eMOBILITY Workshop
Shaping the future of mobile and wireless communications

TRANSPORT

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ETRA I+D Profile (i)

- ETRA I+D is a leading technology industrial company with long experience in the domain of ICT for mobility and public services.
- Part of ACS, the 4th largest Construction Corporation in the World.
- With 1900+ employees and a turnover of 190M€+, ETRA Group is a market leader in the fields of technology, mobility and public services.
- ETRA Group is a turn-key solutions provider. The Group carries out from almost basic research to technological development, systems implementation and even the operation of the implemented systems for our customers.

ETRA I+D Profile (ii)

- ETRA's main commercial and RTD activity is Intelligent Transportation Systems:
  - from on-board devices and systems to roadside infrastructure,
  - from new sensors to advanced services,
  - from simulators to integrated traffic management systems (+50 major cities and motorways using ETRA's systems and technology),
  - from e-ticketing (+1.000.000 smartcards in operation) to fleet management (+5.000 vehicles using ETRA's technology).

ETRA I+D Profile (iii)

- ETRA's commercial and RTD activities also include:
  - Access control systems, including e-Id, biometrics, multiapplication smartcards, etc.
  - Energy management systems, public lighting control, etc.
  - Satellite-related applications.
  - Location based, context-aware, personalised services.
  - Complex Distributed Real Time control systems, Grid.
  - Intelligent Agents, Semantic Web, Ontologies, SOA, Web Services.
  - Interoperability of complex heterogeneous systems.
- FP7 plays a key role within ETRA I+D innovation strategy. The success record of the company includes +40 projects –half of them led by us- in FP3, 4, 5 and 6.
- Involved in eMobility ETP almost since the beginning.

Why am I here today?

What is the current need for M&WCs in the area of Mobility?

- Reliable
- Fast
- Secure
- Reliability, speed and security may vary at different levels, but these different levels will need to interact
- Seamless continuity
- IP –unification layer of underlying techs-
- IPv6
- CALM
- Comesafety

What possible applications of M&WCs in Mobility can make a difference in the future?

- Safety…
- Efficiency! (which also implies Safety)
  - Infrastructure management
  - Info services
- More than ever mobility customers buy services, not products.
- Ease of use, perceived quality.

What have been your biggest sources for frustration regarding communications needs in Mobility?

- Ideally, M&WCs should be a commodity. Nowadays they are not.
- Sometimes covering a *shopping list* which involves multiple heterogeneous applications is not straightforward.

e.g. EU IST Project EMMA …

	ZigBee 802.15.4	Bluetooth 802.15.1	Wi-Fi 802.11b	GPRS/GSM 1XRTT/CDMA
Primary Application Focus	Monitoring & Control	Cable Replacement	Web, Video, Email	WAN, Voice/Data
System Resource	28KB	250KB	1MB+	16MB+
Nodes per Network	255	8	30	1000
Bandwidth (kbps)	250	12K	54K	64-128
Range (meters)	Up to 100	Up to 70	Up to 100	1000+

Table 4: Comparison of commercial wireless technologies

List possible wireless communication technologies and their characteristics

	ZigBee 802.15.4	Bluetooth 802.15.1	Wi-Fi 802.11b	GPRS/GSM 1XRTT/CDMA
Optimised for short range comms.	3	3	1	1
High bandwidth & high baud rate	2	3	3	1
Low processing overhead	3	2	1	1
Easy integration into existing embedded solutions	3	3	1	1
Multi-node support	3	1	2	3
TOTAL	**14**	12	8	7

Table 5: Rating of wireless technologies against automotive requirements

Evaluate each technology against the communication requirements for each system level (i.e. infrastructure, car, engine).

1 point: Requirement not satisfied
2 points: Requirement satisfied
3 points: Requirement extremely satisfied

How can M&WCs contribute to increase your business?

- Ubiquitous multidirectional access opens up new oportunities to e.g. customise traffic management actions, services and information provision.
- Per-use services.
- Where to go, how to go, when to go, why to go, with whom to go?
- Enabler of public-private partnerships.

What can be done to increase the usage of M&WCs in people's daily life?

- Services!!
- –USEFUL services, otherwise it is counterproductive
- PPP

What new paradigms, technologies, materials, etc., would push M&WCs beyond today's performance?

- A lot of work ahead of us in the mid term future in the form of large scale trials.
- IPv6, etc…

Last, but not least …

- Intelligent Transport Systems present a **unique** domain from multiple perspectives:
  - Share of GDP
  - Enabler of economic growth
  - Environmental concerns
  - **Direct** impact in people's quality of life
  - Health/emergency related issues
  - Safety
  - Security…
- IST technologies and mobile comms in particular, have here the most challenging testbed possible!!!

Thanks for your attention!!

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