



Wireless World Research Forum



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WWRF chairman 2004

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www.wireless-world-research.org

- WWRF objectives and workplan**
- WWRF structure and membership
- WWRF vision and approach
- Conclusions

WWRF - Objectives and scope

- ❑ Major objectives
 - ❑ to **develop** and **maintain** a consistent **vision** of the Wireless World
 - ❑ to **generate, identify, and promote research** areas and technical and society trends for mobile and wireless systems towards a Wireless World
 - ❑ to **identify and assess** the **potential** of new technologies and trends for the Wireless World
 - ❑ to **contribute to** the definition of international and national **research programs**
- ❑ Scope
 - ❑ concentrate on the **definition of research items** relevant to the future of mobile and wireless communications, including pre-regulatory impact assessments
 - ❑ invite world-wide participation and is **open to all actors**
- ❑ WWRF provides a global platform for discussion of results, exchange of views to initiate global cooperation towards systems beyond 3G

The WWRF Mission

- ❑ Our goal is to contribute to making the wireless market a vibrant growing global market, providing new opportunities for success for all sector actors
- ❑ Our long term strategy is to ease future standardization and hence develop global markets for products & services, through
 - ❑ **harmonizing views** on future market requirements, at the research stage of the process of investigating topics for future systems and services
 - ❑ **building collaboration** between academia and industry and between converging industry sectors
 - ❑ jointly **developing** commonly agreed research **priorities**
 - ❑ **disseminate** and promote that the WWRF results are contributed into relevant input results to standardization bodies
- ❑ The Motivators of WWRF for the Academia and Mobile Industry are to
 - ❑ define a platform for **publications**
 - ❑ act as a platform for **networking**
 - ❑ find **funding** opportunities
 - ❑ act as platform for exchanging views and build **consensus prior to standardization**

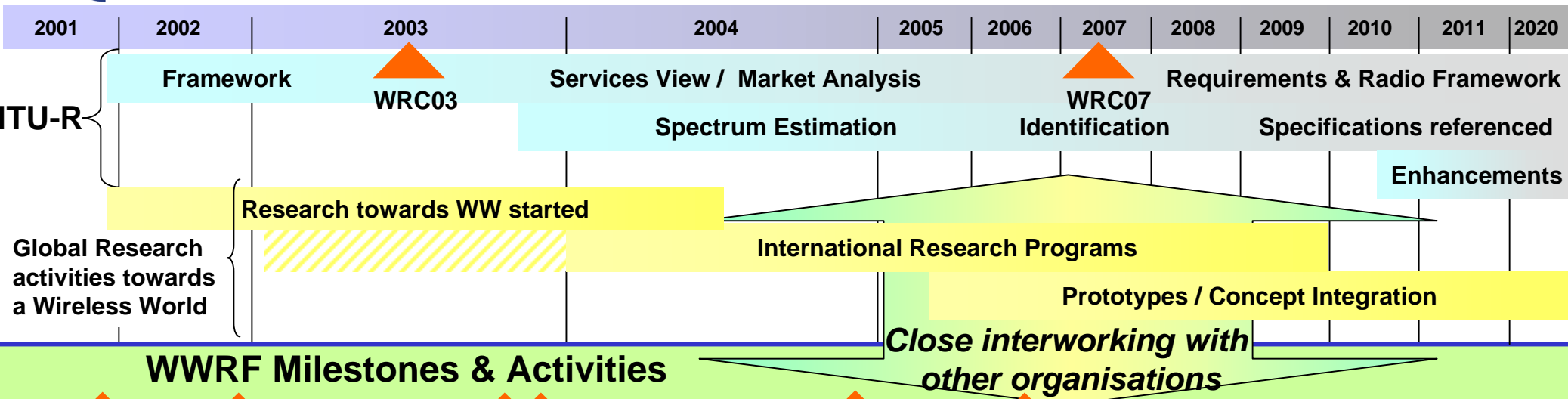
WWRF & IPv6

- ❑ Future Wireless World based on internet technology
- ❑ IPv6 integral part of this development
- ❑ IPv6 development needs representation in initiatives for the future, including WWRF

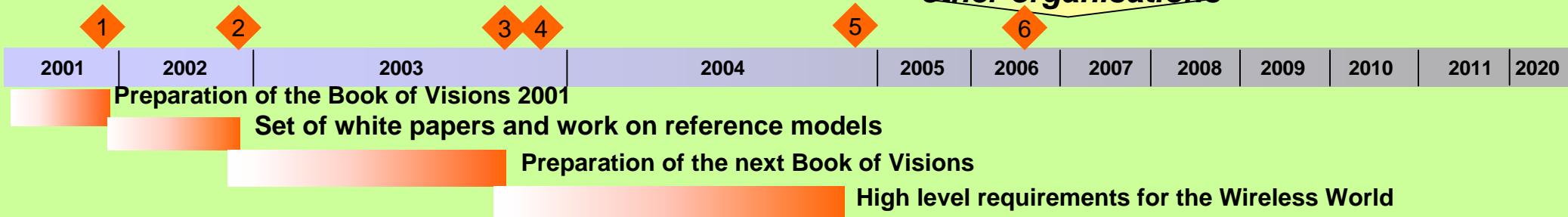
Deliverables

- ❑ Input: Contributions to meetings and working groups
- ❑ Output deliverables:
 - ❑ White Papers on different topics
 - ❑ Book of Visions, new edition with material ready now
 - ❑ IEEE Communication Magazine April 2004
 - ❑ Book publications together with IEEE Press

Global context towards the Wireless World



WWRF Milestones & Activities



- ◆ 1 • First Book of Visions published
 - ◆ 2 • Set of initial white papers and work on reference models
 - ◆ 3 • Next Book of Visions ready for publication with current versions of the Vision, White Papers, and Reference Model
 - ◆ 4 • Scheme for 2004 calls for contributions ready; Which topics need further work ? Missing topics ?
 - ◆ 5 • Definition of high level requirements for future services of the Wireless World, updated Reference model and White Papers
 - ◆ 6 • Initiation of evaluation and ongoing review of defined requirements for future services of the Wireless World
- ◆ = Milestone



WWRF meeting schedule for 2004

WWRF 8th bis Meeting* February 26-27

Beijing, China
MOST/HTRDC
Future project

WWRF 11th Meeting* June 10-11

Oslo, Norway
Telenor Research

WWRF 12th Meeting* mid October

Toronto, Canada
Bell Canada –
Nortel Networks –
Intel

*See most recent info on WWRF web site

International relations

- Liaison agreements with
 - UMTS Forum, signed on January 30, 2003
 - mITF, Japan, signed on May 30, 2003
 - IEEE ComSoc, signed October 29, 2003

- Discussions on cooperation ongoing between WWRF and
 - Chinese Government organizations (MOST) and universities
 - Discussions initiated with Korean organizations

Outline

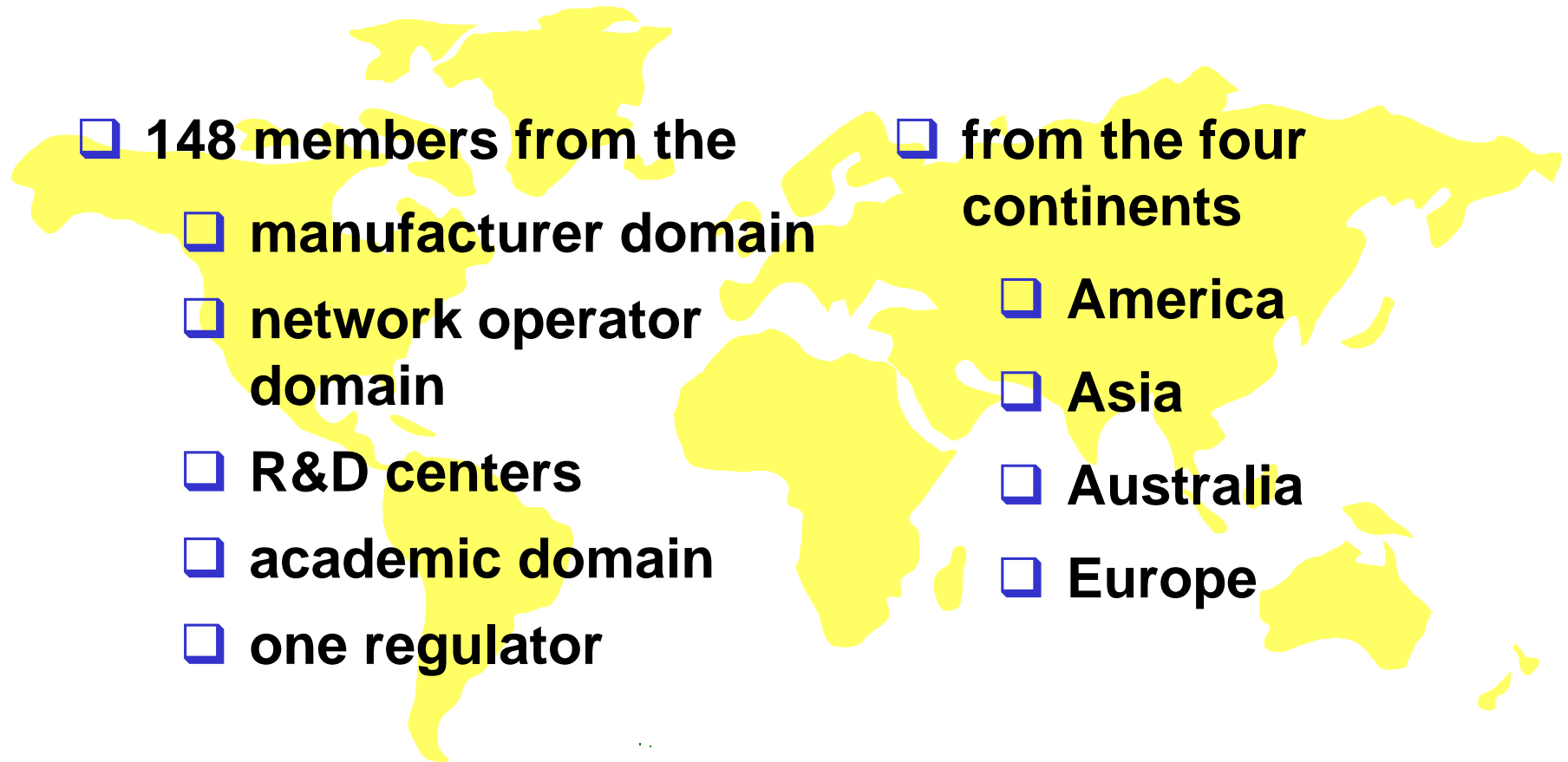
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WWRF membership 12/2003



Sponsor members and WG chairs

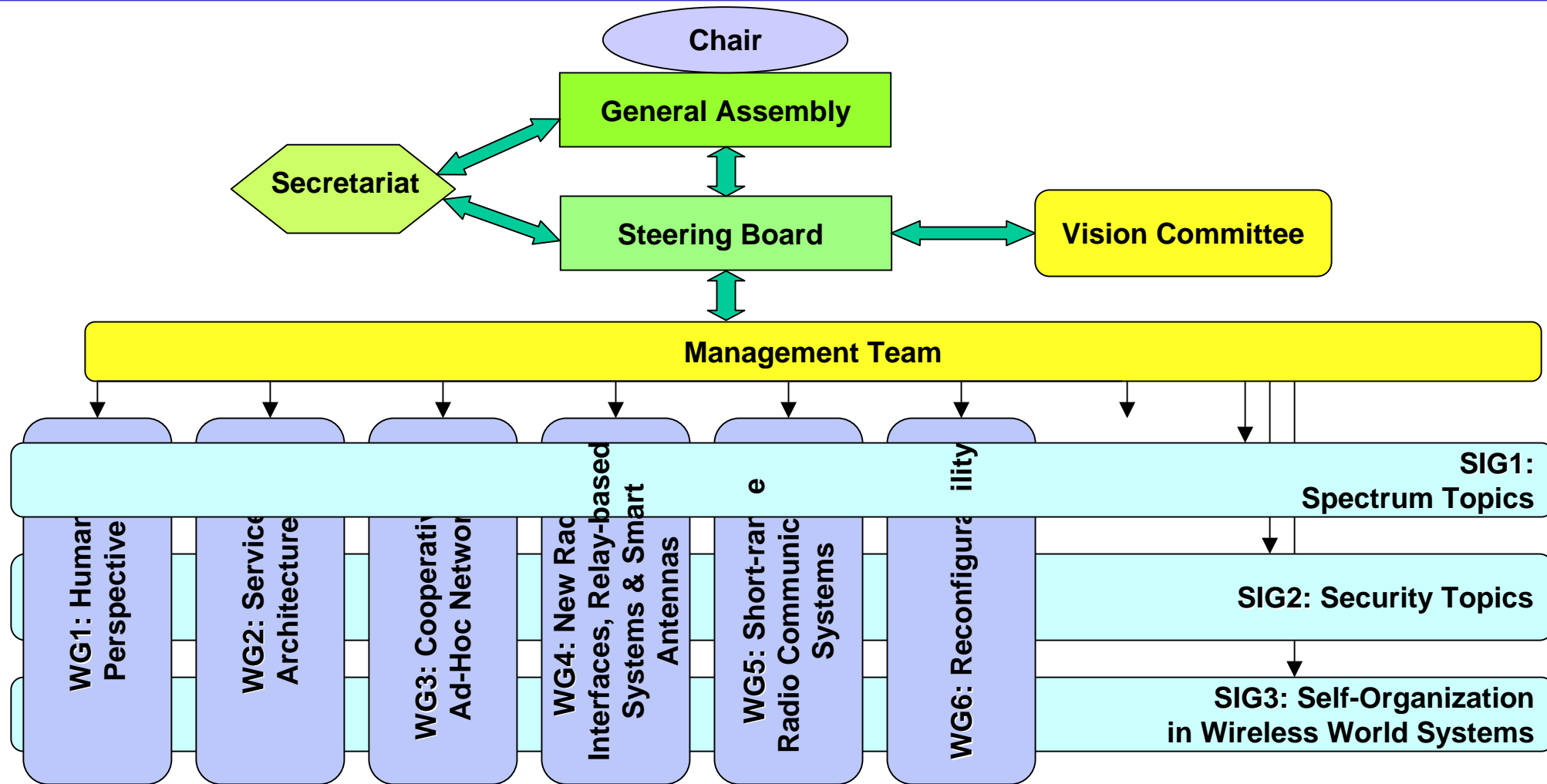
Sponsor members:

| | | | |
|--|---------|-----------------------------------|---------|
| <input type="checkbox"/> Alcatel | France | <input type="checkbox"/> NEC | Germany |
| <input type="checkbox"/> Bell Mobility | Canada | <input type="checkbox"/> Nokia | Finland |
| <input type="checkbox"/> Ericsson | Sweden | <input type="checkbox"/> Nortel | Canada |
| <input type="checkbox"/> EURESCOM | Germany | <input type="checkbox"/> Philips | UK |
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| <input type="checkbox"/> Lucent | UK | <input type="checkbox"/> Sony | Germany |
| <input type="checkbox"/> Motorola | USA | <input type="checkbox"/> Vodafone | UK |

Working Group Chairs

- WG1: University College London, UK
- WG2: Fraunhofer Fokus, Germany
- WG3: RWTH Aachen, Germany
- WG4: Carleton University, Canada
- WG5: University of Dresden, Germany
- WG6: University of Piraeus, Greece

WWRF structure



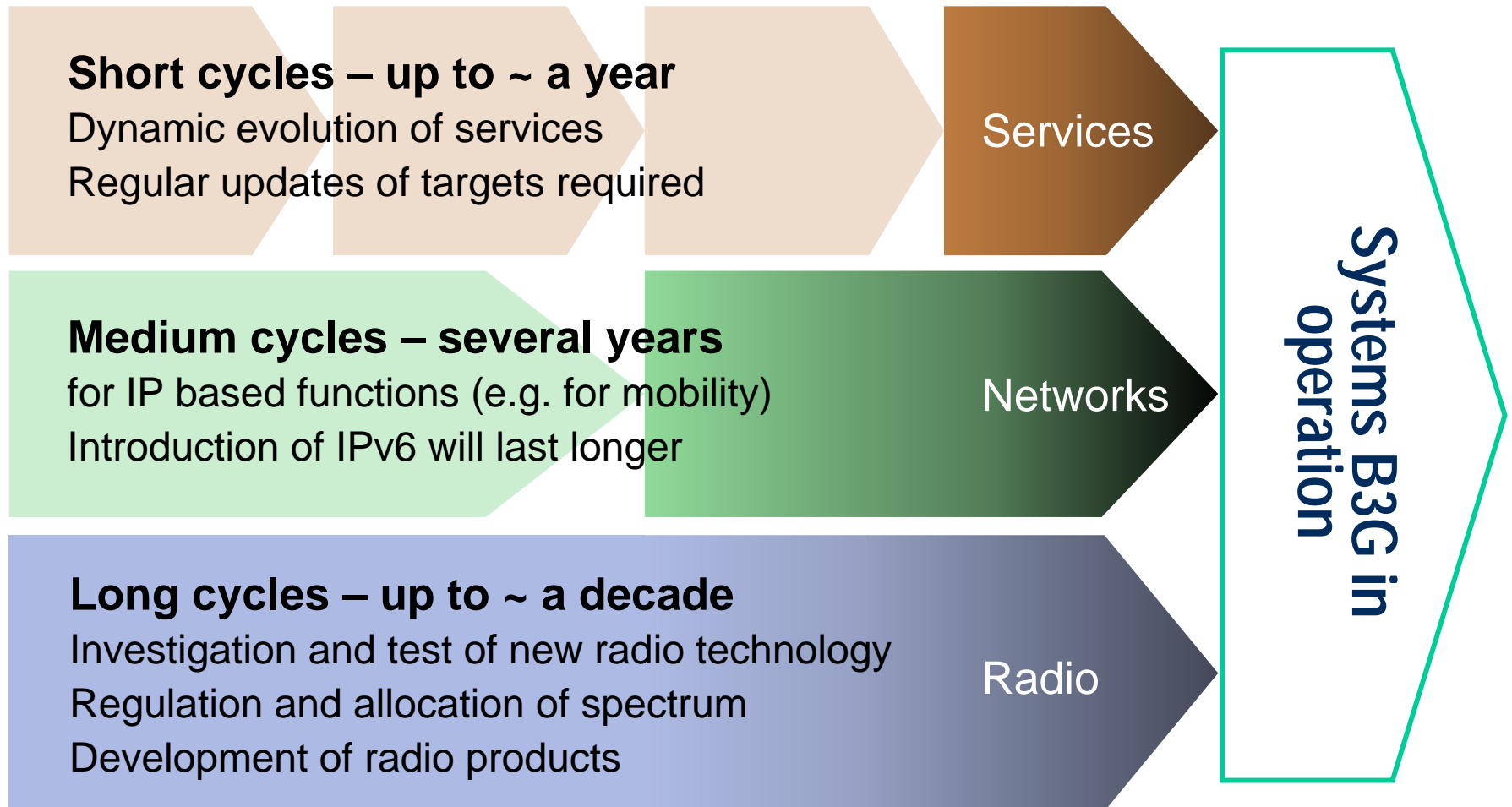
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Important questions

- WWRF intends to answer these questions:
 - How can advances in technologies be combined consistently in future systems?
 - What essential demand (user needs and market requirements) will a Wireless World address?
 - How can wireless communications become universally available for both people and devices/machines?
 - What business models will drive the Wireless World (what are the fundamental laws)?

Cycles of innovation



MultiSphere Level Concept

Systems beyond 3G will cover different communication relations

① The PAN



② The Immediate Environment



③ Instant Partners



④ Radio Accesses



⑤: Interconnectivity



⑥ CyberWorld



Source: IST WSI Project

Current key principles for WWRF vision

- ❑ Users are in control through intuitive interactions with applications, services and devices
- ❑ Services and applications are personalized, ambient-aware, and adaptive (I-centric) - ubiquitous from the point of view of the user
- ❑ Seamless services to users, groups of users, communities and machines (autonomously communicating devices) irrespective to place and network and with agreed quality of service
- ❑ Users, application developers, service and content providers, network operators and manufacturers can create efficiently and flexibly new services and business models based on the component-based architecture of the wireless world

Draft key aspects of the future wireless world

- ❑ Fulfilling user needs and enhancing user experience
- ❑ Ultra-high bit rates
- ❑ Ubiquitous coverage via heterogeneous access
- ❑ Low cost
- ❑ Machine-to-machine and sensor networks
- ❑ -> certainly not possible with IPv4 address shortage, but yes with IPv6

Current White Papers

- WG1
 - Scenarios and analysis
 - Reference model
 - UI technologies and techniques
 - UCD process
- WG2
 - Terminology (basic terms for WG2)
 - Business Model
 - Personalization
 - Ambient Awareness
 - Adaptability
 - Generic Service Elements
 - Enabling Technologies
- WG3+6
 - Vision and Roadmap
 - Research Challenges and Priorities
 - Architectural Principles
- WG3+6 continued
 - Network Component Technologies for Cooperative Networks
 - E2E Reconfigurability
- WG4+5
 - Smart Antennas, MIMO systems
 - Ultra Wideband
 - New Air Interface (3 in this area)
 - Requirements and Technologies
 - Broadband Multicarrier
 - Mixed OFDM plus single-carrier
 - Ad Hoc Networking
 - Short Range Communications
 - Relay-based Deployment Concepts for Wireless and Mobile Broadband Cellular Radio
 - Wireless Internet
 - Spectrum for Future Mobile Communications

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Conclusions on WWRF

- ❑ Global platform to initiate global cooperation towards future wireless world
- ❑ Vision from user perspective -> requirements for the enabling technologies
- ❑ Unique way of active cooperation within and between industry and academia
- ❑ Reduce risk for investment in research
- ❑ Ease future standardization through globally harmonizing views
- ❑ Proven history of creating large scale research cooperation and facilitating funding
- ❑ Open to all actors

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