PROJECT FINAL REPORT

Publishable

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Project acronym: FESTA

Project title: FIELD OPERATIONAL TEST SUPPORT ACTION

Funding Scheme: Support Action

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1. FINAL PUBLISHABLE SUMMARY REPORT

The FESTA project is the first step in the European Initiative on Field operational Tests. European Commission is very satisfied of the results obtained in the last 15 years for the development of ICT functions and systems for road transport at European level, to improve competitiveness of the European industry and to contribute to the development and deployment of key EU policies in the area of safer and more efficient transport systems. The funded projects have produced very interesting and encouraging results with a great potential to contribute to solving the major transport challenges our society is facing.

Demonstrations have been used to test the technical and functional behaviour of the developed systems but this has often been restricted to controlled conditions and in limited scale due to the fact of availability of equipment as well as restrictions in operating experimental equipment in real traffic conditions. Extensive Field Operational Tests (FOTs) are needed to validate robustly the effectiveness of ICT based systems and functions for safer, cleaner and more efficient transport in a real environment. An FOT has to analyse driver behaviour and acceptability, to analyse and assess the impact of these functions using real data and to improve awareness about the potential of intelligent transport systems and create socio economic acceptance.

Previous experience, in Europe, in the US and in Japan has shown that FOTs are an excellent way to raise awareness, collect real data and enhance the take-up of ICT solutions. Field Operational Tests have also demonstrated to be a powerful tool to gain insight into how new functions and systems suit the user when operated in the real context under sufficiently long time to reach the daily operational and behavioural level. In Japan, for example, FOTs have been included as an integrated part of the R&D programmes.

The FESTA project has then been started as first step in this Europen FOT initiative, with the aim to define a common methodology for planning, running and evaluating FOT, methodology to be followed by future FOTs at European level. The main aim is to guarantee that these future FOTs will answer in the most effective way to the objectives defined by the European Commission:

- To validate the effectiveness of ICT based systems and functions for safer, cleaner and more efficient transport in a real environment

- To analyse driver behaviour and user acceptance of the systems

- To analyse and assess the impact of intelligent safety and efficiency functions using real data

- To improve awareness on the potential of intelligent transport systems and create socio economic acceptance

- To obtain technical data for system design and product development

- To ensure the transferability of the FOT results to the overall European and global conditions.

- To ensure robustness of results

- To allow, as much as possible, the comparison of results between different FOTs

The FESTA Project

The project has been structured in the following Work-packages.
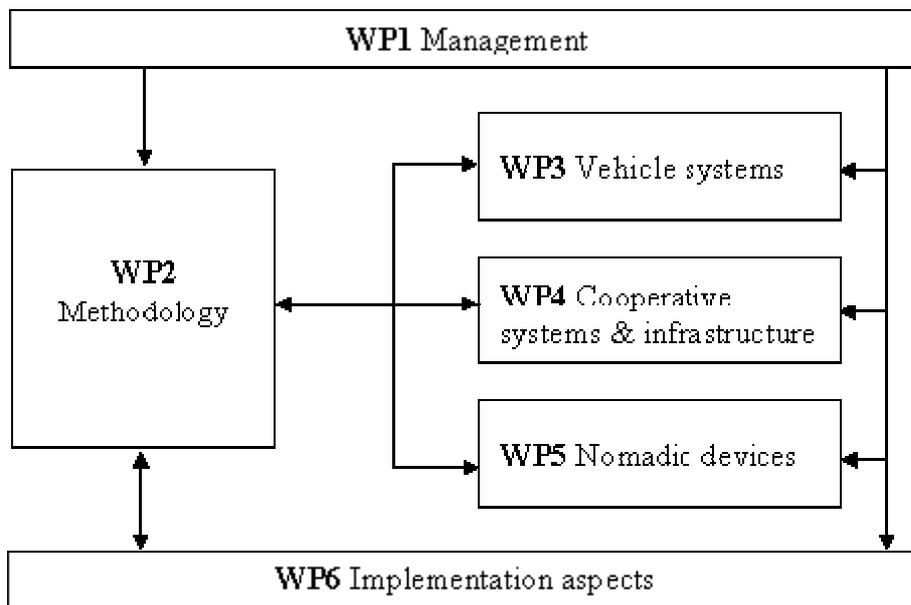
The WP2 is the core of the overall project and where the main results of the project has been produced: the FESTA Methodology. WP3, WP4 and WP5 have analysed the systems and solutions that could be considered in FOTs and all relative technical information useful for defining a methodology that has to be more general as possible.

WP6, implementation aspects, has taken care of the following aspects:

- link with all community of interested stakeholders;
- legal and ethical issues during FOTs
- preparation of the handbook.

Related to the first point two workshops has been organised in Brussels. The first workshop had the aim to collect useful inputs from the community, while the second to illustrate them the developed methodology.

The pictures in this page are taken from these two workshops, to show the large attendance they had (around one hundred of participants each).

What is an FOT

A "Field Operational Test" (FOT) is defined as:

> A study undertaken to evaluate a function, or functions, under normal operating conditions in environments typically encountered by the host vehicle(s) using quasi-experimental methods.

The overall purpose of FOTs is well summarised in the first annual report of the U.S. Automatice Collision Avoidance (ACAS) issued in 2000:

> ......provides an ideal opportunity for the Government, industry, and ITS community to gain a more thorough understanding of the requirements, functions and societal impact of this technology. Additionally, any potential adverse operational and safety-related issues could be identified, analyzed, and addressed while the technology is still in the early stages of product development. (pp. 14-15)

In Europe too there have been various FOTs, e.g. in the Netherlands with Lane Departure Warning Systems for trucks. Perhaps the most prominent technology that has been tested in Europe is Intelligent Speed Adaptation, with trials in the UK, France, the Netherlands, Denmark, Belgium and Sweden, in most cases with funding from national governments.

The FESTA Handbook

The main purpose of the Handbook is to provide guidelines for the conduction of FOTs. It walks the reader through the whole process of planning, preparing, executing, analysing and reporting an FOT, and it gives information about aspects that are especially relevant for a study of this magnitude, such as administrative, logistic, legal and ethical issues. Another aspect of the Handbook is to pave the road for standardisation of some aspects of FOTs, which would be helpful for cross-FOT comparisons. It has to be kept in mind, though, that many traffic parameters in different European countries differ substantially.

In Figure 1 the steps that need to be carried out during an FOT are presented. The FOT Implementation Plan takes up all the steps and integrates them into one big table which can be used as a reference when actually carrying out an FOT.

The first steps, which include setting up a goal for the study and selecting a suitable research team, and also the last steps that include an overall analysis of the systems and functions tested and the socio-economic impact assessment, deal with the more general aspects of an FOT and with aggregation of the results. The further down on FOT Chain V-Shape the steps are located, the more they focus on aspects with a high level of detail, like which Performance Indicators to choose, or how to store the data in a database. The ethical and legal issues have the strongest impact on those high-level aspects, where the actual contact with the participants and the data handling takes place.
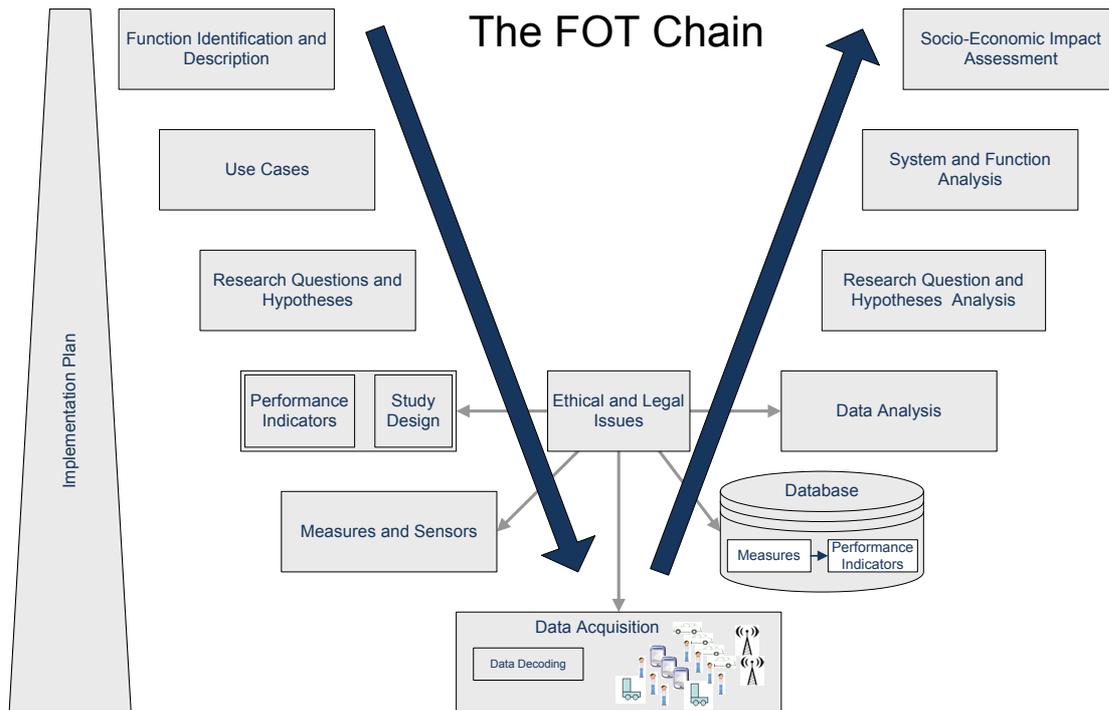
Figure 1: The steps that typically have to be considered when conducting an FOT. The blue arrows indicate the time line.

The FESTA Handbook is not meant to be a substitute for consultations with experts, organising a good and capable research team, and carrying out specific investigations into the legal and ethical issues that apply to the current question and situation. It is not an exhaustive action list, and each FOT has its own special issues and concerns that have to be dealt with on an individual basis. Nor is the advice in it necessarily perfect and representative of the state of the art. On many issues, there will be scope for disagreement with the recommendations or use of alternative sources of advice. But it would certainly be preferable for major departures from the advice to be justified to funding agencies and major stakeholders.

The primary focus of the FESTA Handbook would be on the evaluation of Advanced Driver Assistance Systems (ADAS) and In-Vehicle Information Systems (IVIS) for vehicles — both in the form of autonomous systems and of cooperative systems. FESTA Methodology is relevant to the evaluation of Original Equipment Manufacturer (OEM), aftermarket and nomadic systems. The Handbook is designed specifically to guide the evaluation of such systems, and is less relevant to the evaluation of electronic road infrastructure such as Variable Message Signs (VMS). However, it will be seen that many of the activities identified in the Handbook are common to the evaluation of most vehicle- and infrastructure-based ICT technologies.

The FESTA Handbook gives an overview and general guidelines concerning the conduction of an FOT. Further, more detailed work, which was produced during the FESTA project, and which is referenced in the Handbook, is included in the annexes to the Handbook.

All results of the FESTA project are available on the FESTA web site: www.festaproject.eu

2. USE AND DISSEMINATION OF FOREGROUND

Dissemination activities.

In the framework of the short duration of the FESTA project (six months) dissemination activities taken an very important role: two workshops have been organised:

- at the beginning, December 11th 2007, to describe the scope of the project and collect input from all interested stakeholders
- at the end, April 29th 2008, to disseminate results to the same audience.

Both events have been very successful with a large audience, around one hundred people, and very active participation of the attendees. For details see the specific deliverables 6.1 and 6.2.

A further event was the participation to the Concertation Meeting organised by the European Commission on March 13th and 14th, 2008. Also in this case the Project presentation has been actively discussed with attendees.

After the end of the project further dissemination activities are planned in the main ITS Conferences:

ITS Europe in Geneva. Two speeches in the Specific Session on FOT (Friday June 6th):

- Gianfranco Burzio - The FESTA Project

- Oliver Carsten – A methodology for FOT in Europe

Also for **ITS World Congress in New York** in November 2008 is planned a speech about the FESTA project, that will be made by the coordinator Gianfranco Burzio.

Further dissemination is planned in the support action FOT-Net.

No scientific publications have been made by the consortium.

No foreground IPR.

3. REPORT ON SOCIETAL IMPLICATIONS

A	General Information *(completed automatically when **Grant Agreement number** is entered.*

Grant Agreement Number:	214853
Title of Project:	Field Operational Tests Support Action
Name and Title of Coordinator:	Gianfranco Burzio, Eng,.

B	Ethics		

			No
1.	**Did you have ethicists or others with specific experience of ethical issues involved in the project?**		
2.	**Please indicate whether your project involved any of the following issues (tick box) :**		*NO*

INFORMED CONSENT	
• Did the project involve children?	
• Did the project involve patients or persons not able to give consent?	
• Did the project involve adult healthy volunteers?	
• Did the project involve Human Genetic Material?	
• Did the project involve Human biological samples?	
• Did the project involve Human data collection?	
RESEARCH ON HUMAN EMBRYO/FOETUS	
• Did the project involve Human Embryos?	
• Did the project involve Human Foetal Tissue / Cells?	
• Did the project involve Human Embryonic Stem Cells?	
PRIVACY	
• Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)	
• Did the project involve tracking the location or observation of people?	
RESEARCH ON ANIMALS	
• Did the project involve research on animals?	
• Were those animals transgenic small laboratory animals?	
• Were those animals transgenic farm animals?	
• Were those animals cloning farm animals?	
• Were those animals non-human primates?	
RESEARCH INVOLVING DEVELOPING COUNTRIES	
• Use of local resources (genetic, animal, plant etc)	
• Benefit to local community (capacity building ie access to healthcare, education etc)	
DUAL USE	
• Research having potential military / terrorist application	

C	Workforce Statistics

3   Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position	Number of Women	Number of Men
Scientific Coordinator		1

7

Work package leader	4	6
Experienced researcher (i.e. PhD holders)	25	46
PhD Students	1	
Other		

4 How many additional researchers (in companies and universities) were recruited specifically for this project?	
Of which, indicate the number of men:	0
Of which, indicate the number of women:	0

D	Gender Aspects		

5	**Did you carry out specific Gender Equality Actions under the project**?	O X	Yes No

6   Which of the following actions did you carry out and how effective were they?

		Not at all effective				Very effective
❏	Design and implement an equal opportunity policy	O	O	O	O	O
❏	Set targets to achieve a gender balance in the workforce	O	O	O	O	O
❏	Organise conferences and workshops on gender	O	O	O	O	O
❏	Actions to improve work-life balance	O	O	O	O	O
O	Other:					

7   Was there a gender dimension associated with the research content – i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?

    O   Yes- please specify

    O   No

E	Synergies with Science Education

8   Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?

    O   Yes- please specify

    X   No

9   Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?

    X   Yes- please specify

                  FESTA HANDBOOK

    O   No

F	Interdisciplinarity

10   Which disciplines are involved in your project? *[See drop –down menus]*

    O   2.2

    O   5.4   O   Associated discipline [Menu]

G	Engaging with Civil society and policy makers		

11a	**Did your project engage with societal actors beyond the research community?** *(if 'No', go to Question 14)*	O X	Yes No

11b   If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?

    O   No
    O   Yes- in determining what research should be performed
    O   Yes - in implementing the research

	○ Yes, in communicating /disseminating / using the results of the project		

11c	**In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?**	○ ○	Yes No

12	**Did you engage with government / public bodies or policy makers (including international organisations)**
	○ No ○ Yes- in framing the research agenda ○ Yes - in implementing the research agenda ○ Yes, in communicating /disseminating / using the results of the project

13a	**Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?** ○ Yes – as a **primary** objective (please indicate areas below- multiple answers possible) ○ Yes – as a **secondary** objective (please indicate areas below - multiple answer possible) ○ No

13b	**If Yes, in which fields?**

Agriculture Audiovisual and Media Budget Competition Consumers Culture Customs Development Economic and Monetary Affairs Education, Training, Youth Employment and Social Affairs	Energy Enlargement Enterprise Environment External Relations External Trade Fisheries and Maritime Affairs Food Safety Foreign and Security Policy Fraud Humanitarian aid	Human rights Information Society Institutional affairs Internal Market Justice, freedom and security Public Health Regional Policy Research and Innovation Space Taxation Transport	

13c	**If Yes, at which level?** ○ Local / regional levels ○ National level ○ European level ○ International level

H	Use and dissemination	
14	**How many Articles were published/accepted for publication in peer-reviewed journals?**	**None**
15	**How many new patent applications ('priority filings') have been made?** *("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).*	**None**

16	**Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).**	Trademark	**0**
		Registered design	**0**
		Other	**0**

17	**How many spin-off companies were created / are planned as a direct result of the project?**	**0**
	Indicate the approximate number of additional jobs in these companies:	

18	**Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:**
	❏ Increase in employment, or ❏ In small & medium-sized enterprises
	❏ Safeguard employment, or ❏ In large companies
	❏ Decrease in employment, X None of the above / not relevant to the project
	❏ Difficult to estimate / not possible to quantify ❏

19	**For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (***FTE = one person working fulltime for a year***) jobs:**	*Indicate figure:*
	Difficult to estimate / not possible to quantify	X

I   Media and Communication to the general public

20   **As part of the project, were any of the beneficiaries professionals in communication or media relations?**

      ○   Yes   X   No

21   **As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?**

      ○   Yes   X   No

22   **Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?**

❑	Press Release	X	Coverage in specialist press
❑	Media briefing	❑	Coverage in general (non-specialist) press
❑	TV coverage / report	❑	Coverage in national press
❑	Radio coverage / report	❑	Coverage in international press
❑	Brochures /posters / flyers	X	Website for the general public / internet
❑	DVD /Film /Multimedia	X	Event targeting general public (festival, conference, exhibition, science café)

23   **In which languages are the information products for the general public produced?**

❑	Language of the coordinator	X	English
❑	Other language(s)		

Question 10: Drop down menu will include the Classification of Scientific Disciplines according to the Frascati Manual 2002 (Proposed Standard Practice for Surveys on Research and Experimental Development, OECD 2002):

FIELDS OF SCIENCE AND TECHNOLOGY

1.   NATURAL SCIENCES
1.1   Mathematics and computer sciences [mathematics and other allied fields: computer sciences and other allied subjects (software development only; hardware development should be classified in the engineering fields)]
1.2   Physical sciences (astronomy and space sciences, physics and other allied subjects)
1.3   Chemical sciences (chemistry, other allied subjects)
1.4   Earth and related environmental sciences (geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, vulcanology, palaeoecology, other allied sciences)
1.5   Biological sciences (biology, botany, bacteriology, microbiology, zoology, entomology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences)

2   ENGINEERING AND TECHNOLOGY
2.1   Civil engineering (architecture engineering, building science and engineering, construction engineering, municipal and structural engineering and other allied subjects)
2.2   Electrical engineering, electronics [electrical engineering, electronics, communication engineering and systems, computer engineering (hardware only) and other allied subjects]
2.3.   Other engineering sciences (such as chemical, aeronautical and space, mechanical, metallurgical and materials engineering, and their specialised subdivisions; forest products; applied sciences such as geodesy, industrial chemistry, etc.; the science and technology of food production; specialised

technologies of interdisciplinary fields, e.g. systems analysis, metallurgy, mining, textile technology and other applied subjects)

3.   MEDICAL SCIENCES
3.1   Basic medicine (anatomy, cytology, physiology, genetics, pharmacy, pharmacology, toxicology, immunology and immunohaematology, clinical chemistry, clinical microbiology, pathology)
3.2   Clinical medicine (anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, dentistry, neurology, psychiatry, radiology, therapeutics, otorhinolaryngology, ophthalmology)
3.3   Health sciences (public health services, social medicine, hygiene, nursing, epidemiology)

4.   AGRICULTURAL SCIENCES
4.1   Agriculture, forestry, fisheries and allied sciences (agronomy, animal husbandry, fisheries, forestry, horticulture, other allied subjects)
4.2   Veterinary medicine

5.   SOCIAL SCIENCES
5.1   Psychology
5.2   Economics
5.3   Educational sciences (education and training and other allied subjects)
5.4   Other social sciences [anthropology (social and cultural) and ethnology, demography, geography (human, economic and social), town and country planning, management, law, linguistics, political sciences, sociology, organisation and methods, miscellaneous social sciences and interdisciplinary , methodological and historical S1T activities relating to subjects in this group. Physical anthropology, physical geography and psychophysiology should normally be classified with the natural sciences].

6.   HUMANITIES
6.1   History (history, prehistory and history, together with auxiliary historical disciplines such as archaeology, numismatics, palaeography, genealogy, etc.)
6.2   Languages and literature (ancient and modern)
6.3   Other humanities [philosophy (including the history of science and technology) arts, history of art, art criticism, painting, sculpture, musicology, dramatic art excluding artistic "research" of any kind, religion, theology, other fields and subjects pertaining to the humanities, methodological, historical and other S1T activities relating to the subjects in this group] .