



Tools for Requirements Elicitation & Analysis

Beat Kuster

Stefan Cortali

Mengia Zollinger

Raffaele Ciriello

Agenda

1. **Motivation**

Why use a tool for Elicitation and Analysis?

2. **Vision**

Natural Language Processing for gathering requirements

3. **Insight**

Tools and Workstyles used by practitioners.

4. **Lessons Learned**

Wisdom. Spread.

Motivation

Why use a tool for Elicitation and Analysis?

Elicited Requirements

- ... crucially **determine customer satisfaction**
- ... require **complex, iterative processes**
- ... involve **many stakeholders**
- ... are often **subject to change**
- ... and difficult to handle in **large projects**

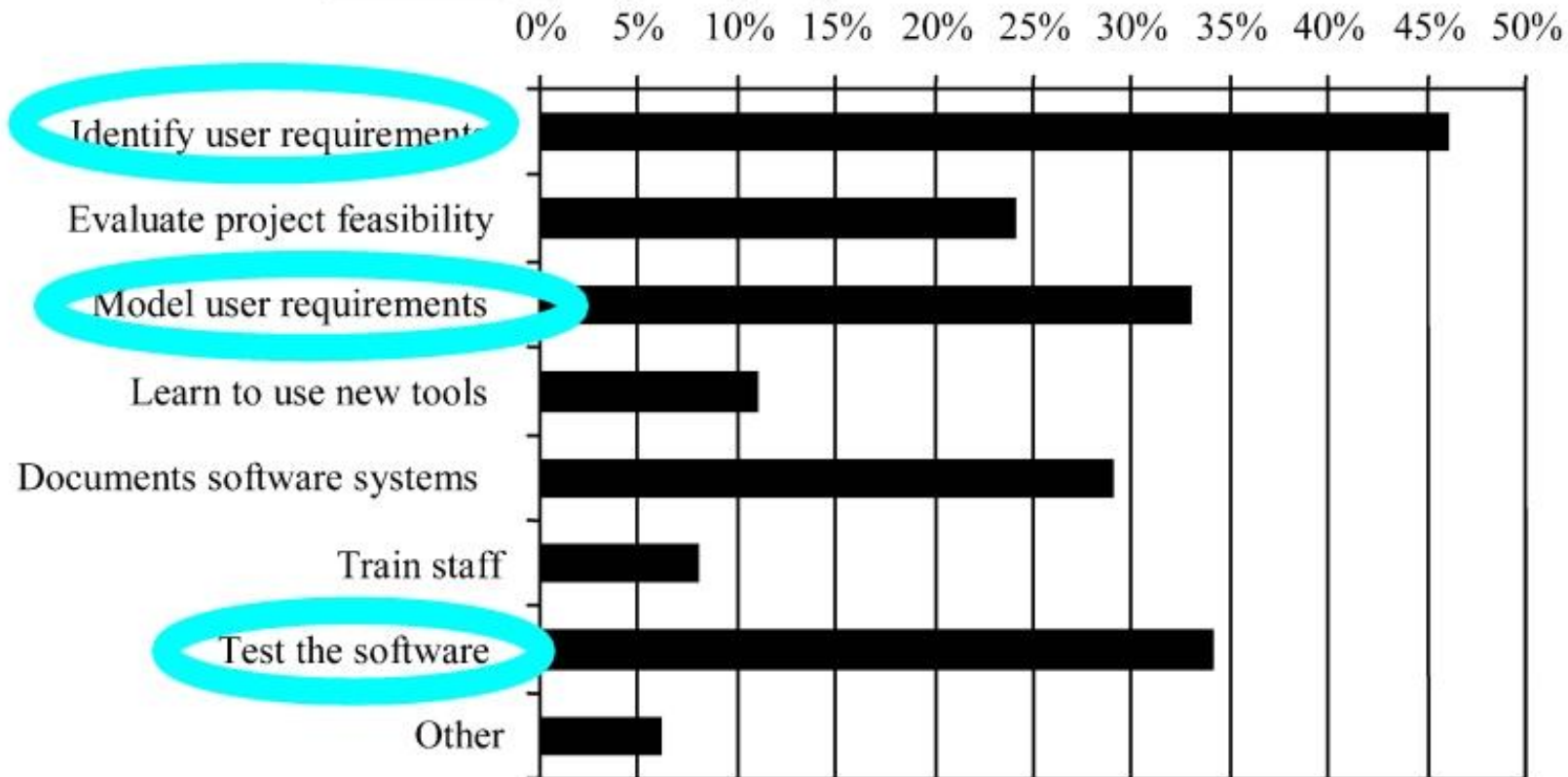


➡ The right tools can improve **Quality & Productivity** of Requirements Elicitation

Motivation

Why use a tool for Elicitation and Analysis?

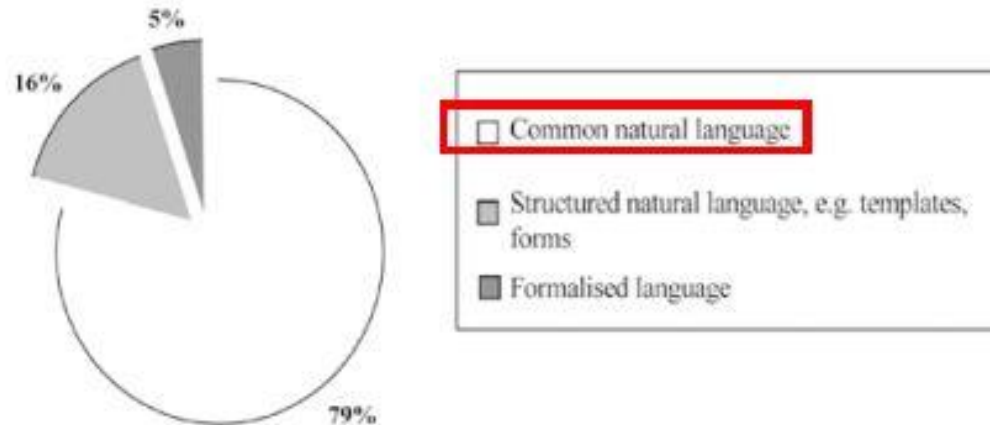
Which are the two things in your job you would like to do more efficiently?



Vision

NLP Tool support for gathering requirements

Most requirements documents are written in **natural language**

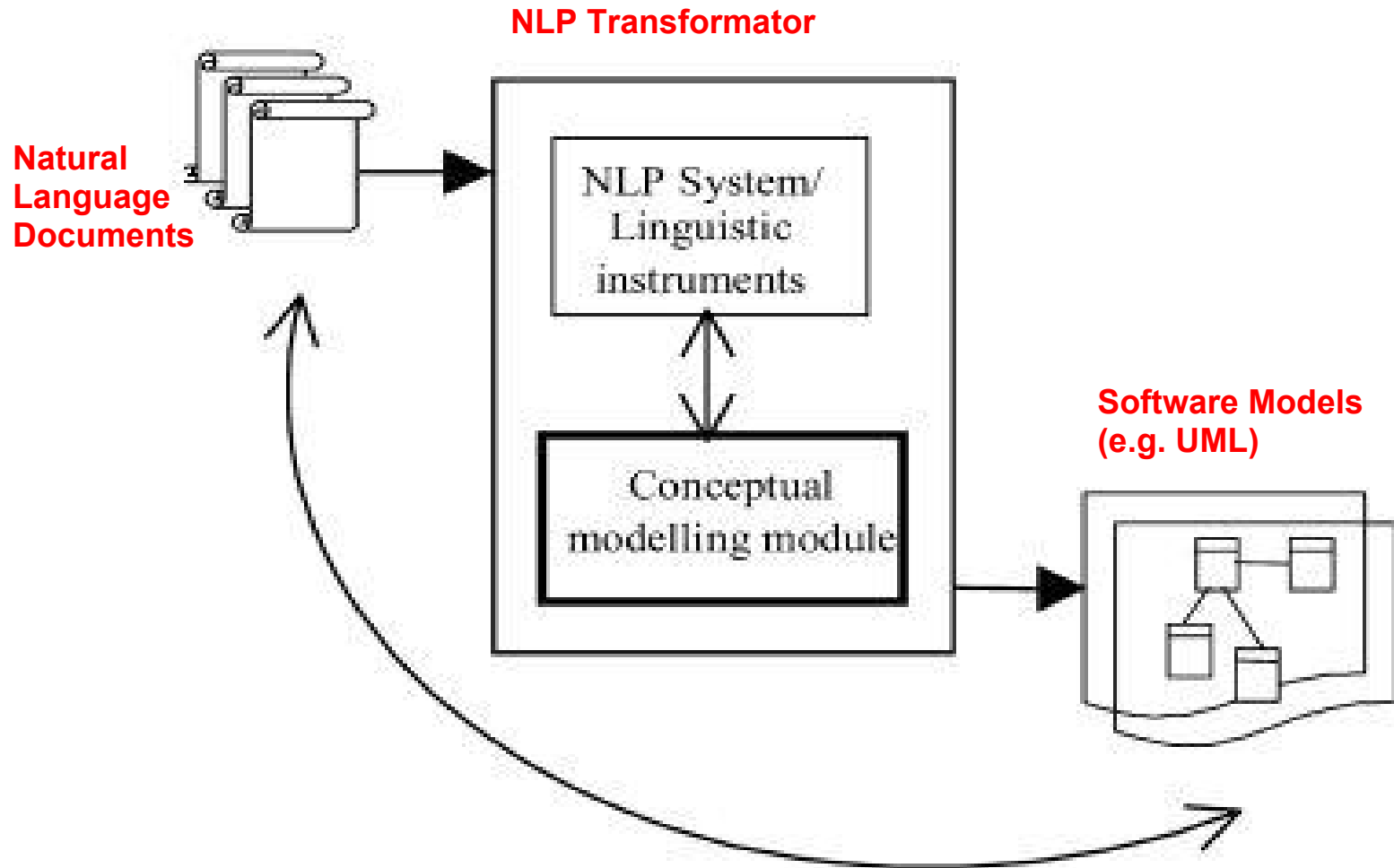


Transform documents into a **knowledge base** using **natural language processing** tools.

Automatically generate **design artifacts**

Vision

NLP Tool support for gathering requirements



Vision

NLP Tool support for gathering requirements

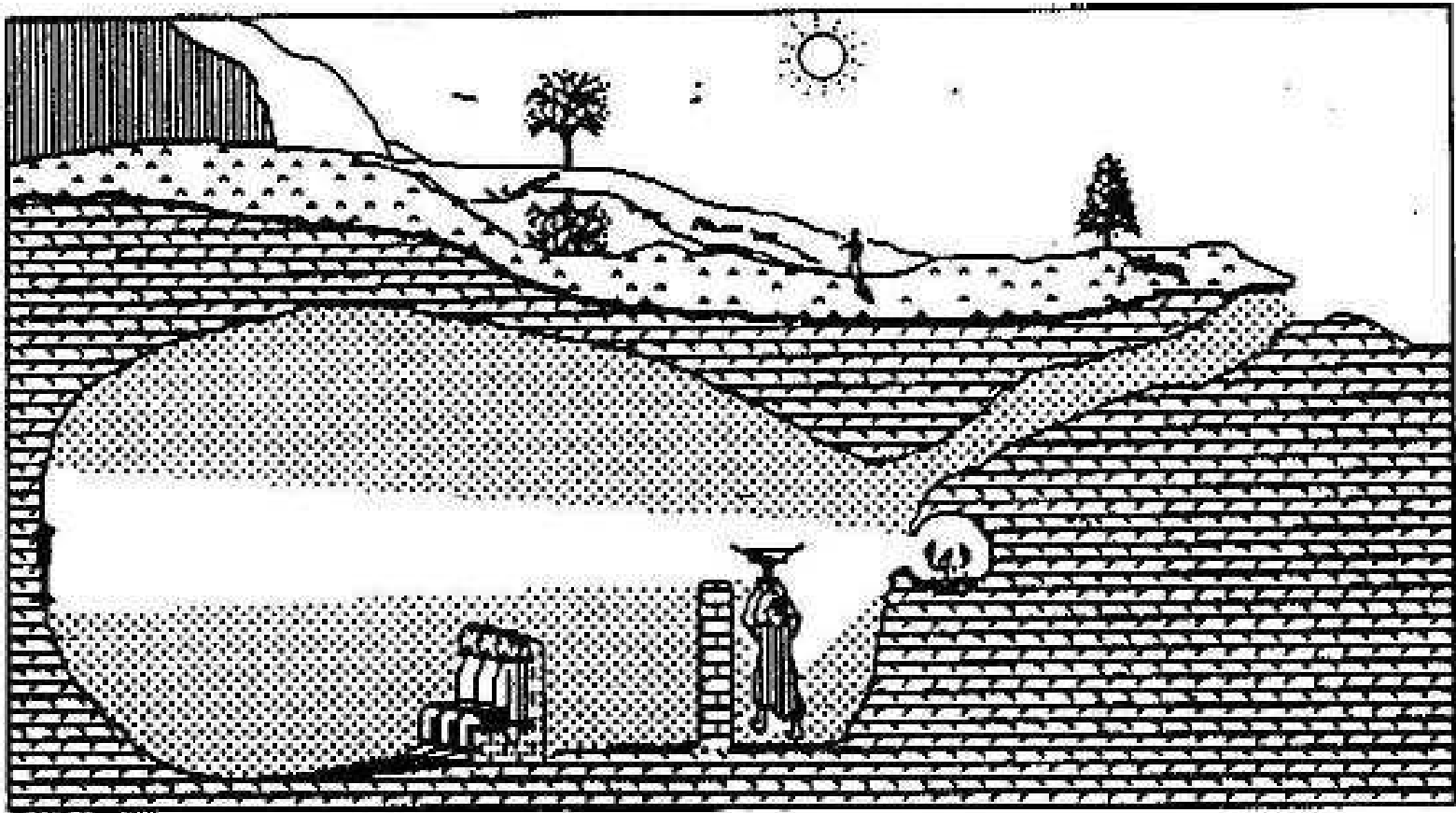
Benefits

- ✓ Discussions **based on models**, not texts.
- ✓ **More efficiency** in eliciting requirements.
- ✓ **Easily adopt changes**



Vision

Philosophical Excursus: Plato's Allegory of the Cave



Ethics and Argument in Plato's *Republic*. Summer, 1994. Steven S. Tigner & Tonya Geckle.

Vision

NLP Tool support for gathering requirements

Challenges

Identification of the **right requirements** is crucial
(Not: Modeling them).



Requirements are **hard to express**
even in natural language.



Natural language is **highly ambiguous**
and **difficult to structure**.

Insight

Tools and Workstyles used by practitioners

Survey with 370 industry participants with focus on User-Interface Design

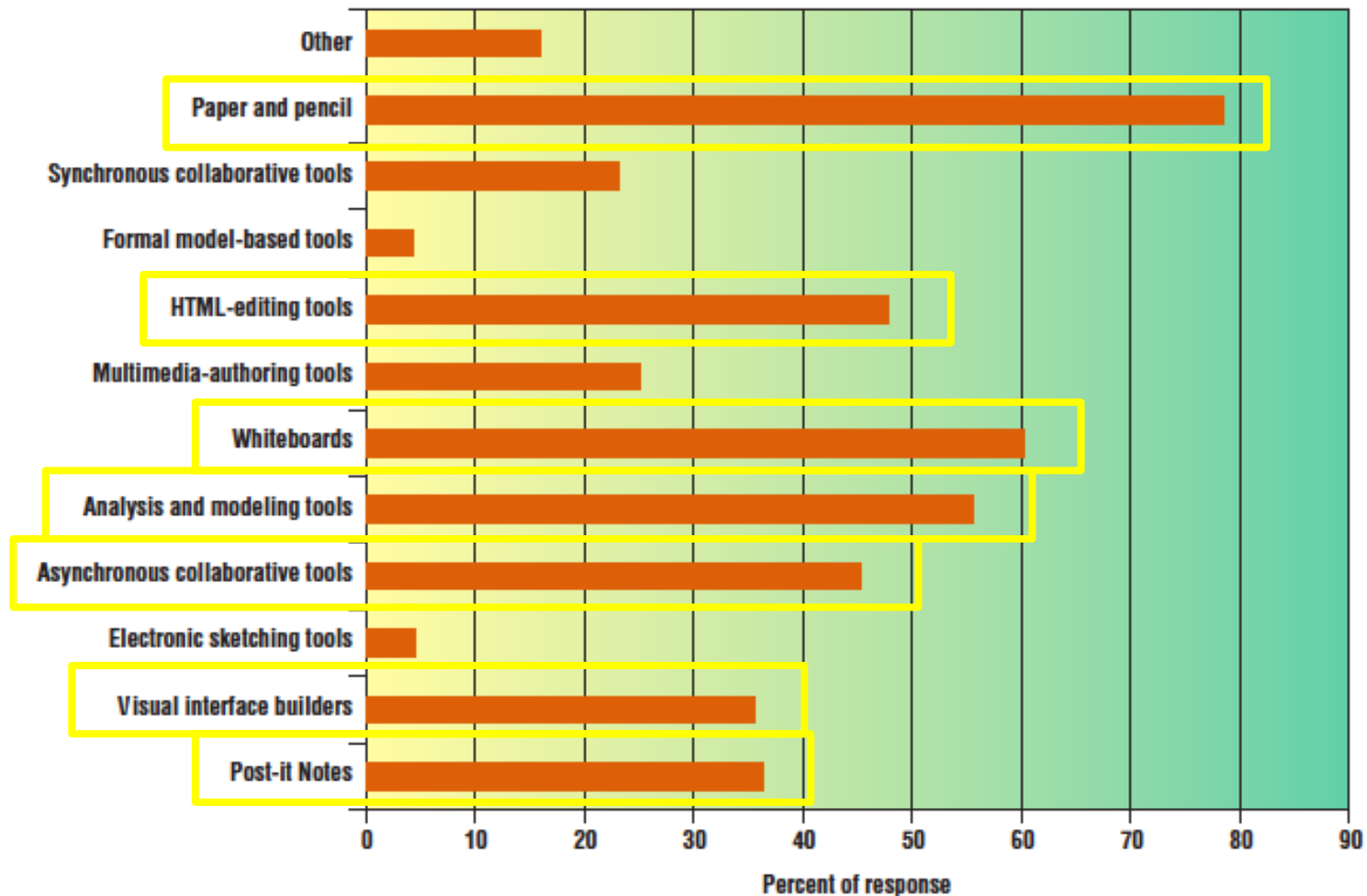
Participants:

- Interaction designers
- Usability specialists
- Programmers
- System analysts
- Designers



Insight

Results tool usage



Insight

Results tool usage

Industry practitioners use mainly **very simple tools**

They work at the **same time and place** rather than at the same time but **different locations**

Visual interface builders is **7th** most popular tool (out of 12)

Insight

Results tool usage

Usage of tools depending on development process

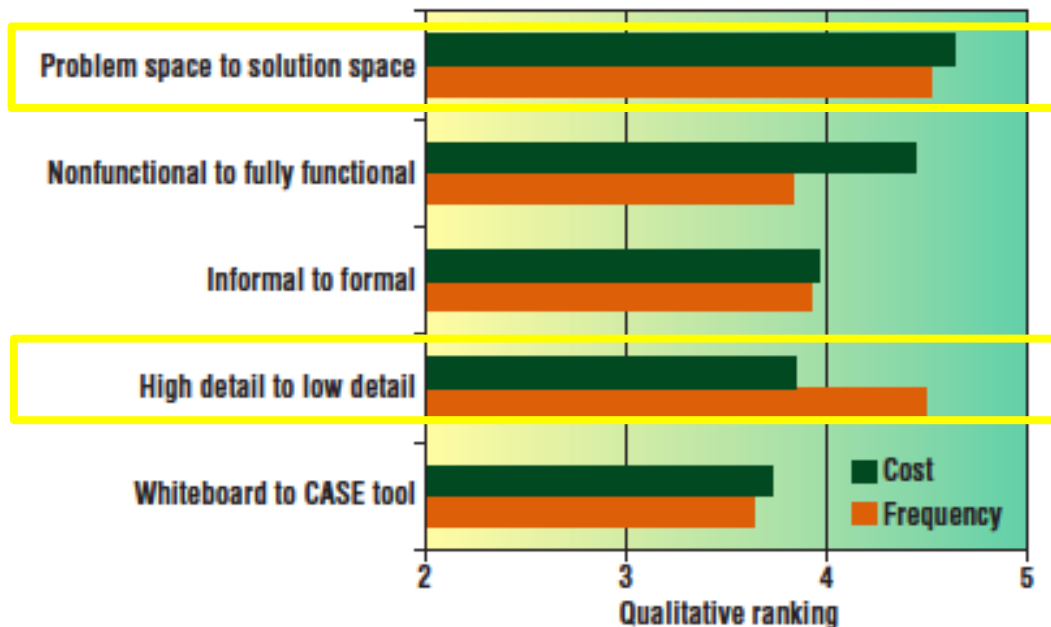
Development process	Type of tool				
	Interface builders	Asynchronous tools	Whiteboards	Synchronous tools	Paper and pencil
Just do it	39	36	54	16	59
Spiral	34	29	61	11	82
Prototyping	37	45	55	23	80
Formal methods	30	56	47	26	81
Waterfall	46	39	69	28	80

Whiteboards, paper & pencils most commonly used tools

Insight

Results tool & workstyle transition

Industry practitioners **switch between tools & workstyle** depending on current task



Frequency & Costs



Insight

Results tool & workstyle transition

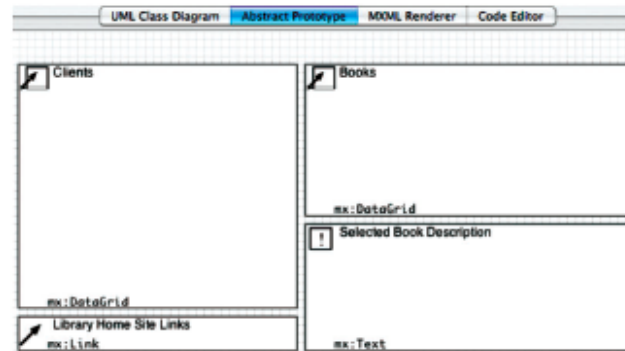
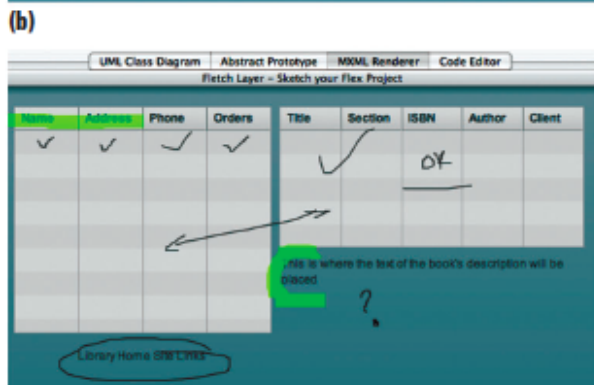
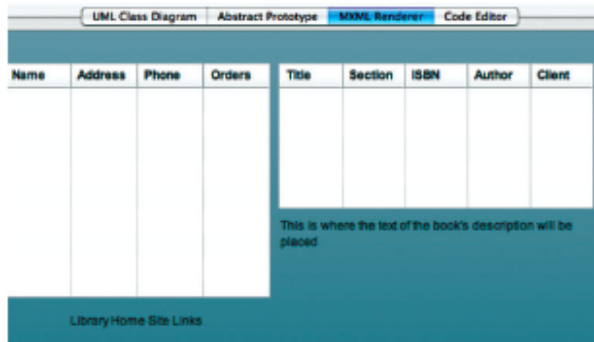
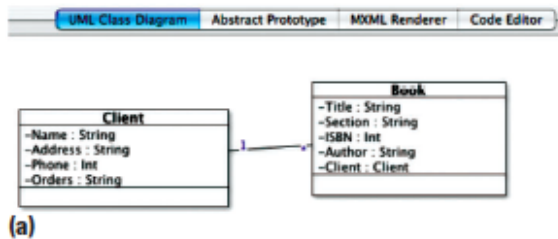
Tools supporting parts of this transition:

TaskSketch & CanonSketch

Support changes through providing different
**perspectives, formalities, functionalities and
detail levels**

Insight

Results tool & workstyle transition



(d)

```

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30              <:mx:Applications>

```

(e)

Lessons Learned

Identification of the **right requirements** is crucial - not modeling them.

Simplest tools are most commonly used in industry

Transition between workstyles and tools **leads to costs**

Transition can be **simplified** by tool support. E.g. **CanonSketch** which uses **different views**