# Interaction Design in Digital Libraries : Some critical issues

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(From slide presentation)

# HCI and Digital Libraries

- critical technological fields in the emerging Information Society
- identification of synergies towards a common, international R&D agenda

# Main issues

- how can they be designed, implemented and evaluated
- what functional & non-functional quality attributes need to be addressed
- how can diversity be accounted for
- what software components are needed
- what architectural models need to be followed
- etc.

# Characteristics of DLs

- Distributed (across the Internet)

- Large volumes of data

- Multimedia content

- New virtualities

  new range of computer-mediated human activities

## HCI challenges in the context of DLs

- Diverse user groups
    - orientation
    - navigation
    - information overload, etc.

- Technological proliferation
    - terminals (portables, network attachable equipment)
    - novel input/output devises (e.g., wearables)
    - new interaction platforms (e.g., Java)
    - etc.

- Variety in the context of use
    - desktop versus nomadic use
    - user tasks in the DL domain
    - physical and social environment

## Meeting the challenges

- Designing for the broadest possible end-user population
    - studying the dimensions of diversity
        - users with different abilities, requirements and preferences
        - context of use
        - terminals, novel platforms and network-attachable devices
    - context and intend
        - alternative styles for instantiating user tasks

- conveying context through assigning interaction objects to dialogue states
- Shifting the focus of implementation
  - specification-based framework versus programming
  - tools for developing interactive software

# Recent contributions from ICS-FORTH (AT&HCI Lab)

- Unified user interface development method
  - Comprehensive methodology for integrating universal accessibility and interaction quality as part of the user interface development life-cycle
- Unified user interface development platform
  - USE-IT: Design environments
  - PIM: Platform Integration module
  - G-DISPEC: 4G Specification language
  - I-GET: Integrated Development Environment
- HCI International '97 Tutorial

  http://www.ics.forth.gr/proj/at-hci/html/tutorials.html

# Common themes (from the ECDL '98 Proceedings)

- User interface adaptation
- User interface agents
- User modelling components
- Metaphors, including visualisations
- Virtual reality
- Multilinguality

- Information retrieval
- Multimodality
- Evaluation

# A perspective

Phases:

- design
- implementation
- evaluation

## Phases (1/3)

- Design processes & techniques
    - Human-centred design (ISO 13407) fosters
        - usability focus
        - iterative evaluation-feedback loops
        - techniques to attain the above
    - Is "usability" (as approached today) enough ?
    - What about quality (functional & non-functional attributes) ?
    - Do existing UCD techniques cope with design pluralism ?
    - Do existing UCD techniques offer process-oriented support ?
    - e.g. unfolding, capturing and maintaining design rationale

## Phases (2/3)

- Implementation
    - Approaches

- — programming
- — specifications
- Tool requirements
  - — support for collaboration
  - — inter-operability
  - — sharing knowledge and experiences, etc.
  - ➲ What is the role of software architectures ?

## Phases (3/3)

- Evaluation
  - ➲ Does evaluation ever lead to innovative designs, or does it simply help identify design defects ?
  - ➲ How can one evaluate some of the non-functional quality attributes which are critical to DLs ?
    - — inter-operability
    - — modifiability
    - — reusability
    - — portability
    - — scalability

## Our focus

- Bridging across the two communities
- Awareness raising
- Exchange of experience and establishment of common ground
- Developing a common vocabulary
- Focusing on a common research agenda

- EC 5th Framework Programme
- ERCIM WGs
- Joint session of the ERCIM Delos Workshop and ERCIM WG UI4ALL (Stockholm, 21 October 1998)
- White Paper - "HCI in DLs: An International R&D Agenda"

## Possible questions

1. Is "usability" (as approached today) enough ?
2. What about quality (functional & non-functional attributes) ?
3. Do existing UCD techniques cope with design pluralism ?
4. Do existing UCD techniques offer process-oriented support ?
   e.g. unfolding, capturing and maintaining design rationale
5. What is the role of software architectures ?
6. Does evaluation ever lead to innovative designs or does it simply help identify design defects ?
7. How can one evaluate some of the non-functional quality attributes which are critical to DLs ?