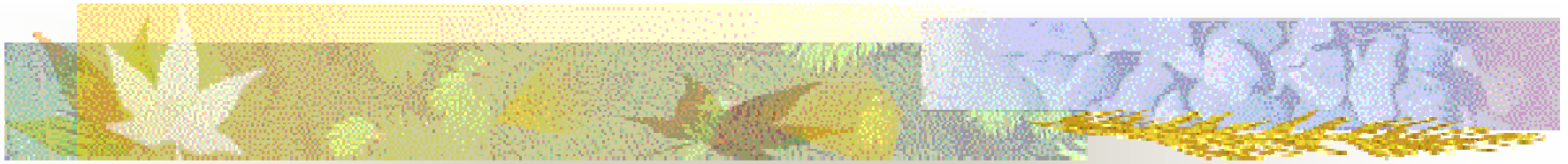
Information Society for All



- Baseline
- Aims and objectives
- Technical work
- Outcomes

What it is ...

- A three-year IST-funded Thematic Network (Working Group) establishing a wide, interdisciplinary and closely collaborating network of experts to provide the European Health Telematics industry with a comprehensive code of practice on how to appropriate the benefits of universal design.

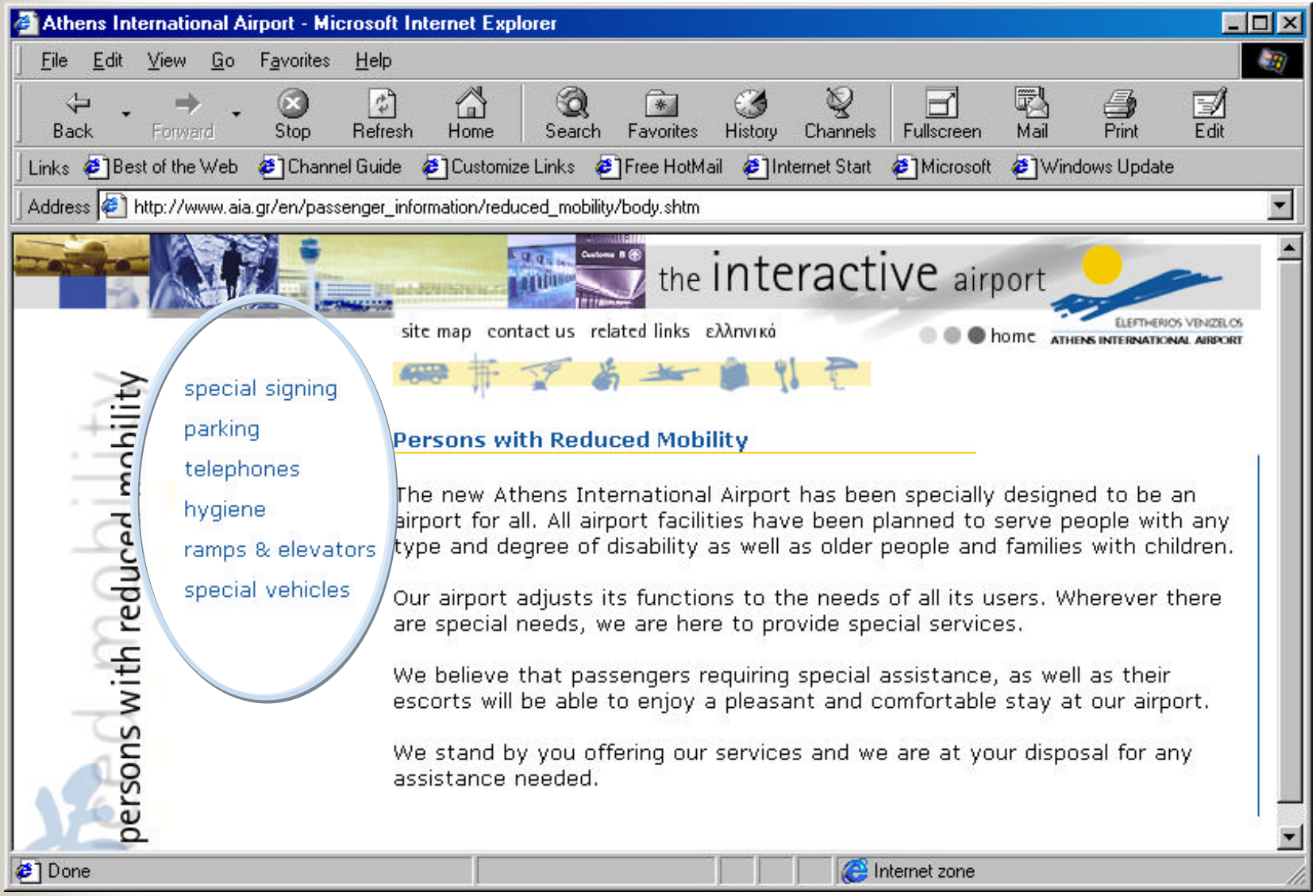
Baseline concept

- It is possible to design most manufactured items and building elements to be usable by a broader range of human beings, including:
  - children,
  - elderly people,
  - people with disabilities, and
  - people of different anthropometric measures.

The concept in practice

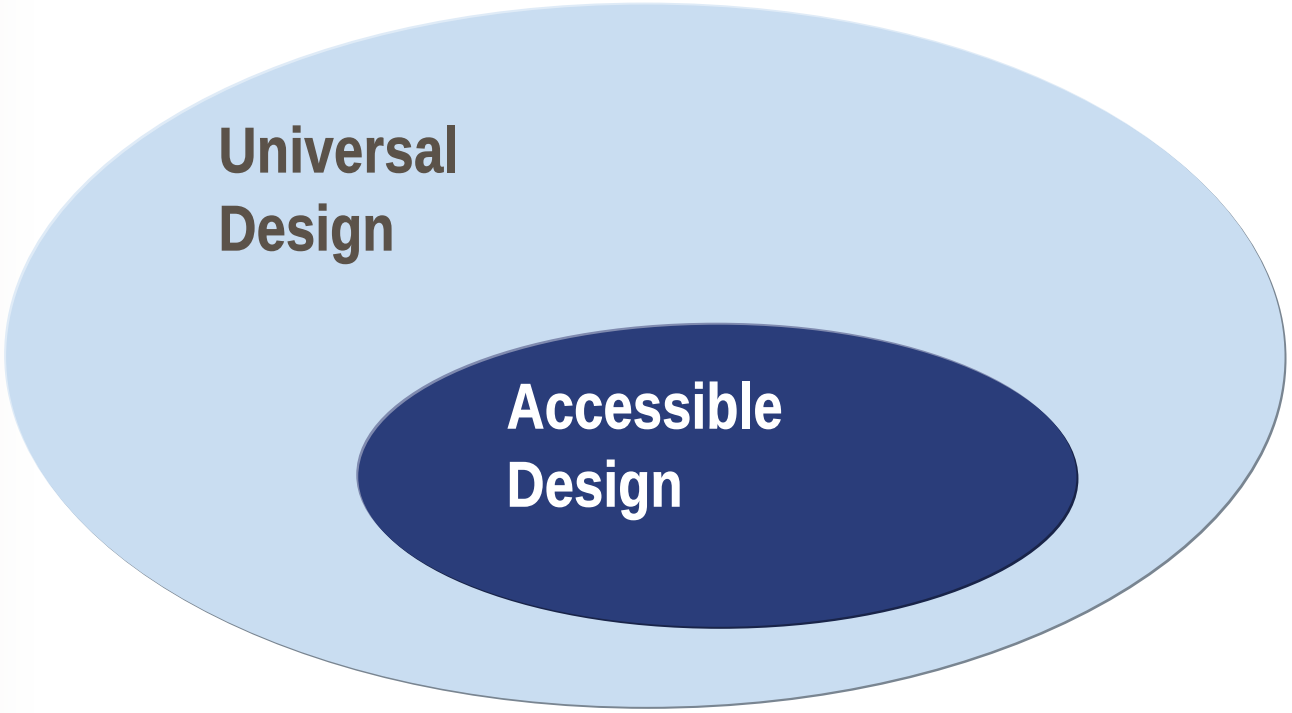
- Early adopters
  - architects
  - interrior designers
- Application in landscape design
  - public buildings
  - workplaces
  - housing

The situation today



Accessible versus universal design

- Accessible design is not always universal design



An example - The amphitheatre

- The owners claim that it is fully accessible by disabled people
  - Special signs
  - Seating
  - Information

This is not universal design !!!

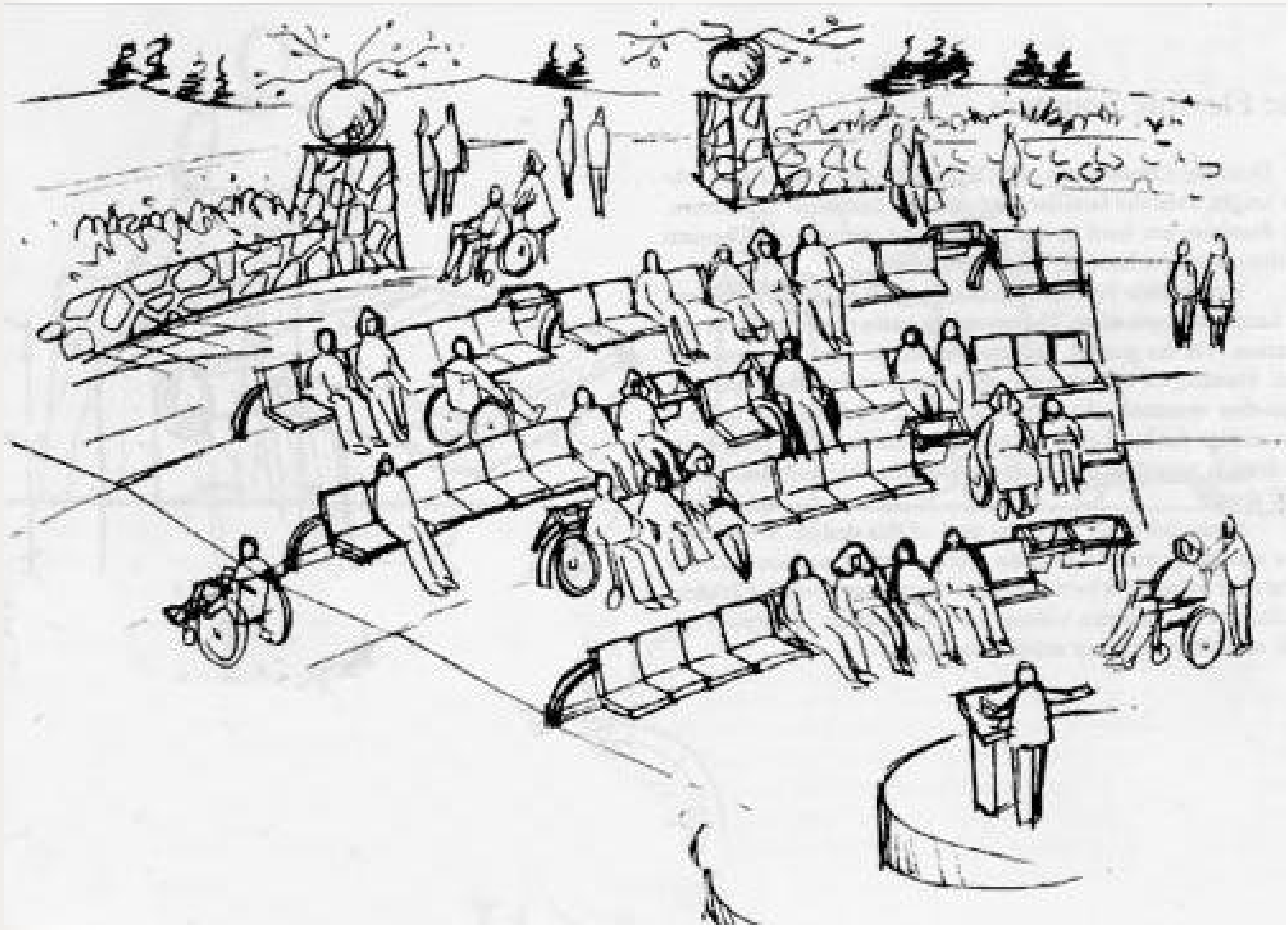
Some guiding principles

- Universal design is NOT:
  - adding specialised equipment to accommodate special needs
  - adapting features of an environment to achieve what is possible with current facilities
  - retrofitting elements for disability access

Some guiding principles (Cont.)

- Instead, universal design entails:
  - paying attention to human access from the beginning
  - adopting an inclusive design process
  - committing to solutions which maximise usability

An amphitheatre for all



Lessons learnt

- Universal design requires a code of practice
  - structured process and phases
  - suitable techniques to attain specific targets
  - measurable yardsticks and assement protocols for each phase
  - reference examples
- All the above are available to practitioners in mature engineering design disciplines

In the context of IST design

- Is the baseline concept powerful enough?
- What extensions are required, if any?
- Can we build upon the experiences of other engineering design disciplines?
- What code of design practice is needed?
  - Process guidance
  - Methods and techniques
  - Examples

Universal Access

- Access by any (authorized) user to digital content and information from anywhere and at anytime

IS4ALL focus

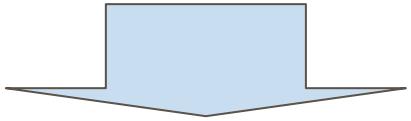
- Universal access as a quality attribute with functional and non-functional implications
- IS4ALL focuses on non-functional aspects:
  - interaction design
  - the processes involved

Aims and objectives

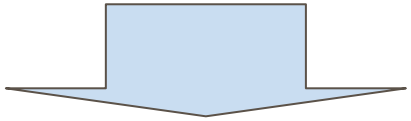
- Four main objectives:
  - **Consolidating** existing knowledge on Universal Access in the context of IST into a comprehensive code of design practice.
  - **Translating** the consolidated wisdom to concrete recommendations for Healthcare Telematics.
  - **Demonstrating** the validity and applicability of the recommendations (concrete scenarios)
  - **Promoting** the Universal Access principles and practice in Healthcare Telematics

Project phases

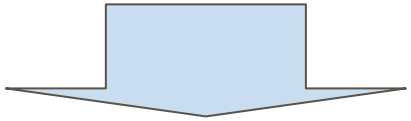
Develop Universal Access code of practice



Articulate guidelines for how to use universal access in Healthcare Telematics

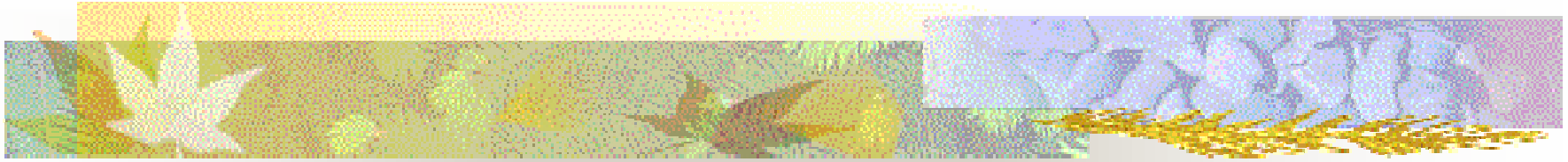


Apply universal access principles in specific scenarios



Promote universal access principles into vendor requirements

Workpackages



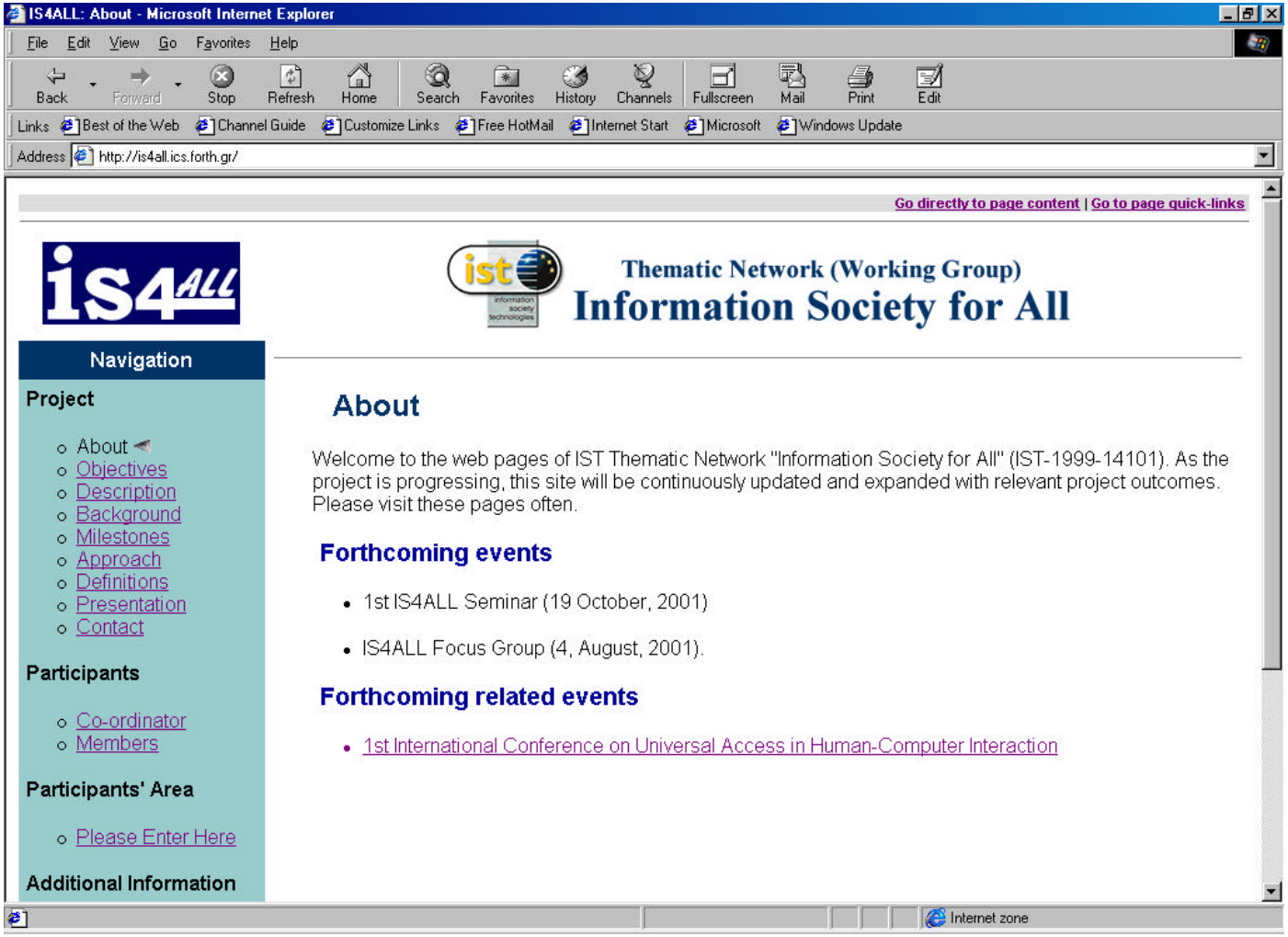
Technical work plan

Work packages

- Work split into five workpackages
  - Project Management
  - Data collection
  - Consolidation
  - Outreach
  - Evaluation and assessment

Project Web site

- http://is4all.ics.forth.gr



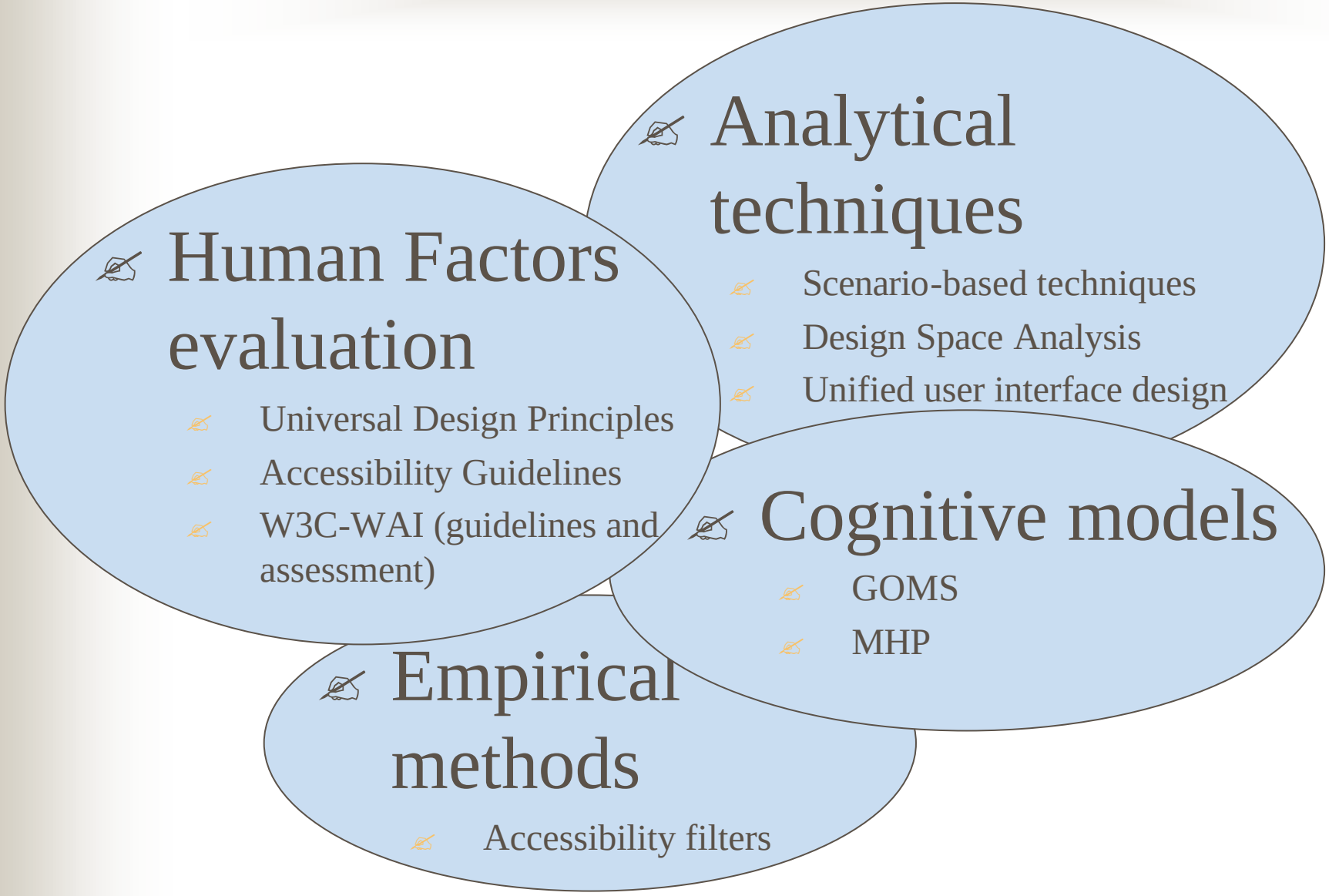
Data being collected

- Two main clusters
  - Universal design cluster
  - Health Telematics cluster
- Devise suitable instruments

Universal design cluster

- Methods, techniques and tools which are being used
  - classification (empirical versus analytical)
    - screening models
    - principles and guidelines
    - analytical design
  - instruments
    - documentation template
    - interview

Techniques to be investigated



Data collection plan

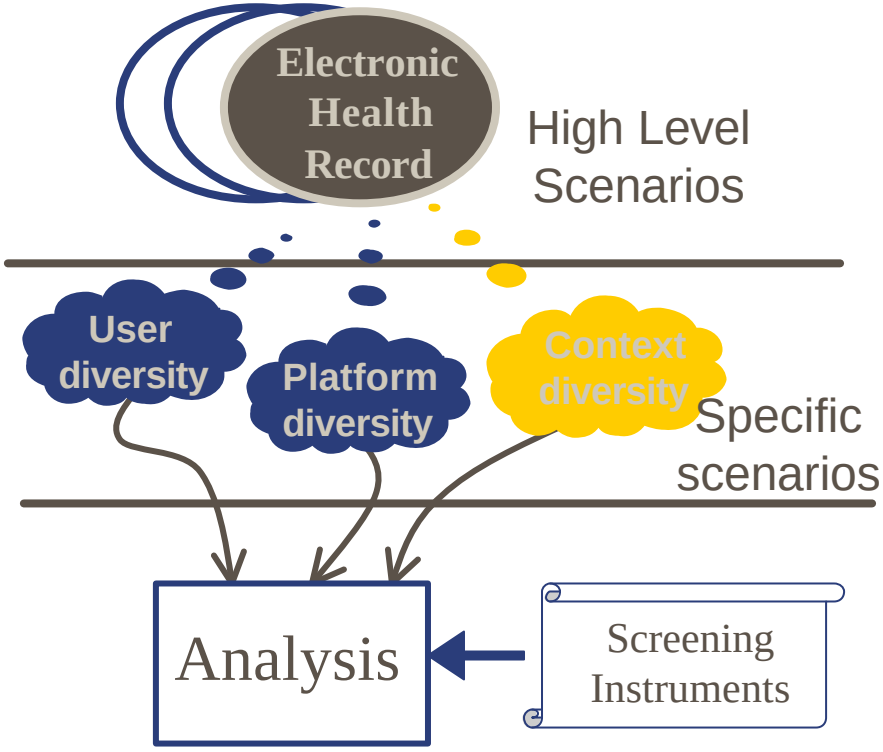
	Case studies	*Literature Review*	*Interview*	*Focused meetings*	*Short visits*	*Conference*	*Scenario*
User-centred design							
Unified design							
Accessibility filters							
Universal design principles							
Assessment manuals							
Participatory approaches							
USERfit							
Cognitive models							
User modelling							
Usability evaluation							
Standards							
Guidelines							

Health Telematics cluster

- Requirements for universal access
  - user diversity
  - variety of platforms and terminals
  - contexts of use
- State of the art
  - projects addressing universal access issues
  - which issue?
  - how it is being addressed?

Plan for the HT cluster

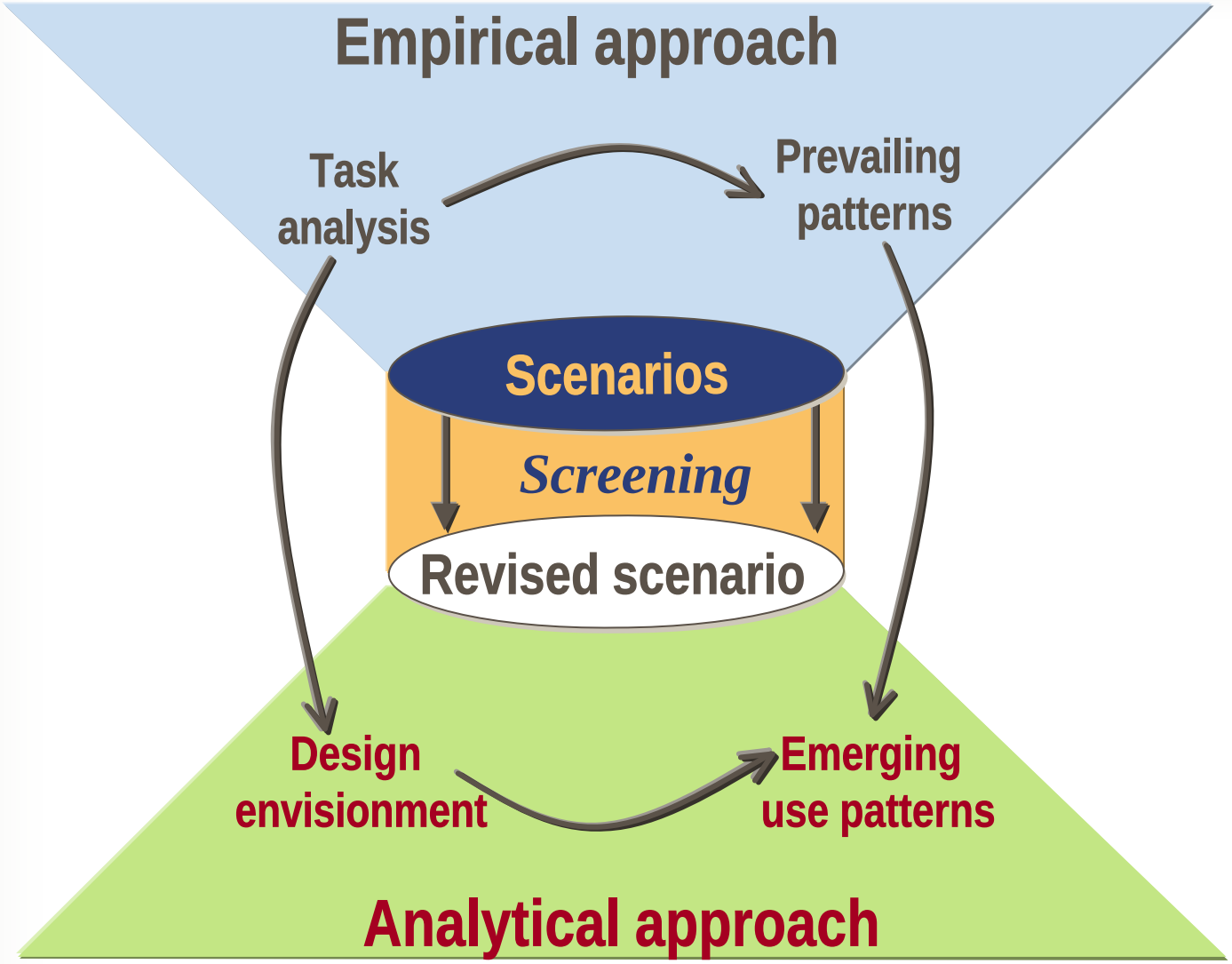
- Scenarios as instruments for data collection
  - elaborate the designated scenarios so that they become more specific and concrete
  - this may lead to a number of more detailed scenarios
  - agreement on scenario elicitation process



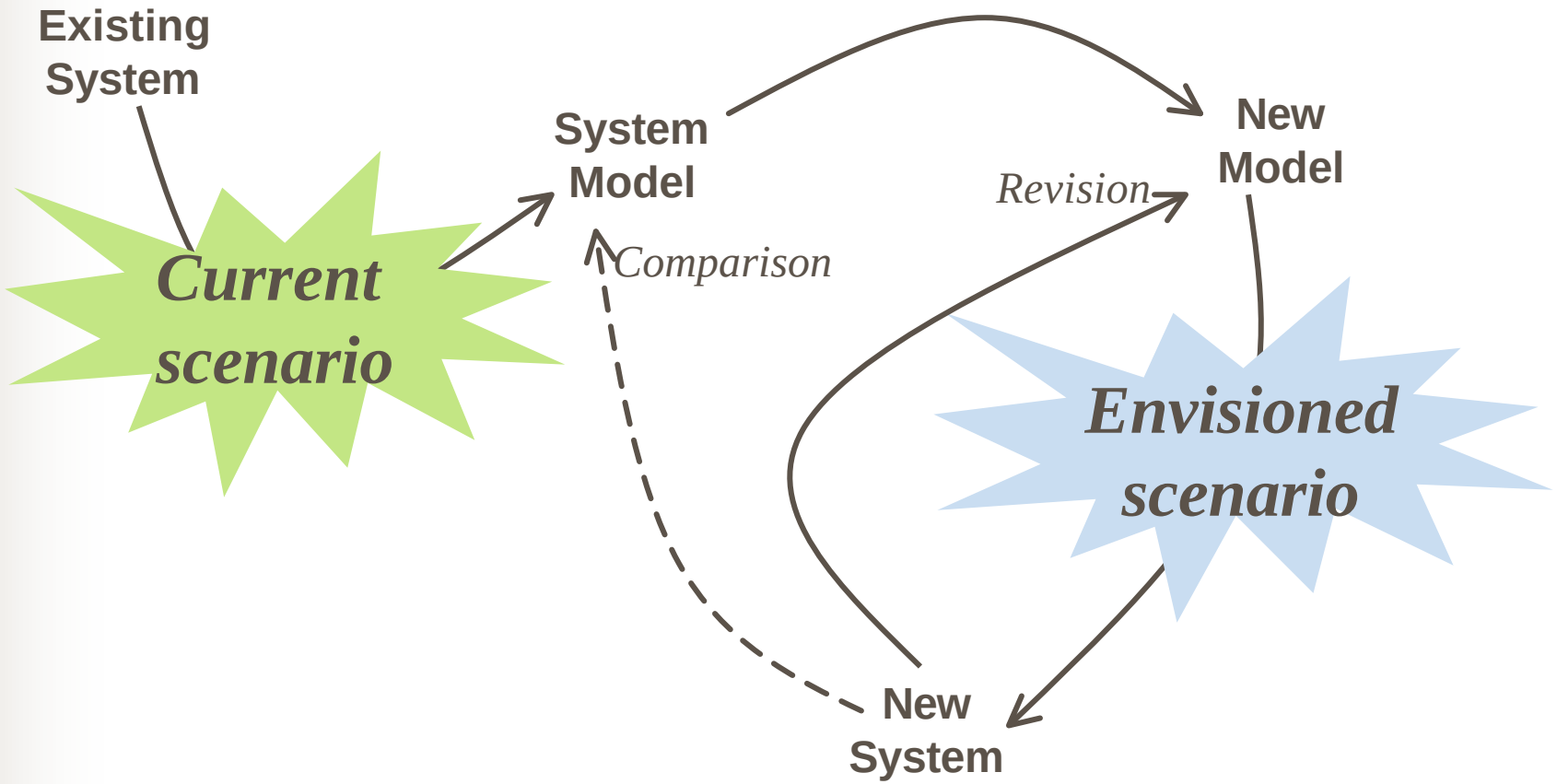
Scenarios

- A description of a possible set of events that might reasonably take place
- Stimulate thinking about
  - possible occurences,
  - assumptions relating these occurences,
  - possible opportunities and risks,
  - courses of action.

Alternatively



An engineering use of scenarios



Scenario types / classification

- Different classifications
  - System Internal scenarios (SI-type)
  - System 2 System scenarios(S2S-type)
  - User Interaction scenarios (UI-type)
- Content described
  - Goals, intentions, objectives
  - Work activities and proceses
  - Experience and use cases

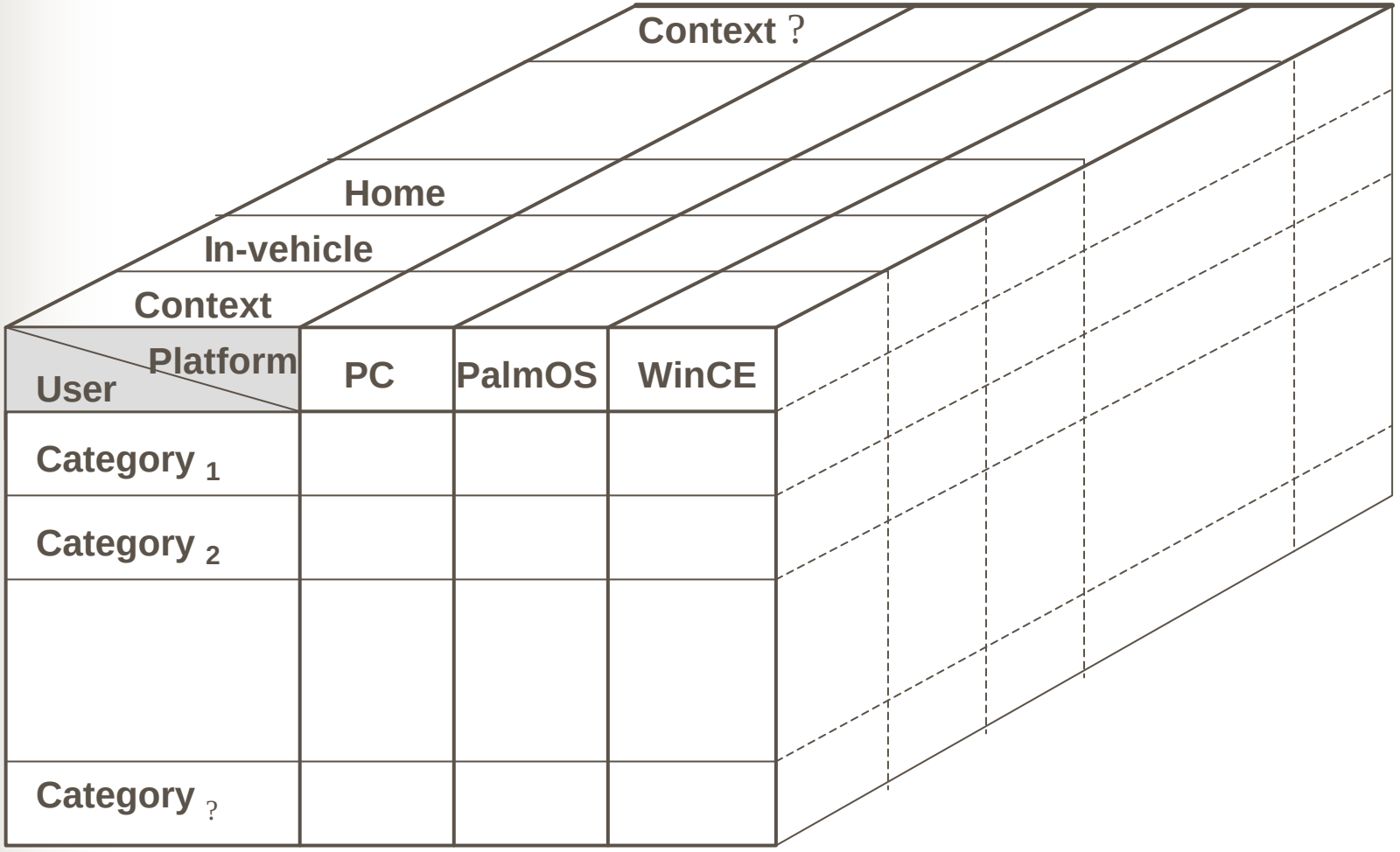
Scenarios in IS4ALL

- Links with requirements engineering with scenarios
- A complete scenario should:
  - aim at a purpose (e.g. universal access)
  - be a expressed in a form (narrative, (semi) formal)
  - it should provide content to describe
    - the context of use of an activity and where / how it is carried out
    - the platforms in place (or the artifact)
    - the target users

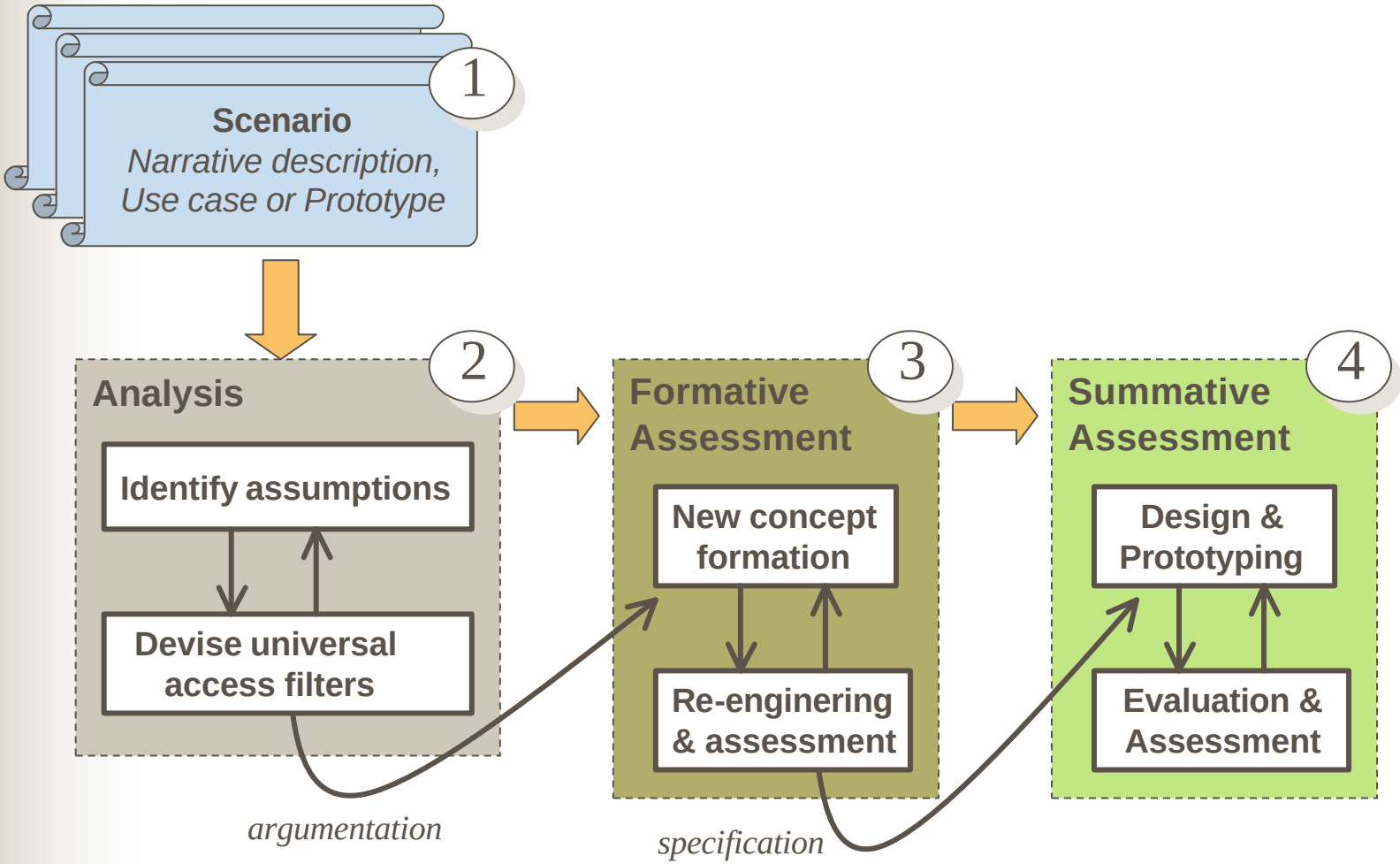
Scenario Elicitation Matrix

Quality / Scenario	User diversity	Platform diversity	Usage context diversity
Scenario $_1$			
Scenario $_2$			
Scenario $_?$			

Scenario Elicitation Matrix



Process description



An example scenario

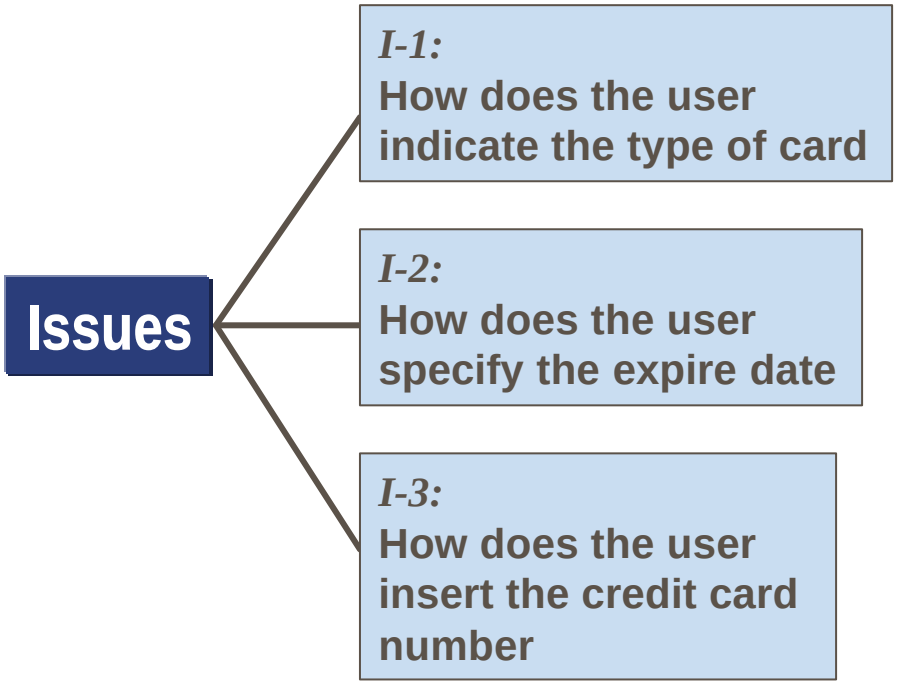
A user has just completed an order for several pharmaceuticals items. The on-line pharmacy store requests the user to specify payment details to process the transaction.

The design task

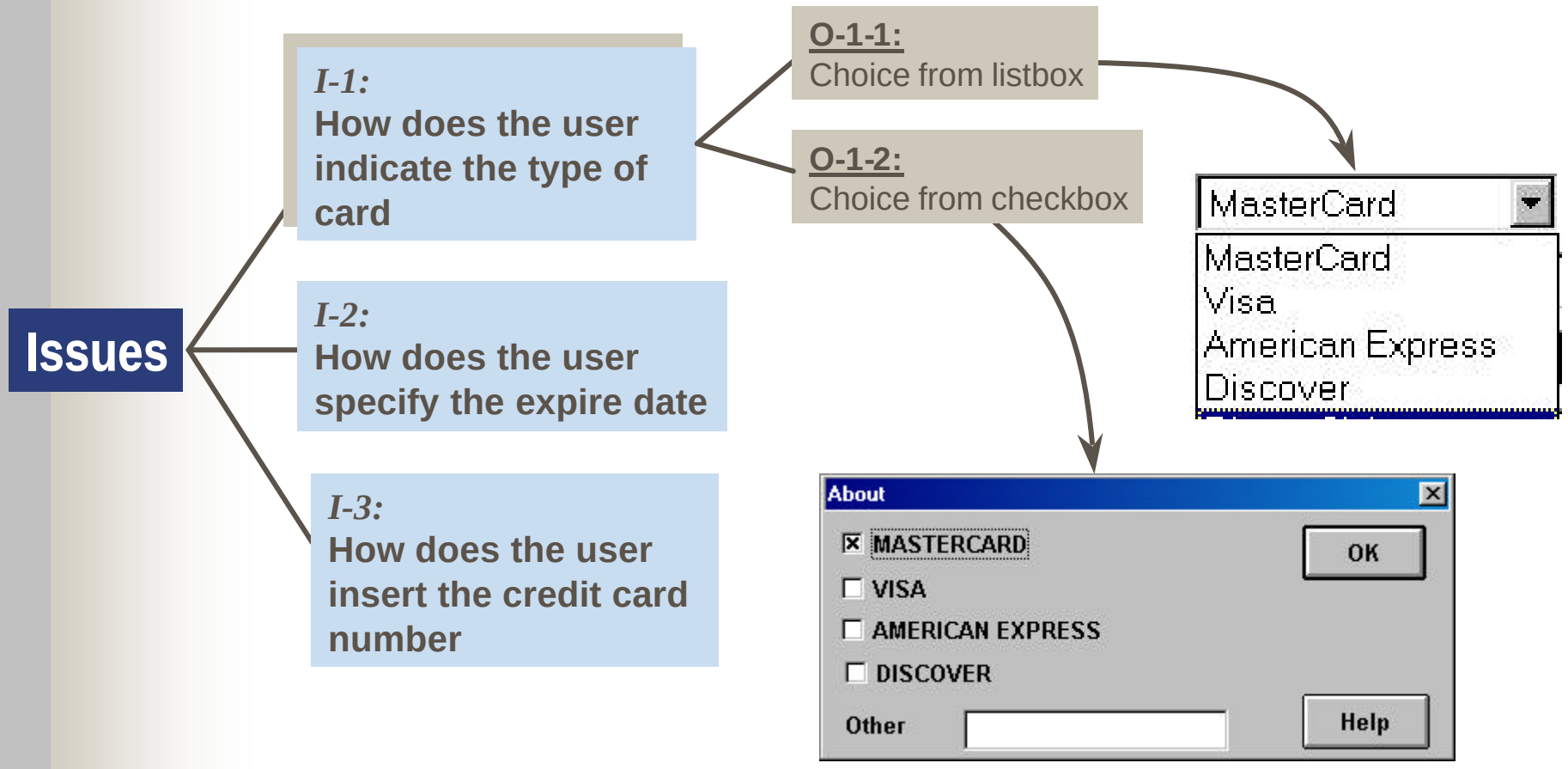
- Design the dialogue through which a user can enter information about his/her credit card
- Information to be entered includes:
  - Type of card
  - Card number
  - Expire data
  - User's name as printed on the card
  - Billing address information
  - etc

Identifying the issues

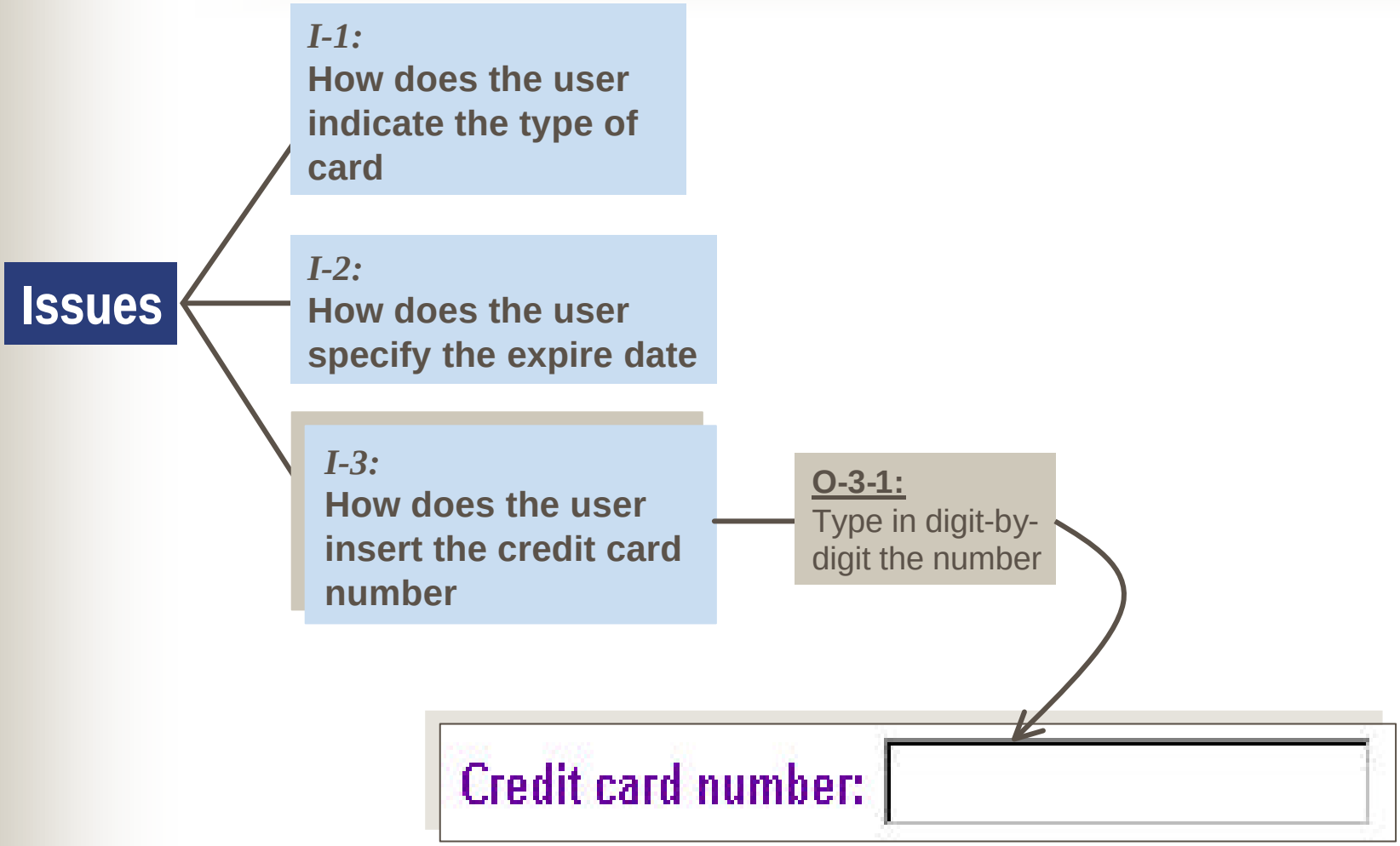
- Issues raised:
  - How does the user indicate the type of card?
  - How does the user specific the expire data?
  - How does the user insert his/her credit card number?



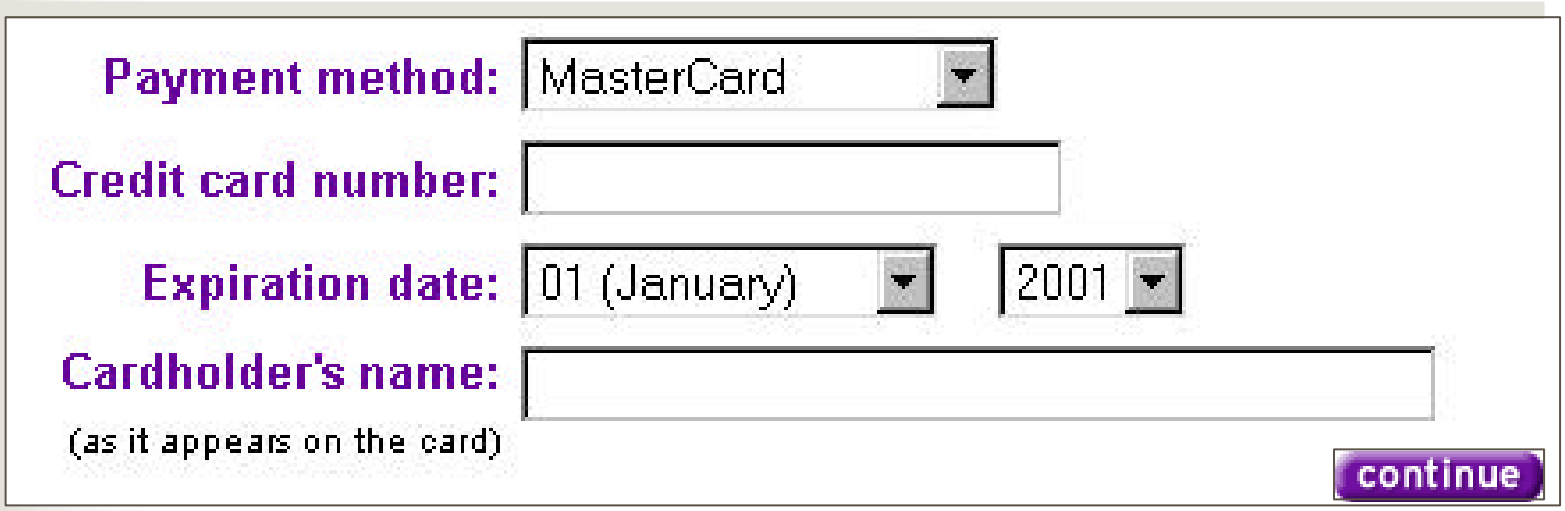
Enumerating the options



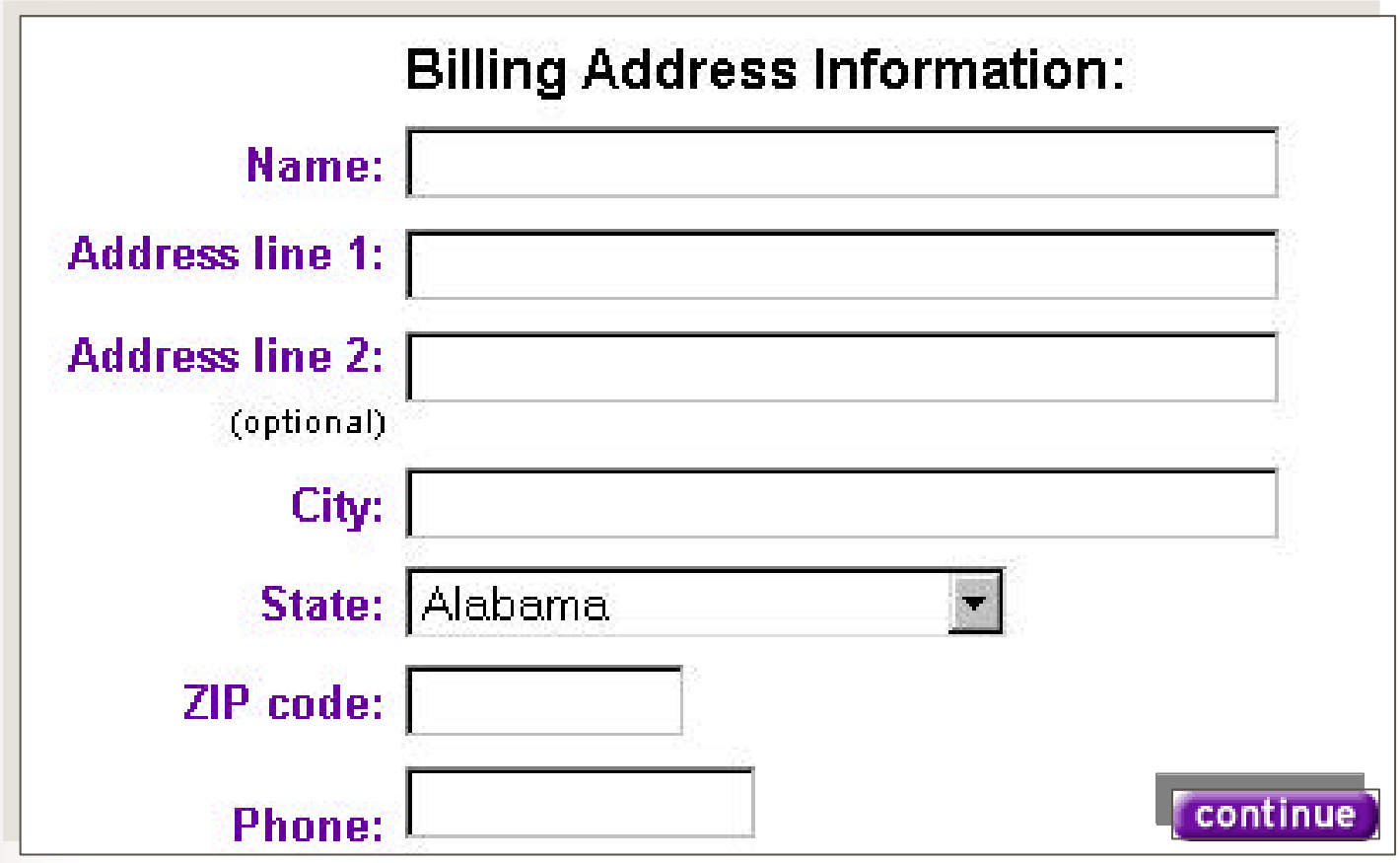
Enumerating the options (Cont.)



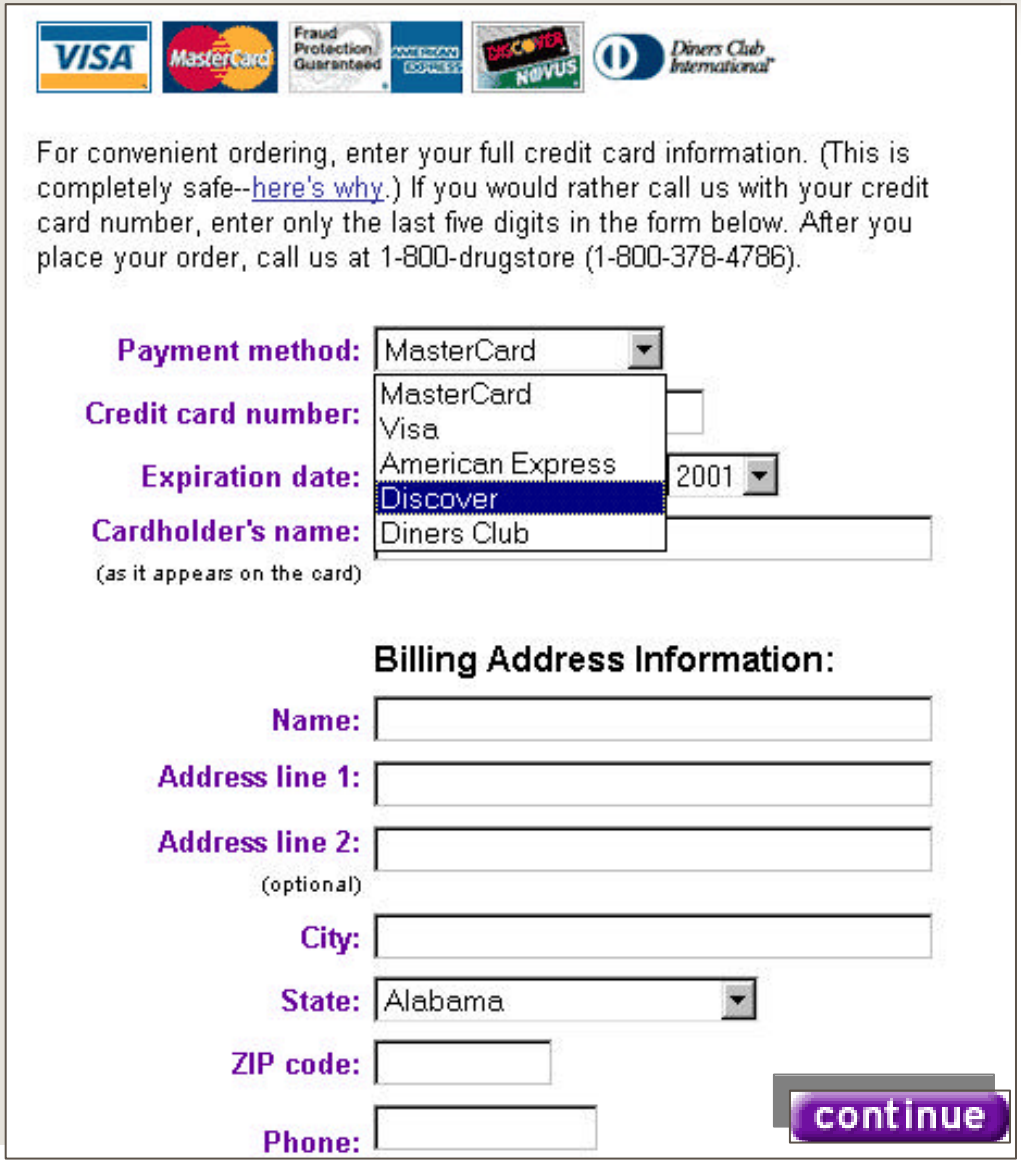
Example of the artefact



Example of the artefact (Cont.)



Tentative design

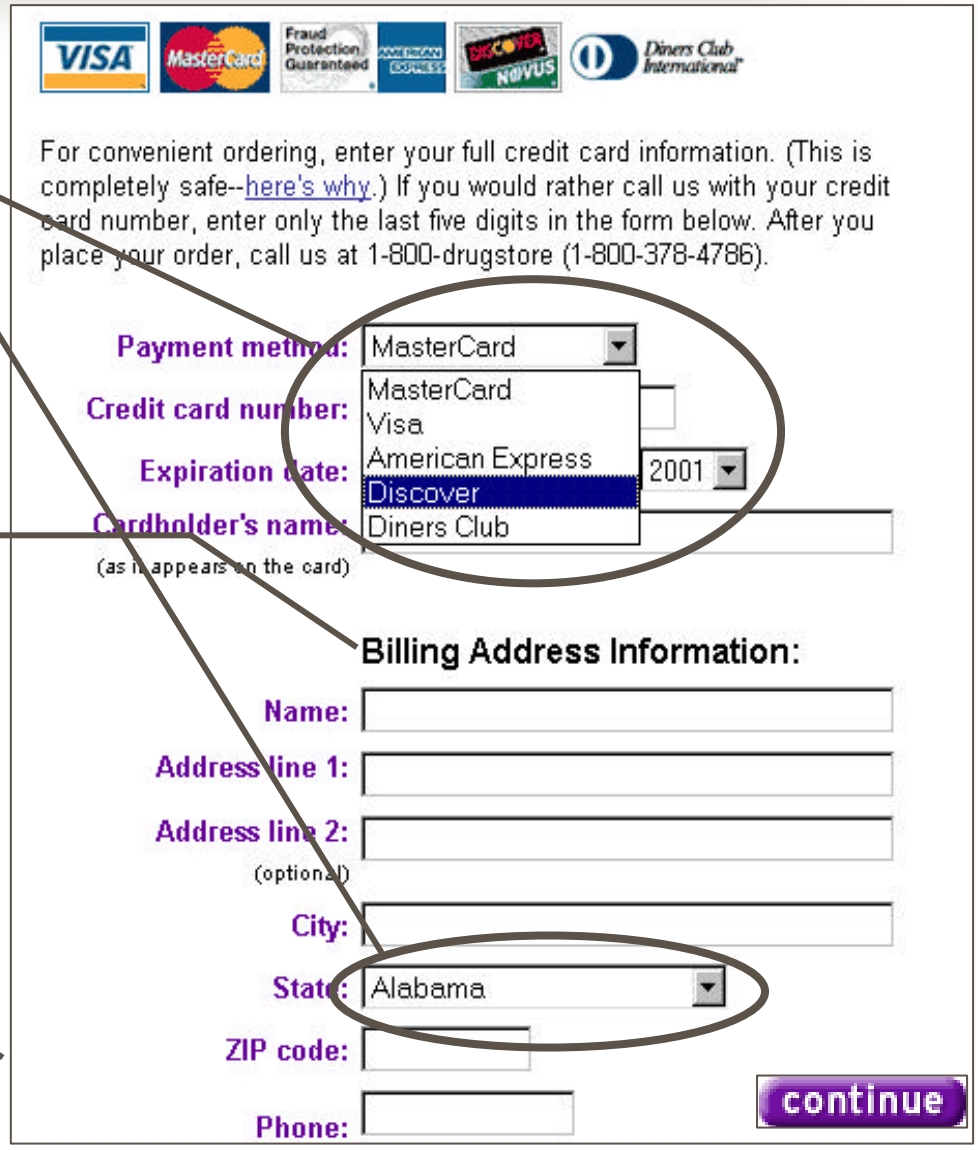


Developing argumentation

- Ability to initiate movement on demand
- Ability to pull target
- Fine spatial control
- Eye-hand coordination

- Availability of fingertips as reliable contact site
- Competence in using keyboard

- Size of VDU

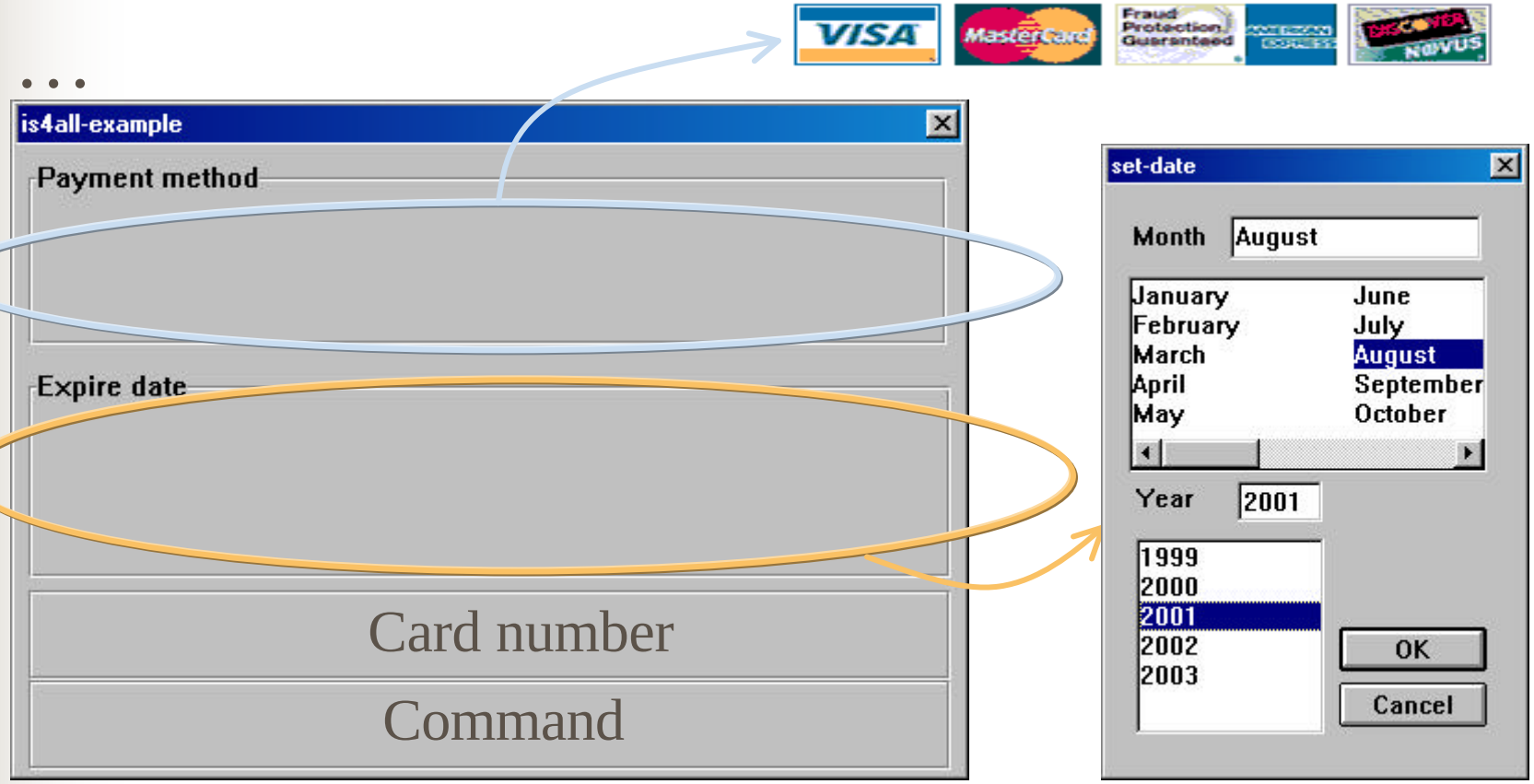


Developing argumentation - *Setting filters*

- Reformulate implicit claims into suitable filters
  - How can the task be carried out with an alternative pointing device (e.g. a stylus of a palmtop computer) ?
  - How can the task be performed in a public kiosk?
  - How can the task be performed by a user with gross-temporal control familiar with switch-based interaction ?
- Revise original scenario
  - scenario screening using the designated accessibility filters

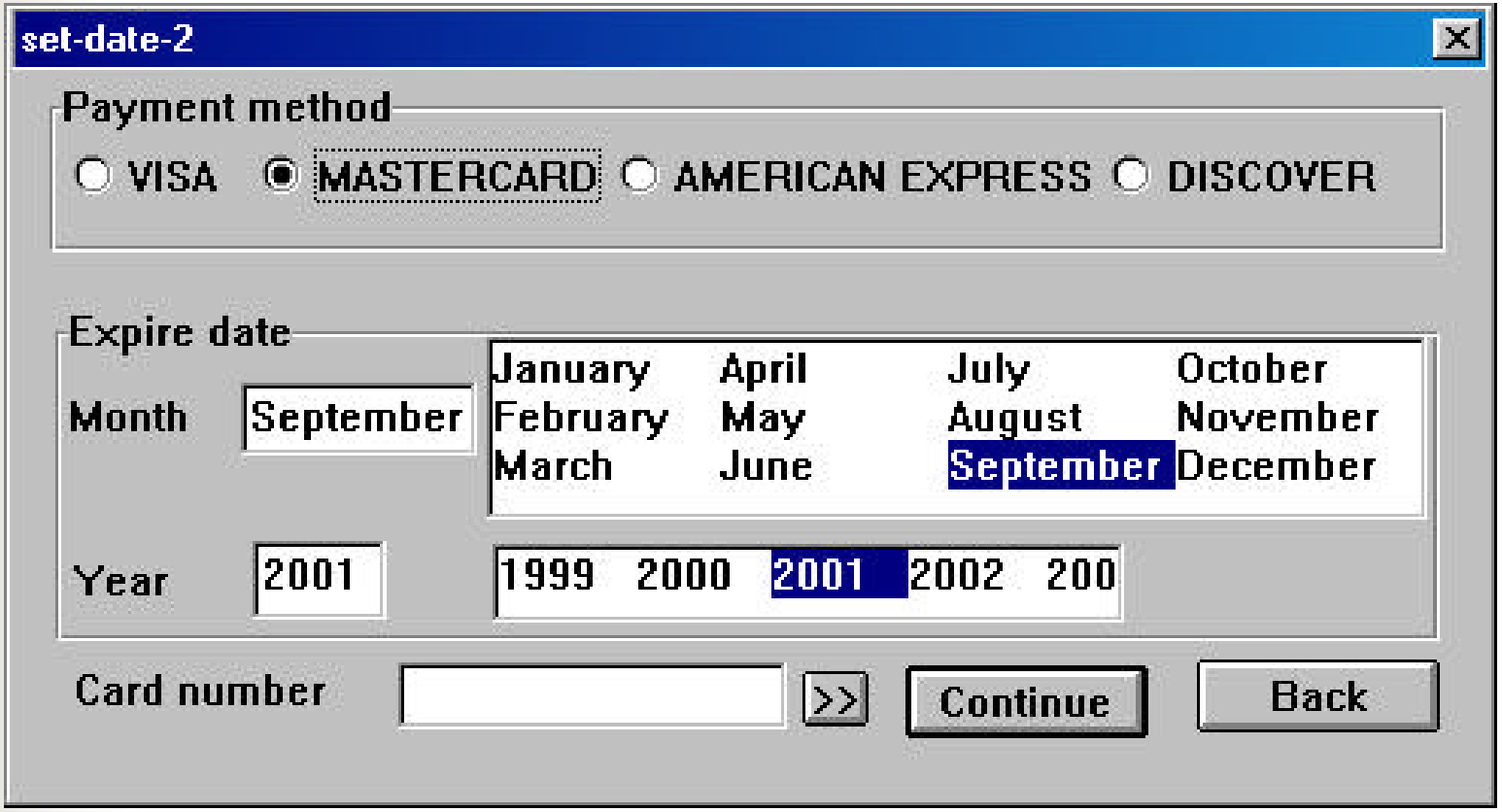
Alternative for a palmtop device

- Four logical groups
- Smaller display requirements
- …



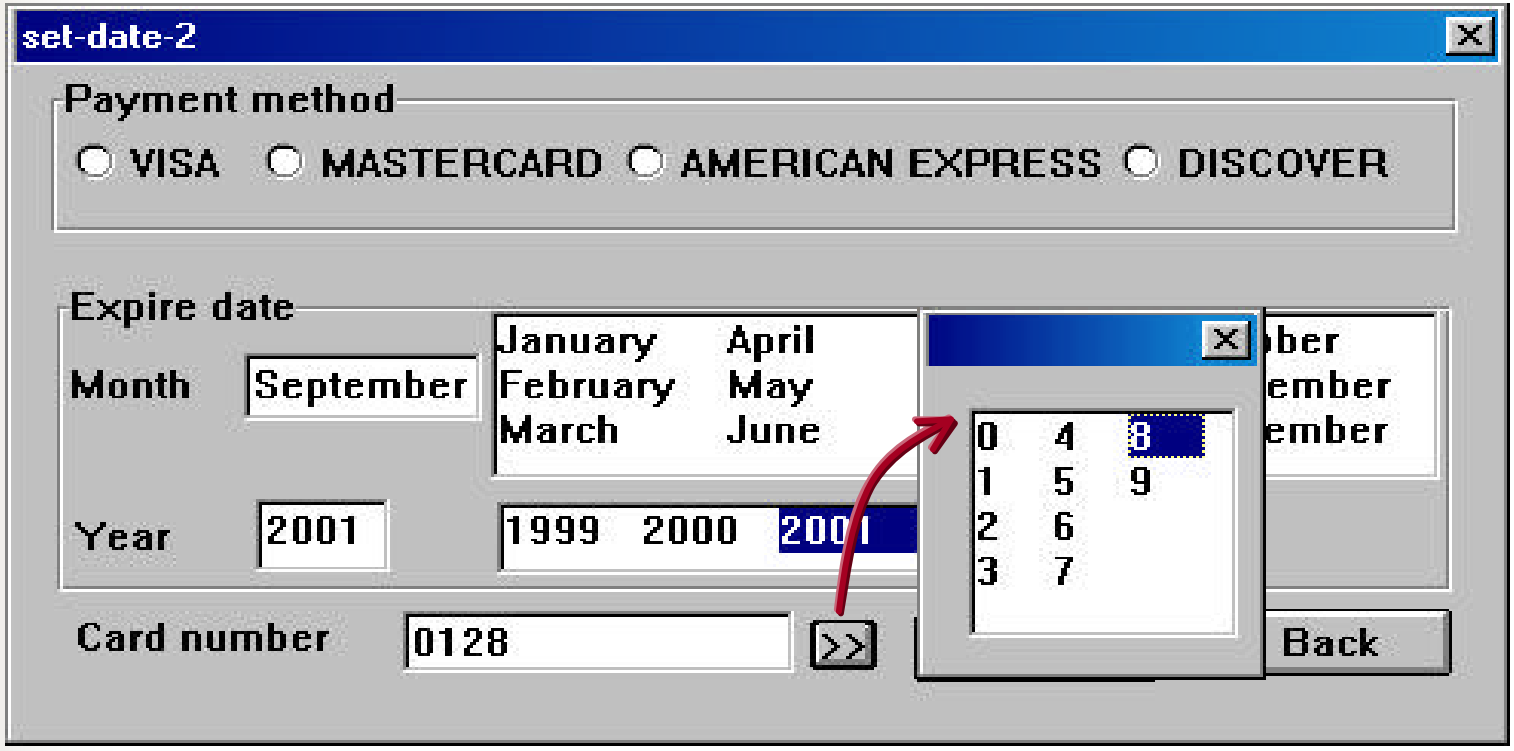
Option 1

- Selection by pointing



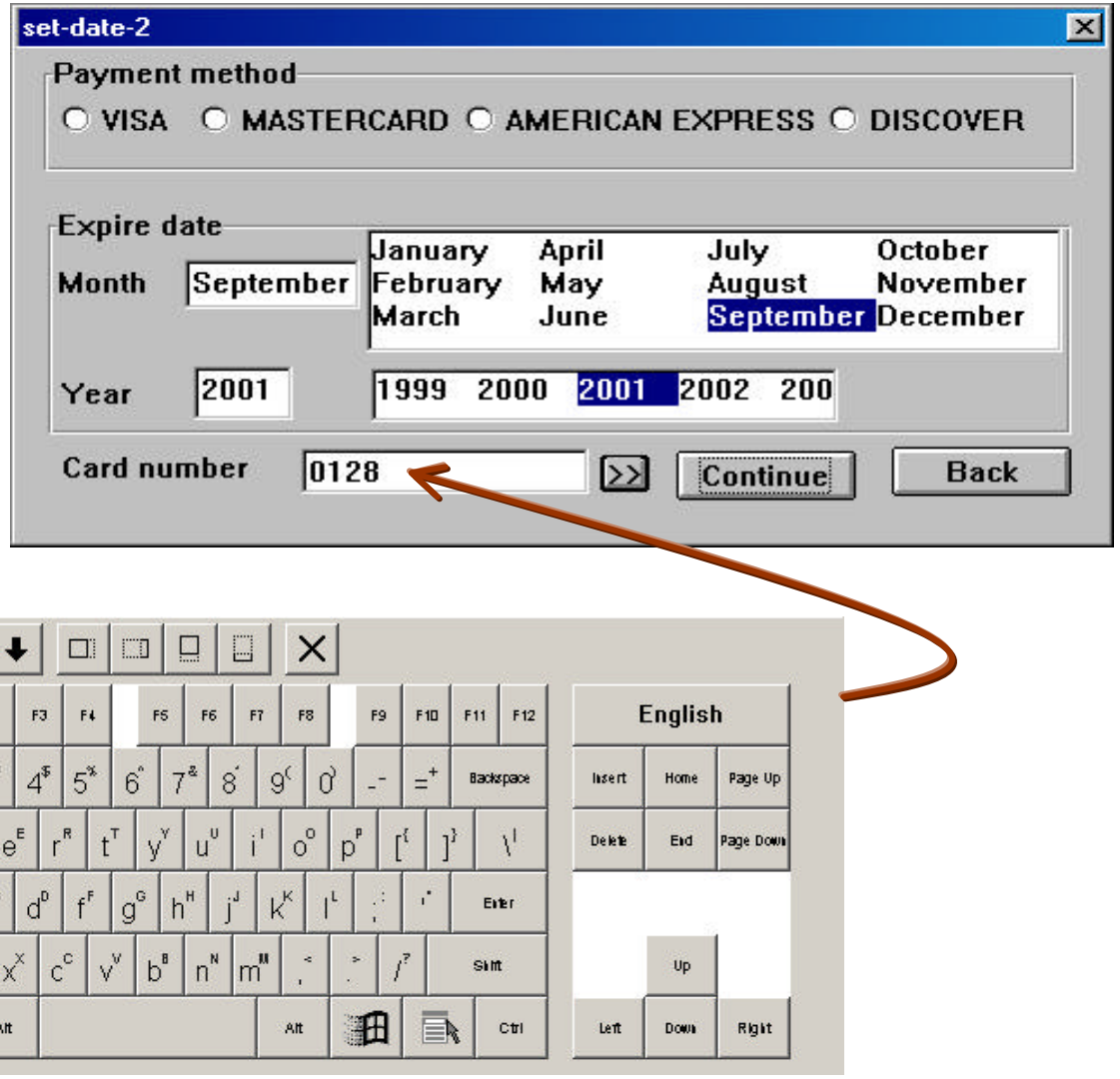
Option 1 (Cont.)

- Editing by selecting from a panel



Alternative for motor-impaired

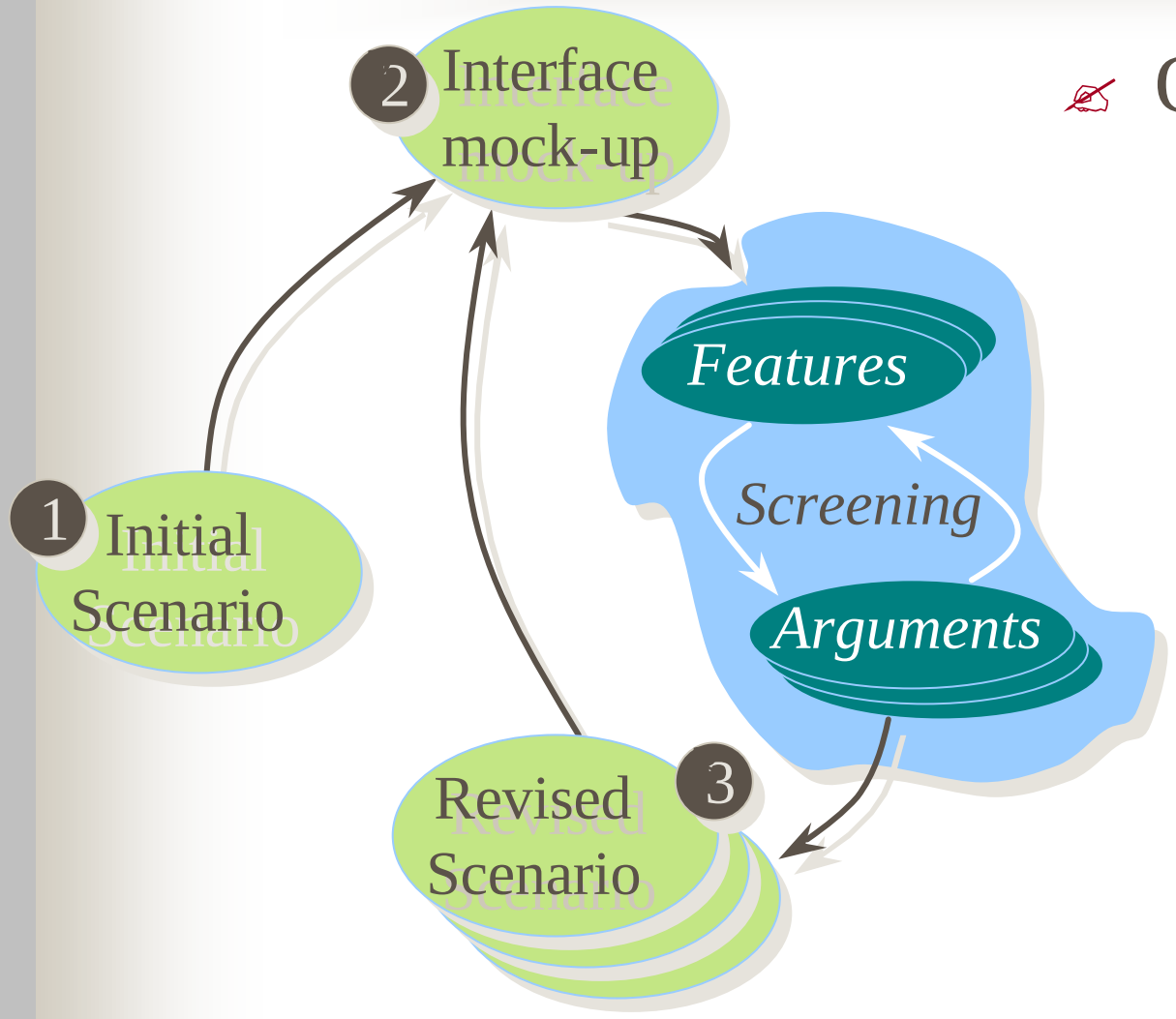
- Scanning is an option
- Group elements can be selected via manual or auto scanning



Implications

- Styles should be implemented and made available to the run-time system
- For each style develop suitable argumentation
  - Why does it exist ?
  - What issue does it support ?
  - When should it be initiated ?
  - Where is it implemented ?
  - How does it compare against competing styles ?
- The above will determine
  - the conditions for initiating a style
  - the relationship between styles

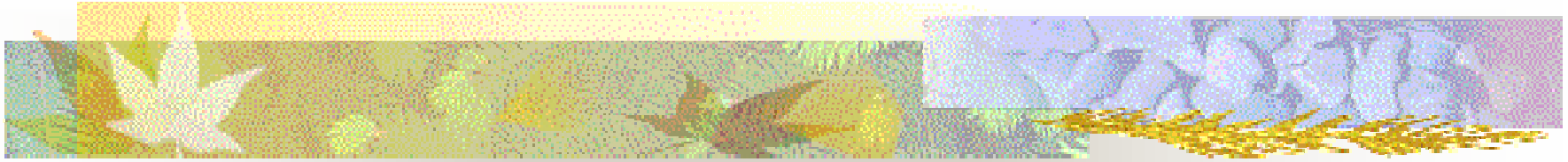
Towards a general process model



Open questions

- How do we derive suitable filters?
- How many filters does one use?
- How does the designer assess progress?
- What types of filters do we need for healthcare?
- Can they be clustered?
- Can they be validated?

Project milestones & results



Project milestones

- Definition of appropriate set of instruments for data collection
- Best practice code for Universal Access
- Scenarios to demonstrate the validity and applicability of such a code of practice
- Code for Healthcare practice
- Development of validation strategy
- Outreach
  - Web site, seminars, workshops, conferences and input to standardisation activities

Results of general value

- State of the art on universal access methods and supporting technologies
  - screening models
  - high level principles and guidelines
- A comprehensive code of practice on universal access
  - Guidance on universal access (macromethods)
  - Universal access techniques (micromethods)
  - Examples of good practice and case studies

Universal access code of practice

- Process guidance (micromethods)
  - High level principles which extend ISO 13407
- Techniques (macromethods)
  - Unified design method (for interaction design)
  - Questionaire (for evaluating tentative designs)
  - Universal access filters (for argumentative requirements engineering)
- Examples & case studies

Healthcare-specific results

- A process model detailing how universal access can be accounted for in Healthcare Telematics
- Protypical implementations of Healthcare-specific artefacts (electronic healthcare records) & recommendations
- Universal access filters in Healthcare Telematics
- Design rationale and examples

Project phases

- Develop Universal Access code of practice and training course
- Develop guidelines for how to use universal access in Healthcare Telematics
- Select two products / scenarios to which we can begin applying universal access principles.
- Identify working filters that can be used during product screening
- Begin incorporating universal access principles into vendor requirements

Concluding remarks - Results

- A process model detailing how universal access can be accounted for in Healthcare Telematics
- Prototypical implementations of Healthcare-specific artifacts (electronic healthcare records) & recommendations
- Universal access filters in Healthcare Telematics
- Design rationale and examples