GROUPWARE FOR URBAN PLANNING AND COMPUTER-BASED PUBLIC PARTICIPATION

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Groupware for Urban Planning

- **I - What is Groupware?**
- **II - Is Groupware Useful for Urban Planning?**
- **III - Public Participation**
- **IV - Conclusions**

I - What is groupware?

- 1.1. Definitions
- 1.2. Participatory design
- 1.3. Benefits and limitations
- 1.4. Cooperative information systems

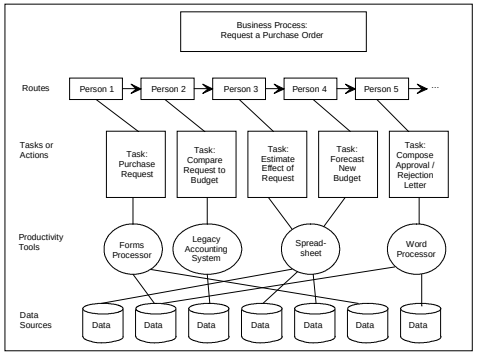
Several definitions

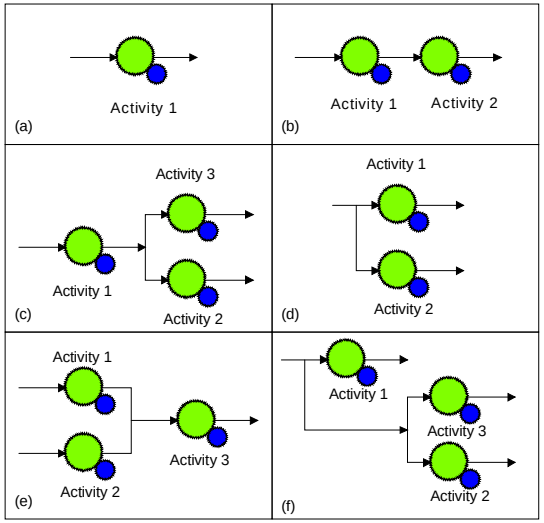
- Coleman (1995): "*Groupware is an umbrella term for the technologies that support person-to-person collaboration; groupware can be anything from email to electronic meeting systems to workflow*".
- Nunamaker, Briggs and Mittleman (1995) : "*Groupware is any technology specifically used to make group more productive*".

Groupware is ...

- Computer Supported Cooperative Work (CSCW)
- Team Database
- Group Decision Support System (GDSS)
- E-Mail
- Group Support Systems
- Project Management
- Coordination Software
- Group Conferencing
- Electronic Conferencing
- Shared Drawing
- Group Memory
- Electronic Brainstorming
- Video Teleconferencing
- Information Filtering
- Electronic Meeting Systems
- Group Scheduling
- Workflow Automation
- Team Calendar
- Electronic Voting
- Group Development Tools
- Shared Edition

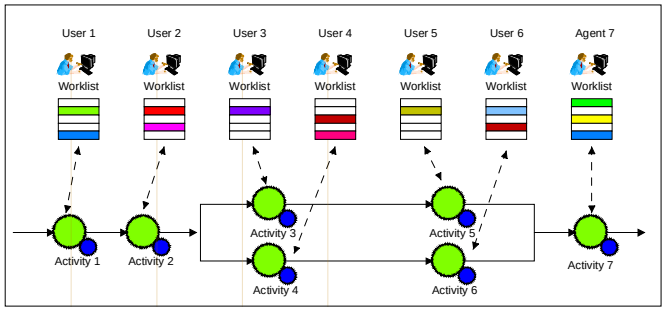
A Taxonomy of workflow (Marshak, 1995)



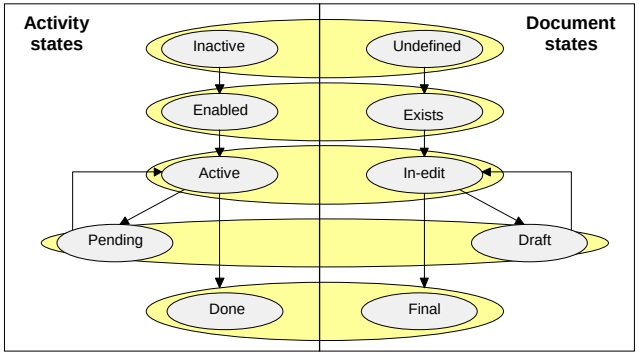


Linking tasks

Example of task sequence



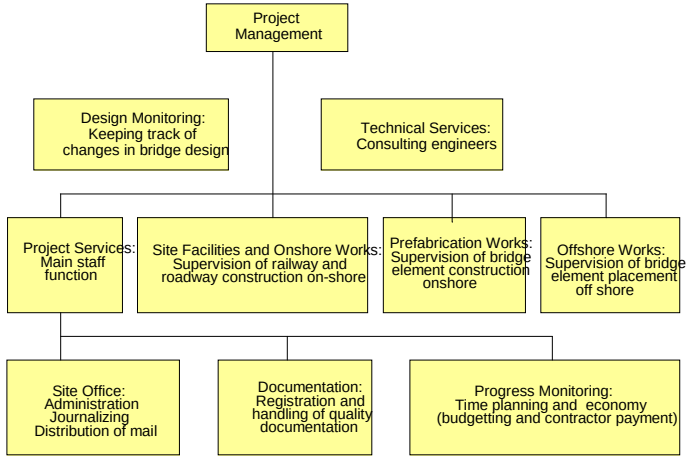
States of activities and documents



1.2. Participatory design

- **Objective** : people should design something cooperatively.
- For instance in CADCAM: design of cars, planes, bridges, buildings.
- ==> a database storing:
  - different steps and different versions
  - and all interactions between all engineers.

An example in civil engineering



1.3. Benefits and limitations

- According to Coleman (1995), benefits are:
  - increased productivity,
  - better customer service,
  - fewer meetings,
  - automating routine procedure,
  - integration of geographically disparate teams,
  - better coordination globally,
  - leveraging professional expertise.

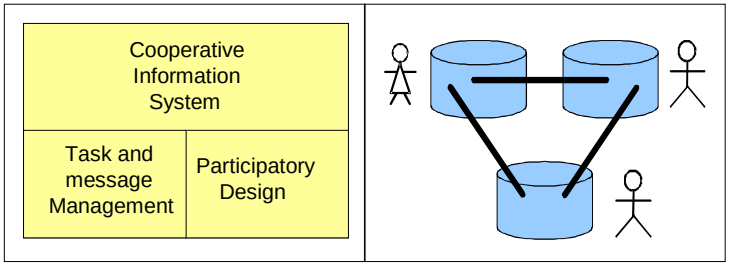
Limitations

- there is a too low level of education in the business community about groupware
- organizations are resistant to change
- there are few standards in the groupware market

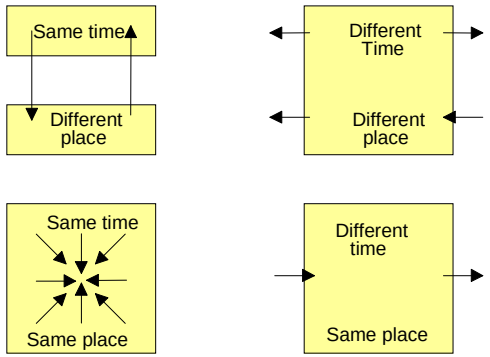
1.4. Cooperative Information Systems

- **Cooperative information systems**:
  - a database storing all information and knowledge necessary
  - to support the collective work.
- Characteristics
  - distributed database system
  - one central database
  - and several local databases.

Cooperative Information Systems



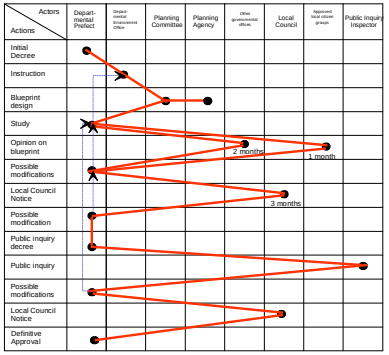
The 4-square map for groupware options (Johansen et al, 1996)

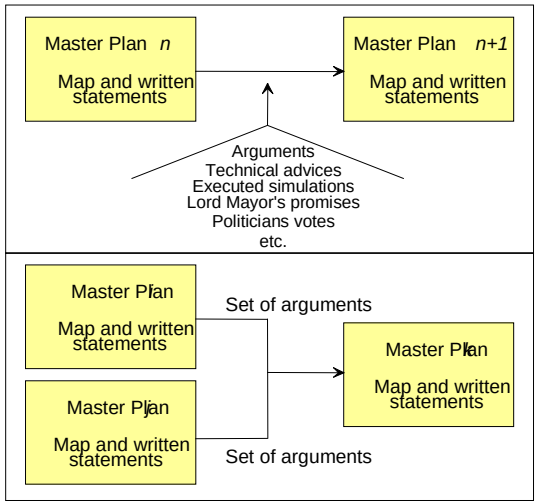


II - Is groupware useful for urban planning?

- 2.1. Description of the French planning process
- 2.2. Actors and Roles in Urban Planning
- 2.3. Conditions of success
- 2.4. Groupware in action
- 2.5 Towards systems for spatial negotiation
- 2.6. Architecture

2.1. Description of the French planning process

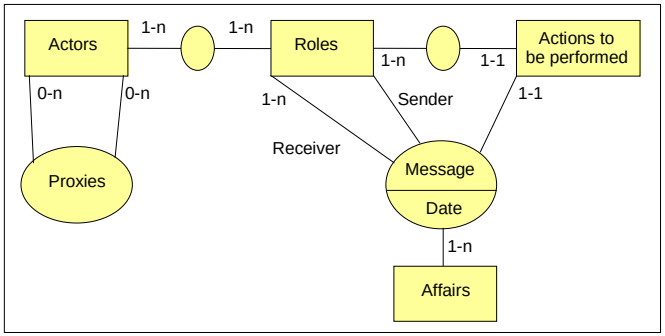




2.2. Actors and roles in urban planning

Actors in Urban Planning	Groupware in use	
	Frequency	Type of usage
Departmental Prefect	From time to time, (minimum once a month)	General checking, Final approval
City councilors in charge of urban planning	Several times a week	Requirements Meetings Simulation Votes
Other city councilors	Several times a year	Checking, Votes Conferencing Meetings
City dwellers associations	At the beginning and during public consultation (inquiry)	Desire collection
Public consultation	At the end, daily, one month long	Photo-realistic visualizations Simulation Opinions
Urban planning staff and Municipal engineers and architects	Daily, during the whole process	Simulations, cartography Meetings, Authoring, Messaging, Conferencing

Relations between actors and tasks to be performed

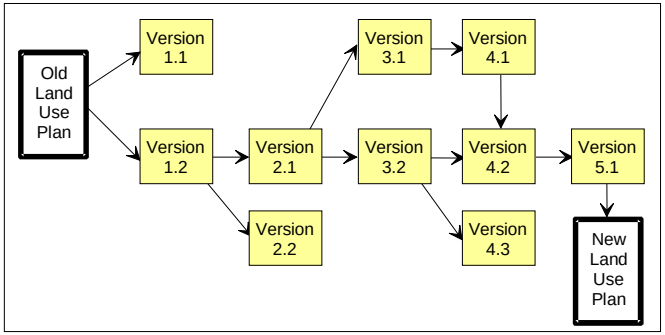


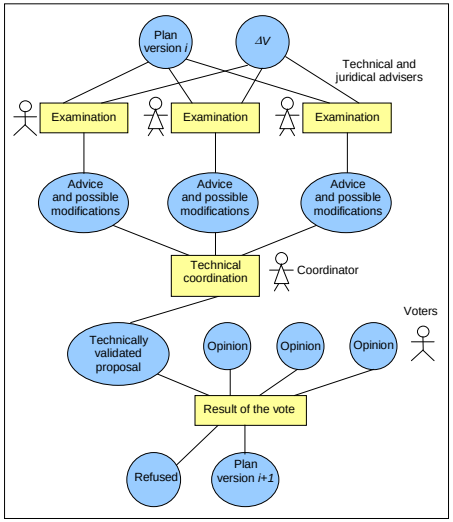
2.3. Conditions of success

- *a/ will of participation*
- *b/ training*
- *c/well-designed CSCW system infrastructures*
- Equation of success for groupware is:

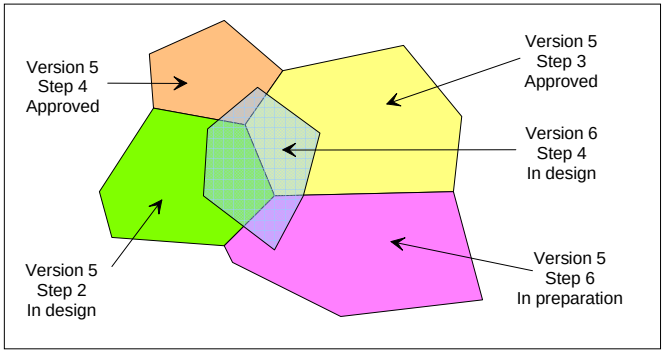
Groupware Success =
Technology + Culture + Economics + Politics

2.4. Groupware in action

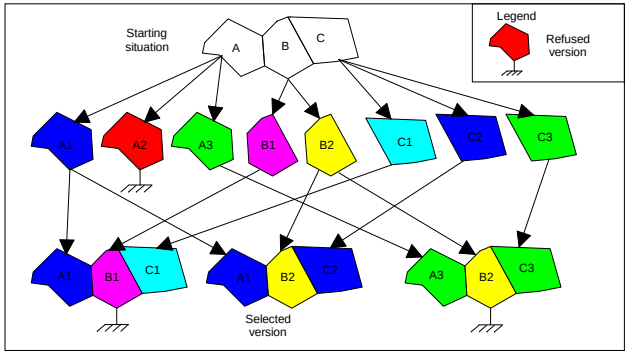


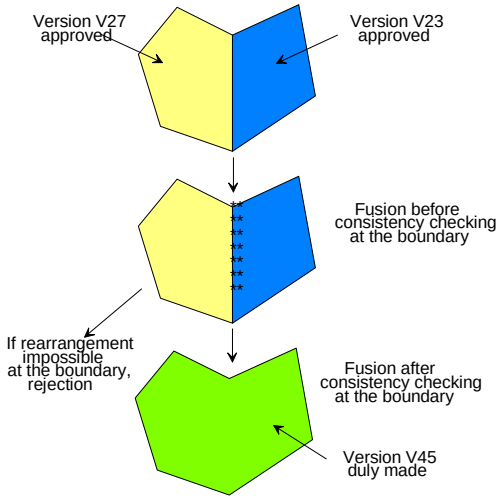


Each zone of the city can be at different states of approvals



Graph of decomposition, and recomposition of versions





2.5. Towards systems for spatial negotiation

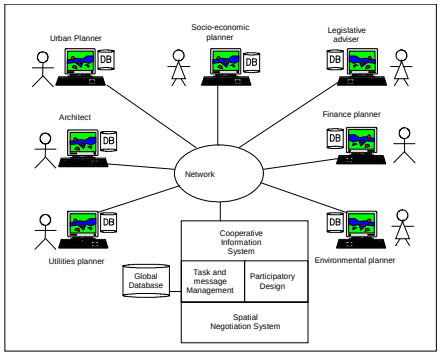
- private criteria.
- public criteria

- By **spatial negotiation tools**,
- ==> of agreements

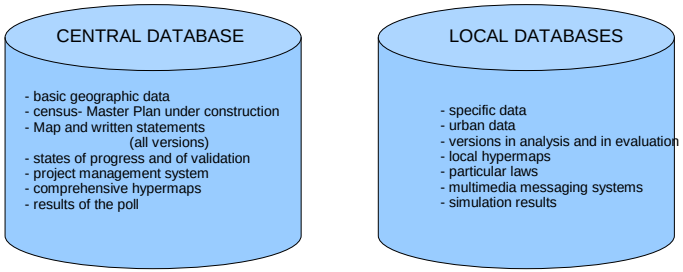
Spatial negotiation tools

- Agreements between
  - the city and its current environment
  - the version of plan and written statement under study
  - the simulated consequences from different points of view
  - the known actor's public criteria at global level together with their evaluation
  - possibly some other aspects

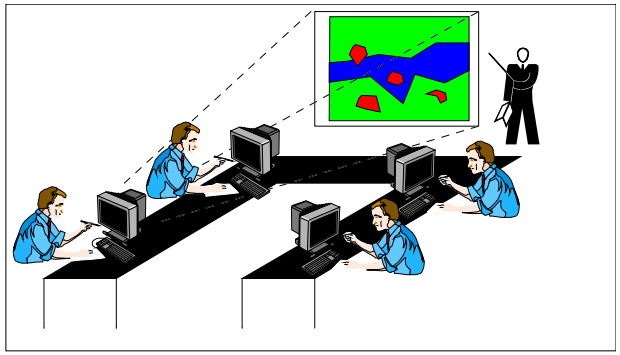
2.6. Architecture of a CSCW system for urban planning



Contents of the databases



Examples of a video-conferencing meeting



III - Computer Systems for Public Participation

- 1 - Introduction
- 2 - Specifications
- 3 - Virtual Reality
- 4 - Examples of discussion forums
- 5 - Argumaps
- 6 - Conclusions

3.1 - Introduction

- Importance of public participation during the urban planning processes
- Issues
  - participatory design
  - urban plan visualization
  - opinion collection and synthesis
  - communication between residents and city council
  - facilities organization
- Existence of NIMBY's (Not In My Back Yard)

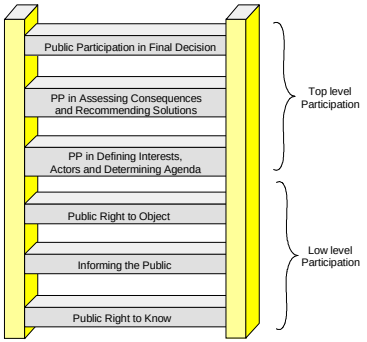
Objectives

- expand the public's role
- increase citizens participation
- enable wider public involvement

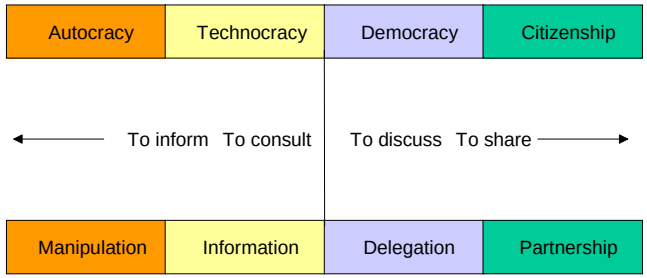
Characteristics

- community-based
- reciprocal (resident ⇔ city-council)
- contribution-based
- unrestricted
- accessible and inexpensive
- modifiable

Public Participation Ladder



Nobre's ruler



Evolution of practices (Brun, 99)

	Past	Present
Context	Urbanization	Metropolis
Priorities	Control landuse	Sustainability
Implementation	Quantitative	Qualitative
Participation	Institutional formal Restricted access to info	Negotiated Interactivity Transparency
Information tools	Drawings, maps mock-ups Photo-camera	GIS-CAD Connected database Multimedia

Evolution of practices (Brun, 99)

	Past	Present
Information Products	Manual maps, Photos, Text files	Raster and vector maps Aerial photos Multimedia Visual simulation
Communication assistance	Paper, Slides Video	Data servers Internet CD-ROM

3.2 - Specifications

- Roles and actors
- Functional capabilities

Roles and actors (Nijkamp 91)

Type of role	Information demand	User demand	Type of system
Information specialists	Raw data	Analysis flexibility	Large Flexible
Preparer of policy	Raw and pre-treated data	Analysis Good flexibility	Compact Manageable
Policy decision makers	Strategic information	Optimisation models	*"Small is beautiful"*
Interested citizens	Information	Good accessibility	*"Small is beautiful"*

Functional capabilities (Nyerges, 97) Level 1

- **Group communication**
  - idea generation through electronic voting, white boards, computer conferencing, public computer screens
- **Information Management**
  - storage and retrieval thru spatial DBMS
- **Graphic displays**
  - visualization, maps, tables, diagrams
- **Spatial analysis**
  - functions like proximity, data mining, etc

Functional capabilities (Nyerges, 97) Level 2

- **Process models**
  - descriptive simulation models, GIS embedded models
- **Advanced spatial visualization**
  - virtual and augmented reality, multimedia animation
- **Decision models**
  - multi-criteria decision making support system
- **Structured group process**
  - facilitating group interaction, electronic brainstorming

New visualization tools (Shiffer 99)

- To recollect the past with annotation mechanisms
- To describe the present with navigational aids
- To speculate about the future

Annotations (post-it - like)

- Simple graphical marks
- Video sketching
- Textual annotations
- Audio annotations
- Visual annotations

=====> ARGUMAPS

3.3 - Virtual Reality

- Workbench systems
- Cave systems
- Virtual cities

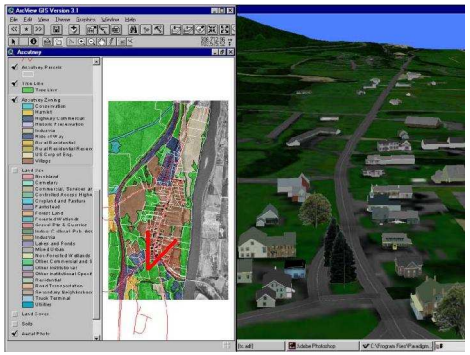
Virtual workbench (Stanford)

CAVE (Mechdyne company)

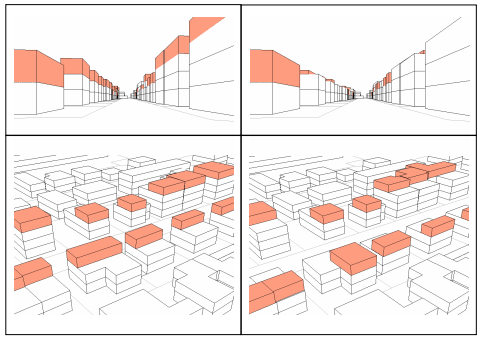
Virtual Los Angeles (UCLA)

Virtual Utrecht

Project visualisation (CommunityWorks)



Visualizing building possibilities

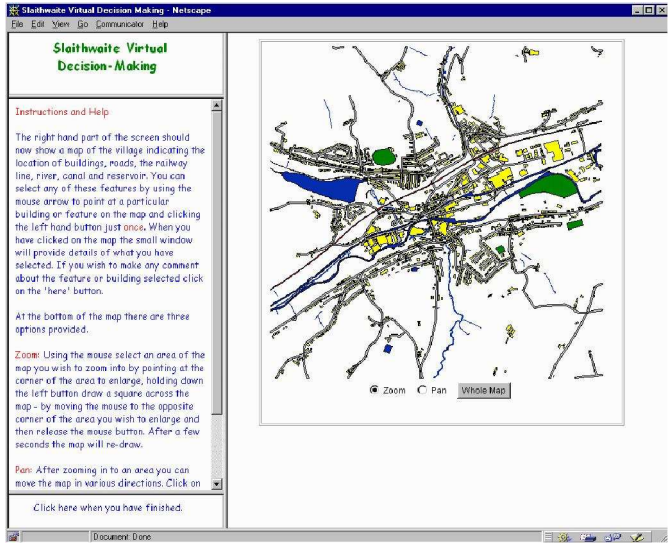


3.4 - Examples of discussion forums

- Twin cities (St Paul - Minneapolis)
- Virtual Slaitwaite (UK)

Twin cities

- Creation of a web site
  - Official documents
  - Board meeting minutes
  - Zone program
  - Information about the zone
  - links to local media
  - links to related sites
  - discussion forum



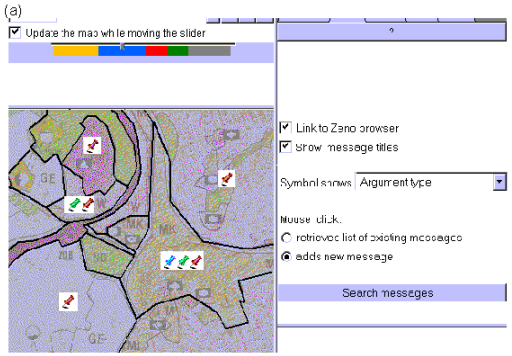
3.5 - Argumaps

- Argumaps = Argumentation maps
- Created by Claus Rinner
- Electronic discussion and GIS
- Linked WWW and Collaborative DM
- Storing arguments
  - planning arguments
  - pro-opinion
  - contra-opinion

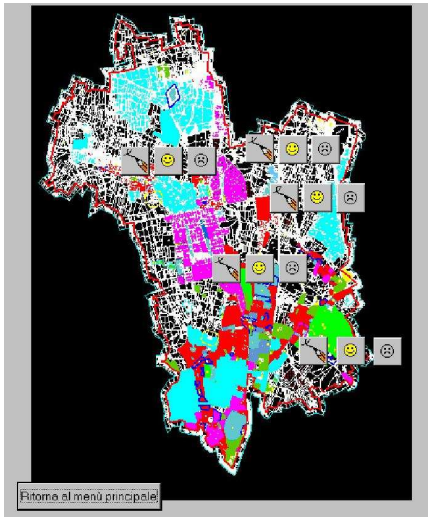
Argumaps examples

- Examples
  - pins
  - flags
  - smileys

Argumaps with pins



Argumaps with flags



Argumaps con smileys

3.6 - Conclusions about PP

- Modern technology can change the nature of public participation
  - virtual reality
  - discussion forum
  - argumaps
- Technical barriers, administrative barriers, technocratic barriers
- To few experiences
- ==> cyber-citizens

IV - Conclusions

- Cooperative work
- Participatory design
- Spatial negotiation system
- A groupware system for all people acting in the planning process
- Implementing such a tool to discover all the neededе characteristics
- Connection of a GIS to an existing groupware system

Thanks!

"Information Systems for Urban Planning; A Hypermedia Co-operative Approach"

http://lisi.insa-lyon.fr/~laurini

Applications

- Urban land use planning
- Urban engineering