

# Inventing Communities of Communication: Waiting in The Digital City

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# Waiting, Plus & Minus

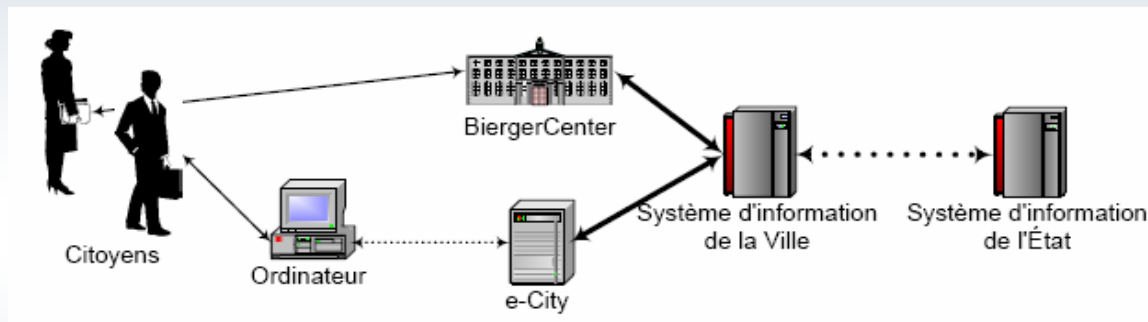
- There are negative aspects to waiting “wasting one’s time” and there are positive ones: waiting for a happy event.



- Find a way to get rid of waiting times and others will show up somewhere else, ex: IM succeeds to GSM to telephone, to snail mail, to...

# Can We Imagine a World Without Waiting?

- Luxembourg is planning a digital city: e-City.



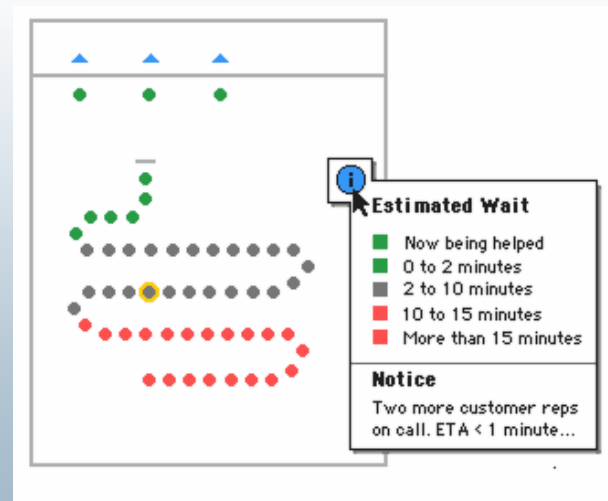
- Digital cities are mirrors of societies.
  - Regional information spaces that use city metaphor as platform for community networks. integrate people daily lives and business.
  - Success rely on speed and quality of services.

# There is Value in Waiting

- On the internet, we can be forced to wait (latencies, delays) or chose to wait (live tickers).
- A field barely explored.
  - Telephone menus, status bars, visualizations.
- Our intent is to transform waiting for a service into an interesting, enriching and relevant experience.
  - Active anticipation and predictive mode:
    - Evaluate users tasks to propose activities within time available.
    - Consolidate future waiting times to minimize fragmentation.

# Current Related Research

- Telephone menus from help desks.
- Feedback principles.
  - User interface metaphors flying folders, wait cursor, progress bar, etc. (Schneiderman, Nielsen).
- Visual representation systems.
  - Erickson & Kellogg's.



# User-Centered Approaches

- Questionnaires.
  - Gather users online waiting experiences. Use information for qualitative and quantitative analysis.
- Experiment with Wiki.
  - Track tasks currently performed on system and number of users logged in.
  - Estimated times to complete user tasks.
  - Test and report users feedback (questionnaire).

# Customizing and Personalizing Content

- Build user profiles using:
  - Data given by users: Preferences and questionnaires.
  - Data inferred from users behaviors: Click rates, tracking of previously visited sites, etc.
- Identify or define groups and categories of users to set up recommendation systems.
- Adapt services to the requirements of each user/group/category for ex. using different media types.

# Building Automated Alternate Content Representations.

- When user waits for a large file of a web page to download, propose alternate content based on initial request content
  - Ex: Recognize the actors in the movie being downloaded and propose their biographies, screenshots, etc.
- Categorize content to target specific communities: Age, regions, accessibility, etc.

# Using Other Theories

- Optimization to satisfy users
  - What kind of optimization can we perform?
  - Define a function to minimize user's cost/time.
- Game theory
  - What happens if 2 or more users or machine and users behave cooperatively?
- Define characterizations
  - Time, repetition, flow, cost, number of users, sequence, rank, criteria, measure of success, etc.

# Waiting from Different Points of Views

- Users' point of view.
  - Role of emotions on users' behaviors.
- Machine point of view.
  - Our problem is asymmetric: 1 machine/several users.
  - Automata: 4 basic states are not enough.
  - Requires integration system and conditional transitions.
- External point of view.
  - User expertise level matters for evaluation.
  - From the digital city: consequences to business partners.
  - Trust and security issues.

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# Upcoming Milestones

- Extended version of research proposal, 3-4 months.
- Presentation of first virtual framework, 9-12 months.
- Working prototype ready, 10-12 months.
- Conference/publication: Q3 2006

# Summary

- Waiting can be a positive or a negative experience.
- The negative aspect is a real problem for users, mediators (portal managers) and providers (partners).
- The area is still unexplored and needs to be investigated.
- The opportunity is to transform waiting for a service into an interesting, enriching and relevant experience.

# Summary

- Next steps:
  - Formalization of the point of views, modelisation of the states. machine: look at different states and sub-cases.
  - Precise vision and single out module to develop.
  - Put in place tools for system design architecture.
- Further works:
  - Evaluation Studies.
  - Implementation.

# References

- Erickson, T. and Kellogg, W. A. "Social Translucence: Using Minimalist Visualizations of Social Activity to Support Collective Interaction. " *Designing Information Spaces: The Social Navigation Approach* (eds. K.Höök, D. Benyon, and A. Munro) Springer, 2003, pp. 17-42.
- Donath, J., Karahalios, K. and Viegas, F. "Visualizing Conversations" *Proceedings of HICSS-32*. Maui, HI, January 5-8, 1999.
- Fogg, B. and Tseng, H. "The elements of computer credibility". *Proceedings of CHI'99* (Pittsburgh, May 15–20). ACM Press, New York, 1999.
- O'Hara, K. and Shadbolt, N. "Knowledge Technologies and the Semantic Web".

# Q & A

- Thank you 😊