably low costs**

b) **divide complex assignments between many robots with limited intelligence**

User interface, control panel, „clean"

Local „brain" (e.g. intelligent robot or server) for distributed control, gateway to web databases, video processing and recognition, complex decision making, user gateway

Global (web) database, generated collection of rules and applications

Passive RFID tag, media for distributed knowledge

Swarm robot, distributed knowlwdge base access, simple decision making, inter-robot communication

Smart dust (active RFID), media for distributed knowledge

Video capture for transmission

Wireless communication (WLAN, UWB) and indoor positioning signaling

Are we really first ones?

There is a large bulk of similar solutions probably available. Need to learn the state of the art:

a) **Patent databases http://ep.espacenet.com**

b) **Cordis project database**

c) **Publications in the field/scientific databases**
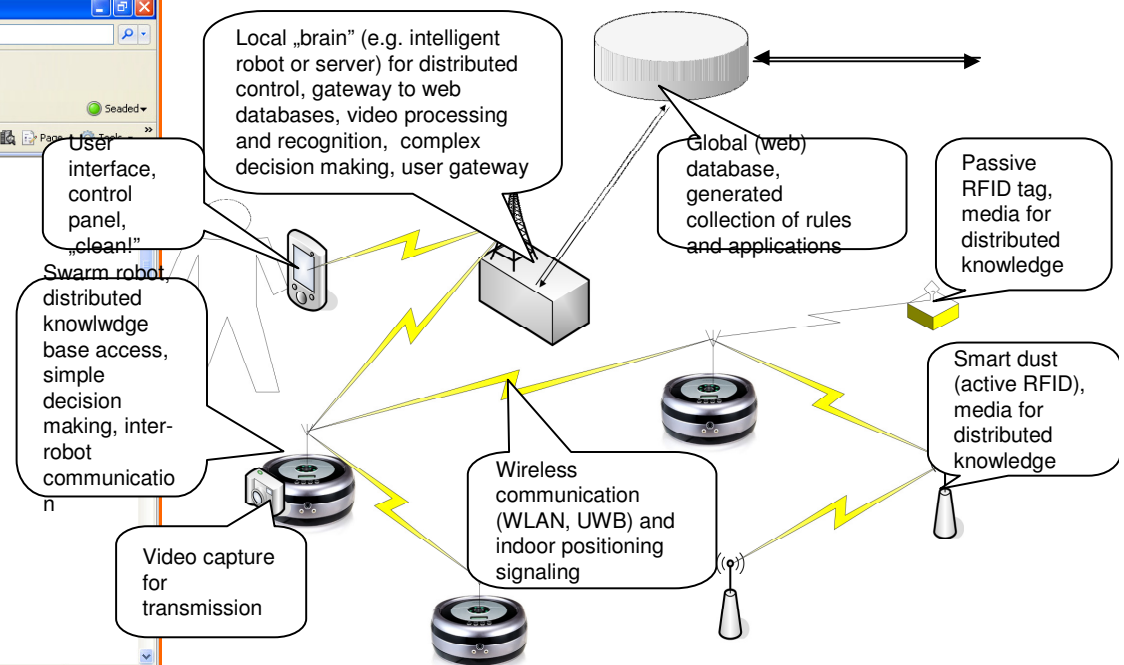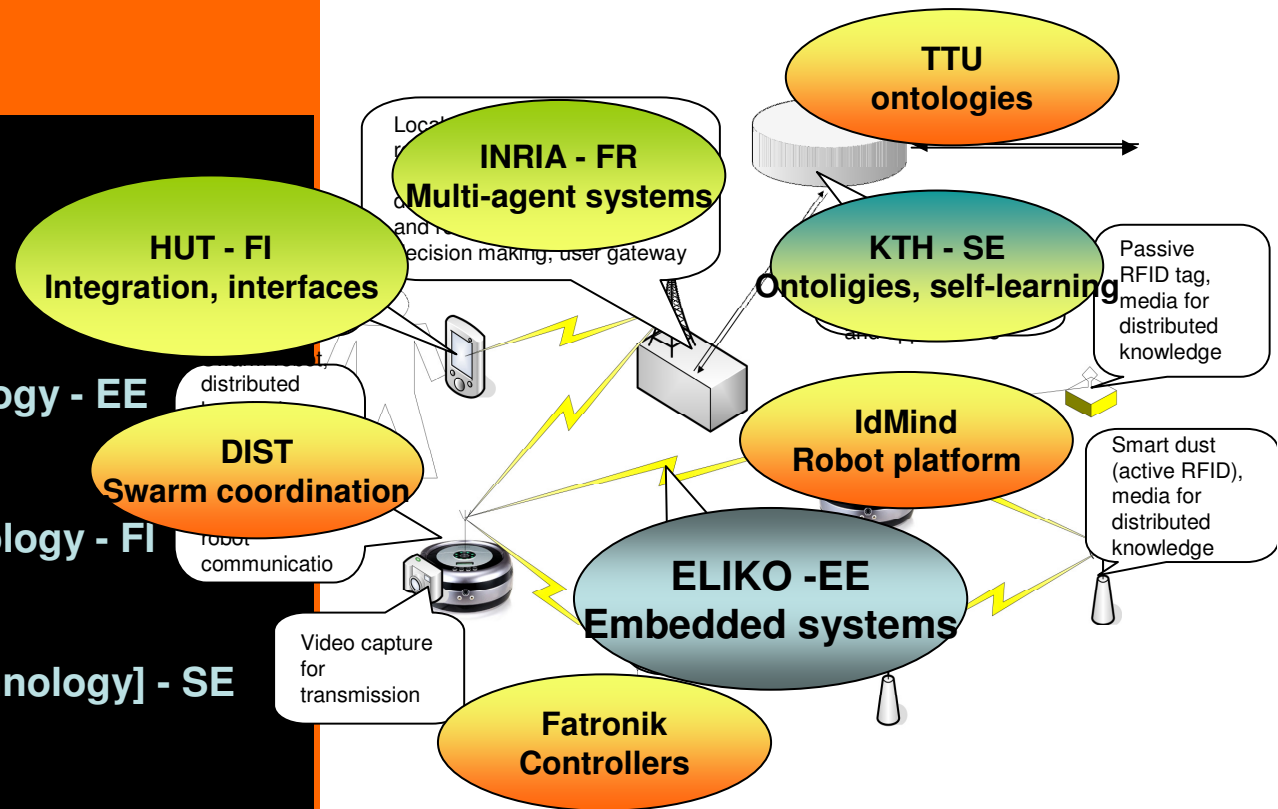
Well, how should we do this?

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Roboswarm:

an open knowledge environment for self-configurable, low-cost and robust robot swarms usable in everyday applications

2,1 mln euros

Partners:

1. Tallinn University of Technology - EE
2. ELIKO - EE
3. INRIA - FR
4. Helsinki University of Technology - FI
5. University of Oulu - FI
6. Fatronik - ES
7. KTH - [Royal Institute of Technology] - SE
8. IdMind - PT
0. University of Genova - IT

TTU ontologies

INRIA - FR Multi-agent systems

HUT - FI Integration, interfaces

KTH - SE Ontoligies, self-learning

decision making, user gateway

Passive RFID tag, media for distributed knowledge

distributed

DIST Swarm coordination

IdMind Robot platform

robot communicatio

Smart dust (active RFID), media for distributed knowledge

ELIKO -EE Embedded systems

Video capture for transmission

Fatronik Controllers

Check-points!

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➢ **The project has high potential scientific and economic impact**

➢ **Project is long-term and bears significant risks, potential return is high**

➢ **Technology is competitive on a global scales**

➢ **There is insufficient competence availble in my research team/country**

➢ **I am capable R&D manager and can communicate in English**

➢ **I would like to engage end-users of technology into the development of final product**

➢ **I would like to have effect on future standards**

➢ **There is persisting socio-economic problem that my technology addresses**

Building up consortium – a sales process

ROBERT BOSCH GMBH

NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH

INFINEON TECHNOLOGIES AG

STMICROELECTRONICS SA

BRITISH TELECOMMUNICATIONS PLC

INTRACOM S.A. HELLENIC TELECOMMUNICATIONS AND ELECTRONICS INDUSTRY

NOKIA CORPORATION

SIEMENS AKTIENGESELLSCHAFT

T-SYSTEMS NOVA GMBH

CENTRO RICERCHE FIAT SOCIETA CONSORTILE PER AZIONI

INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW

ALCATEL SEL AG

SCOURT GMBH TELECOMMUNICATIONS

TEKNILLINEN KORKEAKOULU

FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

SINTEF - STIFTELSEN FOR INDUSTRIELL OG TEKNISK FORSKNING VED NORGES TEKNISKE HOEGSKOLE

UNIVERSITE DE GENEVE

PHILIPS ELECTRONICS NEDERLAND B.V.

UNIVERSIDAD POLITECNICA DE MADRID

CENTER FOR SA

EUROPEAN ROAD TRANSPORT TELEMATICS IMPLEMENTATION COORDINATION ORGANISATION S.C.

GMD - FORSCHUNGSZENTRUM INFORMATIONSTECHNIK GMBH

ALCATEL MICROELECTRONICS N.V.

COM ITALIA AB S.P.A.

FORSCHUNGSZENTRUM INFORMATIONSTECHNIK GMBH/DAIMLERCHRYSLER AG

UNIVERSITE CATHOLIQUE DE LOUVAIN

ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE

UNIVERSITY COLLEGE LONDON

COMMISSARIAT A L'ENERGIE ATOMIQUE

EMPIRICA GESELLSCHAFT FUER KOMMUNIKATIONS- UND TECHNOLOGIEFORSCHUNG MBH

TELEFONICA INVESTIGACION Y DESARROLLO SA UNIPERSONAL

COM

INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE

BRITISH MARIT TECHNOLOGY LIM

TECHNICAL RESEARCH CENTRE OF FINLAND

UNIVERSITAET ULM

DANISH TECHNOLOGICAL INSTITUTE

INSTITUT NATIONAL POLYTECHNIQUE DE GRENOBLE

EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH

KUNGLIGA TEKNIS HOEGSKOLAN

CONSIGLIO NAZIONALE DELLE RICERCHE

UNIVERSITAT POLITECNICA DE CATALUNYA

UNIVERSITE JOSEPH FOURIER GRENOBLE 1

UNIVERSITE DES SCIENCES ET TECHNOLOGIES DE LILLE

THE CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE

X.T.E. SOLUTIONS SPA

FOUNDATION FOR RESEARCH AND TECHNOLOGY - HELLAS

ECOLE NORMALE SUPERIEURE PARIS

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

ISTITUTO TRENTINO DICULTURA

UNIVERSIDAD POLITECNICA DE VALENCIA

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS

POLITECNICO DI TORINO

THE UNIVERSITY OF SOUTHAMPTON

UNIVERSITE PARIS-SUD

UNIVERSITEIT TWENTE

http://pi.ijs.si/

Steps to take

- **define project team & responsibilities**

- **define project plan and deadlines**

- **prepare "sales" materials**

- **identify partner profiles**

- **start "sales"**

- **finalize minimum set of partners**

- **start preparing full proposal**

Definition of team and responsibilities

- **Project management** – supervision of tasks and responsiblity for the project

- **English speaking person -** contact with partners & writing

- **Scientific staff –** S&T and Objectives part of the proposal

- **Financial person** - budgeting

responsibility Silver/week	I	II	III	IV	V	VI	VII	VIII
short intro								
partner profiles settled								
partner search								
S&T part of proposal								
Management part of proposal								
Impact part of proposal								
EPSS								

Drafting the idea

Examples

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The aim is to compile short project overview (2 pages) for partner search:

-Why such project is relevant?

-Objectives of the project

-List of actions leading to planned results (possibly corresponding to Work Package structure)

-List of deliverables

-Profile of necessary partners

Drafting the idea: example

What problem do you solve?

Organization: short info on organization

Competence Centre of Electronics-, Info- and Communication Technologies (ELIKO) was founded in 2004, under the Technology Competence Centre Program, financed by Enterprise Estonia. As an independent research and development organization, ELIKO focuses on the design and development of future electronics and infotechnology solutions, based on intelligent embedded systems. ELIKO is working in deep cooperation with Tallinn University of Technology and eight industrial partners – software development companies Apprise OÜ, Girf OÜ, Cybernetica AS, Ibeks OÜ and Embros OÜ, embedded software developer Elvior, electronics design companies Artec Group and M&T Elektroonika......

Idea/competence description:

The general objective of the proposal is to develop an open knowledge environment for self-configurable, low-cost and robust robot swarms usable in everyday applications. Advances in the state-of-the art of networked robotics are proposed through introduction of local and global knowledge base for ad hoc communication within low-cost swarm of autonomous robots operating in surrounding smart IT infrastructure.

The work will address the development of flexible, cost-effective, dependable, and user-driven robot systems, which possess higher intelligence collecively than each member of the swarm independently. By the end of the project a demonstration of the proposed approach will be made by means of self-organising robot swarm (composed of (10-15) devices) carrying our cleaning task in a hospital, which was chosen as application test-bed....

Identifying missing competencies

Competence table & roles of each partner

Partner	Role of Partner
Invent	Administrative coordinator, development of exploitation strategies
ELIKO	Competence and leading role in logical reasoning and rule based knowledge representation, exchange; user activity monitoring
KTH	Competence and leading role in universal ontologies, user profiling, web services
TUM	Competence and leading role in sensorics part of smart home technology
InAccess	Competence and leading role in communication part of smart home technology

Table 3. Partners' expertise

Partner	HW	User device low level SW	User device appli-cation SW	User profile manage-ment	Theory of semantics and ontologies	Server application programming	Content & content en-richment	End-user
ELIKO	X	X		X				
INRIA	X	X	X					
TKK			X	X	X	X		
KTH				X	X	X		
WG		X	X					
HM							X	X
IMSS						X	X	X
APPRISE		X	X			X		

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Identifying target partners

-**FP7 project database**
http://www..cordis.lu

-**Visible industry players**

-**Patents&publications**

Building project consortium

Partners should:

- be reliable

- have common vision

- previous experience

- well known

- technologically competent

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Partner search possiblities:

a) Personal contacts – cooperation partners, clients, R&D partners

b) EU Technology Platforms (http://cordis.europa.eu/technology-platforms/individual_en.html)

c) Pan-European partner search systems

www.ideal-ist.net

http://eoi.cordis.lu/search_form.cfm

www.hyperion.ie/euassociation.htm

http://fp6.cordis.lu/fp6/partners.cfm

Your National Contact Point

Best way to find new partners

a) Direct approach

b) EU conferences and seminars
http://europa.eu.int/information_society/index_en.htm

b) Contacts with project coordinators/ thematic networks
http://www.cordis.lu/ist/projects/projects.htm

c) Becoming a member in associations

http://www.cen.eu/cenorm/index.htm

d) Evaluators

e) Authors of EU reports and analyses

Proposal preparation process

Which game do we enter?

-Role and responsibility of each player
-Connections between the players
-Rules of the game
-How do you measure resultativity
-What are the merits for punishment
-Who is the judge, what does he like/does not like
-Terminology
-Main difference: in football, the rules do not change as fast as in EU programmes

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Needed equipment

-*Call text*
-*Work programme*
-*Guide for Applicants*
-*Evaluators Guide*
-*White Papers*
-*Partners*

http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.CooperationDetailsCallPage&call_id=11

Workprogramme as core document

EUROPEAN COMMISSION

Information Society Technologies

A thematic priority
for Research and Development under the Specific Programme
"Integrating and strengthening the European Research Area"
in the Community sixth Framework Programme

2003-2004 Workprogramme

Information Society
Technologies

http://www.cordis.lu/ist

IST priority, WP 2003-2004   1

Work programme describes the following aspects:

-Goals/Challenge orientation

-Target Outcome

-Expected impact

-Funding schemes

-Expected budget breakdown

IST Work Programme 2007-2008, page.18
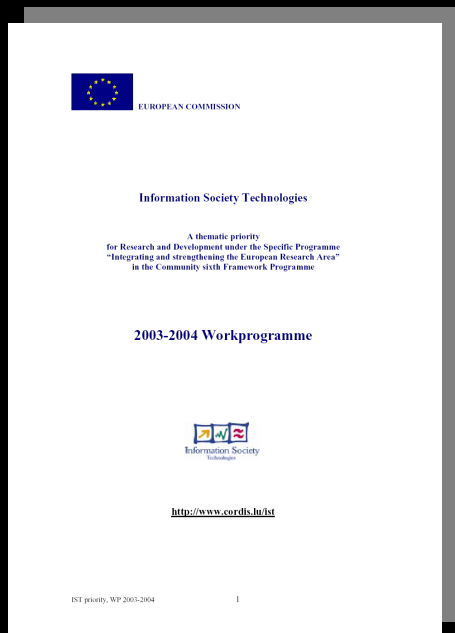
Objective ICT-2007.1.6: New Paradigms and Experimental Facilities

Target outcome
a) Advanced networking approaches to architectures and protocols, designed to cope with increased scale, complexity, mobility and requirements for security, resilience and transparency of the Future Internet coupled with their validation in large scale testing environments.
b) Interconnected test beds addressing novel distributed and reconfigurable protocol architectures; novel distributed service architectures, infrastructures and software platforms; and advanced embedded or overlay security, trust and identity management architectures and technologies.
c) Coordination and support actions for: i) standardisation and conference support; ii) coordination with related national or regional programmes or initiatives.

Expected Impact
• Strengthened European position in the development of the Future Internet.
• Wider take-up of technological developments in networks and service infrastructure.

Funding schemes
CP, NoE, CSA
Indicative budget distribution: 40 M€: - CP 36 M€ of which a minimum of 12 M€ to IPs and a minimum of 15 M€ to STREP, NoE 3M€, CSA 1M€

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Guide for Applicants

'**Guide for Applicants**'

Part A

Legal information and administrative about proposer, organization type, contact details etc

Part B

- Concept and objectives

- Progress beyond the state of the art

- Work-plan

- Management

- Participants, consortium structure

- Resources

- Impact

- Dissemination of results

Amount of paper – ca 50-90 pages

If idea fits...

Selection of project type:

-We would like to conduct analysis, training & seminars (Support and Coordination Actions)

-We would like to perform focussed goal driven research

(Collaborative project, small)

-We would like to perform large scaled research project (Collaborative project, big)

Guide for evaluators
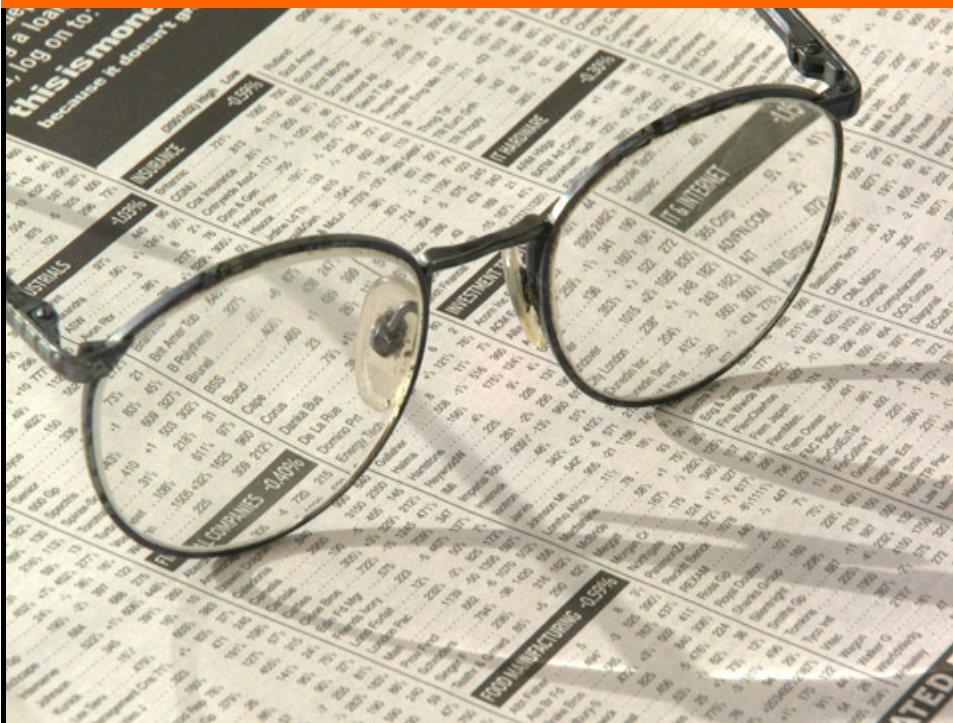
What is being evaluted?

1. Scientific and/or technological excellence

- *Soundness of concept, and quality of objectives*
- *Progress beyond the state-of-the-art*
- *Quality and effectiveness of the S/T methodology and associated work plan*

2. Quality and efficiency of the implementation and the management

- *Appropriateness of the management structure and procedures*
- *Quality and relevant experience of the individual participants*
- *Quality of the consortium as a whole*
- *Appropriateness of the allocation and justification of the resources to be committed*

3. Potential impact through the development, dissemination and use of project results

- *Contribution, at the European and/or international level, to the expected impacts listed in the work programme under relevant topic/activity*
- *Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property.*

Part 1: Concept & Objectives, State-of the Art

Concept:

- why is your project important?

- how it is better than others?

- How does it go beyond the state of the art?

Objectives:

- Define general objectives

- Define specific measurable objectives

- Define the main results of the project

- Illustrate with figures

State-of the Art:

- What are the main technology blocks covered by your project

- What is the state-of the art of those technological blocks

- How your project goes beyond the state of the art?

Part 2: Management and resources

2.1 Management:

- Management and decision making structure

- Consortium Agreement

- Progress Monitoring and Reporting

- Quality Assurance

- Conflict Resolution

- Risk management

2.2 Individual Participants

2.3. Consortium as a whole: Required expertise and complementarities

2.4. Budget and resources
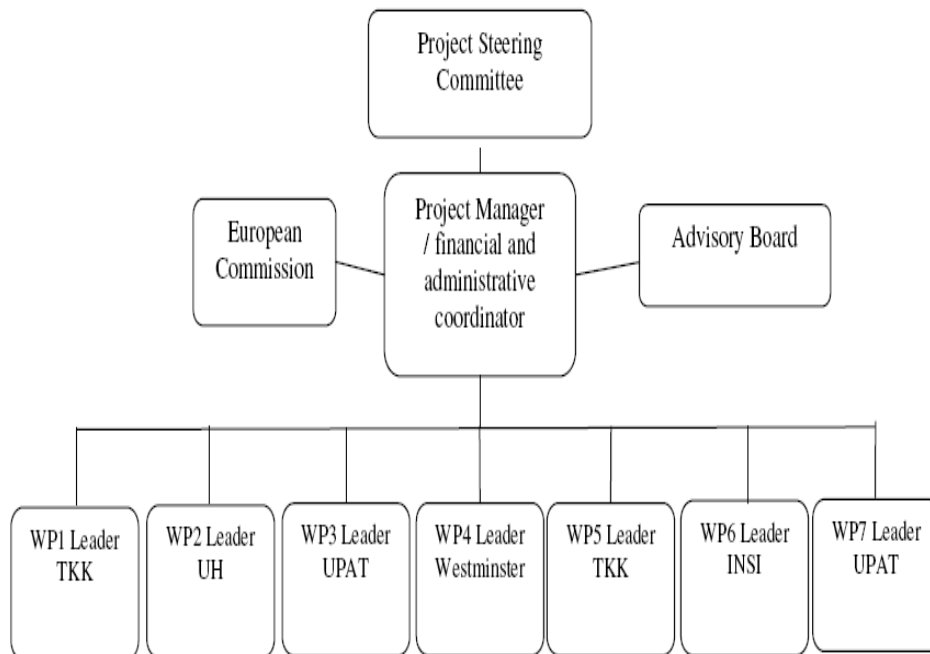
Part 3: Impact

Work programme describes expected impact

Describe impact rising from the project in line with expected impacts:

-Economic impact

-Impact on R&D level

-Social impact

-Impact on SMEs

-Need for European approach

Use figures and references to support your arguments

Part 4: Dissemination

Target groups	Dissemination channels
Research community acting in the fields of R&D proposed by SEMANTIC ERA, similar R&D proposals	Thematic conferences and seminars (incl annual IST conference scheduled for), publications, direct visits and on-place presentations
General research community	Conferences and seminars, press releases and articles, web-site, leaflets
Libraries and archives	Partner existing contacts, networking with Digital Libraries initiatives, articles, conferences and seminars, Advisory Board, e-mails
Enterprises as strategic partners, value added service providers and search engines	Web-site, conferences, articles, seminars, e-mail shots

-**Dissemination: which channels and means you are going to use for spreading the knowledge about the project and project results**

-**These can be:**

- -**Website**
- -**Workshops and seminars**
- -**Technology platforms**
- -**Press releases**
- -**Leaflets**
- -**Articles in magazines, scientific publications**
- -**Advisory board**
- -**Project partners and related projects**

Intellectual property rights and exploitation

- Pre-existing knowledge

- Division of IPR within the project

- Access rights

- Transfer rights

- New partners adding into consortium

- 'Revenue sharing' schemes

- Exploitation of the results

Is mainly addressed by consortium agreement. It is not EC's document!

www.unite.be

www.ipr-helpdesk.org

EPSS

Electronic Proposal Submission System – electronic system for preparing and submitting proposals:

-Organizational details,

-address,

-contact person,

-SME definition

No signatures are required!

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Roadmap for project proposal

3 month + 2 evaluations + negotiations

Proposer		ECommission
Registration	→ ←	Call for proposals
		First check
1.step	→ ←	Short proposal
2.step	→ ←	Long proposal
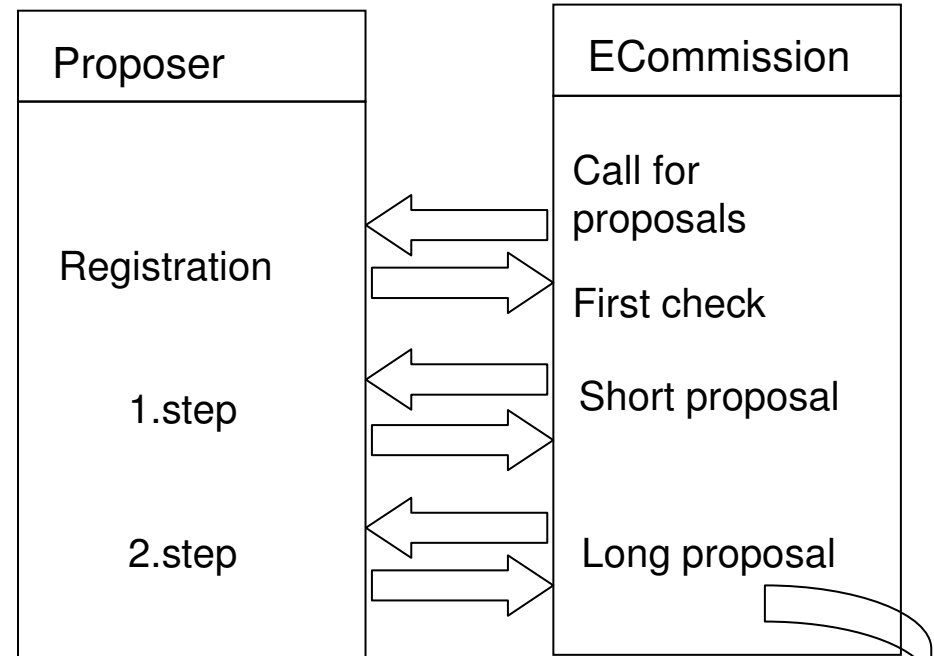
'Guide for evaluators'

Assistance in proposal writing

Project writing

a) **Emphasize clear scientific advancements proposed by the project** – innovative aspects (versus existing patents, projects, publications)

b) **Emphasize the impact of the project** – references to EU documents, know the market

c) **Present project goals in a measurable way**

d) **What is the RTD result?** – intellectual property

e) **Use the same terminology** – need to speak the "same language"

f) **Demonstrate sustainability/ clear exploitation plan** – project does not end with EU funding

g) **Clearly highlight partner's competencies** – project is mastered by leading experts

Summary

-Is your project filling the gaps on EU level? **(necessity)**

-What will EU gain from the project? **(EU centric)**

-How is our project innovative? **(innovation)**

-Why not transfer the necessary technology? **(technology transfer)**

-What are the benefits for our partners? **(common interest)**

-Why the timing of the project is right? **(acuteness)**

-What kind of previous projects have been supported and how does our project relate to them? **(connection)**

-Is it economically feasible? **(economic potential)**

-What is the target market? **(exploitation)**

Summary

-Unique idea should be unique for the EC as well

-Project should persuade evaluator in its actuality

-Project activities should be clear and cohere with partnership

-Results should be measurable

-IPR division should be determined before the project starts

-Project costs are realistic and balanced between partners

-Make sure that you are able to coordinate the proposal yourself

-Ask feedback from your colleagues concerning the project

In summary, it is good learning process to write a proposal yourself... even if first times (first 10 times) are not successful!

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Thank you for your attention!

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G.K. Chersterton (1874-1936)

"I owe my success to having listened respectfully to the very best advice, and then going away and doing the exact opposite"