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THE LIGHTHOUSE PROGRAMMES

The European Commission and large countries such as Germany (Initiative D21)[1] have opted for promoting ICT development and defining ICT research & development priorities based on new uses. "*Only the widespread use in society makes new technologies into innovations*," Thomas Ganswindt, D21 Chairman.

The *Conseil stratégique des technologies de l'information* (CSTI, Strategic Advisory Board on Information Technologies) has undertaken an initiative in this area. The report of the CSTI plenary meeting of 30 mars 2005 concludes its review of Recent Public Initiatives (*Agence nationale de la recherche* [national research agency], *Agence de l'innovation industrielle* [agency for industrial innovation], Competitive Clusters, European Initiatives, FPRD) – Proposals for ICTs, complementary issues and outlooks, by saying, "It has been decided to examine Lighthouse Programmes and their potential development more in detail […] and submit contributions on this topic to the Prime Minister."

Lighthouse Programmes or Technologies Serving Uses

Lighthouse Programmes will roll out different innovative, critical and strategic technologies for the future, within a comparatively short-term period. Together, the programmes will contribute to developing relevant and appealing applications. Programme purpose is to mobilise political decision-makers and the public opinion around innovative uses and services. To this end, the programmes will have to stimulate the imagination, project creativity, desire and dreams, and assert bold goals to meet society's expectations.

The mobilising programmes must display strong innovation potential, the linchpin bringing together all the relevant players. Accordingly, the definition of each programme is based on a specific goal that will,[2]

- Challenge current skills & expertise (harnessing applied research and development) and current knowledge (stimulating fundamental research);
- Be grasped and controlled by the people using it. The outcome of each Lighthouse Programme should be short-term uses and services and the output of material demonstrations and achievements.

[1] http://www.initiatived21.de/english/lighthouse/index.php "Above all, the Lighthouse projects should stand out through their results. Our goal is for them to show the social benefits of information and communications technologies," says Ganswindt. "That means the solutions must be capable of being implemented on a broad scale, they must inspire imitation and bring about change. As a result, Lighthouse projects will act as a widely visible guide." The Initiative D21 intends to make a contribution to Germany's innovative strength with the Lighthouse projects. "Only the widespread use in society makes new technologies into innovations. That is an aspect that has been given too little consideration up to now," says Ganswindt.

[2] The programme must not have a too detailed road map for reaching the goal so that different approaches can be rolled out.

Overarching Societal Outlook for Lighthouse Programmes

Programme topics embrace a societal outlook, such as healthcare and demography, transportation and road safety or resource optimisation and sustainable development. The topics must project a concrete, consensual and highly appealing image.

Numerous foresight papers recount "tales" of modern-day society in an attempt to identify society's major concerns over the next five to ten years. For instance, European work on critical technologies also includes an environmental and societal outlook on the technologies. The advances of the High Level Expert Group "Foresighting the New Technology Wave," open up interesting prospects for convergent technologies.

Multidisciplinary and Watchful Governance

Lighthouse Programme governance must promote a shared philosophy to reach the goal. The philosophy may be expressed within a Committee of Wise Men bringing together the different stakeholders.[3] The Committee could also be empowered to make decisions about the different programme components and to harness the organisational and operational resources required for developing the European scope of the innovation.

The Topics of the First Lighthouse Programmes

The CSTI suggests building the first Lighthouse Programmes on the basis of societal grand challenges, i.e., social cohesion and sustainable development. The challenges could hinge on the four following topics translating into five Lighthouse Programme proposals:[4]

- Healthcare: living an active self-reliant life despite age or disability
- Young People: expressing the identity of the new generations; giving every opportunity to employment by creating a digital space featuring individual skills
- The City: building accessible solidarity-based cities
- Cars: optimising resources for 100 % safe and 0 % polluting transportation

The programmes rely on the advances in e-administration, as necessary. The Ordinance[5] of 8 December 2005 on electronic exchanges between users and the administration, which facilitates and secures administrative procedures carried out electronically, decisively clears the way for the development of the electronic administration.

"Networked solidarity and self-reliance" could be the guideline for most of the programmes, embracing the twofold dimensions of time (all lifelong) and space (at home, in the city or on the move).

[3] This means the competent players in the relevant activities and uses, and not only the ICT players.
[4] A programme on Francophony was outlined. It may be developed if it is given high priority status.
[5] Ordinance based on the 9 December 2004 Act on the simplification of law, coherent with the June 2005 Act on the trust in the digital economy.

LIGHTHOUSE PROGRAMME 1
LIVING AN ACTIVE SELF-RELIANT LIFE DESPITE AGE OR DISABILITY
PROVIDING OLDER PERSONS OR THE DISABLED WITH THE MEANS OF LEADING SELF-RELIANT AND ACTIVE PERSONAL AND SOCIAL LIVES

Challenges & Goals

Life expectancy is lengthening and birth rate is steady at a very low rate in developed countries. On the one hand, people are living increasingly longer healthy active lives and becoming "elderly" later and later. It is likely that older persons' participation rate (full, part-time or even occasional paid or unpaid work) as well as their mobility will increase. On the other hand, there are too few young people to finance or even bear the burden of expensive care and look after the very elderly constantly, at least not unless substantial productivity gains are achieved.

The programme goal, which conforms with EU and G8 ("active ageing") priorities, is to **create the technologies and services providing older persons or the disabled with the means of leading self-reliant and active personal and social lives as long as possible**.

Sharing knowledge

- eWork, eTeaching: maintaining their professional and social activities without enduring all the constraints
- Collaborating and sharing: enabling older persons to share their knowledge and experience
- "Memories for Life" (British Computer Society, 2004): managing information during an entire lifetime

Staying healthy as long as possible

- Telediagnosis, telemedicine, teleassistance: being monitored at home or on the move, having constant access to healthcare professionals and assistance services, being able to call someone in case of need, including during a large-scale health crisis that may require the home confinement of the population (see government plan for the control of an avian influenza pandemic)
- Intelligent drugs: ongoing monitoring and adjusting of medical prescriptions and patient's compliance with the indications therein
- Home "service companion" robots: helping older persons do their daily chores
- Mobility assistance: designing aids for all forms of mobility

A different way of experiencing innovation

- Intelligent homes: living in a home that facilitates daily life, that adjusts to the needs and desires of its occupants and ensures their safety
- Intelligent and communicating clothes: producing clothes that provide comfort and assistance every day without the hindrance of numerous appliances
- Remote and mobile public and private services: maintaining easy access to all the services required for a self-reliant life (see e-administration)

Being safe everywhere
- High-speed mobile communications: staying in touch with friends and relatives in all circumstances
- Accessibility and "assistive" technologies: remaining active and maintaining access to essential services and means of communication despite motor or sensory disabilities

Main relevant technologies
- Nanotechnologies, components, "buried" or ground-embedded systems
- Software
- Ubiquitous networks
- Robotics
- Biotechnologies
- Cognitive science, man-machine interfaces
- New materials

Main relevant industries
- ICTs, industries and services
- Healthcare and pharmaceuticals
- Everyday services
- Building & Construction
- Textile-Clothing

Several major R & D programme references

Europe
- Ambient Assisted Living (AAL) for the Ageing Society, priority of the 6th Call for Projects of the Sixth Framework programme for Research & Development
- Institute for Prospective Technological Studies: Converging Technologies for Active Ageing (European Parliamentary Technology Assessment, Brussels, 17 October 2005)

France
- ANR Programme: RNRT (telecommunications), RNTL (software), RIAM (multimedia), RNTS (healthcare technologies), RIB (biotechnologies), R3N (nanoscience and nanotechnologies), equipment and processes
- Competitive Clusters: *Nutrition Santé Longévité* (nutrition, health & longevity; Nord Pas-de-Calais), Mov'eo (Ile-de-France, "disability" scope)
- Although it does not pertain to R & D, the *Dossier Médical Partagé* (DMP, Shared Medical File) is also a structuring project for the Lighthouse Programme

MIT MediaLab projects:
- Things That Think: tomorrow's digitally "augmented" objects and environments
- Gray Matters: how computation and telecommunications can enrich the life of older persons

Other:

- http://web.mit.edu/agelab/index.shtml (Age Lab)
  The MIT laboratory whose motto is, "new ideas to improve the quality of life for older adults and those who care for them"
- http://www.aarp.org/ (American Association of Retired Persons)
  whose motto is, "Sixty is the new thirty"
- http://www.senioragency.com/
  whose motto is, "life before 50 was just a warm-up"

LIGHTHOUSE PROGRAMME 2
EXPRESSING THE IDENTITY OF THE NEW GENERATIONS
THE eEGO OF A YOUNG FRENCH PERSON IN 2015

Challenges & Goals

With Internet growth, the increase of customised communicating objects (ID cards, payment cards, DMP, laptops, PDA, and mobile phones) brings with it standardisation and "anonymisation" of behaviours or professional (core skills, qualifications and jobs) and private (consumer and spectator) profiles.
Accordingly, how can personal creation and the expression of one's identity while respecting individual privacy be fostered?
How can a young person reap the full benefits of electronic communications and build his or her personality and identity while respecting fundamental individual rights?

Programme goal is to **create the instruments** (tools, software, services and networks) **enabling young people to develop innovative and easy access to information, culture and new means of expression and communication** (chats, blogs, instant messaging, SMS, TV on cell phones, etc.) providing an appropriate level of protection and security.

Self-reliance enablement

- Allowing each individual to acquire powerful autonomous tools (Smartphone, MIT laptop model for $100) and to master and control their use (cost, availability and maintenance)
- Promoting the development of open-source software accessible to everyone (messaging and office automation)

Openness enablement

- Creating and organising portals for youth and virtual or real digital spaces. The tools should:
    - Promote the development of a constructively critical mind
    - Make the pursuit of self-education possible and appealing, including a proper balance between teaching the methods and teaching the knowledge
    - Offer enhancing European exchange programmes, not only at undergraduate and graduate levels but at all levels
    - Help develop natural speaking skills in every European language
- Giving professionals the instruments so they can work efficiently, be independent and self-reliant

Developing young people's personality

- RoboCup:[6] by 2050, develop a team of fully autonomous humanoid robots that can win against the human World Soccer champion team
- Augmented personal memory (ISTAG[7] - European Commission, 2004)
- The personal everywhere visualiser (ISTAG proposal)

[6] http://www.robocup.org/
[7] ISTAG: IST Advisory Group of the European Commission
ftp://ftp.cordis.lu/pub/ist/docs/istag_draft_report_grand_challenges_wahlster_06_07_04.pdf

Setting up safeguards

- Because Internet growth brings with it an array of criminal or fraudulent activities (misappropriation of funds, misinformation, and revisionism), malicious technical or behavioural actions (SPAM and viruses)

Main relevant technologies

- Nanotechnologies
- Dual technologies
- Digital content protection (chip cards, RFID, and key management infrastructure)
- Guaranteed interoperability (building new applications and services throughout the Internet)
- New distribution services of audiovisual contents (high-definition television, digital television, and appropriate high-speed)
- Artificial intelligence
- The "free will" user
- Cognitive science
- Humanities and social sciences

Main relevant industries

- ICTs, industries and services
- Telecommunication operators
- Audiovisual and media industries (cultural contents)

Several major R & D programme references

Europe:

- ITEA2 (Information Technology for European Advancement);
- FISTERA (Foresight on Information Society technologies in the European Research Area) - Joint Research Centre (European Commission):
    - Cyber security: Meeting the needs of the European Information Society citizen in terms of security, while respecting citizen privacy (Future of Identity, Socioeconomic Impact Studies, Cyber-security for Ambient Intelligence space)

Germany: "Young People into the Web" Programme (Initiative D21).
See portals linked to German programme called Leuchttürme
http://www.netzcheckers.de
http://www.lernscouts.de
http://www.jugend.info/

The British Computer Society:[8] Seven Grand Challenges for Computing Research, 2004

- Global Ubiquitous Computing: Science & Design: learning how to manage the interaction of billions of chips while respecting security and privacy
- The Architecture of the Brain and Mind: understanding how the connection between the brain and the mind works, explain and model it

[8] http://www.bcs.org/BCS/Awards/Events/GrandChallenges/conferencereports.html

- Journeys in Nonclassical Computation: new computation paradigms (from quantum computation to the analysis of biological processes seen from the angle of time and energy consumption or the "biological" operations of complex computer systems able to self-adjust to changes in their environment).

France - Competitive Clusters:
- IMVN *Image, multimédia et vie numérique* (image, multimedia and digital life; Ile-de-France): the creation of digital contents, uses, and the markets of digital life, multimedia products and services, and information and knowledge engineering
- Secure communicating solutions (Provence-Alpes-Côte d'Azur): electronic components, RFID solutions (electronic labels), chip cards, and mobile telecommunications

France - ANR:
- *Sécurité, Systèmes Embarqués & Intelligence Ambiante* (security, embedded systems & ambient intelligence) Programme
- *Réseau National des Technologies Logicielles* (RNTL, national network for software technologies)

MIT MediaLab projects:[9]
- Digital Life: technologies promoting human expression and economic and social activity
- SIMPLICITY: redefining our relation with technology in our daily lives
- Things That Think: tomorrow's digitally "augmented" objects and environments

Other:
- An example of a "youth" portal by the Government of Quebec (Canada)
http://www3.gouv.qc.ca/wps/portal/espacej

[9] http://www.media.mit.edu/research/index.html

LIGHTHOUSE PROGRAMME 3
GIVING EVERY OPPORTUNITY TO EMPLOYMENT BY CREATING A DIGITAL SPACE FOR INDIVIDUAL SKILLS & EXPERTISE, THE MEMORY AND MANIFESTO OF AN INDIVIDUAL'S LIFELONG QUALIFICATIONS, SKILLS AND EXPERTISE, EXPLOITABLE FOR PERSONAL PURPOSES OR BY EMPLOYERS AND EDUCATIONAL & TRAINING ESTABLISHMENTS

Challenges & Goals

In the "knowledge society", business competitiveness and individual social integration require ever-higher qualifications and the ongoing upgrading of skills & expertise. Individual capabilities have to be shared out and capitalised on, especially within a firm, at a time when individual career paths are no longer straight and narrow and the boundaries of the workplace are increasingly fluid.
"Lifelong Learning" is a European priority, which was put at the heart of the Lisbon strategy. In France, the priority translated into the LMD (*Licence-Master-Doctorat*, bachelor-masters-doctorate) reform, the transformation of adult education and the *Validation des acquis de l'expérience* (VAE, the validation of experience). The purpose is to forge even tighter ties between education and activity. This supposes the ability to preserve a durable exploitable memory of academic degrees as well as of the skills and expertise acquired in different environments, of the career path and social trajectory, and an individual's (or, why not, a group's) striking achievements.
In a business, the same concern can be seen in the development of human resource, skills and expertise management planning or in "knowledge management" projects. In educational and training establishments, this involves improving the assessment of an individual's original knowledge and acquired skills and expertise, or the integration of students or trainees whose age and career paths tend to be increasingly varied.
However, there is no instrument that can "put the pieces together" for the easy appraisal of an individual's formal and informal skills and expertise, for the assessment of his or her profile to see if it meets a complex need, or for mapping skills and expertise more broadly that within the confines of a given company, for instance.

Programme goal is to **create a "digital space featuring individual skills and expertise" that would be the "memory" and manifesto of an individual's lifelong qualifications, skills and expertise, a space exploitable for personal purposes or, thanks to its standardisation, by employers, educational and training establishments.**

Enhancing individuals and their skills & expertise

- "Memories for Life" (British Computer Society, 2004; ISTAG, 2004)
- Enhancing individuals, their education and training during their first job search
- "Universal" digital CV, technically and semantically standardised, customisable depending on end-purpose, and comprehensible by the numerous management applications found in companies, schools, training organisations, and employment agencies.

Building reference lists of skills & expertise

- Formalised file storage of career paths, education and training history, and professional achievements, for the transfer of training credits (European Credit Transfer and Accumulation System, ECTS) and the validation of experience
- Common and inter-school access system to the "Digital Work Spaces" rolled out in primary and secondary schools and in higher education

Enhancing skills and expertise in professional organisations

- Mapping the skills and expertise of a business, an inter-company project team, or a labour-catchment area

Main relevant technologies

- Semantic Web and "Web 2.0" technologies
- Large-volume data management
- Federation of services and identities, digital identity management, data authentication (certificates and degrees), DRM
- Durable file storage
- Cognitive science

Main relevant sectors

- Primary and secondary schools and higher education
- Adult education
- Recruitment
- … And all employers

Several major R & D programme references

Europe

- European eLearning Programme (2004-2006)
- Socrates/Minerva Programme
- IST priority "Technology-Enhanced Learning (TELearning)"
- Europortfolio Consortium
- TENCompetence Project

France

- Competitive Clusters: IMVN *Image Multimédia Vie Numérique* (image, multimedia and digital life; Ile-de-France)
- Although it is not part of R & D, the development of "Virtual Offices and Digital Work Spaces" in education, specifically in secondary schools and higher education, is also a structuring project for this Lighthouse Programme.

LIGHTHOUSE PROGRAMME 4
BUILDING ACCESSIBLE AND SOLIDARITY-BASED CITIES
INTELLIGENT URBAN PLANNING FOR EVERY GREATER CITY AREA

Challenges & Goals

Urbanisation is ongoing worldwide even if its pace has slowed in Western societies. However, cities and their greater areas often project a dual image of places that bring together and segregate, that display civic-mindedness and incivility, environmental conservation and pollution.

Programme goal is **to make the city and its greater area accessible, solidarity-based and sustainable**. The combination of new technologies, architecture and design should help explore the idea of "adaptable, responsive" locations meeting the needs of modern life. For safety everywhere, continuous real-time information on the environment is required. Accordingly, the city must be covered with tomorrow's "augmented" objects and environments.
The main challenge is to ensure inter-generational solidarity between today's generation, the emerging generation (pupils and students), and tomorrow's generation.
The programme topics cover urban transport, local retail outlets and dynamic citizenship.

Rethinking the mass transit

- Self-upgradeable mass transit lines (buses and Metro): the possibility of controlling complex systems in real time and availability of networked public announcement systems clear the way for intelligent self-upgradeable intelligent mass transit lines
- Self-configurable transport vehicles: installing intelligence aboard (transit or individual) transport vehicles and connecting the intelligence to the environment should foster the development of innovative solutions serving users
- Wait stations (bus shelters, Metro stations) rolling out innovative means of information and entertainment (electronic displays)
- Set-up of a completely transparent contactless and ticket-less payment system

Adventuring out on one's own

- Easily and always knowing where one is and where one is going: outdoor and indoor situation maps, route planners, space and time location services, Galileo (GPS, surveillance, and so on)
- Easily knowing what is available in the nearby environment: real-time information on the places one points to
- Semantic zoom on the objects one points to: the building, the floor, the room, the cupboard, the book, and so on
- The Personal Everywhere Visualiser (ISTAG[10] proposal- European Commission, 2004)

[10] ftp://ftp.cordis.lu/pub/ist/docs/istag_draft_report_grand_challenges_wahlster_06_07_04.pdf

Intelligent services
- Local services featured in wait areas ("concierge" bus shelters, photos)
- Urban services (water, electricity, mass transit, and traffic)
- Retail and banking services (telepayment, ATMs)
- Local intelligent agents: the restaurant (that knows your taste), the retail outlet (that has the sale offer you want), the car park (that knows that you are looking for a space in the area)
    - The intelligent store (ISTAG proposal)

Dynamic citizenship
- e-administration: no trips, no paperwork for all administrative procedures
- Intelligent management of incivility (highway code, parking one's car, gatherings)
- Pollution, traffic jams, and events
- Active participation in community life

Ubiquitous safety
- The place of older, dependent or disabled persons in the city
- Never lost
- Never alone

Main relevant industries
- Architecture and urbanism
- Development of "utilities"
- Telecommunication operators
- Development of urban mass transit
- Banking services
- Local retail outlets

Main relevant technologies
- Nanotechnologies (sensors, RFID)
- Dual technologies
- Appropriate high-speed
- Guaranteed interoperability (building new applications and services throughout the Internet)
- Design of critical real-time ground-embedded software for objects and systems
- Digital content protection
- Cognitive science, man-machine interface
- Humanities and social sciences

Several major R & D programme references

Europe: ITEA2 (Information Technology for European Advancement).

France - Competitive Clusters:
- Mov'eo (Ile de France): topics on safety, protection of the environment and living environment related to road transport, with a focus on cars and the mass transit in the urban environment

- System@Tic (Paris - Ile-de-France Region): the construction, observation, analysis and control of artificial systems (land or air transport systems, booking systems, distribution networks).

France - ANR:
- Eco-technologies and Sustainable Development Programme
- PREDIT Programme: ICT integration, technologies for security
- National Research Programme on civil and urban engineering
- Photovoltaic solar programme

France – Ministry of Infrastructure and Transport: AGORA 2020 (long-range planning for transport and mobility, housing and construction, cities, national planning and development, risks and knowledge of the different environments)

MIT MediaLab projects:
- Changing Places: new computational design, fabrication and sensing tools for creating responsive, adaptable environments that will better accommodate the needs of modern life
- Things That Think: tomorrow's digitally "augmented" objects and environments
- Smart cities:
  http://cities.media.mit.edu/

LIGHTHOUSE PROGRAMME 5
OPTIMISING RESOURCES FOR 100 % SAFE AND 0 % POLLUTING TRANSPORTATION:
INVENTING SAFE NON-POLLUTING MEANS OF TRANSPORTATION AND DEPLOYING THEM ON A LARGE SCALE, WITHOUT RESTRICTING MOBILITY

Challenges & Goals

Transport is a major source of pollution, and cars and lorries major causes of accidents, viz., 120,000 dead and 2.5 million injured per year in Europe. Estimated road accident cost amounts to 2.5% of GDP. There is also noise pollution, and in cities, excessive space occupancy.
For several dozen years, vehicle safety and emission levels have substantially improved yet accidents and pollution have dropped but slightly. To make progress, mechanical engineering and materials or even awareness building and repression will not be enough. Everything concurs to demonstrate that meaningful progress can be accomplished without resorting to the peremptory limitation of French people's mobility, through solutions based on car and infrastructure intelligence, driver assistance systems (or even automated driving), multimodal information, and new means of transportation halfway between passenger cars and the mass transit .
The solutions chiefly involve ICT innovations, global positioning sensors, software agents for complex system management, which also meet extreme constraints in terms of system reliability and man-machine interface efficiency.

The goal[11] is to **optimise resources for the invention and rollout of safe non-polluting means of transportation on a large scale, without limiting French people's mobility.**
The proposal is in line with ISTAG's proposal that put the "100% Safe Vehicle" at the top of the list of its ten "Grand ICT Challenges" in 2004.

Engineering car and infrastructure intelligence

- Vehicle-to-vehicle and vehicle-to-infrastructure communications for anticipating risks or disturbances and for preparing alternatives
- Automatic warning when vehicle goes over speed limit, or even automatic adjustment of vehicle behaviour, for instance in some urban areas
- Automatic driving assistance in normal or emergency conditions
- Automated or semi-automated driving

Developing multimodal information

- Real-time traffic, travel or wait time, pollution and alternative transport information
- Automatic warning of accidents and their location (global positioning)

[11] A ten-year quantitative goal (validated with sector specialists) could be to halve road accidents and hydrocarbon consumption for the means of transportation and noxious emissions.

Designing new means of transportation
- New types of mass transit: rentabike system (Vélo'v in Lyons) or electric rent-a-car systems, and car pools
- Intermodal and multimodal transport, ranging from information to combined means of transportation
- Contactless urban payment (London)

Resource optimisation
- Advanced energy management
- Electric or hybrid cars
- Ultralight aerial transport agent (civil drone, ISTAG 2004 proposal)

Main relevant technologies
- Large ambient computing systems: managing the complexity due to ever-growing amount of networked chips throughout the environment
- Reliability of system upgradeability: ensuring system reliability over time and through upgrades
- Real-time systems
- Cognitive science
- Man-machine interfaces
- Energy sciences
- Dual technologies

Main relevant sectors
- Automakers and original equipment suppliers
- The mass transit
- Building & civil engineering, and road infrastructure managers
- Energy (production and distribution)
- Tourism and driver services
- Local authorities

Several major R & D programme references

<u>Europe</u>
- "e-Safety": joint initiative of the European Commission (Enterprise and Industry DG and Information Society DG) and industrial players for "intelligent integrated safety systems" to reduce road accidents. Several e-safety projects are funded under the umbrella of the Sixth Framework Programme for Research & Development
- Transport DG:
  - CIVITAS II "Radical Strategies for Clean Urban Transport" initiative
  - The "Sustainable Surface Transport" topic under the Sixth Framework Programme
- The "Intelligent Vehicle" cluster of the Fifth Framework Programme (Key Action 1: transport and tourism)

France - Competitive Clusters:
- System@Tic (Paris – Ile-de-France Region): the construction, observation, analysis and control of artificial systems (ground or air transport systems, booking systems, distribution networks)
- Mov'eo (Ile-de-France): safe automobiles & mass transit for humans and their environment
- I-Trans (Nord-Pas-de-Calais, Picardie)
- *Véhicule du futur* (Tomorrow's Vehicle; Alsace Franche-Comté): the automotive industry
- Lyon Urban Truck & Bus 2015 (Rhône-Alpes)
- *Mobilité et Transports Avancés* (Advanced Mobility and Transport; Poitou-Charentes)

France - ANR:
- Security, Embedded Systems & Ambient Intelligence Programme
- National Action Plan for hydrogen and fuel cells
- Eco-technologies and sustainable development programme
- PREDIT Programme: ICT integration; technologies for security

France – Ministry of Infrastructures – research tracks:
- The environment and transportation (air & noise pollution)
- Transport safety and security
- INRETS is steering or participating in numerous French and European projects on this topic

France - INRIA: the IMARA project (the automated road) will be transferring results of research on cars (signal processing, vehicle control, communications, modelling, transport system control and optimisation) in a coordinated and coherent manner.

DARPA Grand Challenge:[12] a race between autonomous driverless ground cars engineered by competing research teams. The vehicles must be able to cover a 132-mile course over varying terrain in 10 hours and avoid obstacles and rival vehicles automatically. The stated goal is to "develop revolutionary technologies" that could eventually have military applications.

[12] http://www.darpa.mil/grandchallenge/

OUTLINE OF AN ADDITIONAL PROPOSAL LIABLE TO BE DEVELOPED IF IT IS GRANTED HIGH PRIORITY

NETWORKED FRANCOPHONY

Goal: Explore new economic and societal scopes of Francophony

Background and Trends for 2015
Francophony addresses a wider community than just the countries using the French language. By way of comparison, Spain actively supports the development of the Hispanic communities in the United States that contribute new cultural, societal and economic scopes.

Formulation of Uses and Services
The universal translator
ISTAG proposals (European Commission, 2004):
- The multilingual companion
- Increased personal memory

MIT MediaLab projects:
- Communications Futures: define the road to change for telecommunications, assess its impact on adjacent industries
- Digital Life: technologies promoting human expression and economic and social activity

Impact on the technologies
Priority topics (RNRT, RNTL, and RIAM research networks)
- Appropriate high-speed
- Building new applications and services throughout the Internet
- Design critical real-time ground-embedded software for objects and systems
- Develop a new design through new objects
- New services for audiovisual content distribution
- Nanotechnologies (antennas, RFID, storage)

Technologies besides ICTs
- Artificial intelligence
- Man-machine interface
- Humanities and social sciences

Economic & Industrial Challenges
Develop a community of economic interest between Francophile countries

Relevant Institutional Organisations
Ministry of Foreign Affairs (Francophony)
Competitive Clusters:
IVMN (Image, multimedia and digital life) Ile-de-France
Agence de l'Innovation Industrielle:
Project for multimedia search engine called QUAERO