

Tools for Requirements Elicitation and Analysis

Group 3 - RE II - HS14

Agenda

- 1) How our topic fits
- 2) UI/UX Design Tools
- 3) UI/UX Workstyles
- 4) Natural Language Processing in RE
- 5) Discussion

1. How our topic fits

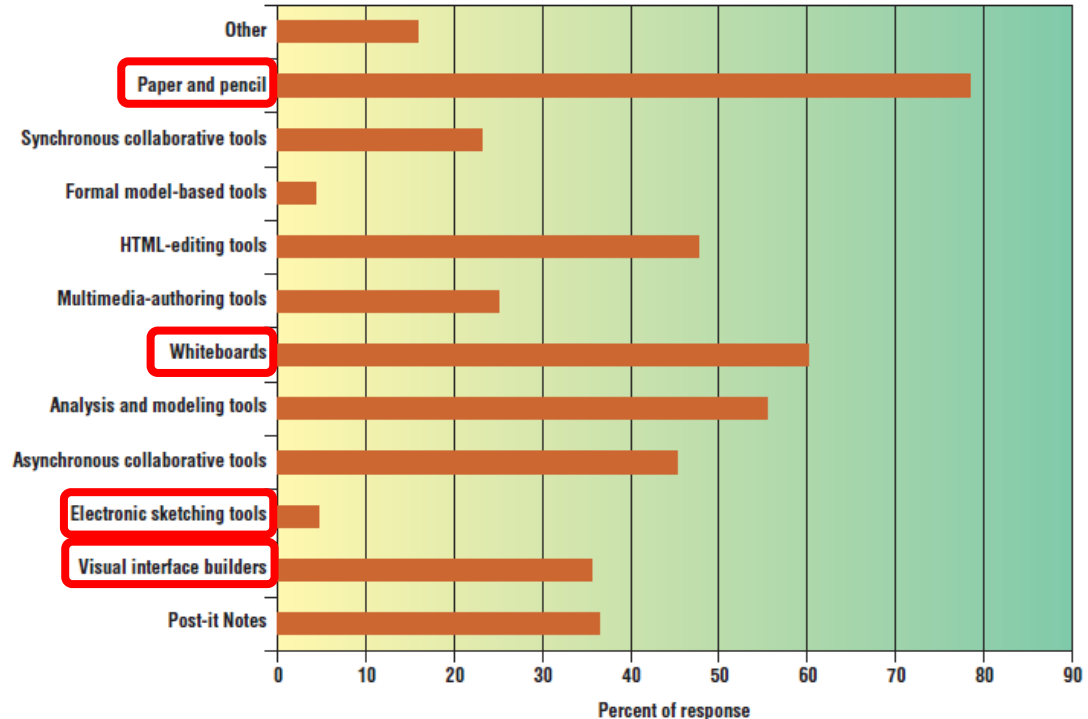
Requirements Elicitation and Analysis:

- Very important: starting point for RE activities
- Tool support is sparse, but growing

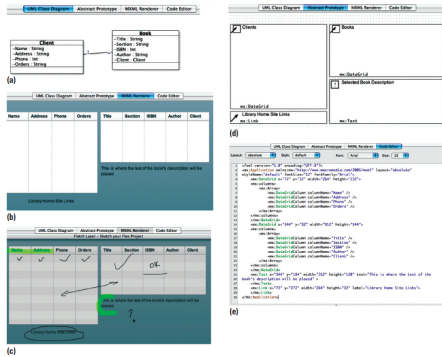
UI / UX Design Tools (I)

“Problem” for Designers:

How to combine informal, flexible tools with formal, digital tools?



UI / UX Design Tools (II)

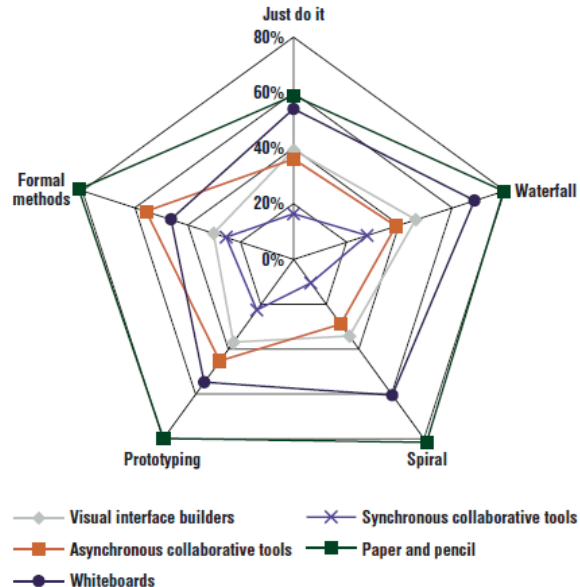


Screenshot of CanonSketch

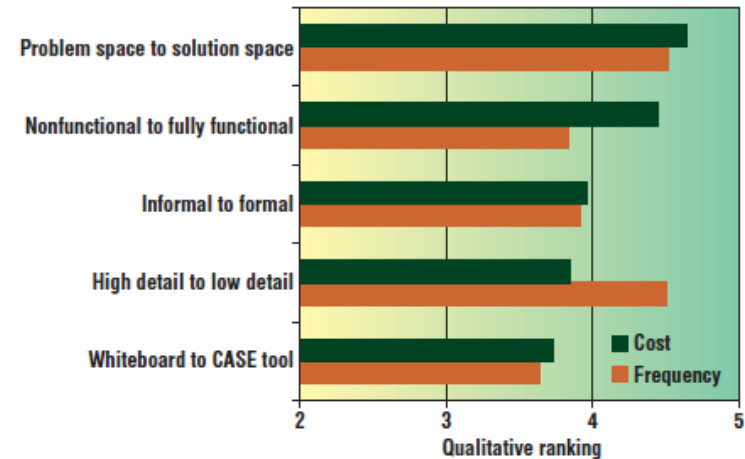
- TaskSketch
 - Supports transition from problem space context to final solution design and back
 - Allows switch from use-case perspective to system architecture perspective
 - Three synchronized views: participatory, use case narratives, activity diagrams
- CanonSketch
 - Four synchronized views to support workstyle transition
 - From UML class diagram to functional prototypes
 - Supports annotations for each view

UI / UX Workstyles

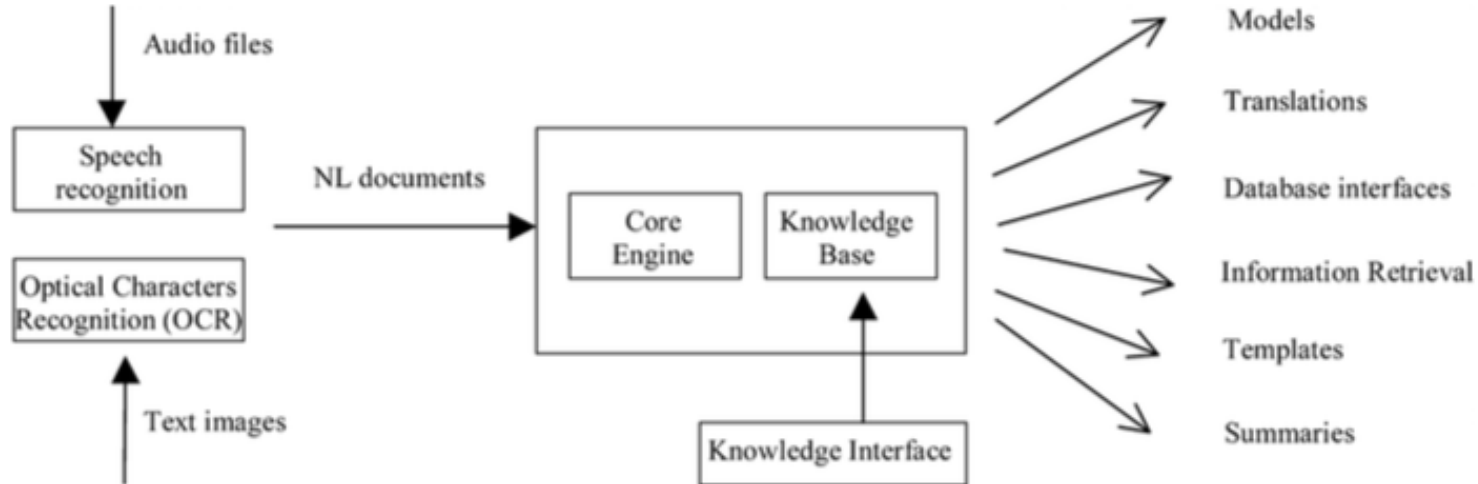
Which tools are used in which workstyles?



Which workstyle transitions are the most frequent / most costly ones?



Natural Language Processing (NLP) - Basics



NLP for Req. Elicitation

2004:

- None of the available req. modelling tools exploit NLP capabilities
- Research: Do a linguistic analysis of RE documents to get a conceptual model
- Two main aspects:
 - How “natural” is the input?
 - How much intervention by an analyst is needed?
- “Naturality” of input:
 - How controlled / unrestricted / domain-specific is the language?
- Problem: How to capture all the feelings, nuisances, etc. and combine them with domain-specific knowledge, creativity, IT-specific knowledge, ...

Possible Applications

- Elicitation
 - speech recognition: digitising of spoken language into documents
 - reveal ambiguities and contradictions
 - automatic analysis of replies to questions → interpret and classify answers
- Modelling
 - text → diagram
- Validation
 - Produce natural language based descriptions of the models
- Translation of documents into other languages
- Maintain traceability of requirements in several documents/stages

CASE Market Potential

CASE: Computer-Aided Software Engineering

- CASE tools are mostly only used by companies that also have a defined methodology in place for developing software
- First market niche
 - requirements identification through document analysis
 - specialisation needed regarding domain knowledge
- Second market niche
 - requirements modelling

Crucial Activities

1. **Identify user requirements**
2. Test the software
3. **Model user requirements**
4. Document software systems
5. Evaluate project feasibility
6. Learn to use new tools
7. Train staff
8. Other

Discussion

- Do you know about tools that have emerged since 2004 that support NLP?
- Where do you see the biggest potential to use such tools?