

Searching for light in the **participation forest**

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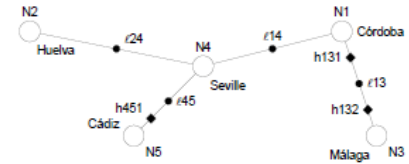
Tools for group decision making session

French, Ruggeri, Kersten, Lavín, Gómez, Alfaro, Grima, Ruggeri, Ríos,....

Agenda

- **Tools for group decision making: Current interests**
- Tools for group decision making in participation: Recent interests
- Searching for light in the participation forest
- Deciding how to decide
- Conclusions

TGDM. Current



- Adversarial risk analysis. AXA Chair
 - Supporting a Defender vs Attacker
 - Security portfolio allocation
 - Noncooperative game: Decision analysis+Principled procedures to forecast the Attacker's actions
 - N defenders vs M attackers
 - Fast computations in complex structures
 - Cybersecurity and cyberinsurance
 - Aversarial signal processing, classification, ML.
- As examples of adversarial statistical decision theory

TGDM. Current



- Social emotional robotics. Aisoy Robotics
 - Sense, Infer, 'Feel', Forecast, Decide
 - ARA for robot individual decision making
 - Impact of emotions over decisions: Affective decision making
 - Groups of robots decision making: from competition to cooperation (and backwards)
 - Applications. Education, Supporting kids with autism, Supporting the elderly,...

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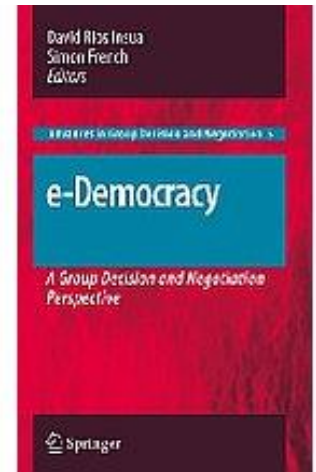
TGDM-Part. Recent

From Lea's talk yesterday

- The general population is no closer to making use of rigorous DS models in business and personal (and political) decisions than a few decades ago
- In spite of Internet, info deluge, etc...

TGDM-Part. Recent

- Incorporating DA and GDN into participation
- Negotiation, arbitration tools for participation
- From participation to e-participation
- Architectures for e-participation
- XML, BPM schemes for e-participation
- Participatory budgeting
- Flexible participatory budgets
- Designing PB processes
- Applications



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- Demand for participation not new....
- ... but increasing relevance, e.g the 'now forgotten' 15-M movement.
- Alleged advantages of participation:
 - Increase transparency and legitimacy
 - Reduce disengagement with politics
 - Increase political culture
 - Increase sense of identity and community
 - Reduce clientelism
 - Take advantage of local knowledge

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Cyberpolitics

- Tech to facilitate displaying info for political agents. Political blogs,...
- Tech to facilitate traditional processes saving implementation efforts and/or increasing exactness. E-voting,...
- Tech to transform political uses by:
 - Change process scale, facilitating new processes or increasing frequency. Personalised campaigns,...
 - Tech to change nature of democracy, strengthening democratic structures. **Decision Analysis technologies,...**

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Participatory instruments

Participatory instruments as sequences of participatory tasks

Large number of participatory instruments (>100): Referenda, citizen juries, stakeholder workshops, ...

Characterising participatory instruments from a DA/GDN perspective

Searching for light:

- Classifying them, so as to facilitate choice and better understand them
- Facilitate choice

A selection of instruments more relevant in applications, literature,

- Non repeated (name changes) citizen juries vs citizen panels
- Most usual form
- Coded, described independently by two persons, then agreed upon
- Various cluster analysis, common grounds

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A few classifications, e.g. Ideal models of Sintomer (2008):

- *Proximity democracy*
- *Participatory modernization*
- *Public/private participatory partnerships*
- *Communitary development*
- *Neocorporate*

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A few classifications, e.g. Krutli et al (2010):

- *Information*
- *Enquiry*
- *Collaboration*
- *Empowerment*

SLPF. Features

Number of participants in instrument:

Small group (up to 25 people)	1
Medium group (25 - 100 people)	2
Large group (Over 100 people)	3
Total population	4

Duration:

Days	1
Weeks	2
Months	3
Year	4

Scope:

Local/ regional	1
National	2

Implementation simplicity:

Easy	1
Medium	2
Difficult	3

Way of choosing participants:

Driven	1
Random	2
Mixed	3
Total population	4

Participant typology:

Citizens and associations	1
Combined	2
Experts	3

Type of agreement reached:

Binding	1
Advisory	2

Information flow:

Participants to Authorities	1
Both directions	2
Authorities to participants	3

Instrument Structure:

Regulated	1
Free	2
Mixed	3

Instrument Manager:

Authorities	1
Experts	2
No management	3

Feedback and final report included:

Yes	1
No	2

Funding:

Public	1
Mixed	2
Private	3

SLPF. Features

Instrument features	Citizen Juries
No. Participants	1
Choice of participants	2
Duration	1
Typology of participants	1
Type of agreement	1
Information flow	1
Structure	1
Manager	3
Feedback and report	1
Scope	1
Finance	1
Easiness	1

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		Num. Parts	Dur	Scope	Simp	Way cho	Tip. parts	Agroom	Flow	Struct	Mang	Feed	Fund
1	CJ	1	1	1	1	2	1	1	1	1	3	1	1
2	SW	1	1	1	3	1	1	1	2	3	2	1	3
3	R	3	1	3	1	4	1	1	1	3	1	2	1
4	DC	1	1	3	3	1	2	3	1	2	2	1	1
5	CC	1	1	1	3	3	3	2	1	3	2	1	1
6	DF	3	1	1	2	4	3	2	1	2	1	1	1
7	CP	3	2	1	2	3	1	2	1	2	1	1	1
8	RN	1	3	1	3	1	2	3	1	2	2	1	1
9	FC	1	1	3	1	2	1	2	1	2	2	1	1
10	PIC	1	1	3	2	2	1	2	1	1	3	1	1
11	PRA	3	1	1	3	4	3	2	1	1	2	1	1
12	A21	3	2	1	3	3	3	1	1	1	1	1	3
13	SC	1	3	1	2	1	1	2	1	2	1	1	1
14	PuC	3	1	1	1	4	1	2	1	3	1	2	1
15	NT	1	1	3	2	4	1	2	1	2	1	1	1
16	SP	3	3	1	3	4	3	2	1	1	1	1	1
17	NP	3	3	1	3	4	3	2	1	1	1	1	1
18	PB	3	2	1	3	4	1	1	1	1	1	1	1
19	OST	3	1	1	1	4	1	1	1	2	2	1	1
20	DgC	2	1	1	1	1	2	1	2	1	1	1	1
21	CA	1	1	1	2	1	3	2	1	1	3	1	3
22	PI	3	3	1	3	4	1	1	1	1	3	1	2
23	AP	1	1	1	2	1	2	2	1	1	2	1	1
24	FW	2	1	1	1	1	3	2	1	3	2	1	1
25	FSC	3	1	1	3	3	3	2	1	1	3	1	1
26	GIP	4	1	1	1	1	3	2	1	2	2	1	1
27	EM	1	4	1	2	1	1	2	1	1	2	1	1
28	ACE	3	1	1	2	3	1	2	1	2	3	2	1
29	DP	3	1	2	2	1	3	2	1	1	2	2	1

SLPF. Participatory tasks

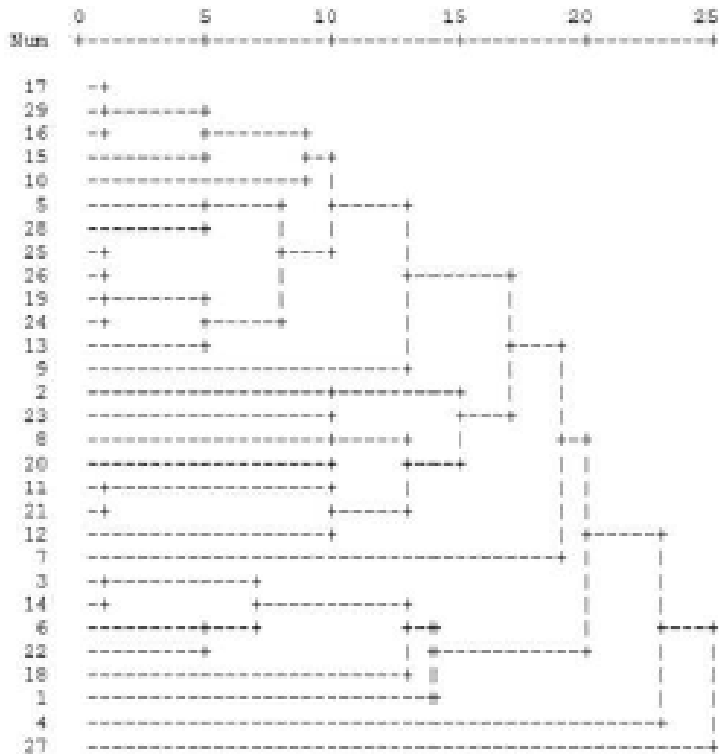
Participatory Tasks	Citizen Juries
Sampling Participants	1
Choice Representatives/Experts	1
Questionnaires/previous reports	0
Display information	1
Structure problem	0
Preference modeling	0
Debate	1
Negotiation	0
Mediation	0
Arbitration	0
Vote	1
Final documents	0
Final explanation	1

SLPF

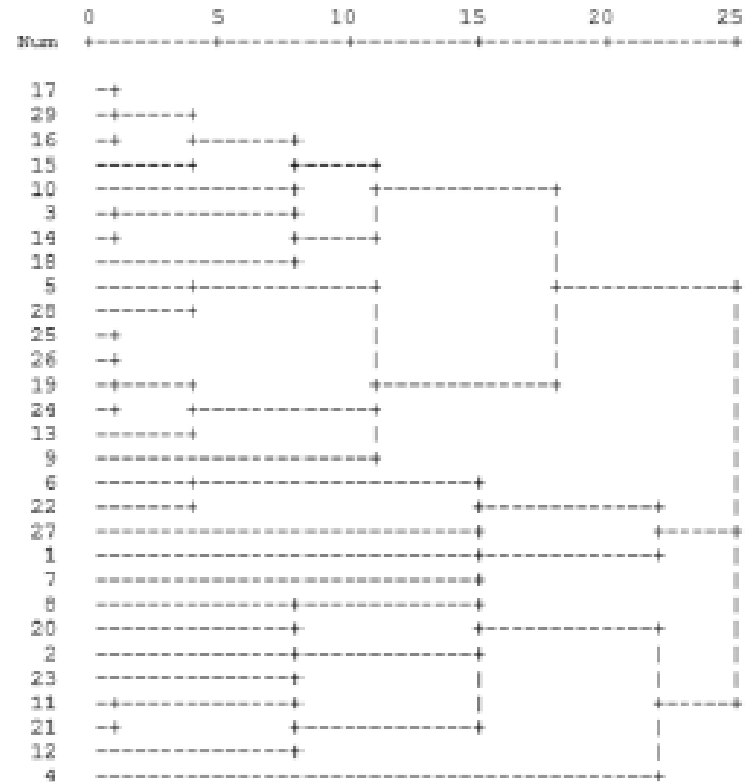
		Quest	Samp	Stake/Experts	Shar	Struct	Model	Debat	Negot	Media	Vot	Fin Rep	Expln
1	CJ	0	1	1	1	0	0	1	0	0	1	0	1
2	SW	1	1	1	1	0	0	1	0	1	0	1	0
3	R	0	0	0	1	0	0	1	0	0	1	0	1
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7	CP	1	1	0	0	0	0	1	0	0	1	1	1
8	RN	0	0	1	0	0	0	1	0	1	0	1	1
9	FG	0	1	0	1	0	0	0	0	0	0	1	0
10	PIC	0	1	0	1	0	0	1	0	0	0	1	1
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17	NP	1	0	0	1	0	0	1	0	0	0	1	1
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19	OST	0	0	0	1	0	0	1	0	0	0	1	0
20	D&C	1	0	1	0	0	0	1	0	1	0	1	0
21	CA	1	0	1	0	0	0	1	0	0	0	1	1
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23	AP	1	1	1	1	0	0	1	0	0	0	1	1
24	FW	0	0	0	1	0	0	1	0	0	0	1	0
25	FSC	0	0	0	1	0	0	1	0	0	0	1	0
26	GIF	0	0	0	1	0	0	1	0	0	0	1	0
27	EM	1	0	0	1	0	0	0	0	1	1	0	0
28	ACE	1	1	0	1	0	0	1	0	0	0	1	0
29	DP	1	0	0	1	0	0	1	0	0	0	1	1

SLPF

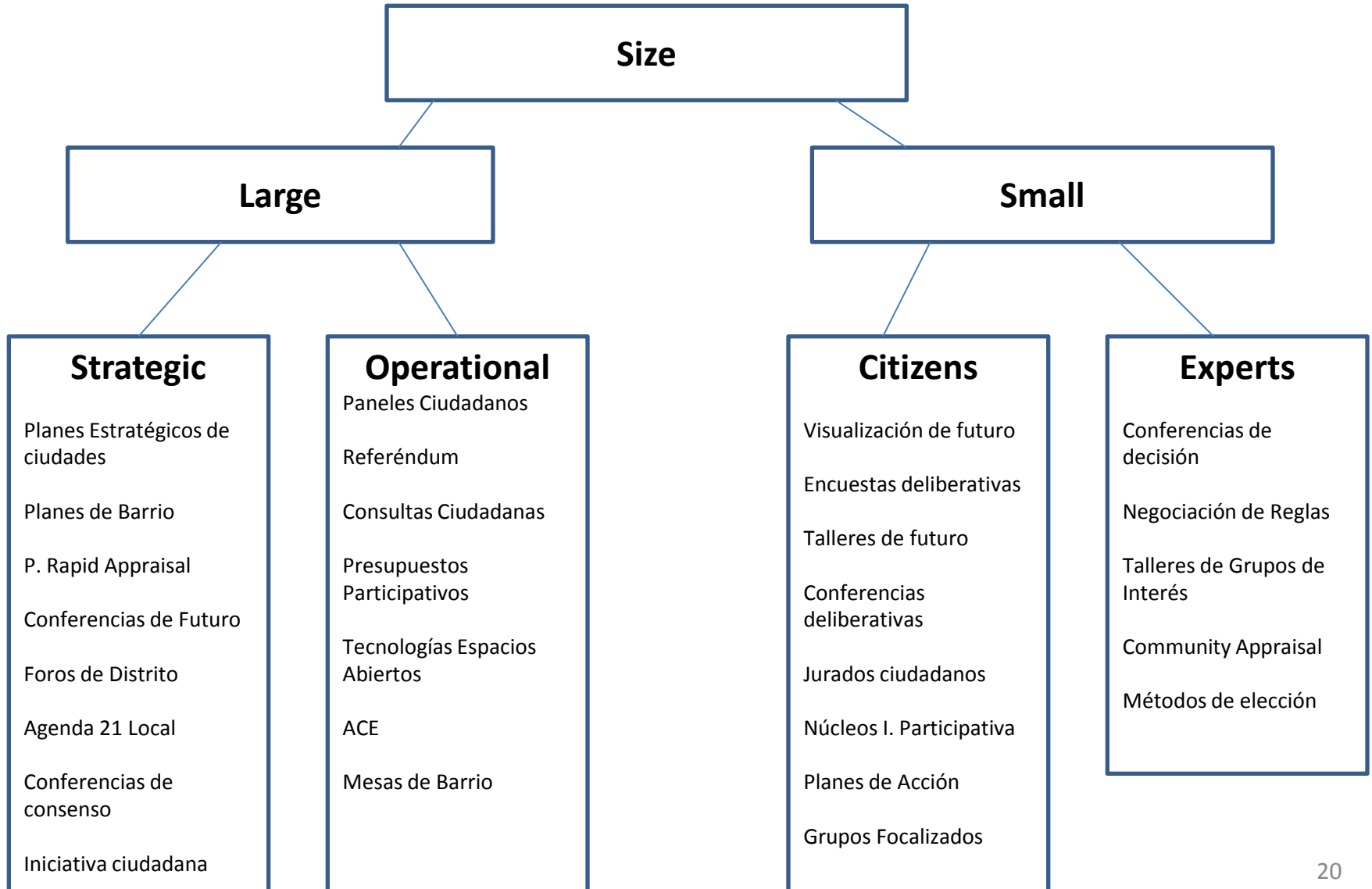
Dendrogram using Average Linkage (Between Groups)



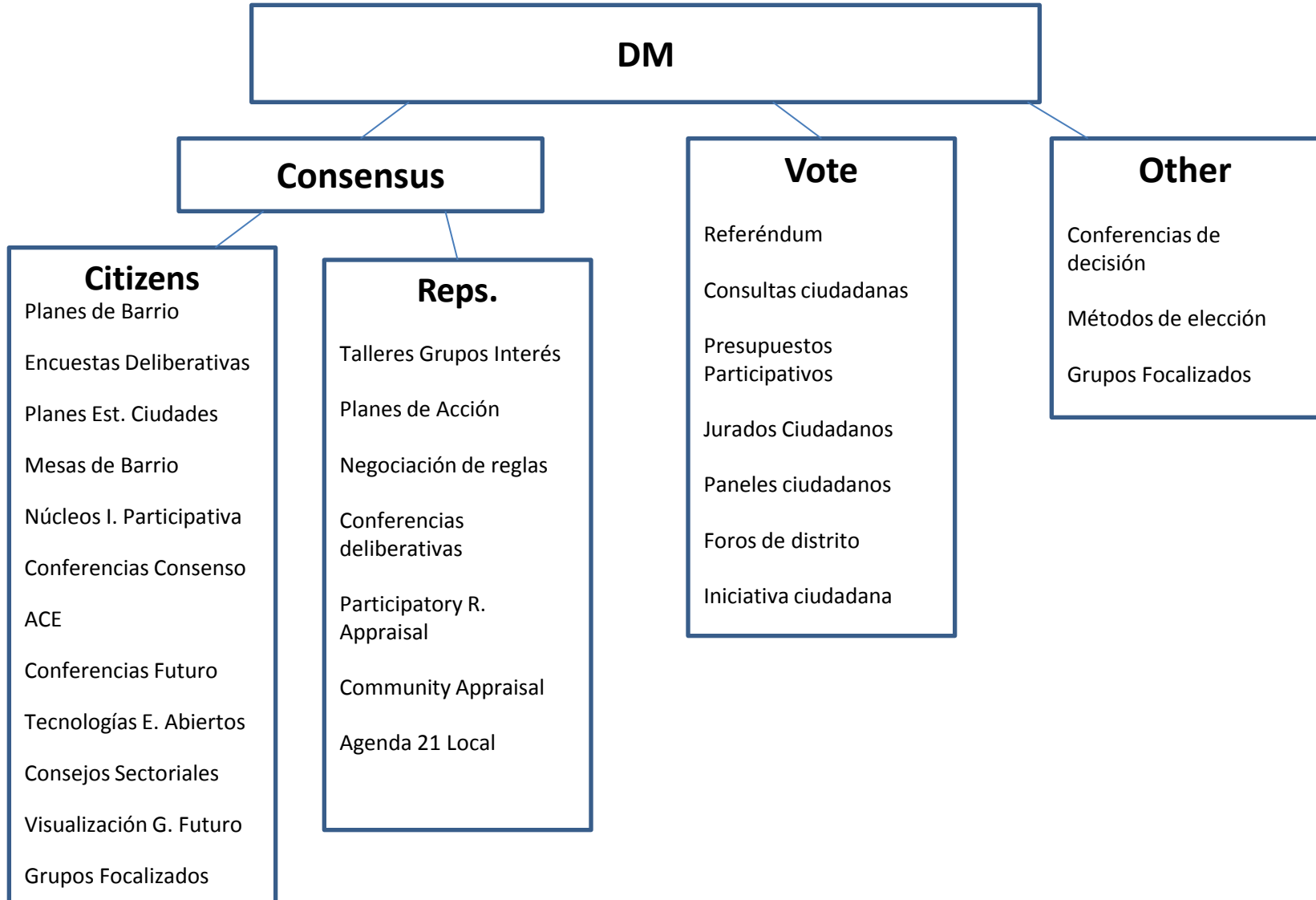
Dendrogram using Complete Linkage



SLPF. Features



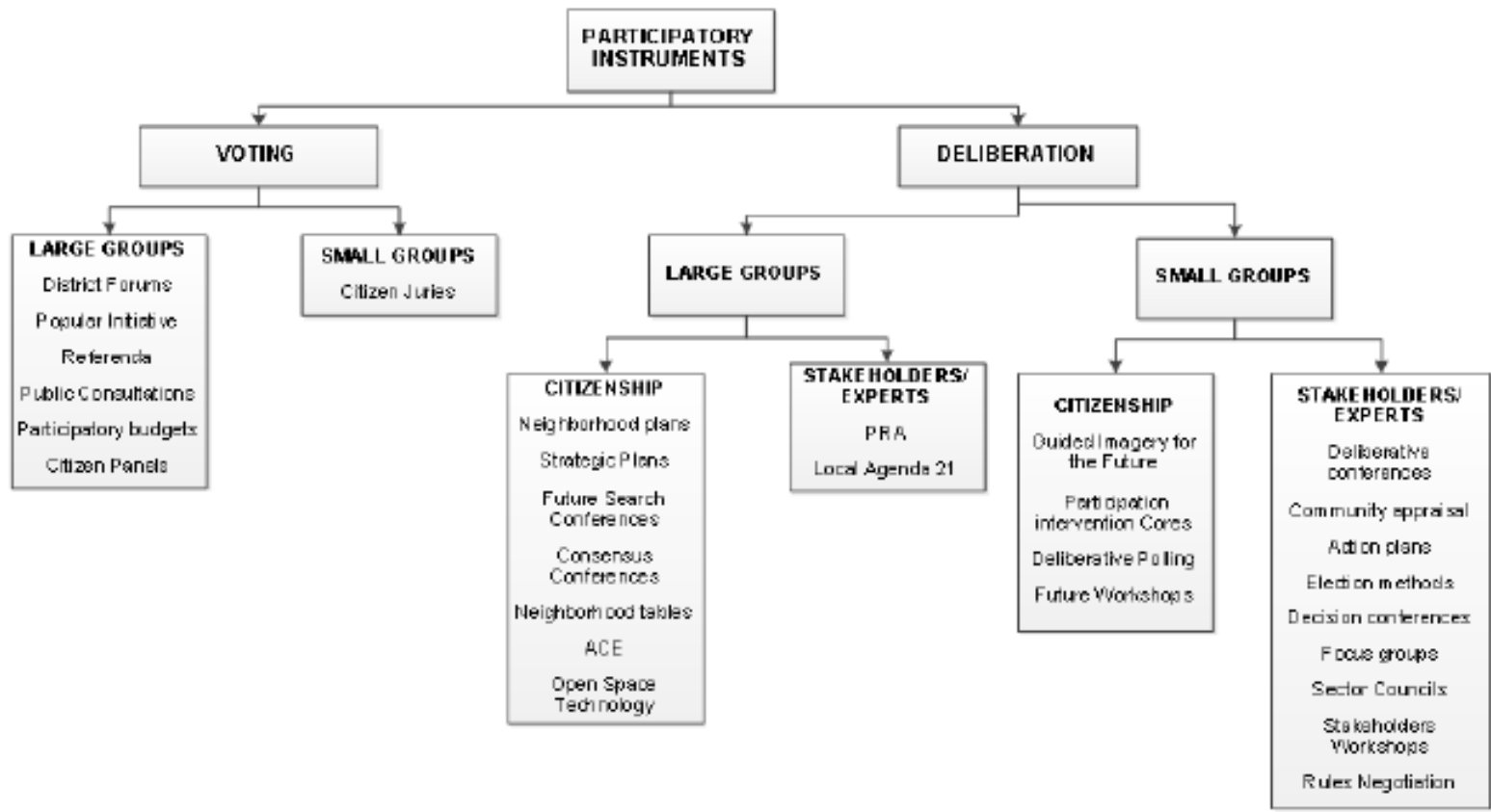
SLPF. Tasks



SLPF. Combined

	Others	Agreement by representatives	Voting	Local Development by Agreement
Large Strategic Citizenship Participation		Participatory Rapid Appraisal, Agenda 21 local	District Forums, Popular Initiative	Neighbourhood Plans, Strategic Plans Future Search Conferences, Consensus Conference
Large Operational Citizenship Participation			Referenda, Public consultations, Participatory budgets, Citizen panels	Neighbourhood Tables, ACE, Open Space Technology
Advisory Instruments	Election Methods, Decision Conferences	Stakeholders Workshops, Rule Negotiations		Sector councils
Guided Citizenship Participation	Focus groups	Deliberative Conferences, Community Appraisal, Action plans	Citizen Juries	Guided Imagery, Participation Intervention Cores, Deliberative Polling, Future workshops

SLPF. Combined



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D2D. Approach

- Many participatory instruments....
-Many more conceivable
- Problem: Choose most appropriate instrument for a given situation

Through decision analysis

- Set of alternatives: Instruments
- Constraints
- Objectives
- Value function
- Optimal instrument

D2D. Alternatives

$$A = \{ m : m = (t_1, t_2, t_3, \dots, t_n), n \in N, t_i \in T \}$$

where:

- n number of tasks instrument m
- t_i i -th task
- T set of identified tasks

Citizen Juries:

$m = \{ \text{Sampling participants, Election of representatives, Display info, Debate, Vote, Final explanation} \}$

.

D2D. Constraints

- Maximum number of tasks
- Minimum number of tasks
- Duration
- Repeating tasks
- Order in instrument
- Compatibility of tasks
- Cost
-

D2D. Feasible instruments

Tasks	Possibilities	Feasible
3	2197	18
4	28561	184
5	371293	980
6	4826809	3706
7	62748517	11154
8	815730721	27990

D2D. Objectives

For example

- Maximize info exchange
- Maximize transparency
- Maximize involvement
- Maximize representation of all citizens
- Minimize duration

D2D. Objectives

	Infor	Transp	Involvement	Represent
Very low	Muestreo, Elección de Representantes y expertos		Mediación y Arbitraje	Arbitraje, Muestreo y Elección de Representantes
Low	Votación	Arbitraje, Mediación y Votación	Cuestionarios previos, Documentos finales, Muestreo, Explicación final y Despliegue de Información	Cuestionarios previos, Despliegue de información, Mediación, Documentos finales y Explicación final
Mediium	Estructuración, Mediación y Arbitraje	Cuestionarios Previos, Muestreo, Elección de Representantes y Expertos, Modelización y Estructuración	Elección de Representantes y Expertos	Estructuración
High	Negociación, Cuestionarios previos, Explicación final, Documentos Finales	Despliegue de información, Negociación	Estructuración, Modelización y Negociación	Negociación y Modelización
Very high	Modelización, Despliegue de información, Debate	Debate, Documentos Finales y Explicación final	Debate, Votación	Votación y Debate

D2D. Value function

Given instrument $m = \{t_1, t_2, t_3, \dots, t_n\}$ evaluate through:

$$v(m) = \sum_{i=1}^n \rho_i \left[\sum_{j=1}^4 w_j v_j(t_i) \right] + w_5 v_5(d(m))$$

$\rho_i = \rho^{k-1}$ is k-th appearance of task in instrument

$$\begin{array}{ll} \max & v(m) \\ \text{s.t} & m \in A \end{array}$$

D2D. Problem

Location problem. Optimal instrument:

- Questionnaire
- Display info
- Problem structure
- Preference model
- Debate
- Negotiation
- Vote
- Explanation

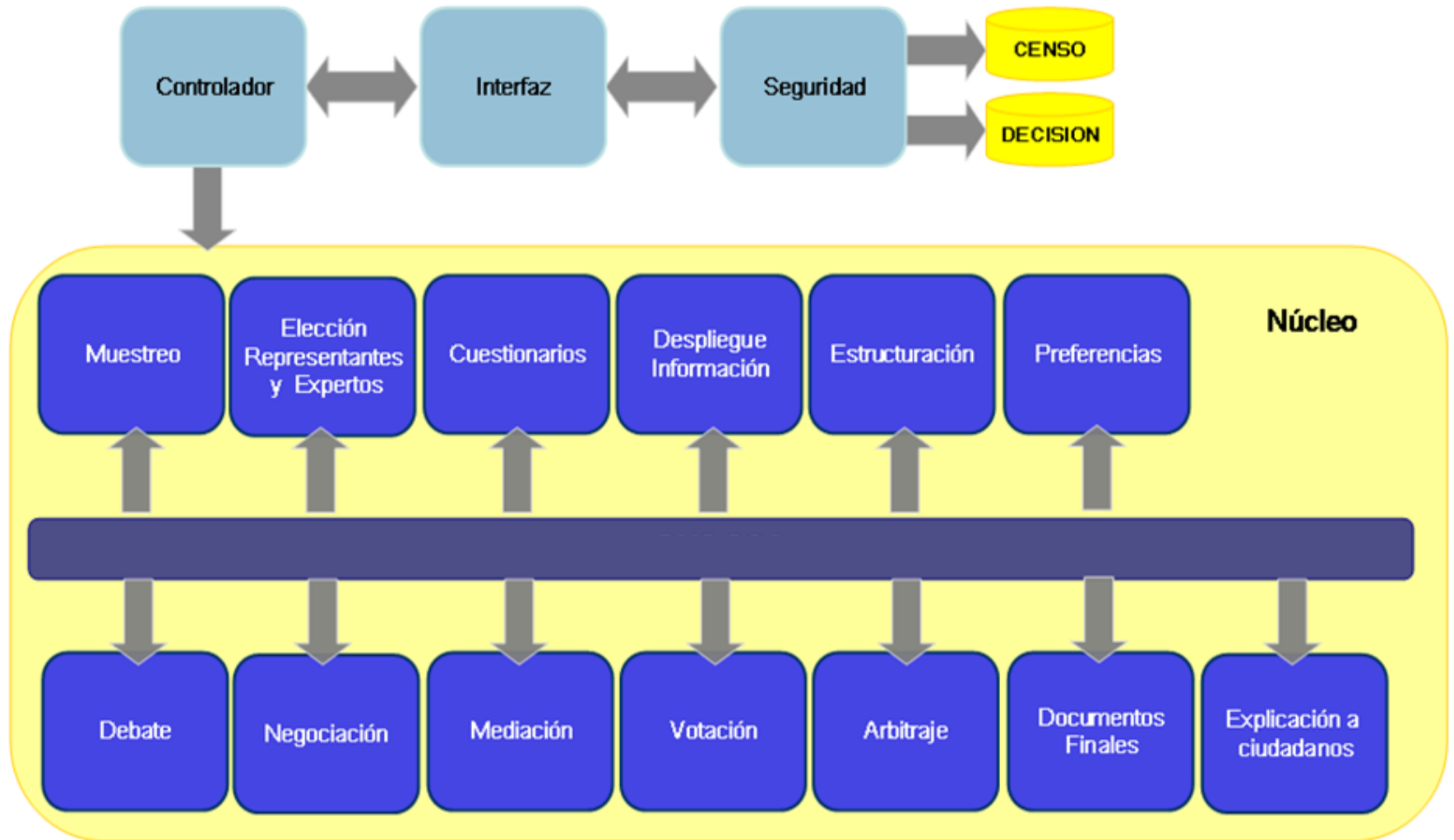
Standard
Agenda 21 Local
Stakeholder wshops
Citizen Juries

D2D

Number of tasks	Optimal instrument		Standard	
3	RVC	2	Focus group	1,6
4	RMVC	2,1	District forum	1,8
5	RMNVC	2,2	Citizen panel	1,9
6	RMFNVC	2,5	Particip budgets	2,26
7	REMFNVC	2,7	Decision conferences	2,27
8	REMFNVC	2,8		

Representatives, Vote, ...

eD2D



eD2D

- Choice of (hybrid) instrument
- Same problem but tasks may be implemented digitally or not

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CONC

- Two stories from Madrid Decides:
 - Changing the name of a Park (Philip VI) decided by about 1000 people out of 4000000.
 - Madrid PB. Proposal e-collection, Technicians filter, eVote.
- Demands on further participation... but then not so much participation.
- Despite ICTs.
- Many participatory instruments (and even more conceivable).
 - Classification to understand and guide selection
 - Optimal selection (including hybrid participatory instruments)
- Other objectives, constraints
- Security
- Architecture implemented

Merci!!!

Collabs welcome!! (...specially, in ARA and/or social robotics)

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You Tube: It's a risky life