



EXpanding LTE for Devices

Call FP7 ICT-2009.1.1
Grant Agreement No 258512



SAGEMCOM



vodafone

gemalto^x
security to be free



Alcatel-Lucent

Telekom Srbija

cea

energie atomique • energies alternatives

TST

UNIVERSITY OF SURREY

CTTC

TECHNISCHE UNIVERSITÄT DRESDEN



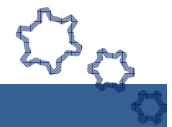
UPRC

vidavo
HEALTH TELEMATICS



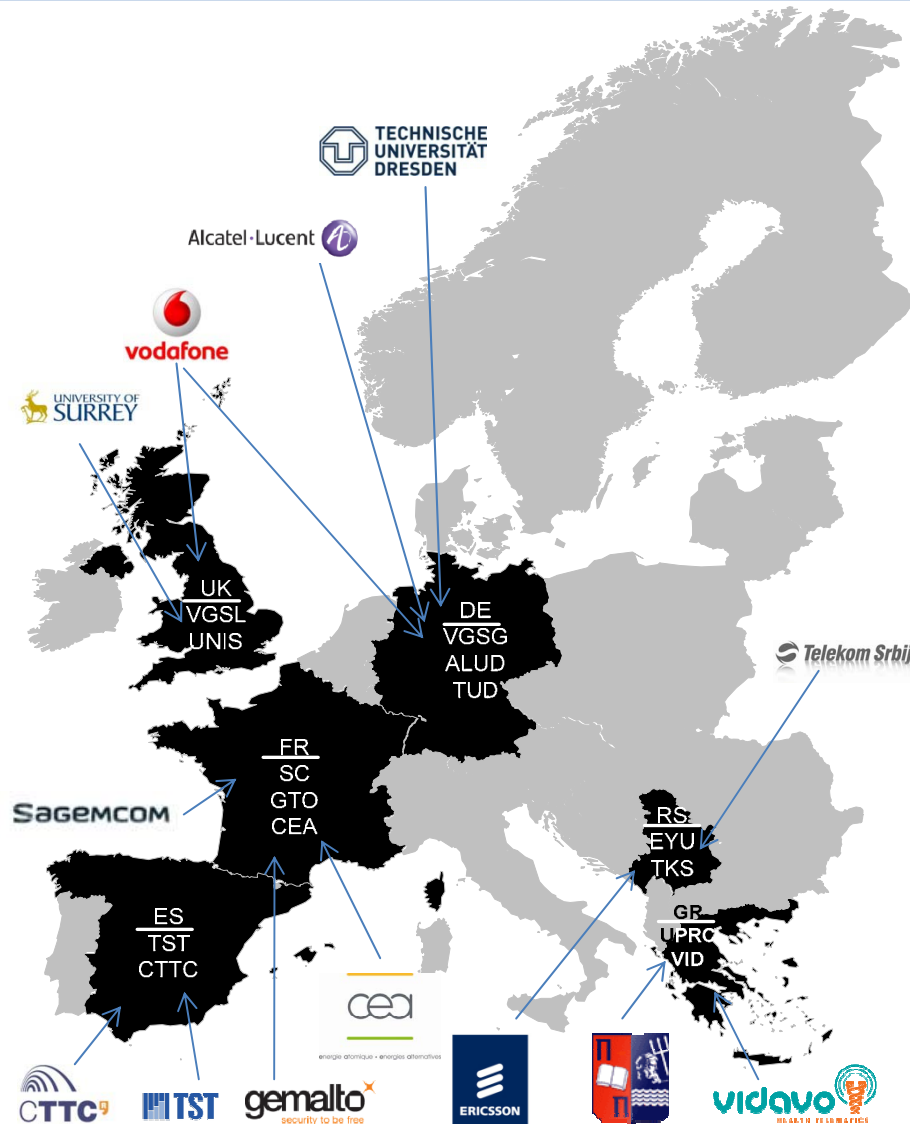
Presentation Outline

- EXALTED Objectives
 - Synopsis of EXALTED
 - EXALTED vision
 - Challenges
 - Target outcomes
 - Expected Impacts
- Technical approach
 - System focus
 - Work organisation
 - Applications / Use cases
 - Testbeds
 - Standardisation activities
- Project Management

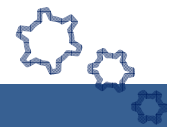




Synopsis of EXALTED



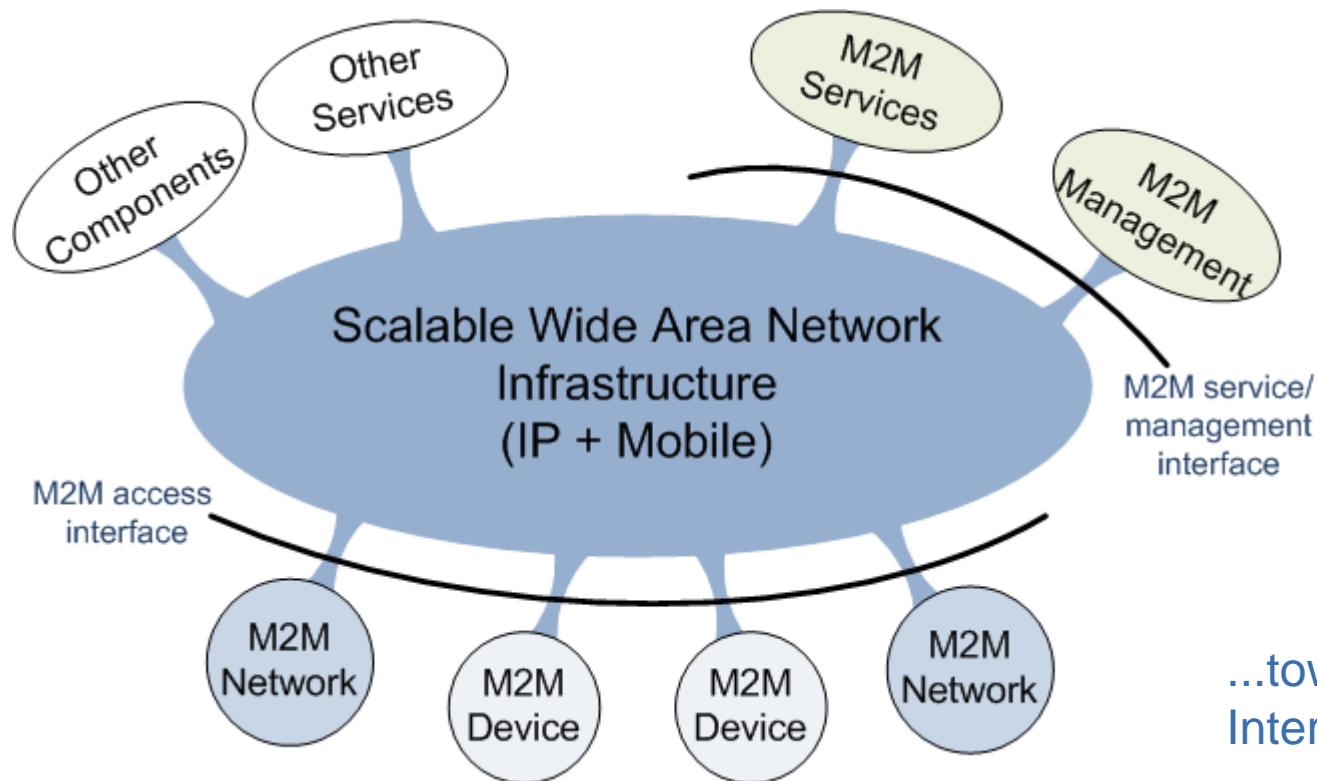
- Duration: Sept. 2010 – Feb. 2013 (30 Months)
- Consortium: 14
 - Countries: 6
 - Industrial (Operator): Vodafone, TKS
 - Industrial (Manufacturer): SC, GTO, ALUD, EYU
 - SME: TST, VIDA VO
 - Research Centres: CEA, CTTC
 - Higher Education: UNIS, TUD, UPRC
- Total Budget: 10.98 M€
- Maximum EC funding: 7.36 M€
- Resources: 967 PM
- Public Deliverables: 27



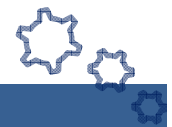


EXALTED Vision

“A new **scalable network architecture** supporting the most challenging requirements for the future wireless communication systems and providing **secure, energy efficient, and cost effective Machine-to-Machine (M2M) communications** suitable for low end devices”



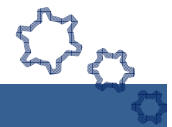
...toward Future
Internet of Things.





Challenges

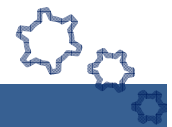
- The growing demand for diverse M2M applications with modest communication needs, with huge number of interacting devices with power/energy limitation.
- Lack of a unified framework for integration of M2M systems and services with the rest of the all-IP networks, for global coverage.
- Autonomous operations with no or limited human involvement, but with low revenue per device and/or service.





Target Outcomes

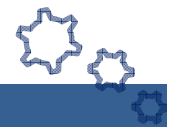
- A new **scalable end-to-end network architecture over 3GPP LTE infrastructure** for efficient and cost-effective M2M communications, aiming towards an *all-IP* networking system.
- **Cost, spectrum, and energy efficient radio access technology** and/or mechanisms for M2M applications, communicating via a high capacity LTE network.
- **Power and energy efficient terminal devices** (M2M devices and M2M gateway) supporting **low cost autonomous operations** for months or years.
- **Low cost automated security and provisioning solutions** for M2M communication over LTE.
- New business models and opportunities in Europe and Worldwide.





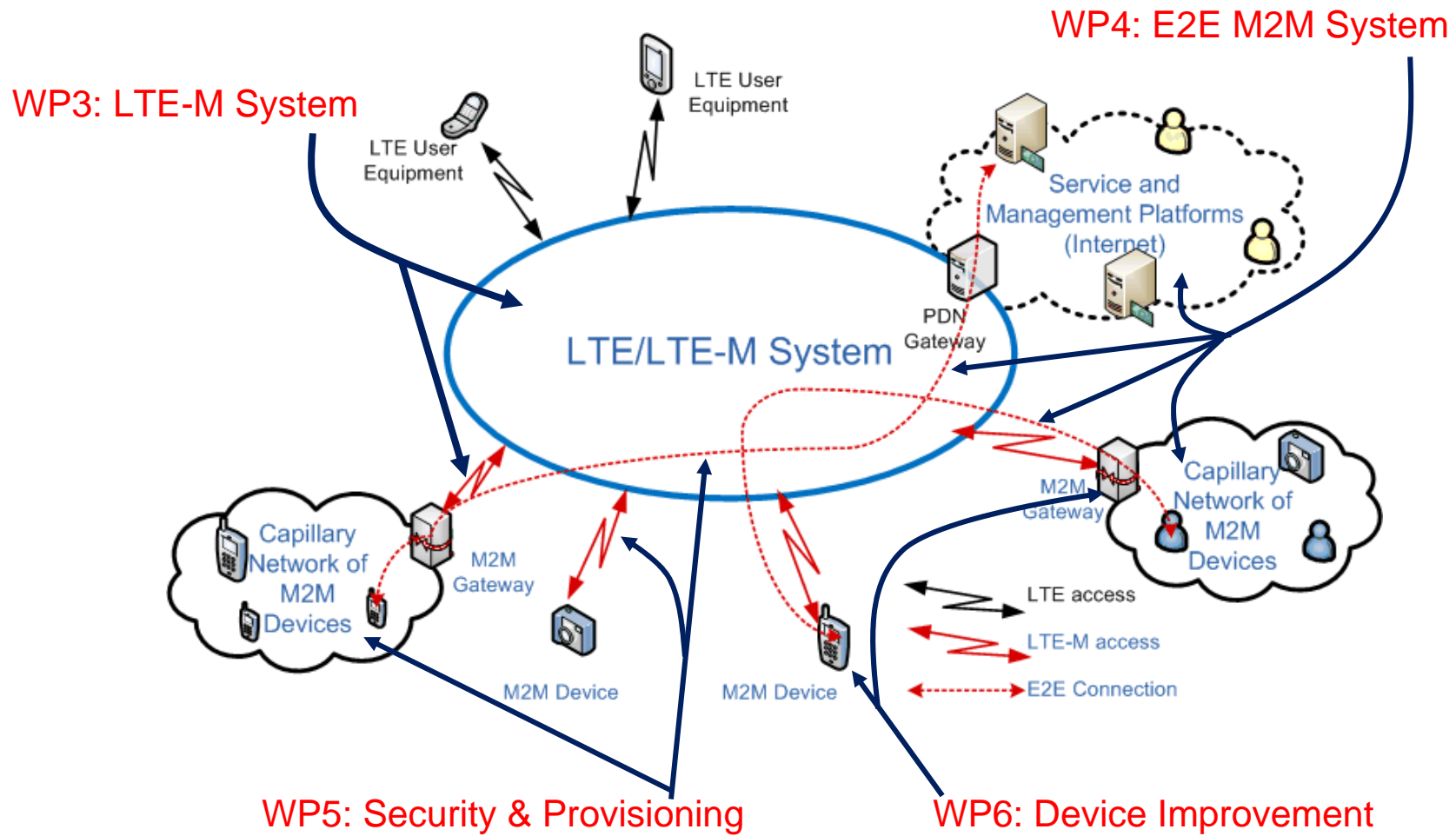
Expected Impacts

- Accelerate the development of M2M communications in combination with broadband wireless access systems, hence strengthening the position of the European industry as supplier for advanced communication infrastructure.
- Trigger enhanced M2M applications in health care, industrial processes, and remote monitoring, as well as enable new business opportunities
- Use the results to shape the development of standardisation of M2M communications in 3GPP, ETSI, IETF, and other forums.
- Develop key technical features: LTE-M, backward-compatible extension of LTE; cooperative, heterogeneous, capillary networks of devices, integrated with the rest of the “all-IP” networks by means of both short-range communications and cellular networks, focused with energy minimization, data aggregation, and security.



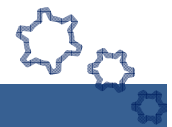
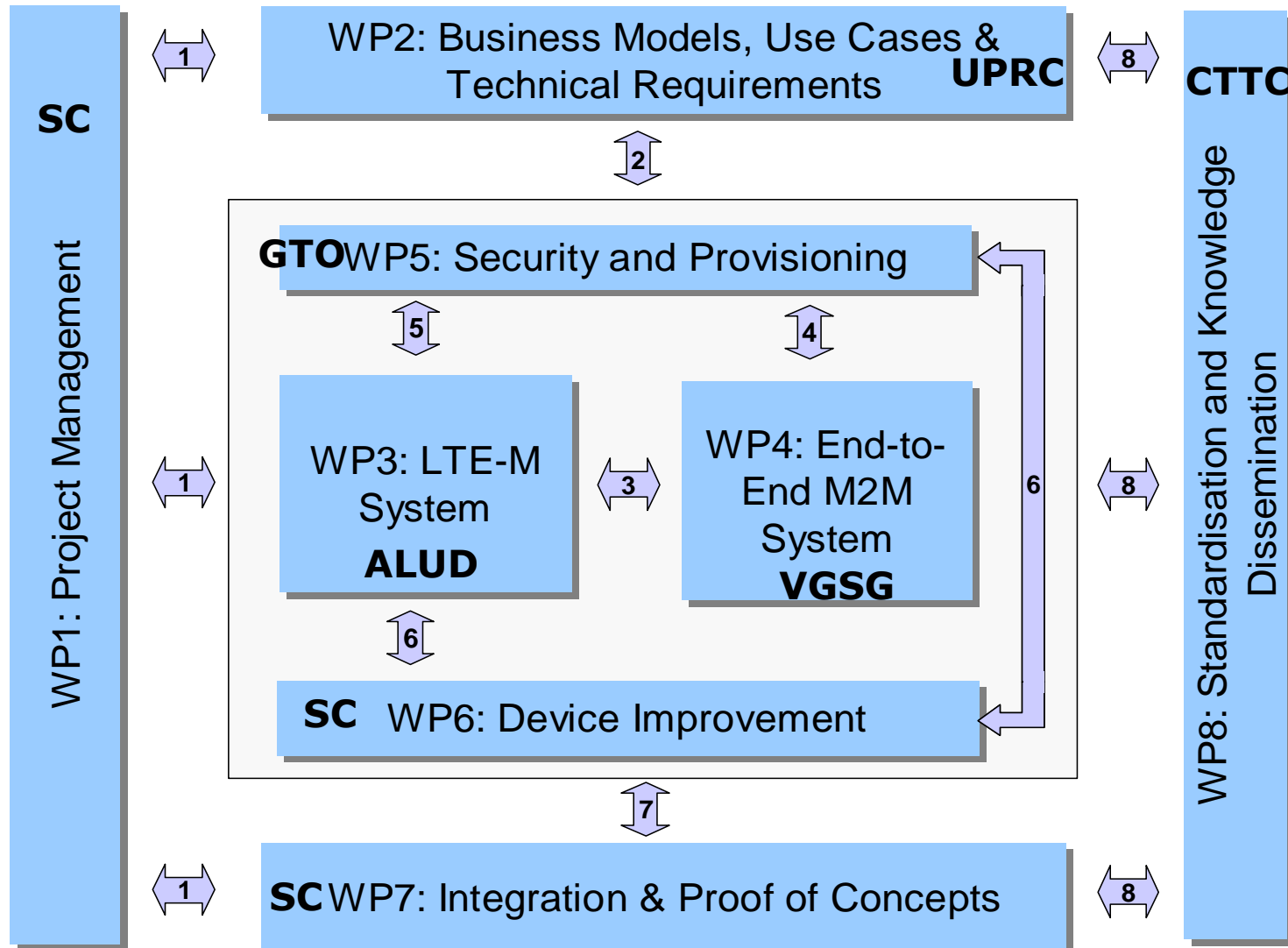


Technical Approach - System Focus



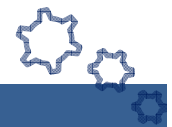
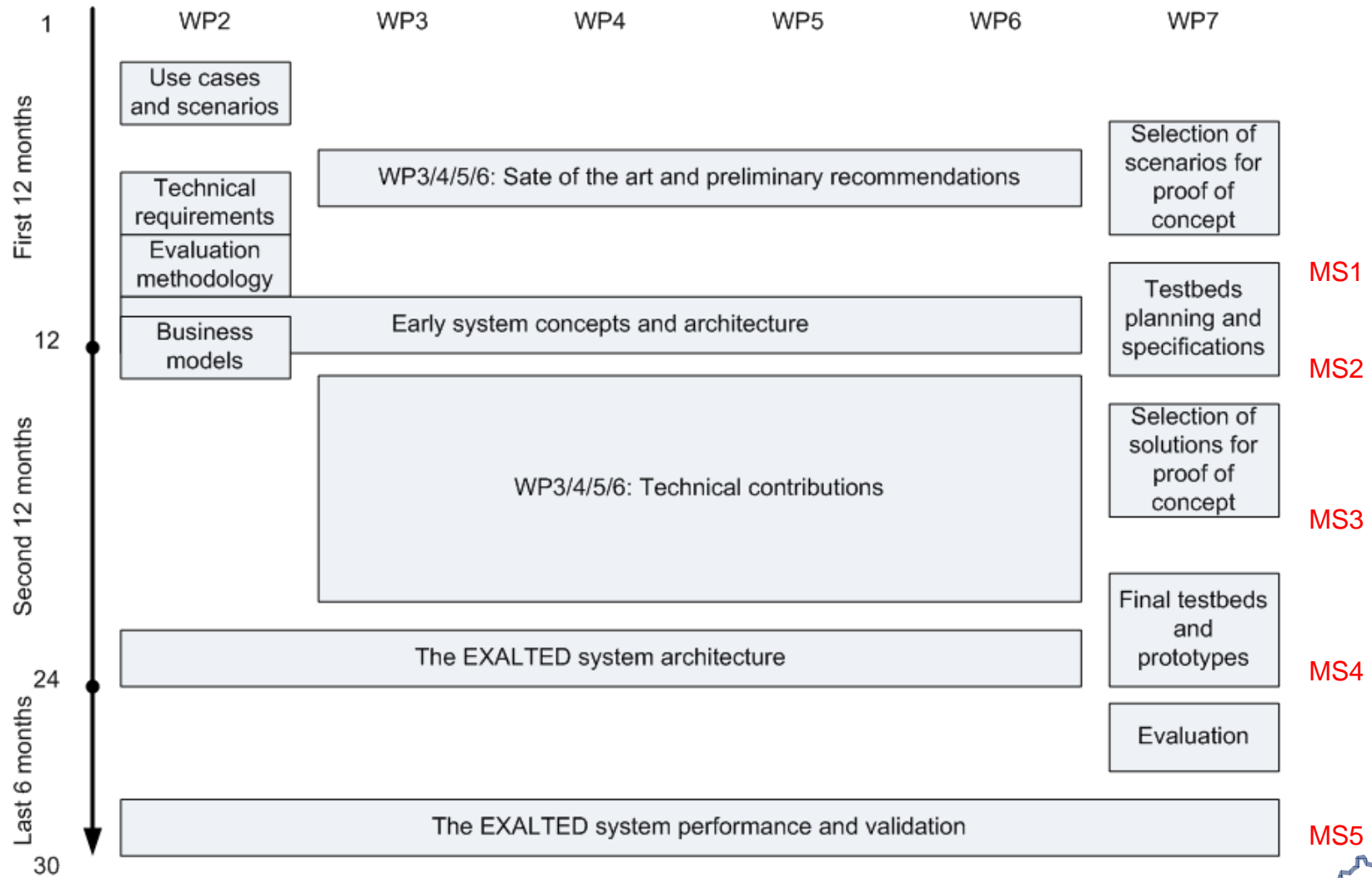


Work Organisation





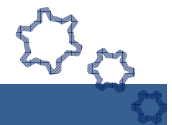
Work flow





Project Milestones

Milestone No	Milestone Name	Expected Date
MS1	Technical requirements based on defined use cases	M9
MS2	Initial EXALTED system architecture and concepts	M12
MS3	Selection of solutions/ technologies for: Proof of concept Analytical / simulation results	M18
MS4	EXALTED check point against targets: Final EXALTED system architecture Detailed simulation results Integrated solutions Initial proof of concept demonstration	M24
MS5	Final EXALTED system solutions Overall system concept Proof of concept demonstration Validation against project objectives	M30





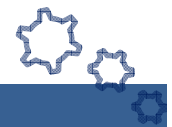
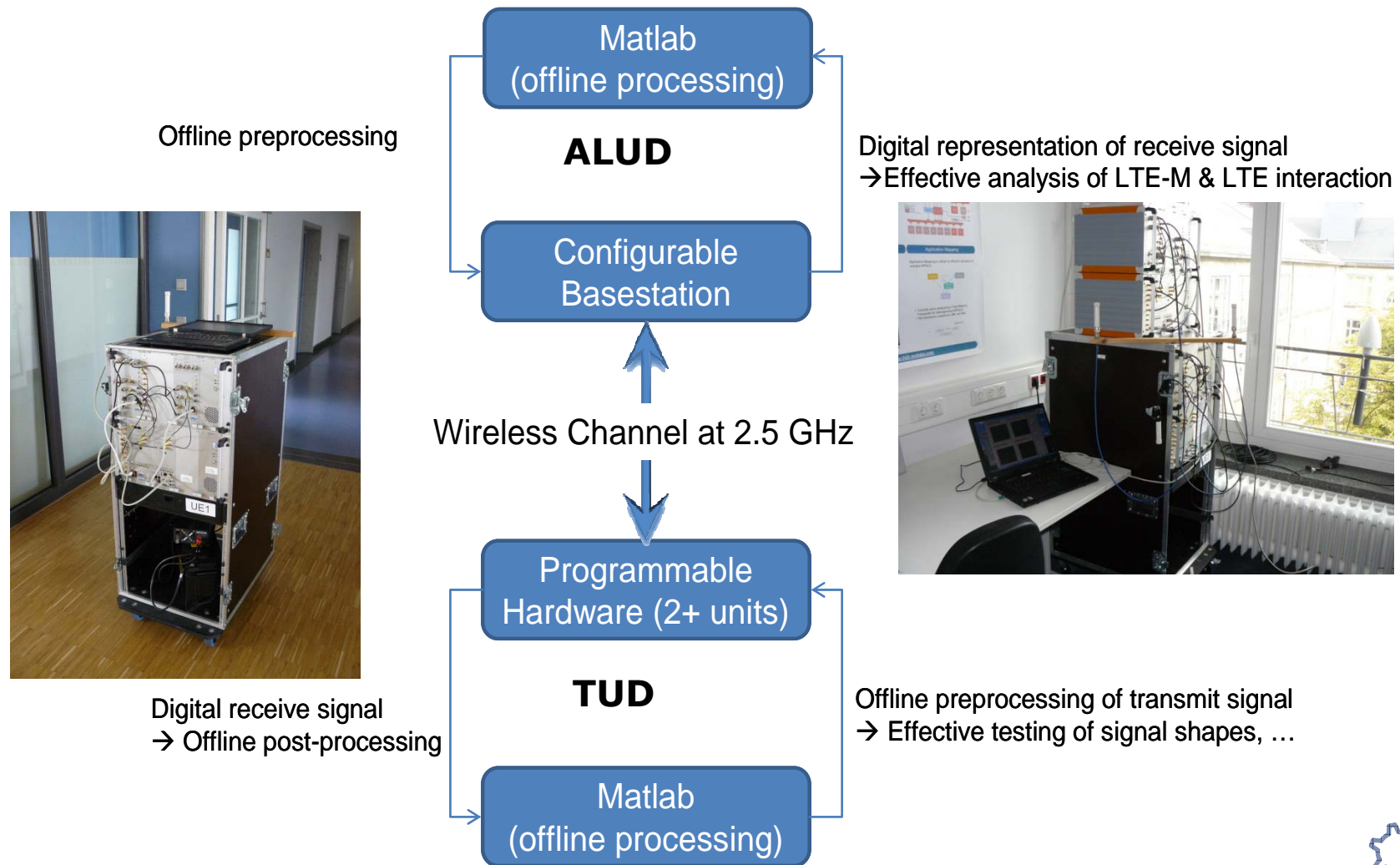
Applications / Use cases

- Key use cases specified by ETSI TC M2M:
 - Smart metering
 - eHealth
 - Connected consumer
 - Automotive
 - City automation
- There are many more applications / use cases :
 - for example *environmental monitoring, industrial automation*
 - WP2 will further investigate this, together the impacts on business models
- Prioritized use cases for proof of concept:
 - Automotive, eHealth (need further investigation in WP2)
 - Specific scenarios will be identified in WP7
 - WP7 aims to develop three different testbeds in an integrated manner



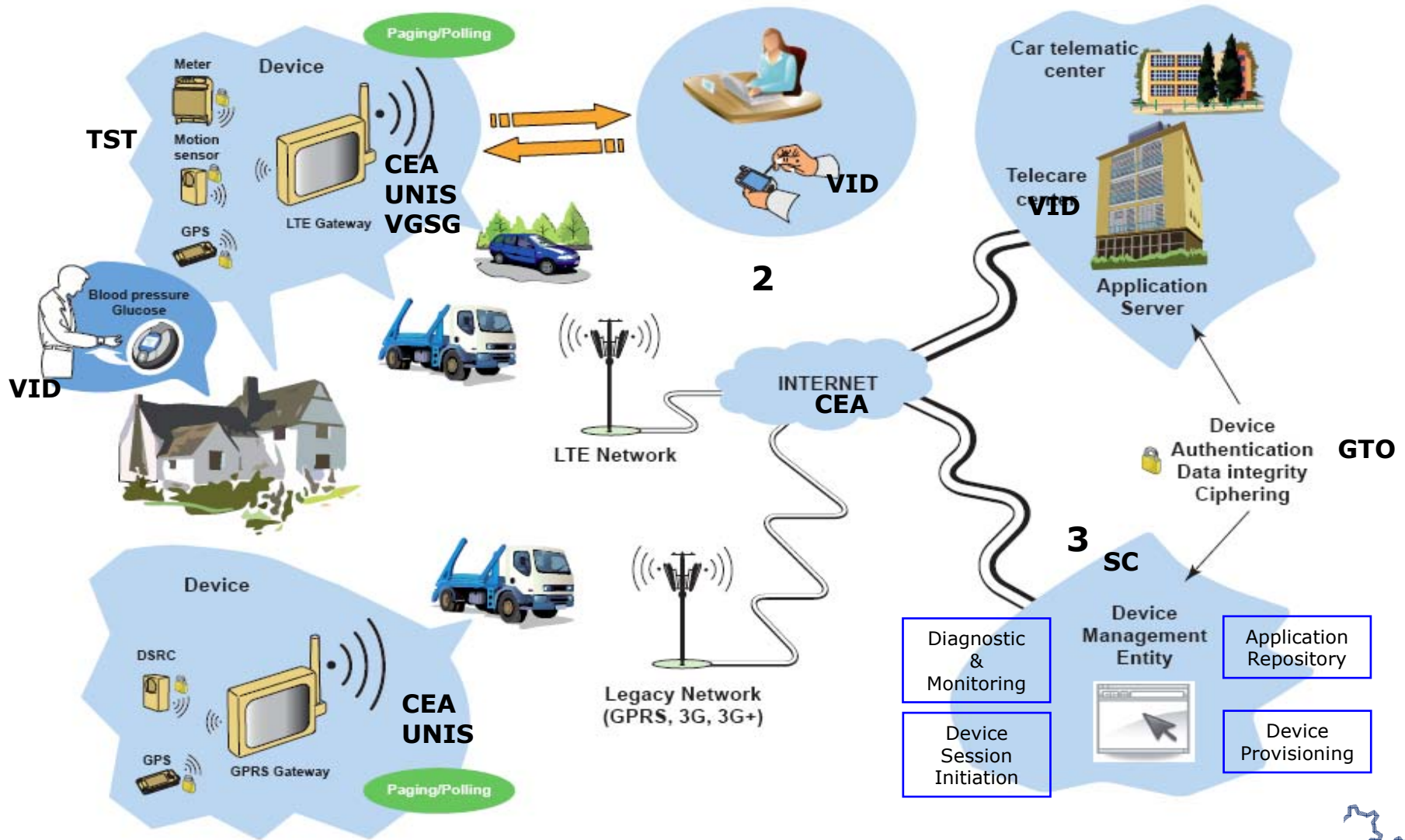


WP7 - Testbed 1: Standalone Radio





WP7 - Testbeds 2 & 3: Connectivity Oriented, Device Management





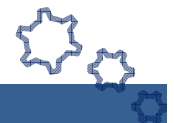
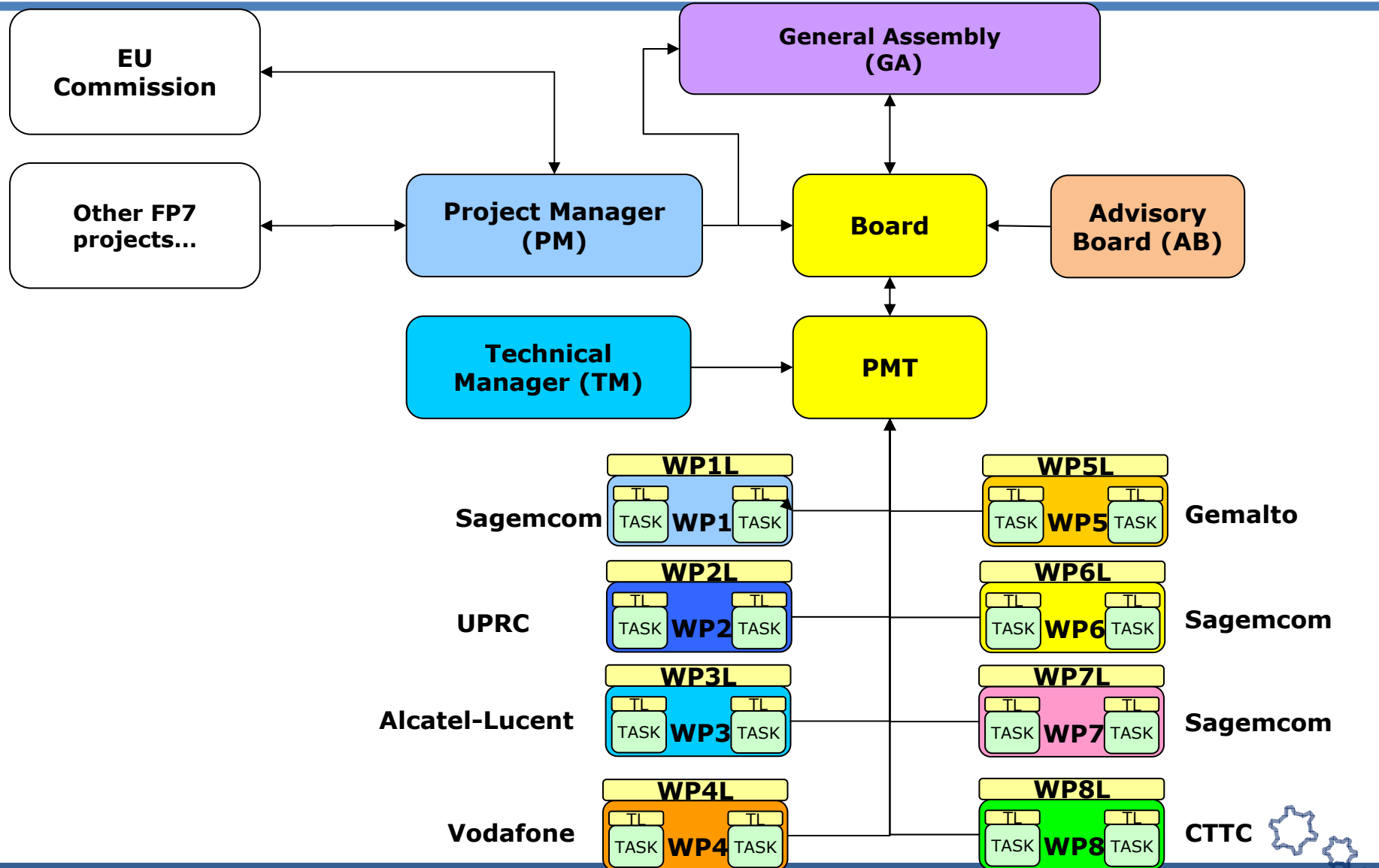
Standardisation Activities

- **Standardisation Bodies**
 - **3GPP**
 - Relations to Machine-Type-Communications Working Group
 - Backward compatible to Rel.8, and going further to Rel.10/11/12.
 - **ETSI**
 - Possible contributions to TC M2M (machine-to-machine communications), TC SCP (smart card platform), and TC RRS (reconfigurable radio systems)
 - **IETF**
 - Possible contributions to ROLL (routing over low power lossy networks), 6LowPAN (IPv6 over low power wireless personal area networks), 6LowApp (applications in resource constrained networks), AUTOCONF (ad-hoc network auto configuration), and MEXT (mobility extensions for IPv6)
- **Industry forums**
 - **GSM Association**
 - Possible contributions to SACG (smart card group)





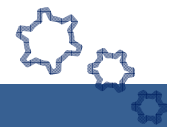
Project Management





Key Contact Information

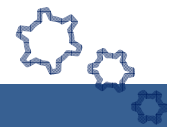
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- **Project Officer**
Remy Bayou





Advisory Board (AB)

- EXALTED will be supported by an Advisory Board (AB) whose aim will be to coordinate work towards a common industry position on M2M communications.
- EXALTED received statements of interests to serve on its AB from executive representatives from:
 - Business & Market Analysis sector
 - Industry Forum
 - European Standard Organization (ESO)
 - Academics
- AB interactions:
 - 1 day meeting once a year
 - Sharing of PU Deliverables before final release synchronized with Milestones
 - Executive Summary/synthesis reports to AB pointing out relevant information





Thank you

“Let’s get Enthusiastic about M2M...”





Task organisation

