

Tools for Requirements Elicitation and Analysis

Jan von der Assen and Laura Toedtli
Group 3

How can tools support Requirements Elicitation?

- Storing and managing elicitation templates
- Storing and managing elicitation checklists
- Providing compatibility in order to exchange requirements information

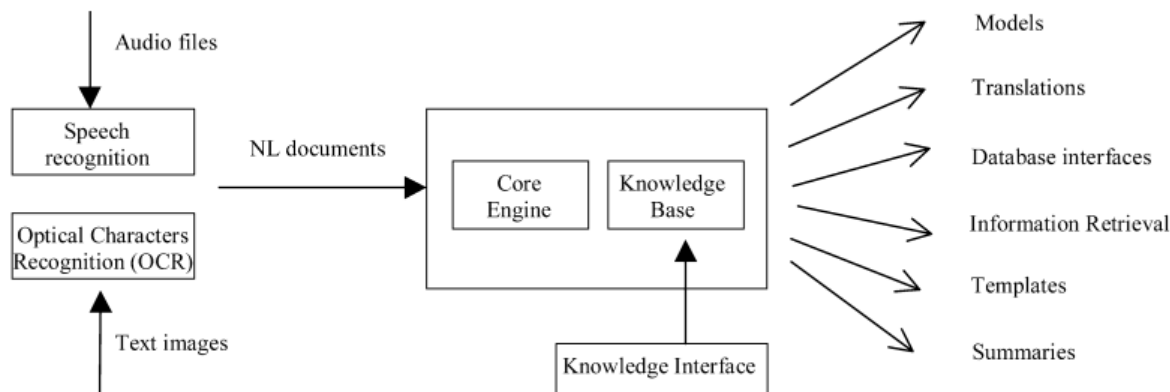
→ Usage of natural language processing (NLP) tools, because:

- (1) much progress in NLP
- (2) needed support in early phases of requirements definition and conceptual modelling

→ BUT: Is there a demand?

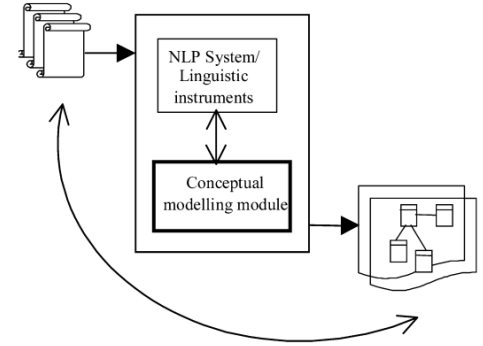
The architecture of a general-purpose NLP system

- Input: Vocal and textual
 - Natural or restricted (vocabulary, grammar)
- Output:
 - Syntactic, semantic or pragmatic analysis
 - Text in same or other language
 - natural or artificial
 - Summaries, templates



How can NLP-based Systems help?

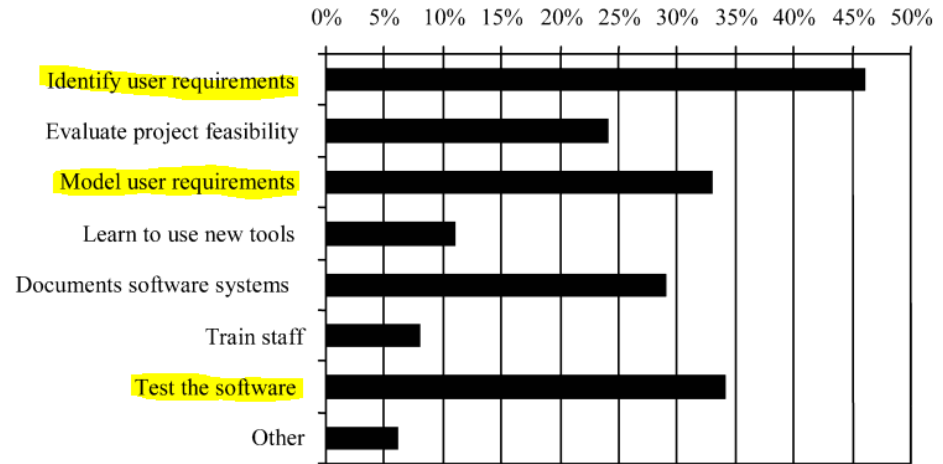
- Elicitation:
 - Facilitate digitisation of documents
 - reveal ambiguities/contradictions
 - help design questionnaires/interviews (by verifying ambiguity of questions)
 - automatic analysis, interpretation and classification of replies to open-ended questions
- Modelling:
 - Extraction of description of elements (UML and ER diagrams)
- Documentation:
 - Generation of documents
 - Automated updates based on changes in source documents → traceability
 - Translations



Results of market research by Mich et al. (2004)

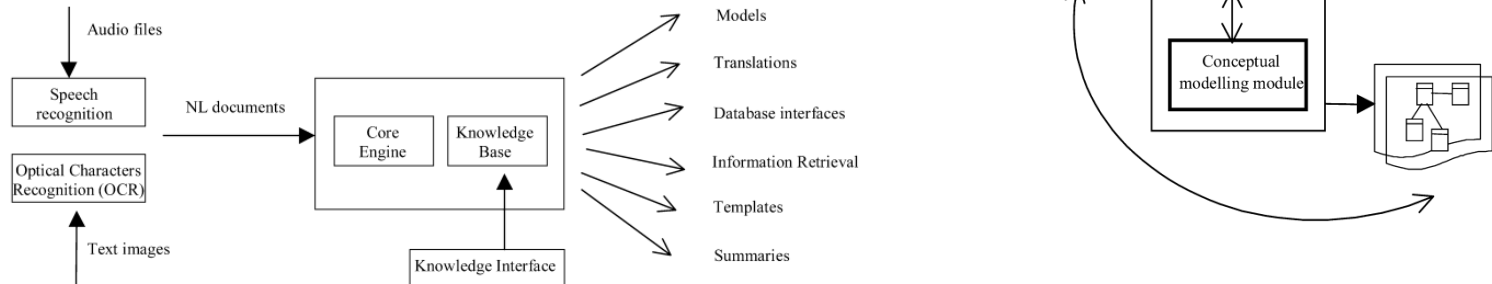
- elicitation and modelling user requirements are perceived as important
- Automation of these activities would improve efficiency
- in only $< \frac{1}{3}$ of cases participants reported using tools for requirements analysis and top-level design
- Most documents are written in natural language but tools for restricted language are cheaper and more mature

Which are the two things in your job you would like to do more efficiently?



Possible market for NLP-based computer-aided software engineering (CASE) tools

- Need to analyse natural language texts
 - customer-oriented approaches: interviews and questionnaires
 - Restrictions: Customer might express what she can and not what she needs
- Need for specialised knowledge bases
- Need to use NLP modules with other CASE tools
 - conceptual modelling

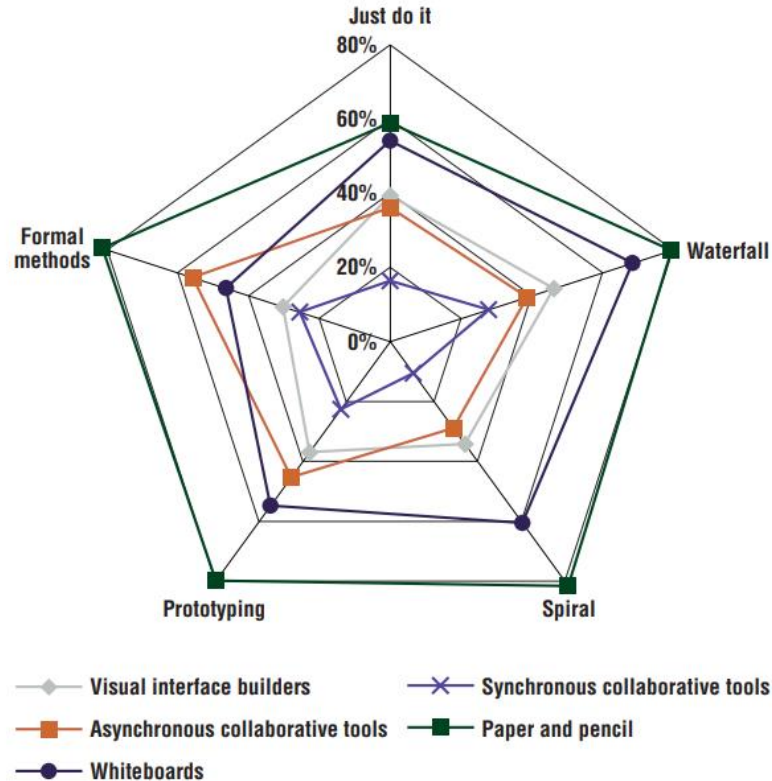


Surveyed UI design tools

User Interface Design tools

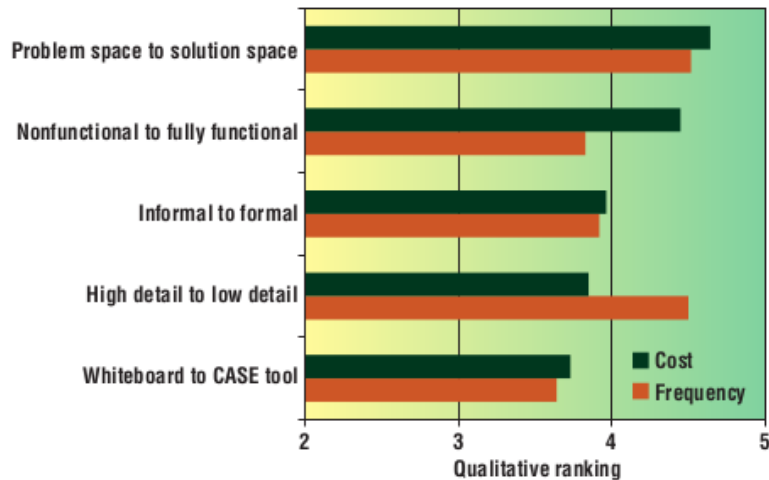
- How do these tools relate to requirements engineering and to activities such as elicitation and analysis?
 - UI design is a creative, interdisciplinary and communication intensive process
 - Similarities in dimensions
 - Frequently used tools for elicitation and analysis of requirements for User Interfaces are Paper and pencil, whiteboards, asynchronous collaboration tool

Survey results: (Traditional) Tool adoption

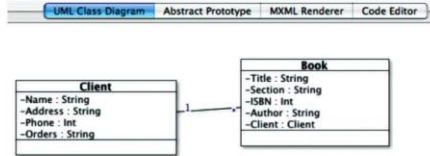


Workstyle transitions

- What is a workstyle transition?
- Why is this unfavorable?
- Which transitions have the biggest impact?



CanonSketch components



UML Class Diagram Abstract Prototype MXML Renderer Code Editor

Name	Address	Phone	Orders	Title	Section	ISBN	Author	Client

This is where the text of the book's description will be placed

Library Home Site Links

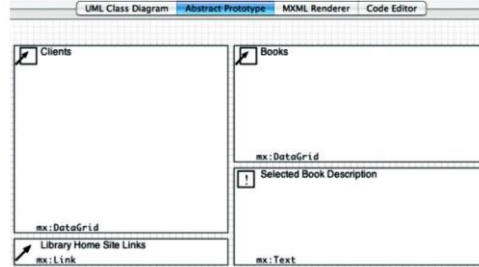
UML Class Diagram Abstract Prototype MXML Renderer Code Editor

Fetch Layer - Sketch your Flex Project

Name	Address	Phone	Orders	Title	Section	ISBN	Author	Client
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This is where the text of the book's description will be placed

Library Home Site Links



UML Class Diagram Abstract Prototype MXML Renderer Code Editor

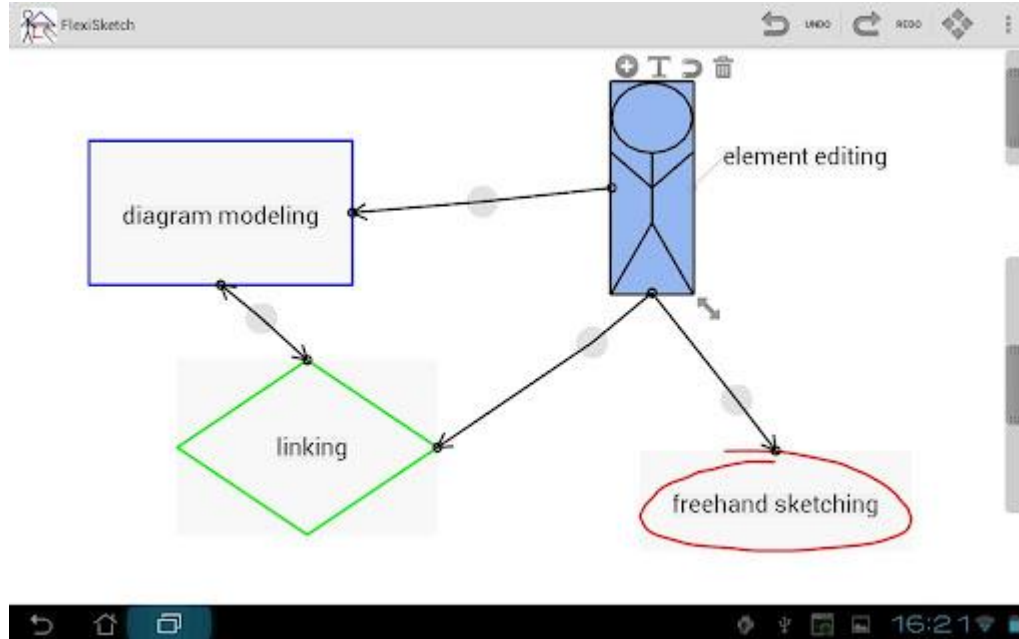
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CanonSketch workflow

1. Create domain model
2. Create abstract UI sketch
3. Apply sketch recognition
4. Map abstract elements to UI components
5. Add custom functionality to UI

FlexiSketch¹



Questions?