

Participatory Budgets: Methods and Technology

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With

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Agenda

- Motivation: Participation
- Participatory Budgets
- (Qualitative) Modeling
- Technology
- Discussion

Motivation

- **Representative democracy** (Democratic deficit, Frustration with traditional politics and politicians)
- **Direct democracy** (Athenian myth)
- **Participatory democracy** (Engaging citizens in decision making to increase acceptance and efficiency)
- **Rios Insua, French (2010) Review from GDN**
- **ICTs may aid in supporting the change**

Motivation and basic concepts

Two 'competing' conceptions of public involvement in decision making

Theories of social choice

Politics as aggregation of individual preferences.
Participation through voting and referenda.

Theories of democratic discourse

Politics as transformation of preferences through (rational) discussion.
Participation through active deliberation and unrestricted discourse
leading to consensus and rational outcomes

Motivation and basic concepts

Democratic governance as a continuous cycle process through 5 stages (Dunn):

- 1. Agenda setting**, issues to be dealt with
- 2. Policy analysis**, understanding each issue
- 3. Policy decision**, choose and specify policy
- 4. Policy implementation**, put policy into practice
- 5. Monitoring**, evaluate, update,...

Motivation and basic concepts

	REP	DIR	PART
Agenda	Repr	Cit	Cit.....
Analysis	C. Ser	Cit	Cit..... DISC
Decide	Repr Refer.	Cit	Cit..... SCHOI
Implement	C.Ser	C.Ser	C.Ser
Monitor	C.Ser O. Polls	C.Ser Cit	C.Ser Cit

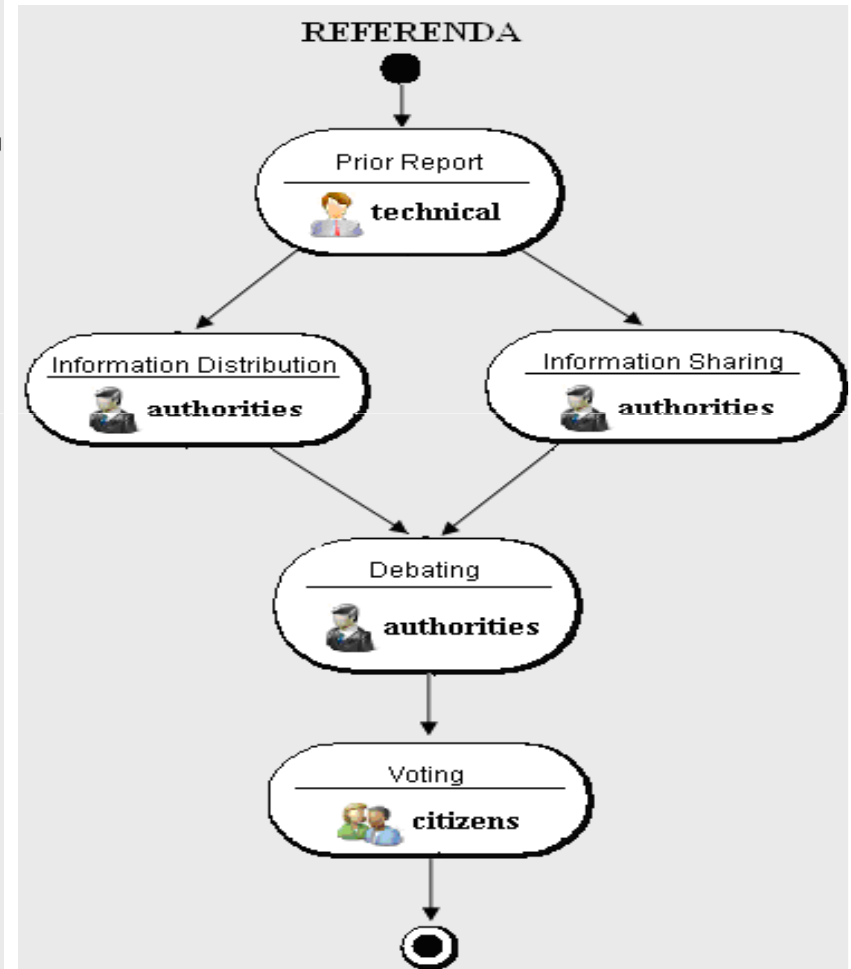
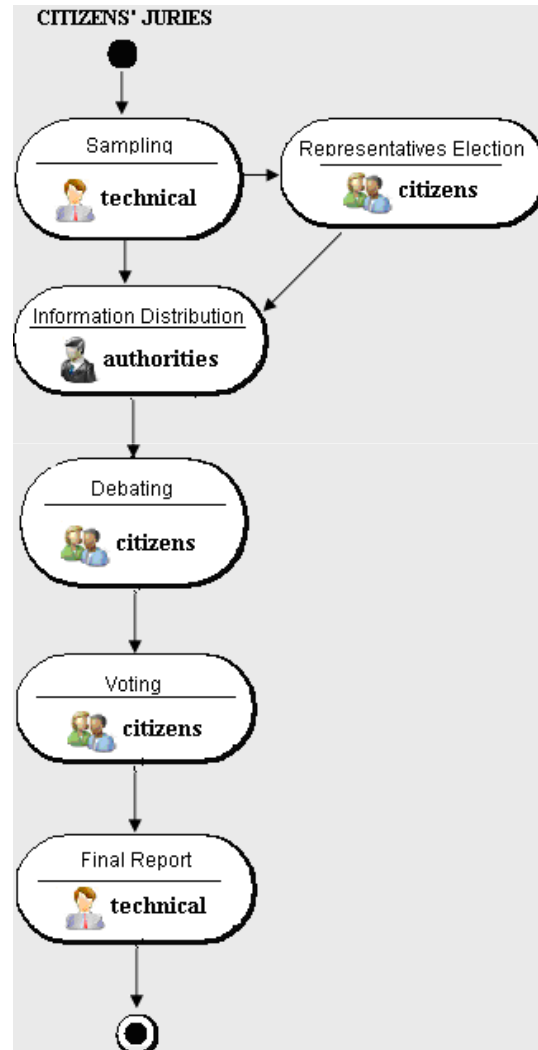
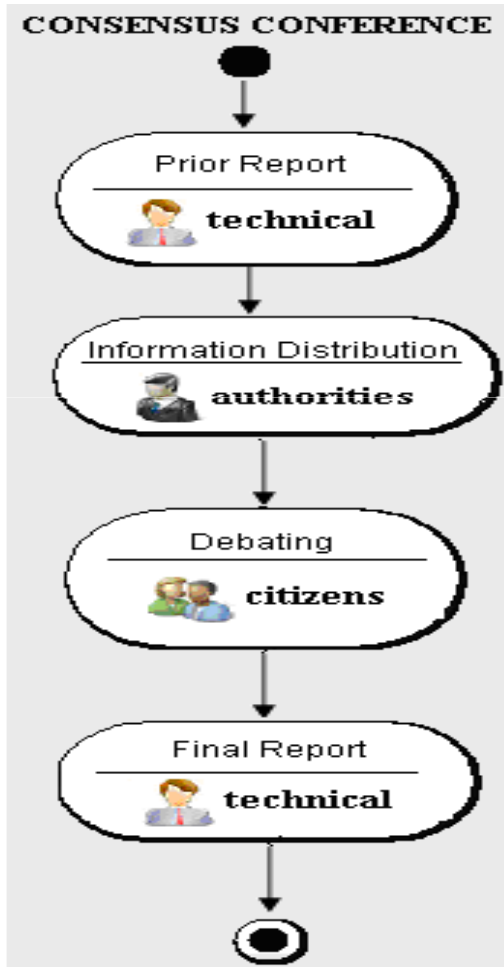
How many participants? What type of DM problems?

Some participation mechanisms

Many mechanisms and variants

- **Citizen juries** (Jury, Experts, Advisory panel)
(consensus conferences, citizen panels, deliberative focus groups,...)
- **Stakeholder workshops** (Small group of stakeholders discuss with representatives)
- **Town meetings**
- **Referenda**
- **Even, decision conferences** (Gregory et al, 2005)

Some participation mechanisms



Participatory budgets

- SPAIN: Choose council for four years; Law suggests but does not regulate participation; practice: yearly publish for fifteen days; if amended, vote
- Some municipalities are allowing their citizens to participate on deciding how to spend (part of) the investment municipal budget
- 'First' in Porto Alegre, 1992 (1989)
- More than 1200 municipalities in the world
- Seville, Buenos Aires, Chicago or Medellin
- Saint Denis, Bobigny, Morsang sur Orge,...
- Differ a lot:
 - % of budget allocated
 - Number and structure of participants
 - Number of rounds
 - Rules
 - ...
- Typical scheme: Divide town in neighborhoods (or smaller units), Neighborhood assembly choose projects and representatives (discuss and vote), General assembly choose projects

Advantages

- Legitimization
- Transparency
- Public decisions are made publicly
- Bring decisions closer to citizens
- Elimination of apathy and alienation
- Very useful local knowledge
- Educate politicians, citizens

Participatory budgets in UK....

THE GUARDIAN July 5th 2006

In a potentially dramatic extension of direct democracy, councils will have to hold ballots before deciding where money should be targeted. It would mean that, for the first time, people could direct cash to areas that

Ms Blairs said: "In these areas people will be given a direct say on their big mainstream budgets. This is not about small grant-making, such as a community chest of &#pound;5,000 to organise a tea party. This is about involving the public in some of the big choices.

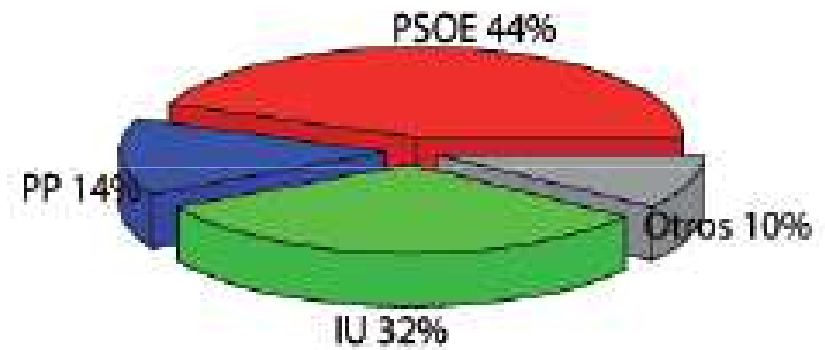
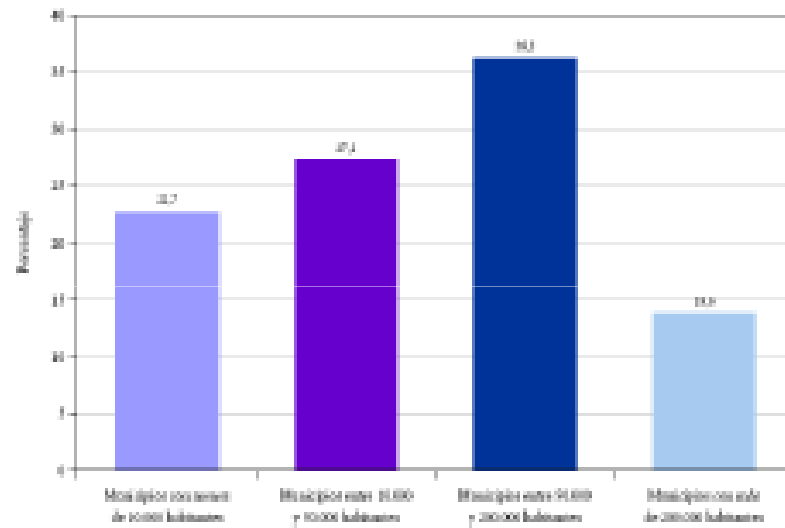
"I think the world has changed. I think voting every four years and basically handing over responsibility and power to other people and then doing nothing again for four years, I think our democracy is not like that any more."

"My overriding belief is that people are capable of making quite complex difficult decisions, setting priorities, doing trade-offs if they are given the opportunity to do it. I have never believed in a paternalistic society that tells people what is good for them. We are now at a tipping point where there is a political will right across government to devolve power.

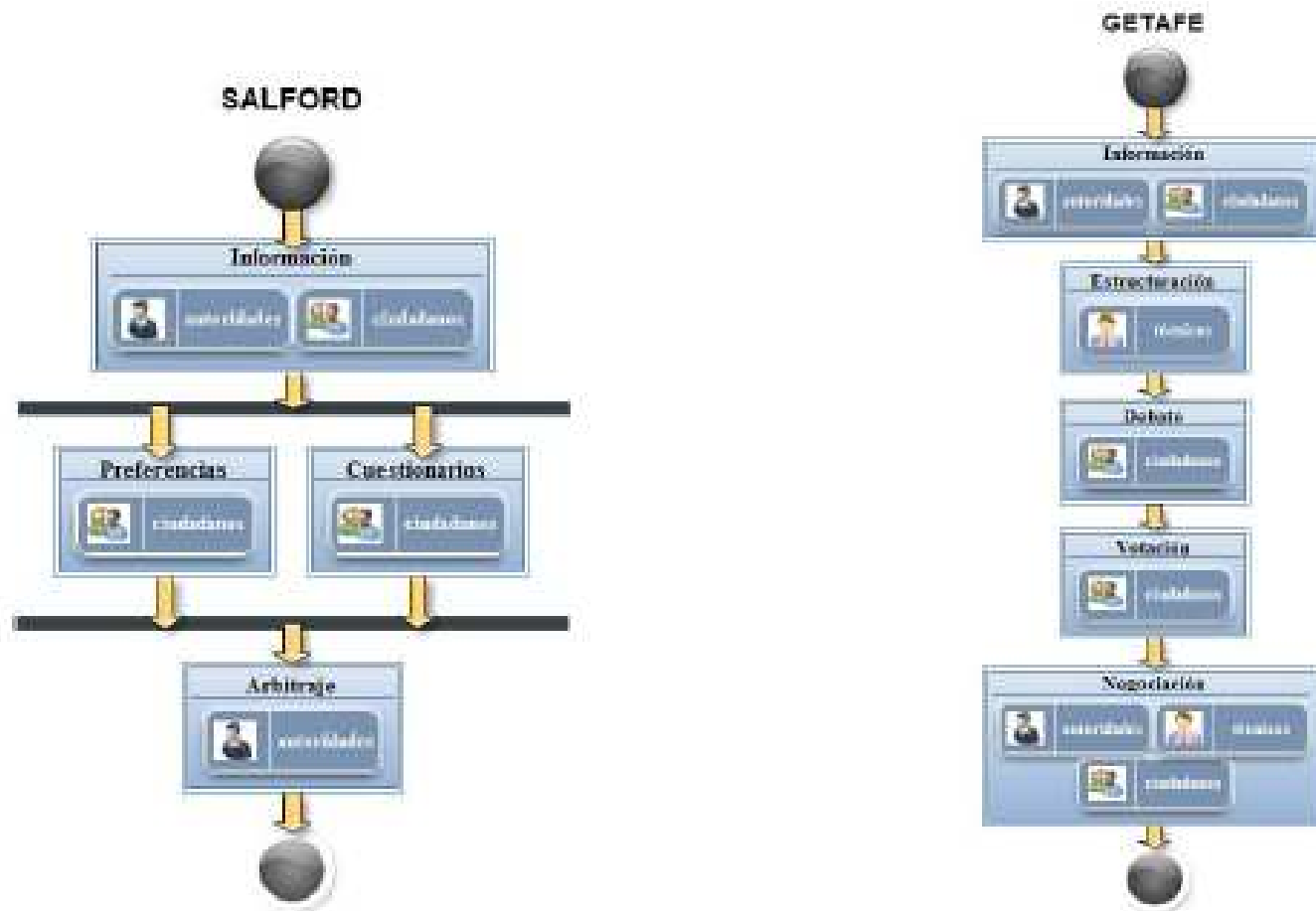
Variants

- Citizens suggest, 'Association' chooses
- Associations suggest, Townhall chooses
- Citizens suggest, Townhall chooses
- Citizens suggest and choose (an Internet neighbourhood)

PBs in Spain



Variants



Critiques

- **Little methodology applied**
- Based on discussions and physical meetings
- Preferences established through voting
- Myopia. Less skilled (comm) people in handicap
- Extra work for technicians
- Participation is delegated on representatives
- **Little IT**
- Little participation actually...

(Qualitative) Modeling of PB's

The screenshot shows a Mozilla Firefox browser window displaying Amazon.com search results for "john allen paulos: Books". The page lists several books by John Allen Paulos, including "A Mathematician Plays The Stock Market", "A Mathematician Reads the Newspaper", "Beyond Numeracy", and "Once Upon A Number: The Hidden Mathematical Logic Of Stories". Each listing includes a book cover, title, author, format, price, shipping information, and customer reviews. The left sidebar contains navigation options like "Format", "Binding", "Shipping Option", and "Promotion". The Windows taskbar at the bottom shows the Start button, taskbar, and system tray with the time 11:28.

Amazon.com: john allen paulos: Books - Mozilla Firefox

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http://www.amazon.com/s/ref=nb_ss_gw?url=search-alias%3Dstripbooks&field-keywords=john+allen+paulos&x=21&y=19

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Shipping Option (What's this?)
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Prime Eligible
Free Super Saver Shipping

Promotion
Any Feature or Promotion
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Avg. Customer Review
Any Avg. Customer Review
★★★★☆ & Up (250)
★★★★☆ & Up (302)
★★★★☆ & Up (309)
★★★★☆ & Up (315)

Listmania!

Terminado

Inicio Bandeja de entrada -... ortega Microsoft PowerPoint ... Amazon.com: john all...

11:28

Get it by **Thursday, Jul 2** if you order in the next **14 hours** and choose one-day shipping.
Eligible for **FREE** Super Saver Shipping.
★★★★☆ (46)
Other Editions: Hardcover, Audio Download, Audio CD, Unknown Binding

3. **A Mathematician Plays The Stock Market** by John Allen Paulos (**Paperback** - May 4, 2004)
Buy new: ~~\$14.95~~ **\$12.71** 57 Used & new from \$2.74
Get it by **Thursday, Jul 2** if you order in the next **13 hours** and choose one-day shipping.
Eligible for **FREE** Super Saver Shipping.
★★★★☆ (84)
Other Editions: Kindle Edition, Paperback, Hardcover
Excerpt - page 2: "... 2 **John Allen Paulos** successful devourer of high-tech telecommunications compa- nies. Bernie Ebbers, the ..."
Surprise me! See a random page in this book.

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Buy new: ~~\$13.95~~ **\$9.86** 117 Used & new from \$1.50
Get it by **Thursday, Jul 2** if you order in the next **14 hours** and choose one-day shipping.
Eligible for **FREE** Super Saver Shipping.
★★★★☆ (34)
Other Editions: Hardcover, Paperback, Library Binding, Turtleback
Excerpt - Back Matter: "... **JOHN ALLEN PAULOS** is Professor of Mathematics at Temple University. He is the ..."
Surprise me! See a random page in this book.

5. **Beyond Numeracy** by John Allen Paulos (**Paperback** - April 7, 1992)
Buy new: ~~\$14.95~~ **\$9.50** 90 Used & new from \$1.62
Get it by **Thursday, Jul 2** if you order in the next **14 hours** and choose one-day shipping.
Eligible for **FREE** Super Saver Shipping.
★★★★☆ (11)
Other Editions: Hardcover, Paperback
Excerpt - Back Matter: "... A L S O B Y **JOHN ALLEN PAULO** S INNUMERACY Through witty, amusing, illustrative examples, ..."
Surprise me! See a random page in this book.

6. **Once Upon A Number: The Hidden Mathematical Logic Of Stories** by John Allen Paulos (**Paperback** - Oct 7, 1999)
Buy new: ~~\$15.95~~ **\$14.35** 62 Used & new from \$0.19

A Mathematician looks at participatory budgets!!!

(Qualitative) Modeling of PB's

- A group of persons (participants) aims at choosing a subset of projects from a set
- Each project has a cost
- Chosen projects should satisfy some constraints
 - Cost smaller than available budget
 - At most 3 of these projects...
 - Implement this, only if this one is implemented
 - Two of these projects in this place...
 -
- Each project performs: % affected population, jobs created, maintenance costs, durability, cost, (votes won???), ...

(Qualitative) Modeling of PBs

- Each participant evaluates each project (imp)
- Each participant evaluates each feasible subset of projects (imp)
- Each participant finds optimal subset
- Optimal subsets will differ
- A conflict arises
- The conflict needs to be overcome...

(Qualitative) Modeling of PBs

- We must solve the conflict
 - Discussion, flea market
 - Arbitration, many ways
 - Voting, many ways
 - Negotiation, several ways
 - Decision conferences
- Or a combination
 - Discussion, Voting
 - Discussion, if no agreement voting
 - Negotiation, if no agreement voting
 -
- Not all forms lead to a socially acceptable solution

General Scheme

1. *Preparation.* C. Servants elaborate list of projects, criteria and evaluations. Publish
2. *Discussion and Consolidation.* Citizens discuss. C. Servants consolidate.
3. *Preference communication and individual exploration.* Extract (privately) value functions. Determine optimal individual budgets. If disagreement, resolve conflict.
4. *Conflict resolution.* Negotiate. Vote if no agreement.
5. *Post-settlement stage.* If outcome dominated, improve through negotiation.

Scheme 0. Current practice

1. .
2. *Discussion and Consolidation.* Citizens discuss physically.
3. .
4. *Conflict resolution.* Vote physically.
5. .

Scheme 1.0

1. *Preparation.* C. Servants elaborate list of projects, criteria and evaluations. Publish on web.
2. *Discussion and Consolidation.* Citizens discuss on forum.
3. *Preference communication and individual exploration.* Extract value functions. Determine optimal individual budgets. Inet.
4. *Conflict resolution.* Nego by BIM. Vote if no agreement. Inet.
5. *Post-settlement stage.* If voted outcome is dominated, improve through BIM. Inet.

Scheme 1.1

1. *Preparation.* C. Servants elaborate list of projects, criteria and evaluations. Publish on web.
2. *Discussion and Consolidation.* Citizens discuss on forum.
3. *Preference communication and individual exploration.* Extract value functions. Determine optimal individual budgets. Inet.
4. *Conflict resolution.* Nego by posting. Vote if no agreement. Inet.
5. *Post-settlement stage.* If voted outcome is dominated, improve through BIM. Inet.

Scheme 2

1. *Preparation.* C. Servants elaborate list of projects, criteria and evaluations. Publish
2. *Discussion and Consolidation.* Citizens discuss on forum.
3. *Preference communication and individual exploration.* Goal setting. Inet.
4. *Conflict resolution.* Arbitration. Inet.
5. .



Activities in PBs

1. Sampling
2. Questionnaires
3. Info distribution
4. Info exchange
5. *Problem structuring*
6. Alternative generation
7. Preference modeling
8. Individual problem exploration
9. *Optimization*
10. *Debate.*
11. *Negotiation*
12. *Arbitration.*
13. *Voting*
14. *Preparing documents*
15. *Explanation*

Activities in PBs

1. All may be done 'more efficiently' supported by ICTs
2. To some extent, PBs advantages are reinforced through ICTs
3. Many variants for PBs
4. Times of Web 2.0, social networks,...

Support functions in web based participatory democracy

- **Information, access and presentation**

Public databases

Usability to mitigate digital divide

- **Communication**

Same time, same place vs Any time, any place

Asynchronous CMC vs F2F

- **Support for individuals**

Aiding an individual in finding out what likes, wants, aspires, considers fair

Gather information about issue, scenarios, consequences,

Explore actions

Gather information about others

Identify conflict

Software agents

Support functions in participatory democracy

- **Support for interest groups, coalitions**

Find others with similar interests

Coalition problem oriented vs voting a party that, most unlikely, will support your interests through the whole governing period

- **Facilitation, coordination and mediation**

Potentially large heterogeneous groups

Facilitation to be 'reinvented'

- **Trust, confidence, confidentiality**

FOTID, ICT Security

Open source

Mistrust of citizens, Mistrust of professional politicians

Some existing ICT based tools

- **Online deliberation**

Connect citizens, support communication.

CSCW: agenda setting, brainstorming, voting,...

Facilitation of small groups

- **Argumentation support**

Support for argumentation in deliberative discussion forum

An inference mechanism introduced to promote conclusions and consensus

- **Online GIS**

Spatial decisions.

Some existing ICT based tools

- **Electronic petition systems**

Raise issues and debate through the web. Informing and endorsing a petition.

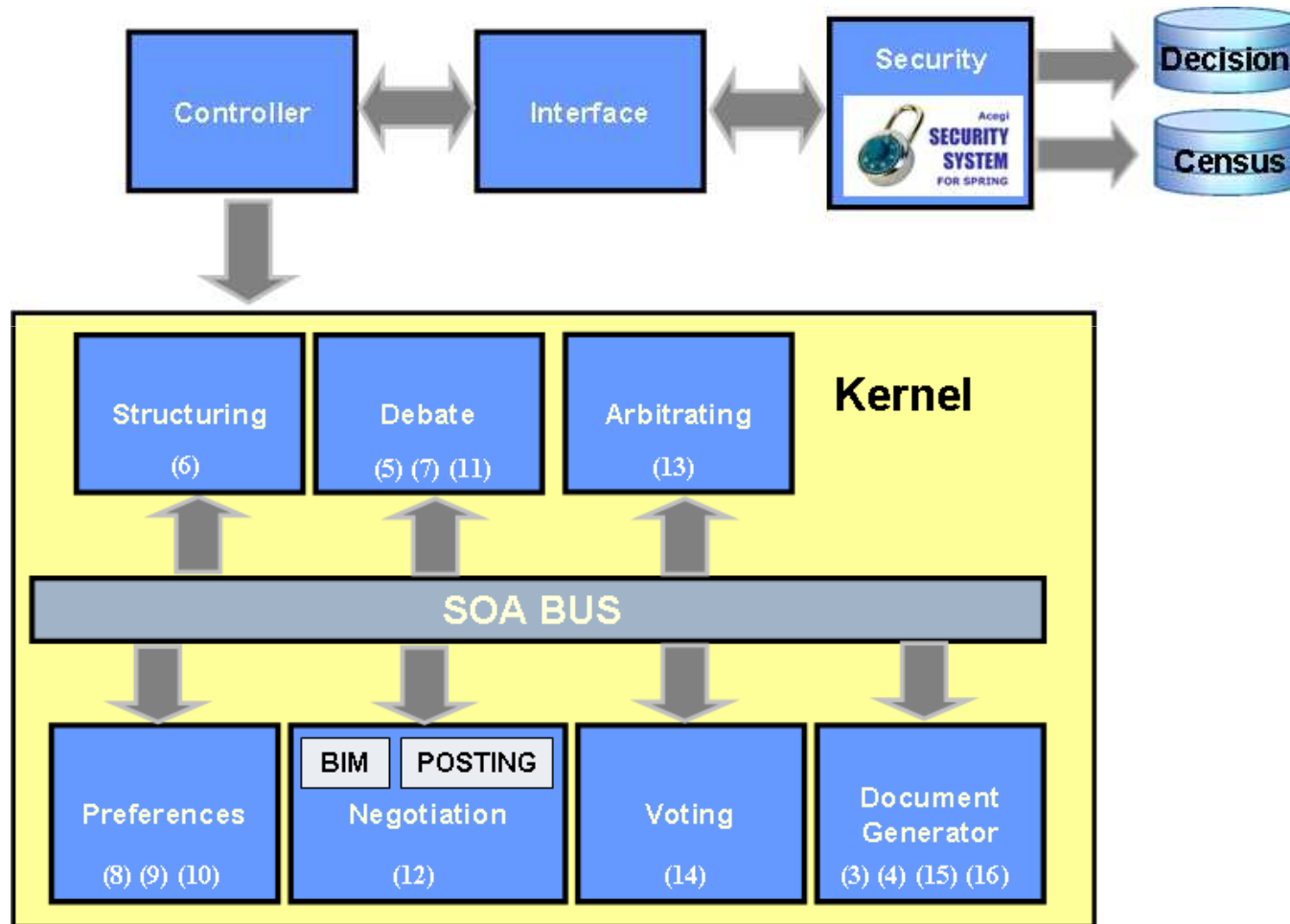
- **Software agents**

Delegate your decisions to a program which knows/learns your preferences and decision making style

- **Electronic voting systems**

- **Web based GDSS tools**

Architecture for PB support



PD DSS framework: Example PARBUD

PARBUD as neutral external helper to support participatory budget formation.

- Databases
 - Census. Editable list of users, permissions,...
 - Log. NOT (Prototype)
 - DM database. Several PB processes, status
- Subsystems
 - Interface.
 - Main control. Simple. Regulates time windows for various phases and sends messages to authorised participants
 - Security Manager. Prototype
 - Kernel. 'Unnecessary' Fixed process

PD DSS framework: Example PARBUD

- Participatory Process Control. Fixed: Publish, Discuss and consolidate, model ind preferences, nego by posting, vote if disagree, postsettle by nego-BIM
- Problem Structuring. Simple editor: list of alternatives, constraints, list of criteria,...
- Preference Modelling Module. Value function builder (+optimiser)
- Debate Manager. Forum to discuss seed document.
- Voting Manager. Manages an approval voting session.
- Negotiation Manager. Posting (1). BIM (2).
- Arbitration Manager. NO.
- Information Resource Manager. Not really
- Agent Repository. NO

Definición del problema
Criterios
Proyectos
Tabla Proyectos (Criterios)
Restricciones
Preferencias
Cambiar preferencias
Negociación
Hacer oferta
Leer oferta

Construir oferta:

Problema: Presupuesto GECD 2006

Presupuesto: 10000 €

Proyectos DENTRO de la Oferta				
Proyecto	Descripción	Coste	Valoración	
ILOC-CPLEX	Optimización	2000 €	70,32	Excluir
Cañon	Docencia	600 €	39,43	Excluir
Netica	Netica	400 €	28,5	Excluir
DreamWeaver	Prog. Web	1500 €	26,8	Excluir
ED-Taylor	Simulación	3000 €	30,75	Excluir

Coste total de los proyectos incluidos: 7500 €

Puntuación total de la oferta presupuestaria: 195,8

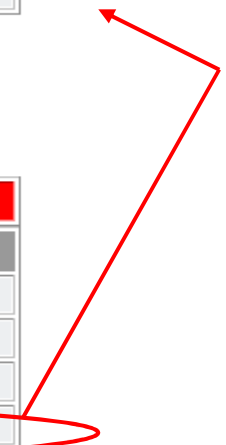
Proyectos FUERA de la Oferta				
Proyecto	Descripción	Coste	Valoración	
Invitar G. Kersten	Negociaciones	2000 €	62,62	Incluir
Invitar S. Wilson	Markov R.F.	900 €	52,57	Incluir
Invitar P. Toth	Opt. Combinatoria	1200 €	45,56	Incluir
Extend	Simulación	2000 €	31,62	Incluir
Portatil	Docencia	1700 €	30,22	Incluir
Compra Multimedia	Lab PFC	500 €	25,11	Incluir
DPL	Decision Tree Solver	1000 €	21,98	Incluir
Invitar H.A. Taha	O. R.	2200 €	21,69	Incluir
Data Mining Software	Data Mining	2000 €	17,22	Incluir
Ampliar Lab PFC	Lab PFC	5600 €	16,2	Incluir

Enviar oferta

Enviar oferta + mensaje

Volver al menú principal

MAKING OFFERS



Reading offers

Sistema de ayuda a la formación de presupuestos participativos									
Definición del problema	OFERTA	VALOR - UTILIDAD	FECHA - HORA	Votos a FAVOR	Votos en CONTRA	NS/NC	% (30)	Total de mensajes	Mensajes NO LEIDOS
Criterios									
Proyectos									
Tabla Proyectos (Criterios)									
Restricciones									
Preferencias									
Cambiar preferencias									
Negociación									
Hacer oferta									
Leer oferta									
	75	186,92	6/4/2006 11:19:00	1	0	5	16,67 %	0	0
	62	168,16	29/3/2006 13:38:00	0	0	6	0 %	7	0
	43	161,66	28/3/2006 12:22:43	1	0	5	16,67 %	0	0
	42	142,72	28/3/2006 12:22:26	0	1	5	-16,67 %	0	0
	41	138,24	28/3/2006 12:22:17	1	0	5	16,67 %	0	0
	68	101,27	31/3/2006 18:59:40	1	0	5	16,67 %	0	0
	74	71,04	31/3/2006 19:38:23	1	1	4	0 %	0	0
	63	30,22	29/3/2006 13:39:59	1	0	5	16,67 %	0	0
	76	25,11	6/4/2006 13:14:21	1	0	5	16,67 %	0	0
	78	16,2	6/4/2006 16:05:31	2	0	4	33,33 %	0	0

Leer oferta

Volver al menú principal

TED - Towards Electronic Democracy

Internet Based Complex Decision Support



Sistema de ayuda a la formación de presupuestos participativos

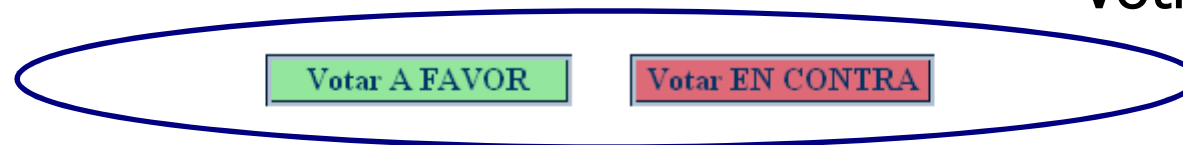
Proyecto	Descripción	Coste	Utilidad - Valor
ILOC-CPLEX	Optimización	2000 €	70,32
Cañon	Docencia	600 €	39,43
Netica	Netica	400 €	28,5

Coste total de los proyectos incluidos: 3000 €

Puntuación total de la oferta presupuestaria: 138,24

Votos A FAVOR	Votos EN CONTRA	NS/NC
1	0	5

Voting offers



Foro de la oferta número 76

NO EXISTEN MENSAJES ASOCIADOS A ESTA OFERTA

Insertar un nuevo mensaje para esta oferta.



Volver a la lista de ofertas

TED - Towards Electronic Democracy

Internet Based Complex Decision Support



Sistema de ayuda a la formación de presupuestos participativos

Proyecto	Descripción	Coste	Utilidad - Valor
ILOC-CPLEX	Optimización	2000 €	70,32
Cañon	Docencia	600 €	39,43
Netica	Netica	400 €	28,5

Coste total de los proyectos incluidos: **3000 €**

Puntuación total de la oferta presupuestaria: **138,24**

Votos A FAVOR	Votos EN CONTRA	NS/NC
1	1	4

Discussing offers

**Eliminar
mi voto EN CONTRA**

Foro de la oferta número 76

Fecha-Hora	Asunto	Mensajes nuevos	
11/4/2006 18:22:09	No me gusta la oferta 76	0	Leer

Insertar un nuevo mensaje para esta oferta

Volver a la lista de ofertas

BIM negotiation

TED - Towards Electronic Democracy
Internet Based Complex Decision Support

Sistema de ayuda a la formación de presupuestos participativos

Definición del problema
Criterios
Proyectos
Tabla Proyectos (Criterios)
Restricciones

Preferencias
Ver valoración de proyectos

Negociación
Ver última oferta recibida

Última oferta para el **Presupuesto GECD** enviada el **25/11/2005**

Budget offer

Nombre	Coste	Utilidad
Invitar G. Kersten	2.000	70,95
Portátil	1.700	71,19
DreamWeaver	1.500	71,82
Invitar P. Toth	1.200	72,31
DPL	1.000	65,34
Invitar S. Wilson	900	77,88
ILOG-CPLEX	700	74,61
Cañón	600	87,87
Netica	400	71,10

El coste total de dicha oferta es **10.000**

Utilidad total de esta oferta: **663.07** Nivel de aspiración: **664.48**

¿Desea aceptar esta oferta? **Do you accept or reject the offer?**
 Sí No
Enviar

Fecha límite para aceptar/rechazar esta oferta: **20/01/2006 21:00:00**

Volver al menú principal

Offer evaluation

Decision support

Also possible by e-mail

Examples

- Department budget
- MyUniversity 100+ experiences
- Elections at Academy
- Town budget at Ambato
- Risk sharing among stakeholders in aviation

Problems

- Digital divide
- Security
- Responsibility dilution
- Support from professional politicians
- Kidnapping the process
- Time and will to participate?
- Wisdom of crowds?

Additional methodological issues

- What process should we use?
- What if there is uncertainty (eg in budget available)?

Conclusions

PBs increasingly used

Very good example of participatory democracy

Opportunities for methodology and technology development

Extensions to other participatory instruments

Merci!!

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