

Building Consensus via a Semantic Web Collaborative Space

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1: IMC Technologies S.A.

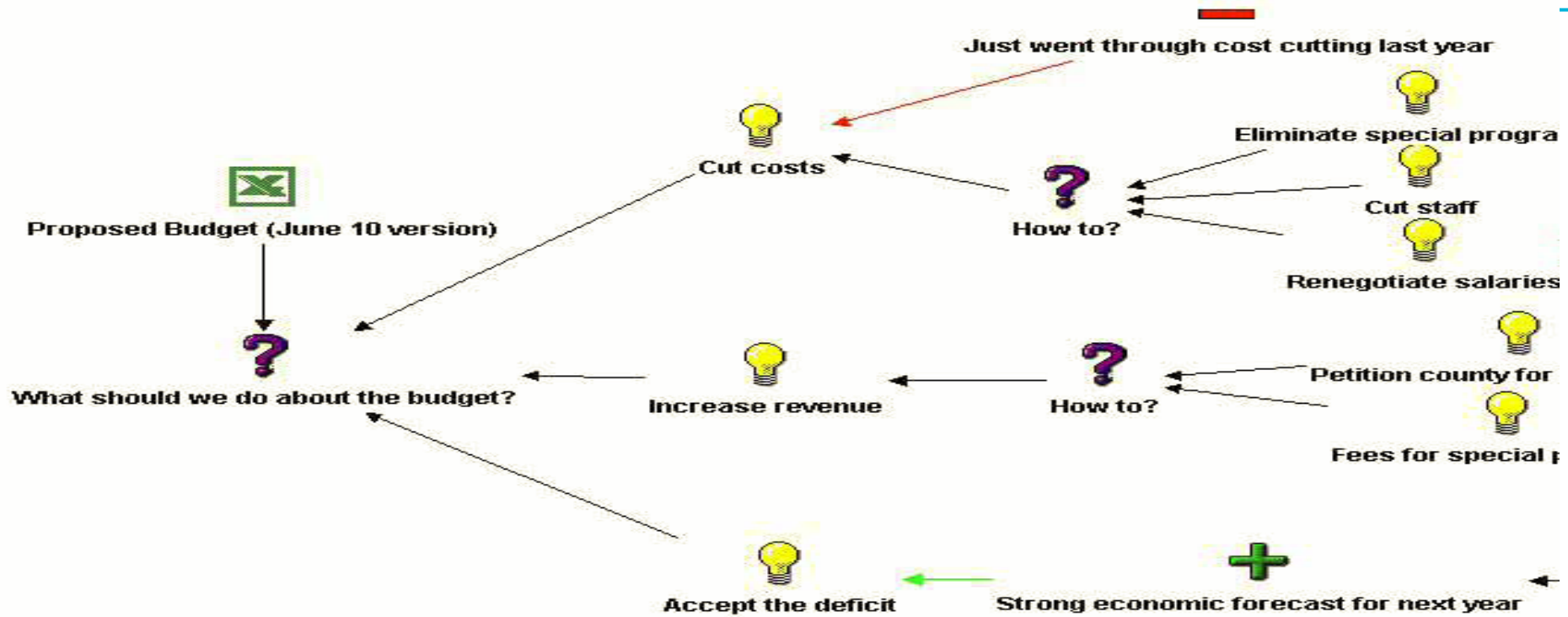
2: Universidad Politecnica de Madrid

17/04/2012

1. Background and related work
2. A deliberative, discursive mode of decision making: the eDialogos Consensus process and platform
3. Semantic Web Technology to Facilitate Collaborative Decision Making: the eDialogos Consensus Ontology
4. Argumentation Graphs and User Feedback to Estimate Agreement: the Consensus Rate Model
5. Conclusions and Outlook

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IBIS: A tool for all reasons



- Question (Problem/Issue) ?
- Idea (Position) ?
- Argument For/Against

- Argument Mapping: tools based on a GUI to enable users to capture Questions, Ideas, Arguments
- **Assumptions:**
 - Laying down the arguments will result in an enlightened understanding of the problem
 - Decision will be reached via offline procedures
 - A facilitator will catalyze the process
- **Problem:** User-friendly tools, but limited functionality - glorified mind maps

- Argumentation grounding: tools based on formal argumentation to enable users to document options, argumentation structure and strength
- **Assumptions**
 - Documenting all the arguments, their logical premises and structure is possible
 - Applying reasoning rules will enable tools to provide the 'algorithmically optimal' solution
- **Problem:** Complex and unappealing user experience - made by and for argumentation experts.

Citizen Engagement for Governance and Policy Modelling

- Use of Social Media to connect citizens and all other stakeholders to decision-making and governance
- Contributions at a vast scale can lead to remarkably powerful emergent phenomena:
 - Idea synergy, the long tail, many eyes, wisdom of the crowds
- Existing Social Media are not designed for CE:
 - Disorganized content, low signal-to-noise ratio, quantity rather than depth, Polarization, dysfunctional argumentation

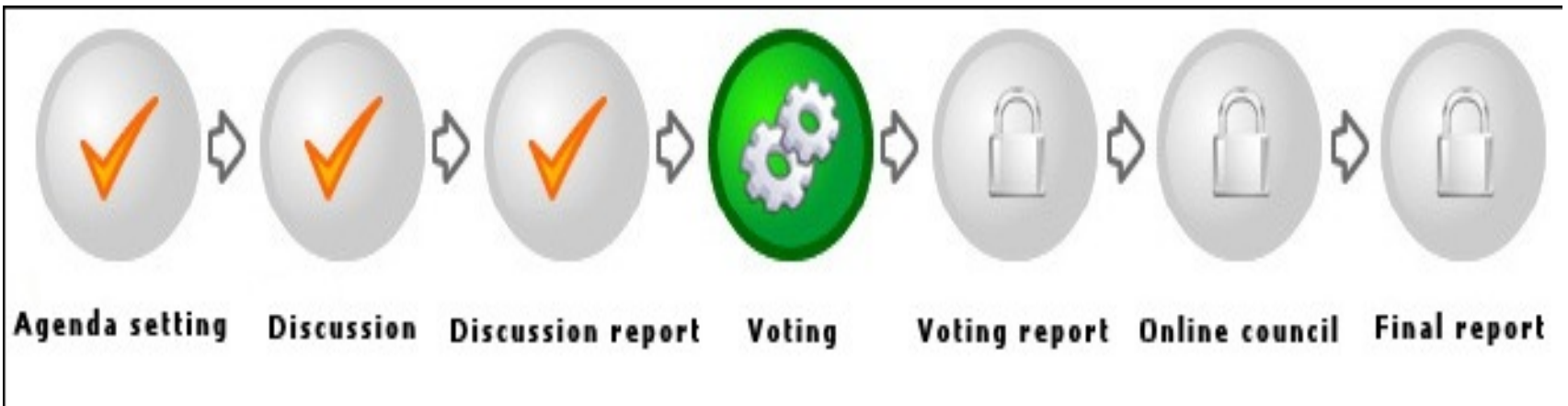
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The Goal

A methodology and platform in the middle ground between completely unstructured, general purpose approaches and highly structured, formal argumentation approaches.

- Making the entry barrier for users as low as possible:
 - Social Media platform
- Enabling compatibility with existing approaches:
 - Building on IBIS and semantic grounding/interoperability
- Enabling, encouraging and making use of user generated content and feedback in every phase of the process:
 - Designing and implementing a model that estimates argument strength and agreement level based on user feedback

2006





4th European eGovernment Awards 2009

Finalist

Category 2a: eGovernment Empowering Citizens

eDialogos
e-Trikala S.A. (Greece)


Viviane Reding
European Commissioner
Information Society and Media

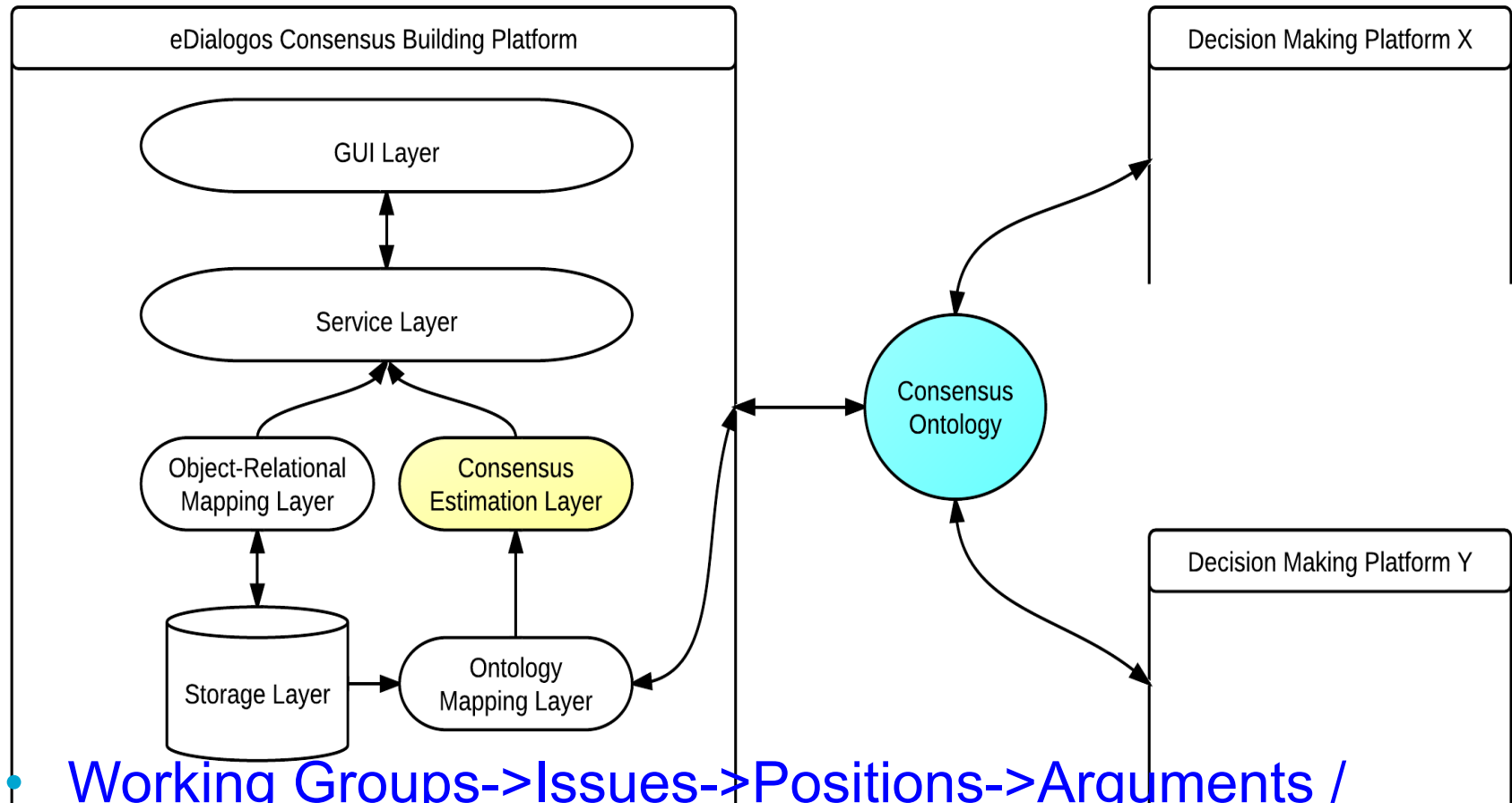


2011



2012





- Working Groups → Issues → Positions → Arguments / Notes

- Debating Period / Voting Period

[My Consensus](#)

[My Task Forces](#)

[My Topics](#)

My Consensus

[My Consensus](#) | [Classification of pediatric rhinitis](#) | [Δοκιμαστικό Topic](#)



Δοκιμαστικό Topic

Several issues still obscure the classification of rhinitis, with optimal patient management in mind. The term rhinitis is used to describe inflammatory conditions of the nasal mucosa.

Allergy is an immune-mediated hypersensitivity reaction. A major proportion of allergic diseases are mediated through IgE-dependent mechanisms, which are also the best understood. The term "allergy" therefore often tends to be used interchangeably with "IgE-mediated allergy". IgE antibodies are not necessarily associated with symptoms after exposure to the specific allergen due to local IgE production (entropy) [references] or a cell mediated mechanism, so IgE sensitization is not identical to allergic rhinitis.

[+ Add Position](#)

[Popular Positions](#)

[New Positions](#)

[Debated Positions](#)

[Show Latest](#) | [Most Active](#)



Dr Nikos Papadopoulos on September 01st, 2011 at 22:51 :

As a major component, clinical characteristics, breach, chest tightness, should be specifically.

[Classification of pediatric rhinitis](#)

[▶ Corresponding Group](#)
[▶ Corresponding Topic](#)

2
votes
required to
reach
consensus!

☆ [Vote on Position](#)

[Explore Debate \(1. Comments\)](#)

Topic Details

Starting Date: 25/9/2011

Days to Expire: 5

Questions: 2

Positions: 3

Comments: 1

Contributors: 2

Group: Classification of pediatric rhinitis

Topic Reference

▶ [a.Classification of pediatric rhinitis](#)

▶ [b.Classification of pediatric rhinitis](#)

Latest Positions

▶ Allergy is ..by [Dr Nikos Papadopoulos](#) on September 01st, 2011 at 22:51

▶ Autoinjectors should be prescribed in high-risk patients..by [Dr Graham Roberts](#) at 22:51

Information

▶ What is a position ?

▶ What is a topic ?

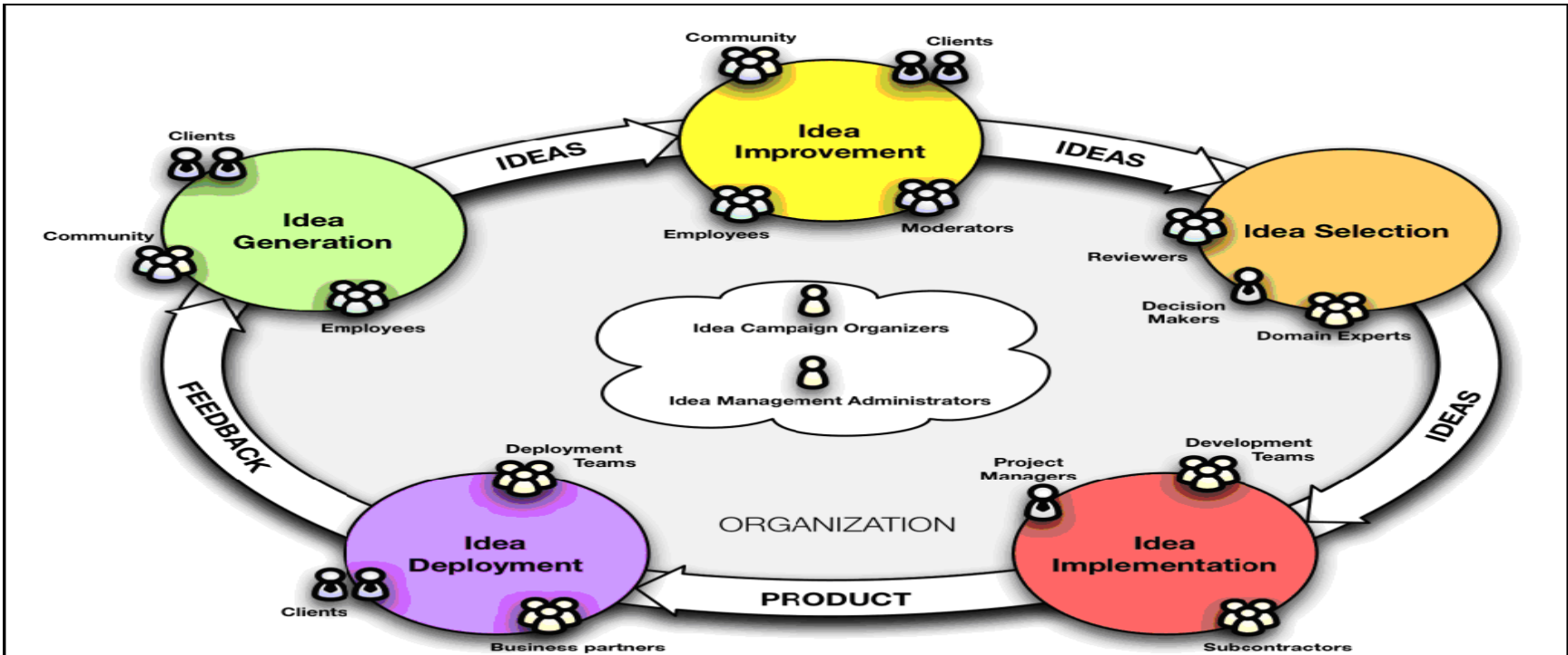
▶ What is a comment ?

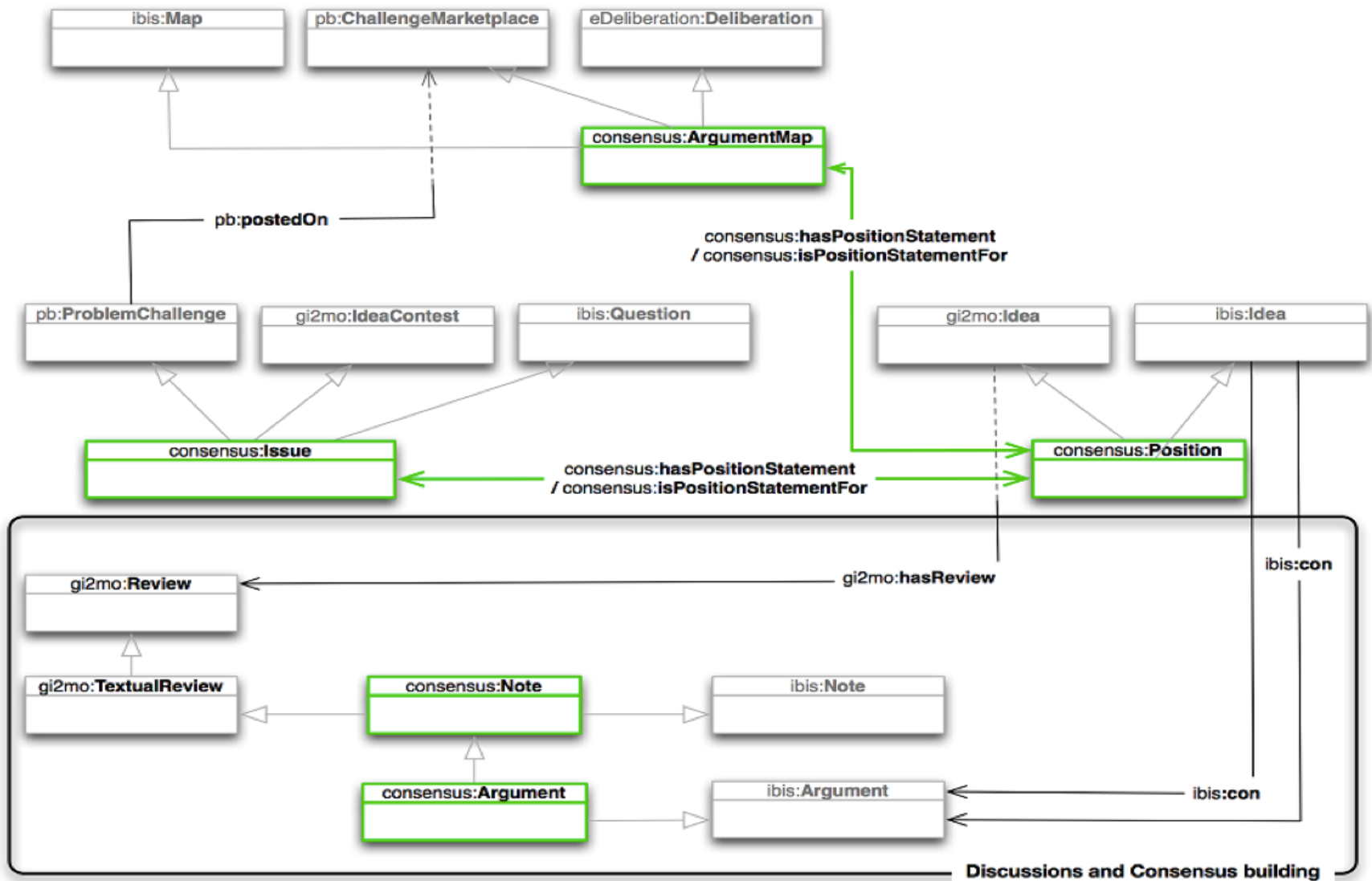
- Moderators: raise Issues, set periods
- All: add positions, notes/arguments, rate, vote

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Ontology Grounding

Ontology	Description of concepts modelled
Dcterns	Generic properties for many assets, e.g. 'title', 'description' etc.
Foaf	Relation between User Account in the deliberation platform and personal data
Scot	Tags and tagging activities
Problem Challenge Ontology	Problem concept, its changes over time and challenge marketplaces model
IBIS Ontology	Basic deliberation cycle model, relationships between ideas and associated discussions
eDeliberation Ontology	eDeliberation concept
Gi2MO Ontology	Idea, Idea Contest, concepts related to expert and collaborative review process



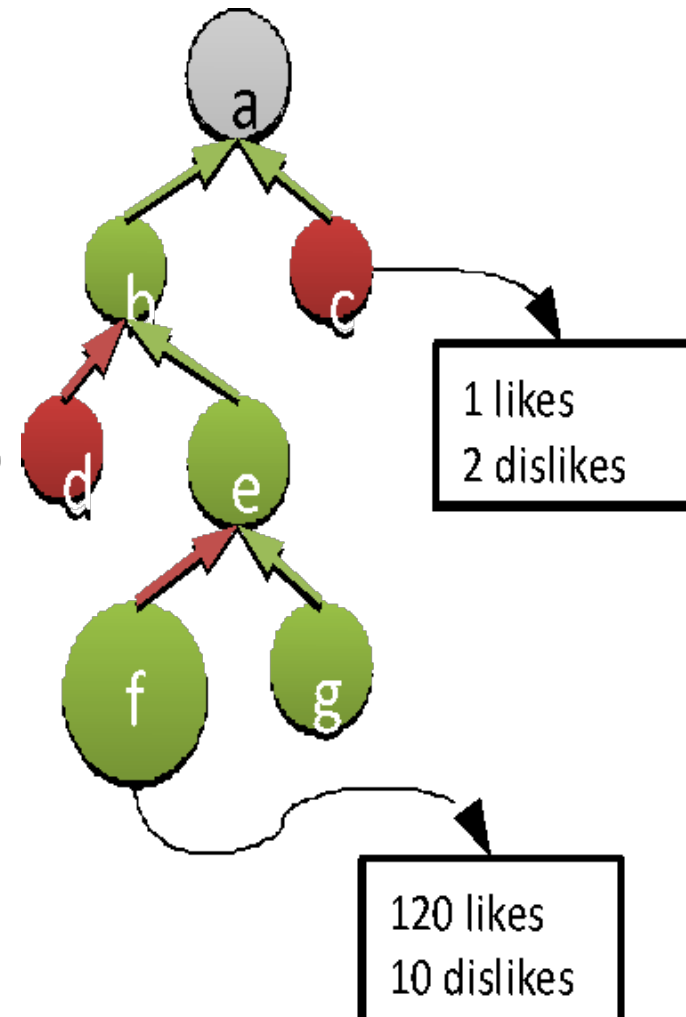


Presentation Structure

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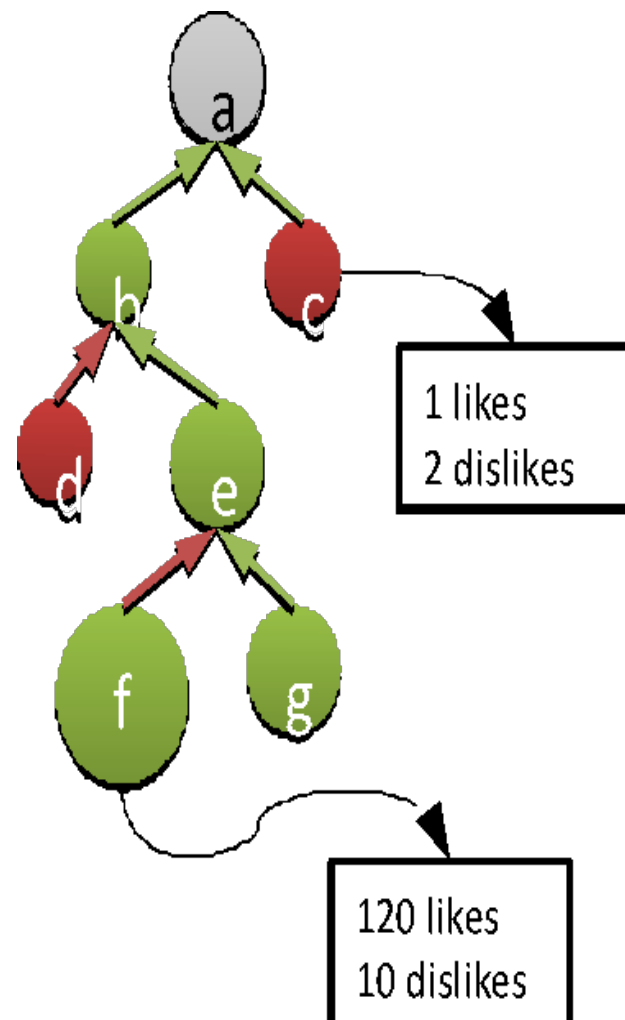
Consensus Rate Definitions

- Position **a**
- Arguments **b** (pro) and **c** (con)
- Rating arguments (like/dislike)
- Each edge is either For or Against
- Node's color & size reflects social opinion



Consensus Rate Algorithm

- Start from the leaves and measure opinion (**f** & **g**)
- Normalize over all ratings in all Positions: ...out of all the people who could have rated
- Aggregate on the parent (**e**)
 - Rate of **e** + Sum of rates of children
 - Account deviation: How much each child deviates from siblings



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- **Contributions**
 - A middle-ground approach for ICT for Governance and Policy Modelling
 - Semantic interoperability and grounding: the eDialogos Consensus ontology
 - Metric definition: the eDialogos Consensus rate
- **Outlook:** Deployment at European Academy of Allergy and Clinical Immunology (7000 users)
- **Future work**
 - Argument mapping GUI
 - Formal argumentation support
 - Open source / tool convergence
 - ...

Anadiotis et al: Facilitating Dialogue – Using Semantic Web Technology for eParticipation. ESWC 2010

Anadiotis et al: Semantics-powered Virtual Communities and Open Innovation for a Structured Deliberation Process. Workshop on Semantics for Governance and Policy Modelling, ESWC 2011