



COST IC0905 “TERRA”: Brief Overview and Current Status

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Overview of COST-TERRA

What is COST-TERRA?

- **COST** = European **CO**operation in **Science** and **Technology**
 - An inter-governmental framework managed by the European Science Foundation to promote international networking for R&D and standardisation
- COST action IC0905 “TERRA”: “*Techno-Economic Regulatory framework for Radio spectrum Access for Cognitive Radio/Software Defined Radio*”
- Is an independent **think-tank** with broadly open participation from academia, industry and regulators
- General aim is to bring together technical and economic experts to spearhead a regulatory break-through for European development of CR/SDR

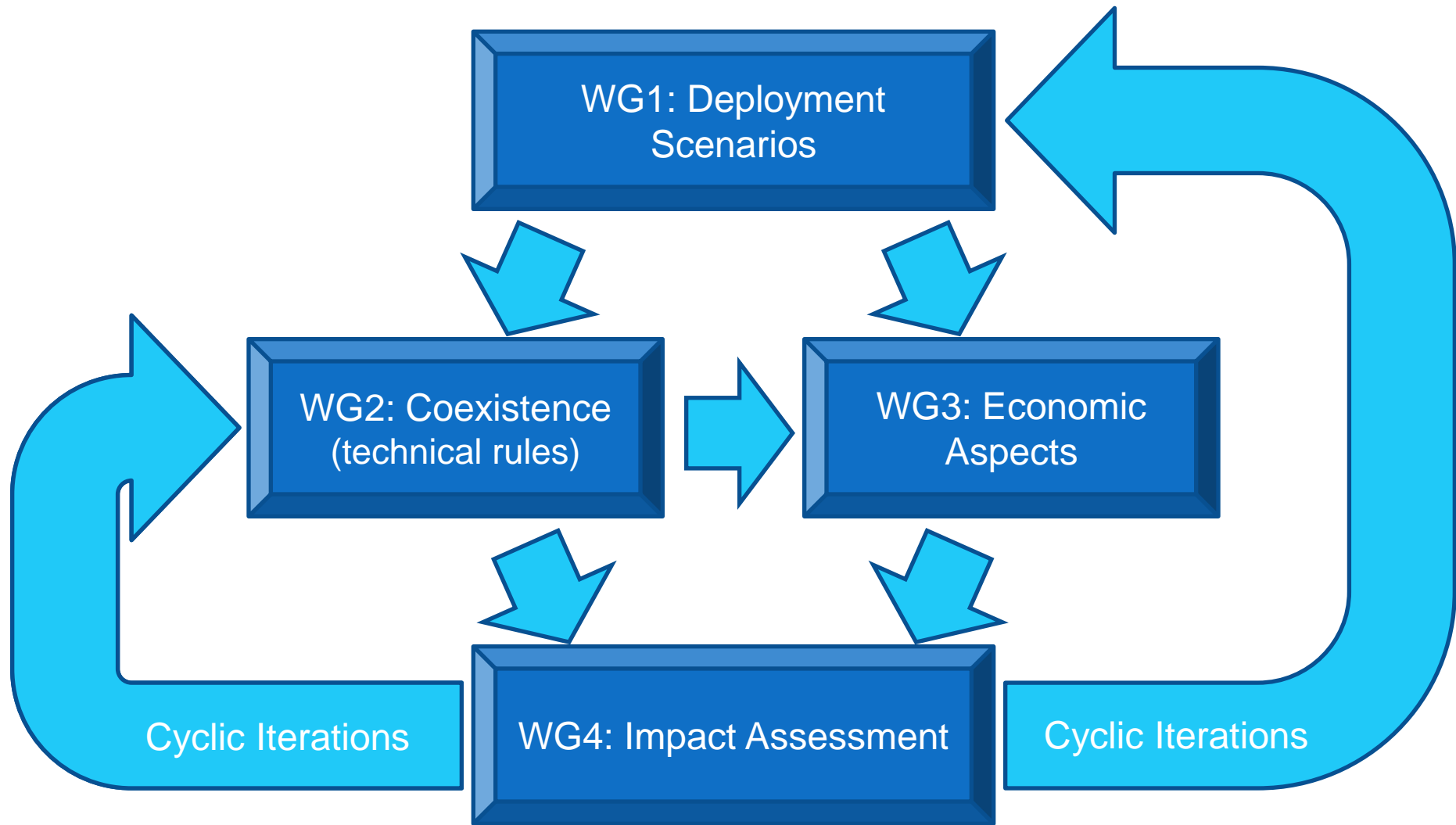
Objectives

- Primary:
 - Develop a comprehensive techno-economic **regulatory framework** for radio spectrum access rules for CR/SDR, catering for envisaged CR/SDR deployment scenarios, fostering the development of wireless industries, and serving consumer interests in general
- Secondary:
 - Assistance (in the form of know-how) to European regulators and regulatory/standardisation bodies, such as CEPT, ETSI, EC, etc.

Work programme

- Development and selection of plausible deployment scenarios for CR/SDR, based on results from a range of technological R&D activities (**Working Group 1**)
- Coexistence studies: development of technically feasible regulatory options pertaining to CR/SDR under these deployment scenarios (**Working Group 2**)
- Research into economic implications/benefits of regulatory options under these deployment scenarios (**Working Group 3**)
- Overall impact assessment / study of benefits to society of developed regulatory options (**Working Group 4**)
- Runs from May 2010 – May 2014

Work programme



Project timetable

	2010				2011				WRC 2012	2012				2013/2014			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4				
Kick-off MC meeting		X															
MC meetings			X		X	X		X			X		X		X		X
WG1 meetings			X		X	X		X			X		X				
WG2 meetings			X		X	X		X			X		X		X		
WG3 meetings					X	X		X			X		X		X		
WG4 meetings								X			X		X		X		X
Public workshops						W		W					W				W
Website update		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Current Management Committee

- 19 COST countries joined
 - Belgium, Croatia, Denmark, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Ireland, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom
- 2 non-COST countries joined
 - Canada and South Africa
- Currently has representatives or involvement of people from ETSI-RRS, IEEE SCC41, CEPT, Swiss regulator, German regulator, COST ICo902, Wireless Innovation Forum (formerly SDR Forum), and numerous EU and other projects

Current Status of COST-TERRA

First MC/WG Block of Meetings

- Held its first official MC meeting and batch of WG meetings in **August 2010 in Brussels**
 - Numerous presentations on deployment scenarios (5 presentations in WG1) and coexistence (4 presentations in WG2), e.g., from ETSI, Swiss Regulator, CEPT, European Projects, etc.—initial progress within WGs
 - Status of new partners (some cementing their membership, others (e.g., Stevens Institute, US; CRC, Canada, considering or in the process of joining))
 - Discussion of liaisons and interactions (WInnForum, SCC41, ETSI, others)
 - Ad-hoc task group set up for WInnForum interactions
 - Established rules for funding participants that are not MCs/sub-MCs
 - Initiated WG3 and elected chair (Keith Nolan, Trinity College Dublin)
 - Defined Short-Term Scientific Missions procedure
 - Interesting discussions: e.g., definition of CR, hence what the action covers in that regard

Second MC/WG Block of Meetings

- COST-TERRA held its second block of meetings in **January 2011 Lisbon**
 - Numerous excellent presentations and contributions to the meeting, opening up discussion in all areas of WG1-3
 - Some progress on a CR Taxonomy of use cases—defining “tags” to apply to different use cases that assist categorizing them
 - Progress on understanding interference implications of different CR and use cases based on various presentations. Discussion of common model for interference and simulation platform
 - Progress on understanding the real value of spectrum opportunities under different CR use cases (capacity and business opportunity). Understanding drivers and inhibitors of progress
 - Progress on analysing economic viability of different CR scenarios
 - Progress on understanding the impacts of different licensing schemes

Upcoming Meetings

- Third MC/WG Block of Meetings, and first workshop
 - Workshop to be collocated (hosted) with the **WInnF European Conference**, Brussels, June 2011, providing a wealth of available interest and expertise on CR/SDR
 - MC/WG meetings likely to be held nearby in the COST office in the same week of the WInnForum European Conference

Liaisons and MoUs

- Established a MoU with the Wireless Innovation Forum (**WInnForum**)
- Established a liaison arrangement with IEEE DySPAN Standards Committee (**IEEE DySPAN-SC**)
- Establishing a liaison arrangement with European Telecommunications Standards Institute (**ETSI**) Reconfigurable Radio Systems (RRS) committee
- Strong links with **COST IC0902** (the other important COST action on Cognitive Radio—investigates CR technical functionalities through a layered approach)
- Liaison established with IEEE TCCN
- Of course, strong links established with **CEPT-ECC**, others

Feeding ideas into other organisations

- Identified feedback options into various processes
 - Inputs on scenarios and licensing considerations into **CEPT** as facilitated by the ECC Liaison officer
 - Inputs to **ITU WRC-2012** process may still be considered
 - Inputs to **WInnForum** through the newly-created ad-hoc task group
 - Providing input of models/concepts into the CEPT's **SEAMCAT** development processes – long term objective
 - Inputs to various regulators worldwide

Currently most resonant issues

- Cataloguing and categorising CR use cases
- Understanding impact of TVWS regulation
- Considering impact of CR Licensing Schemes
- Co-existence issues
- Scenarios and viability of CR business proposition

Possibilities for contributions

- All industry and academia researchers as well as spectrum management regulatory professionals are welcome to contribute to the work of COST-TERRA responding to the ideas/issues raised in this document by:
 - joining our mailing list
 - submitting written contributions, discussion papers, information data sheets
 - proposing a talk for a future COST-TERRA meeting

Further Information and Contacts

Thank You!

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- A range of up-to-date information on COST IC0905 (TERRA) is available at its web site: www.cost-terra.org
- COST IC0905 Contacts:
 - Chair: Arturas Medeisis, medeisis@cost-terra.org
 - Vice-Chair: Oliver Holland, holland@cost-terra.org
 - Working Group 1 Chair: Luca de Nardis, lucadn@newyork.ing.uniroma1.it
 - Working Group 2 Chair: Fernando Velez, fjv@ubi.pt
 - Working Group 3 Chair: Keith Nolan, keith.nolan@tcd.ie

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