



Agreement Technologies IC0801

Start date: 17/10/2008

End date: 16/10/2012

Year: 1

Sascha Ossowski

Chair

URJC-CETINIA / Spain

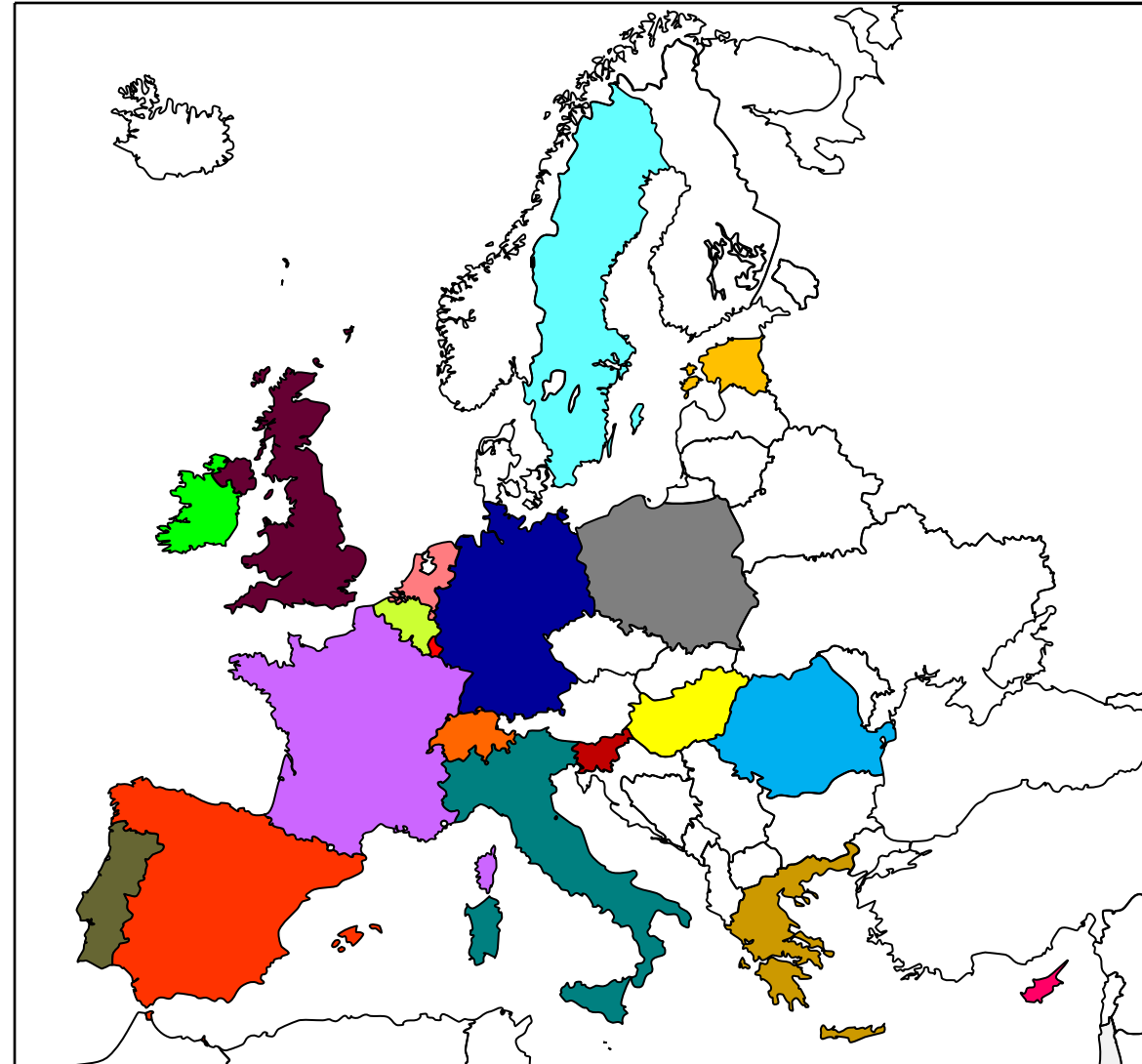
Action Parties

Grant Holder:

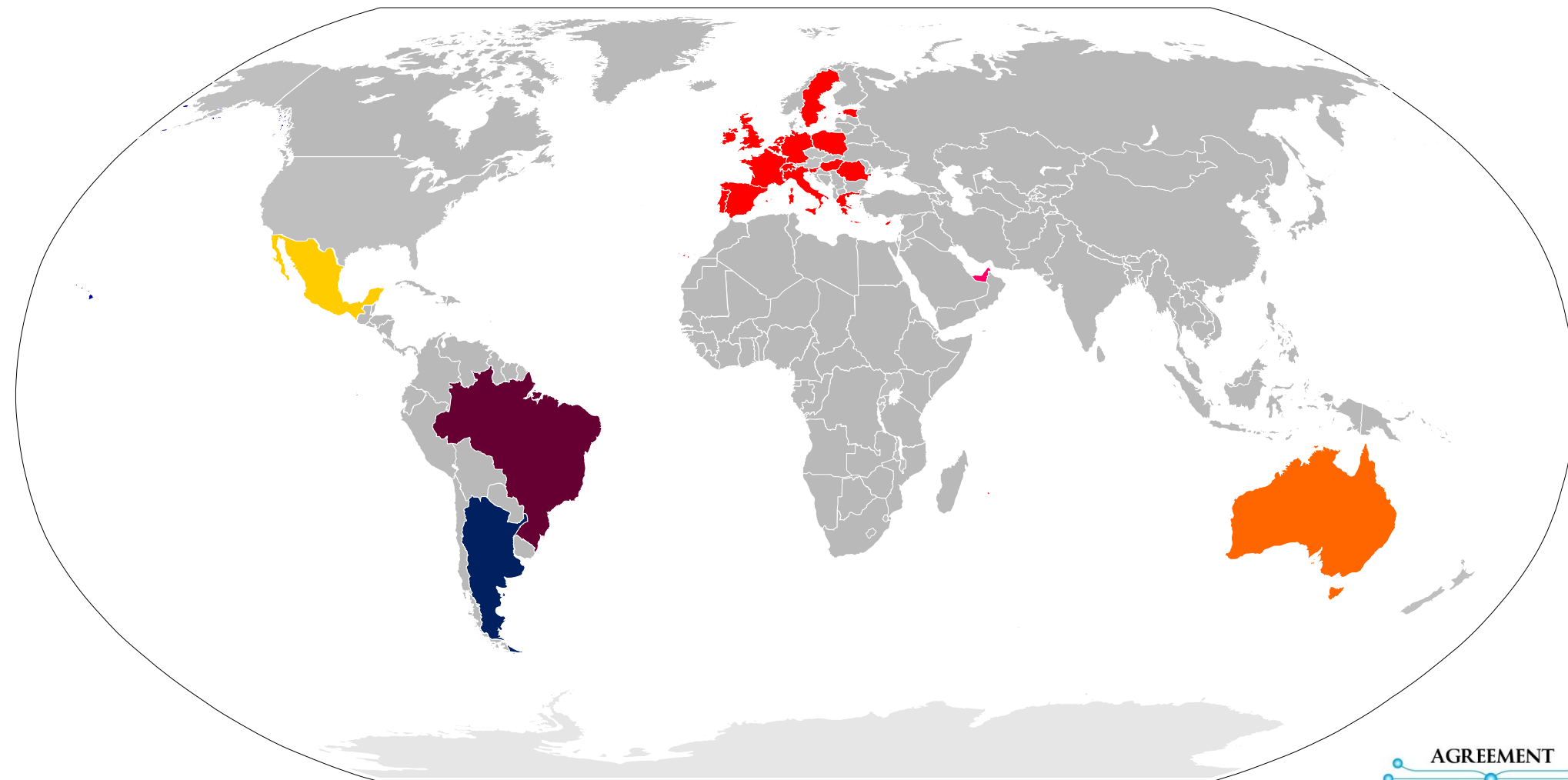
- Univ. Rey Juan Carlos, Madrid, Spain

Participants:

- **18 COST** countries
- **Intentions** to join from 2 COST countries
- Institutions from **5 non-COST** countries



Action Parties: non-COST institutions



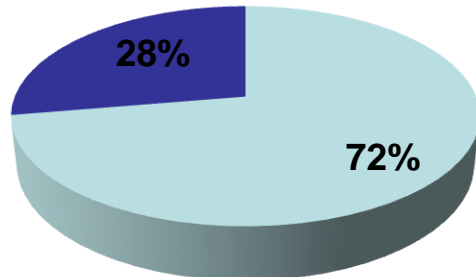
Action participants

Working Groups:

- **112 expressions of interest** received (as of May 2009)
- Procedure for **membership** established at recent MC meeting

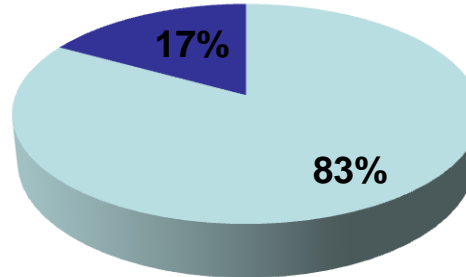
Experience

■ ESR ■ Senior



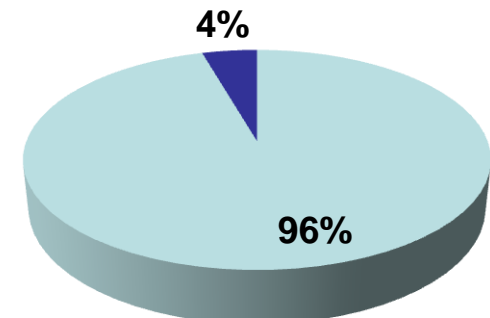
Gender

■ Male ■ Female



Provenance

■ COST ■ non-COST



Use of COST instruments

	YR 1
No. of MC / WG meetings	2+1
No. of STSMs	7
No. of workshops / conferences	4
No. of joint publications	2+
No. of training schools	-
GASG (activities)	Posters, flyers, website

Objective YR1:

- **Raise awareness** within target communities

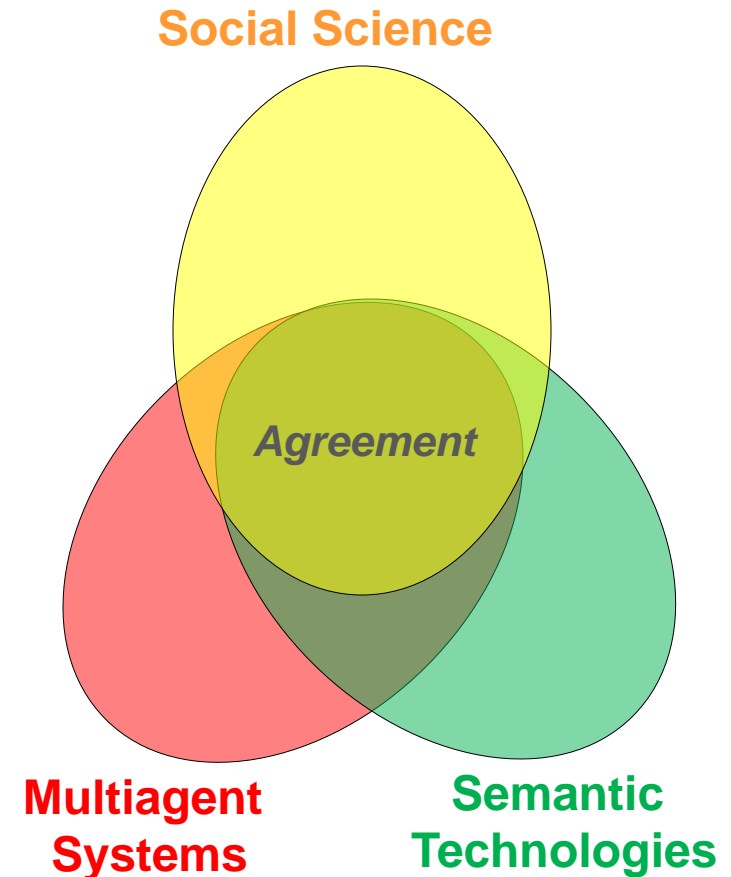
Main instrument YR1:

- Action **workshops** / special sessions **co-located** with existing events

Scientific context and objectives (1/2)

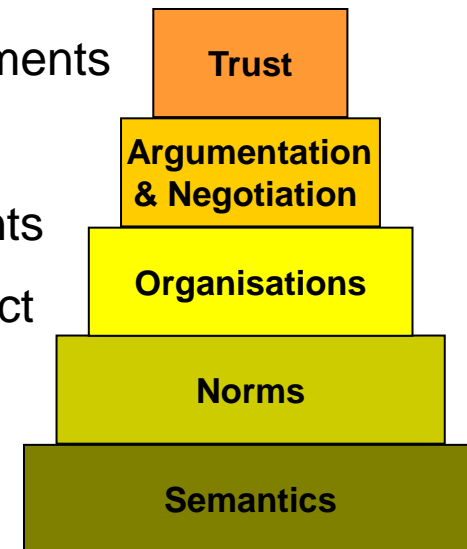
- Large-scale open distributed systems
 - Area of enormous **social and economic potential**
 - Paradigm Shift: **beyond the client-server architectures...**

- Vision:
 - A paradigm for next-generation open distributed systems, based on the concept of **agreement** between computational **agents**.
 - **normative context:** rules of the game
 - “call-by agreement” **interaction method:** first establishment, then enactment of agreements



Scientific context and objectives (2/2)

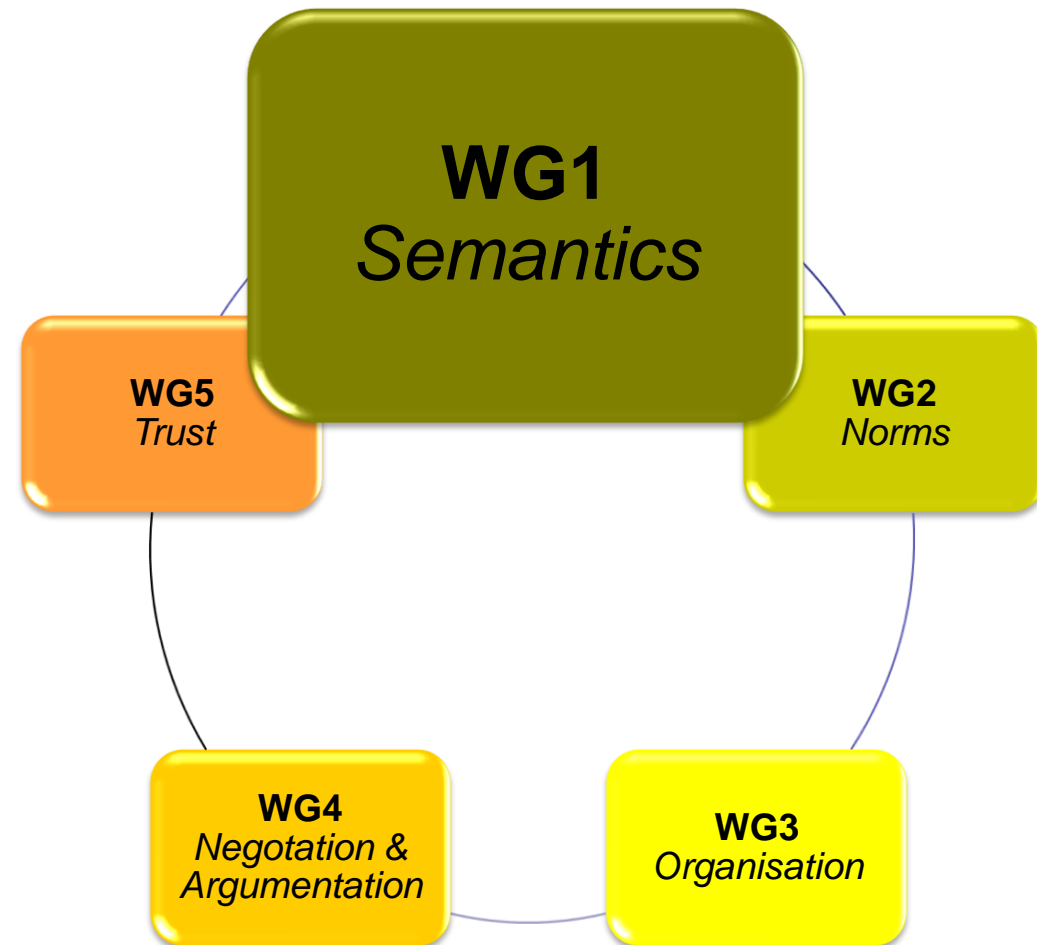
- Fundamental and applied research:
 - **Semantics:** Common understanding of the elements of agreements
 - **Norms:** Specify and verify constraints on agreement
 - **Organisations:** Structure the processes of reaching agreements
 - **Argumentation & Negotiation:** Reach agreements that respect the constraints imposed by norms and organisations
 - **Trust:** Summarise the history of agreements and agreement executions in order to build long-term relation



- **Interdisciplinary** research:
 - Solid conceptual foundations: **robust understanding** of the notion of agreement and agreement processes

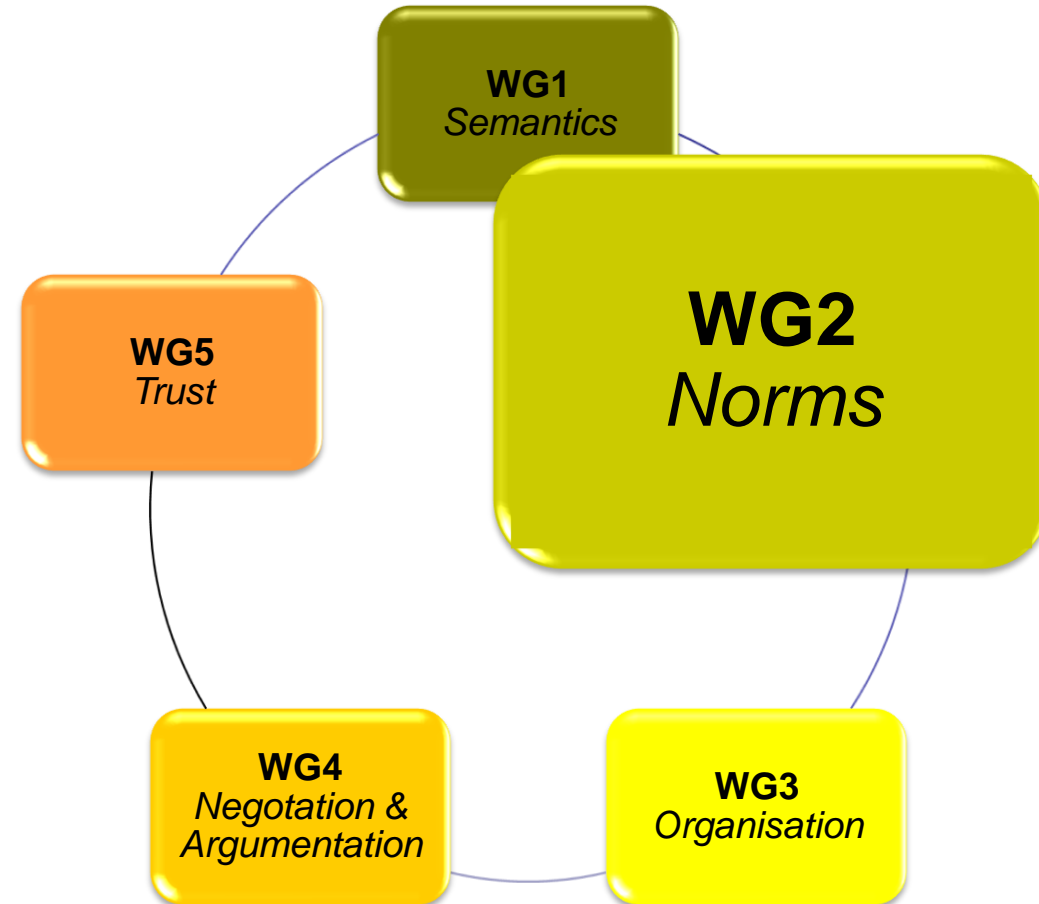
Working groups

- Semantic **alignment**:
 - to explore the right tradeoffs between **expressivity** and **efficiency** for ontology, mapping and query languages in a distributed setting
 - to study semantic alignment protocols and algorithms interweaving alignment and **negotiation**, and possibly taking into account measures of **trust**
- Alignment with **standards**:
 - to explore how existing standardization efforts can be enhanced to cater for agreement relevant information, and how these additions can be exploited



Working groups

- Normative **reasoning** and negotiated flexibility
 - to interpret and **instantiate** norms to specific situations;
 - to resolve **conflicts** between norms, especially when applied to a specific case
 - to study **norm transgression** as a motor for the **evolution** of norms (and organisational change)
- **Usability** of norms:
 - enhance user awareness of (and control on) norms



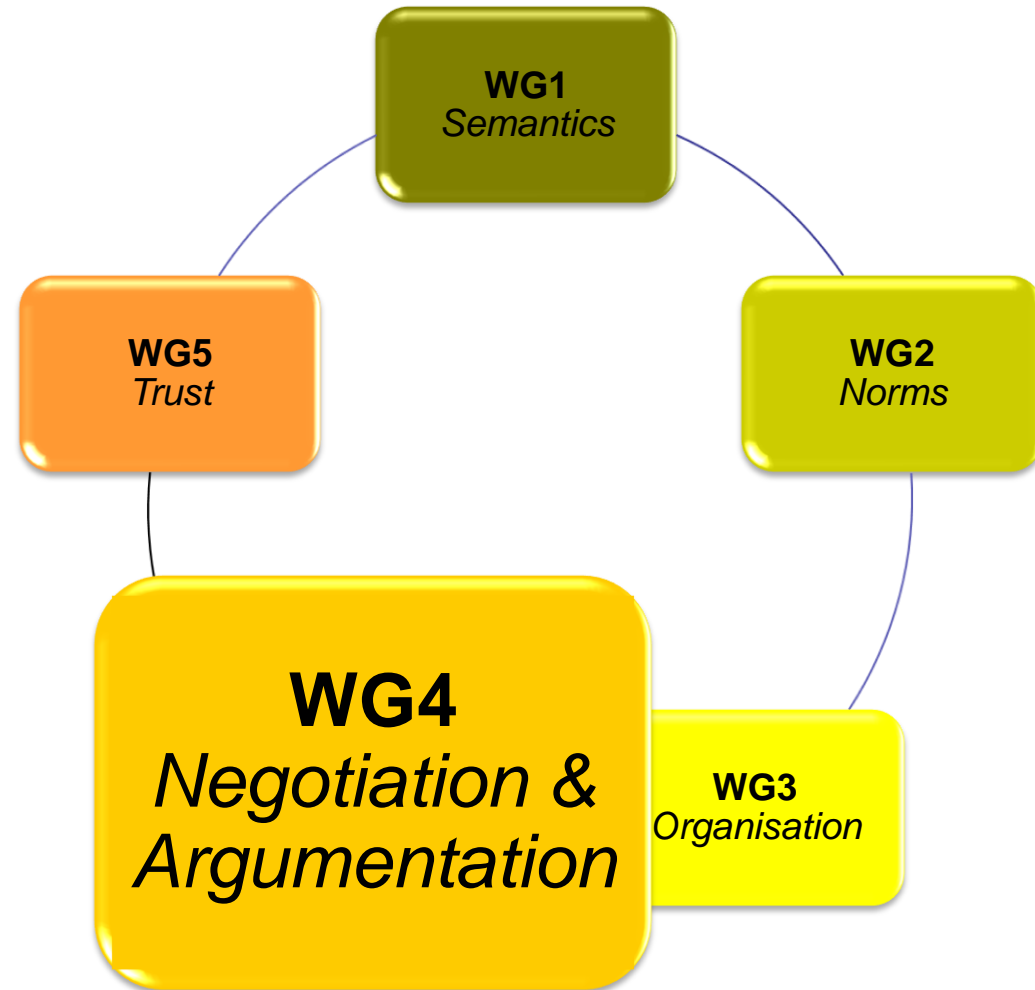
Working groups

- Design and evolution of organisations
 - to advance on effective **guidelines & tools** for the design of organisational structures, especially wrt. the **reuse** of norms/organisational patterns
 - to account for **organisational change**, as in open environments organisational structures continuously evolve so as to efficiently promote effective teamwork
- Organisational Teamwork
 - to exploit organisational information in the processes of **team formation, cooperation, and dissolution**, based upon dynamic agreements at runtime



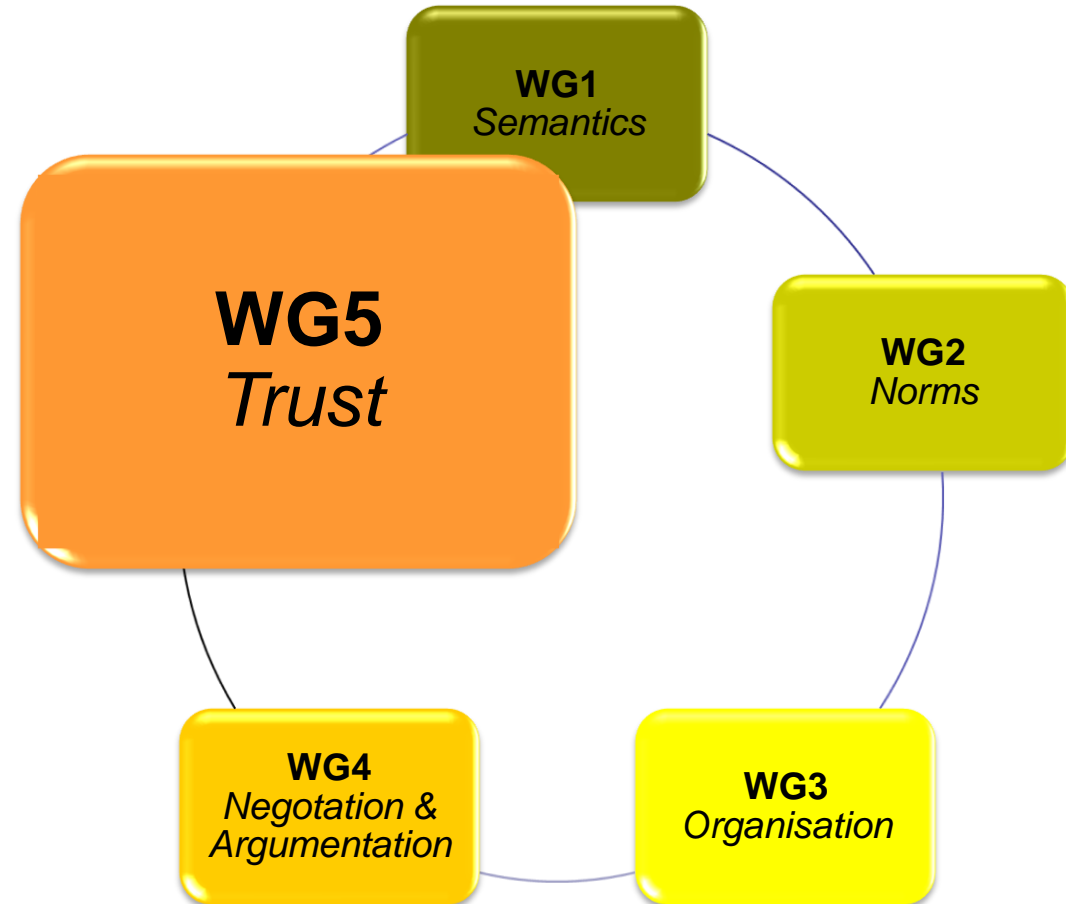
Working groups

- Argumentation in negotiation:
 - to look into frameworks that **integrate** argumentation in negotiation, so as to
 - supply the negotiating parties with additional information and
 - help them convince each other by adequate arguments.
- Strategies for bounded interactions:
 - to study mechanisms that can meet the **computational bounds** to agreement processes based on argumentation and negotiation



Working groups

- Advanced trust mechanisms:
 - **Scalability**: how to develop trust mechanisms based on other agents' opinions that scale on large societies
 - **Semantics**: how to deal with erroneous behaviour that may be caused by misunderstandings
 - **Similarity**: how to use 'similar' cases when exact past experiences for an agreement under discussion is scarce
- Balance between norms and trust:
 - The more norms can be enforced, the less need to rely on trust measures, but norm enforcement has an associated **cost**



Results vs. Objectives (1)

	Objectives (MoU, Milestone 1)	Results (YR1, 12/08 – 06/09)
WG meetings	1 (all 5 WGs)	1 (all 5 WGs)
No. of STSMs	5	7
No. of workshops / conferences	3	4
Early-stage researchers meetings	1	1

Results vs. Objectives (2)

- **Objective:** Community building in Europe and worldwide
- **Result:**
 - Successful start: # participating countries, # WG Eols
 - Uneven response from target communities
- **Objective:** Coordination of research
- **Result:**
 - **Focus** (key topics) for next WG meetings identified
 - WG **interrelations** identified, and measures proposed
 - Related **projects**: identified and promoted
 - Increasing number of STSM applications

Significant highlights

- **Projects:** Swiss initiative in the field of Agreement Technologies
 - *Open Interaction Frameworks: Towards a governing environment*
(M. Schumacher)
 - *Open Interaction Frameworks: A Model Based on Artificial Institutions*
(M. Colombetti)
- **Interdisciplinary Networking:**
 - Scholars from a variety of disciplines outside ICT: philosophy, psychology, cognitive science, law, etc.
- **ESRs:** Positive feedback from young researchers

Challenges

Workplan for YR2:

- **Challenge:** *Joint Research on AT*
- **Action:** Co-located Working Group Workshops
 - Joint sessions and “enhanced cooperation”
 - Co-location with agents (EUMAS) and SW events (ESWC)
- **Challenge:** *Interdisciplinary Research*
- **Action:**
 - Interdisciplinary Workshop on Agreement Technologies
 - Liaison with related COST Actions
- **Challenge:** *Early integration of young researchers*
- **Action:** Intensify STSM programme
- **Challenge:** *Capacity Building*
- **Action:** AT Training School (co-located with EASSS'09)





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