Technische Universität München

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Bachelor's Thesis Final Presentation

A Prototypical Implementation of a Smartphone App for Ad-Hoc Process Documentation

Alexandra Fritzen, 15.12.2014

Software Engineering for Business Information Systems (sebis)
Department of Informatics
Technische Universität München, Germany

wwwmatthes.in.tum.de

Agenda

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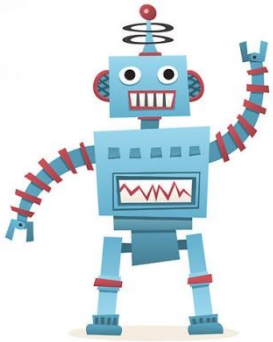
1. Motivation – Why document processes?
2. Comparison of Business Process Documentation Methods
3. The Solution: Informal Process Documentation
4. Prototypical Implementation
5. Evaluation
6. Conclusion & Outlook

Motivation – Why document processes?

Business process:

„Basic unit of business value
within an organization” (Verner 2004, p. 83)

Business process documentation:



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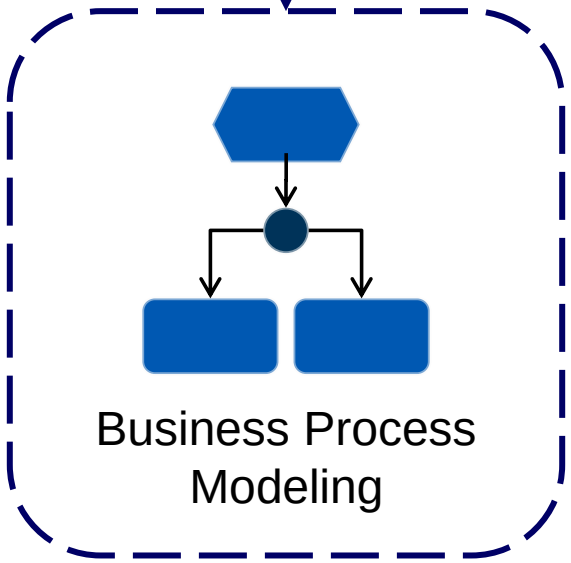
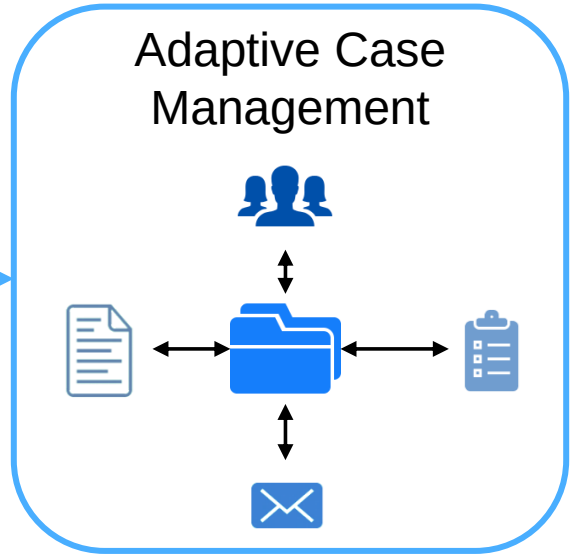
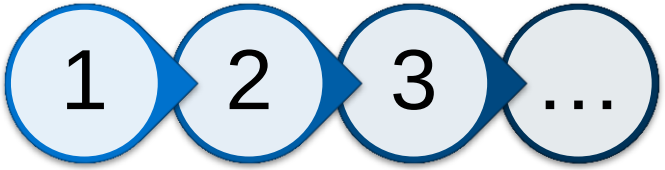
Business Process Documentation Methods

Documented Work	Routine	Semi-routine	Knowledge work
Time of Documentation Effort	Before execution	During execution	After execution
Knowledge of documentation creators and readers	Expert	Semi-expert	Novice
Degree of Formality	Formal	Semi-formal	Informal
Focus of Documentation	Process	Data	
Documentation Outcome	Models	Templates	?



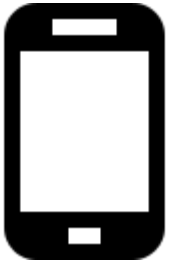


The Solution: Informal Process Documentation



➔ **Understood** by **all users**

➔ Emergence of **best** process documentation



➔ Low barrier of entry
➔ **Ad-hoc** process documentation
➔ Touch screen: easy manipulation of process elements

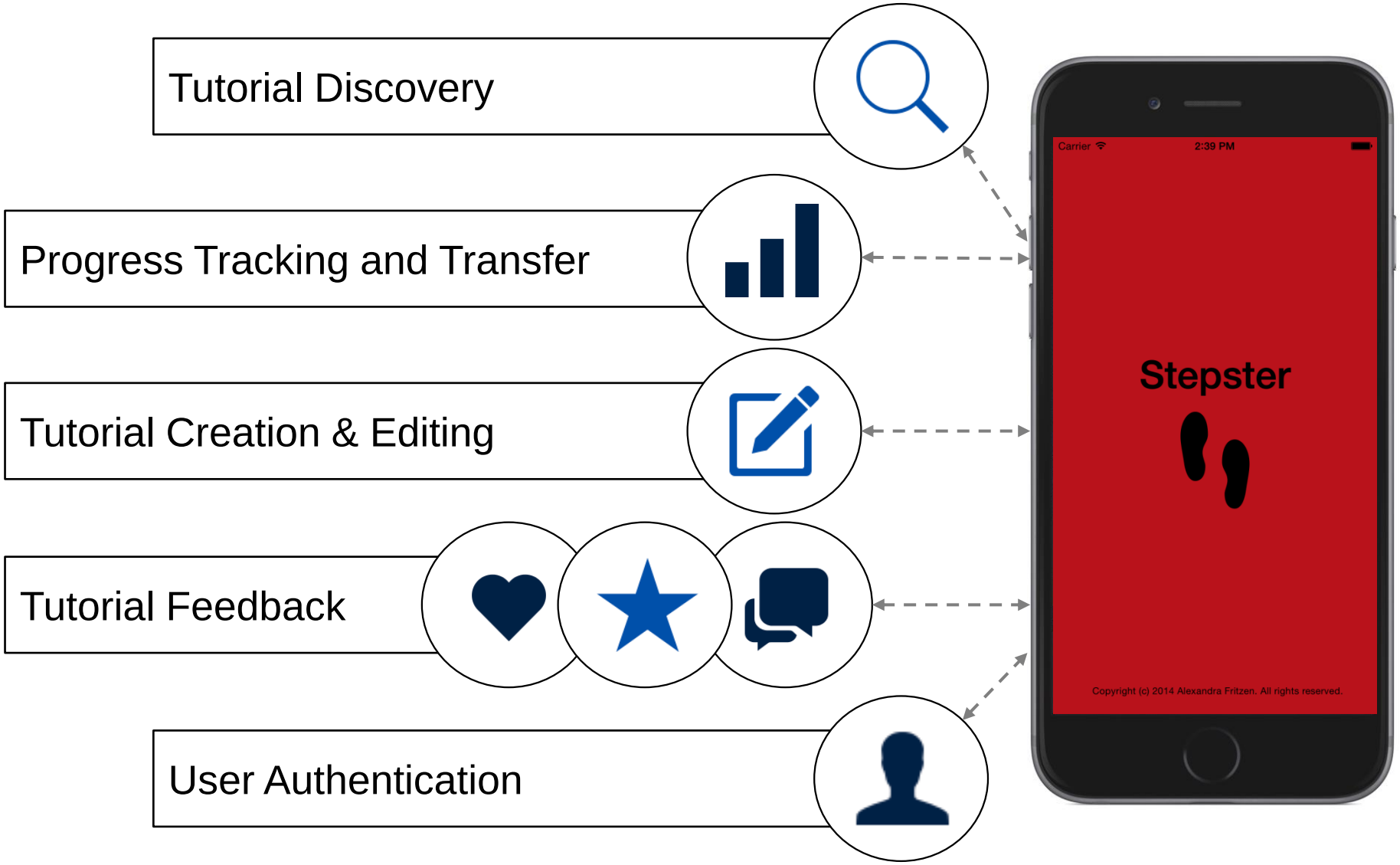
➔ Simple user interface with limited number of features

All icons from: https://www.iconfinder.com/iconsets/ionicons, https://www.iconfinder.com/iconsets/hawcons and https://www.iconfinder.com/iconsets/freecns-cumulus

Research Questions

- What are the **strengths and weaknesses** of existing process documentation approaches?
- What are the **challenges** involved in documenting a process accurately by a **step-by-step guide** and how can these challenges be **overcome**?
- To what degree are step-by-step guides **easier to read** than standard process documentation?

Implementation – Use Cases



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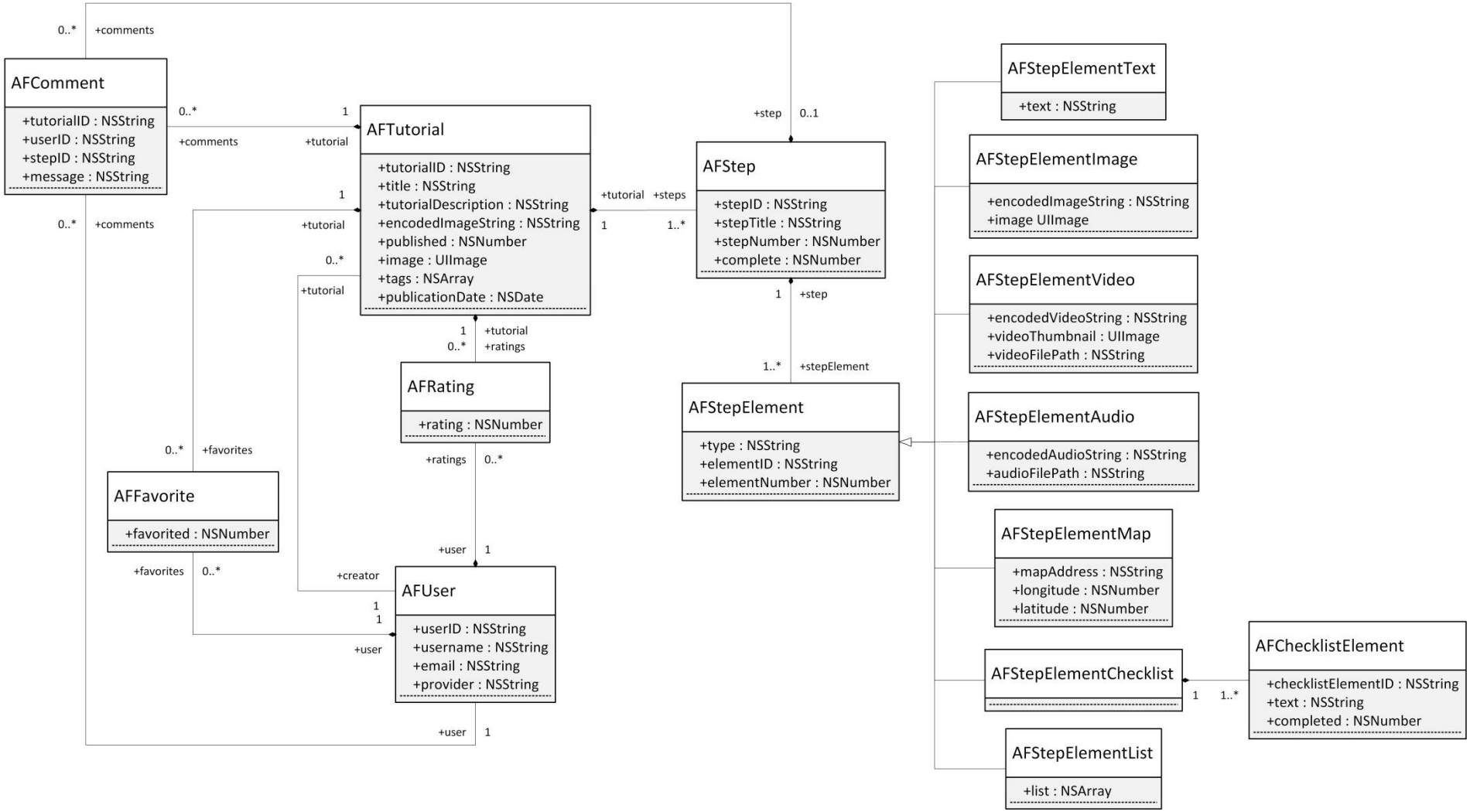
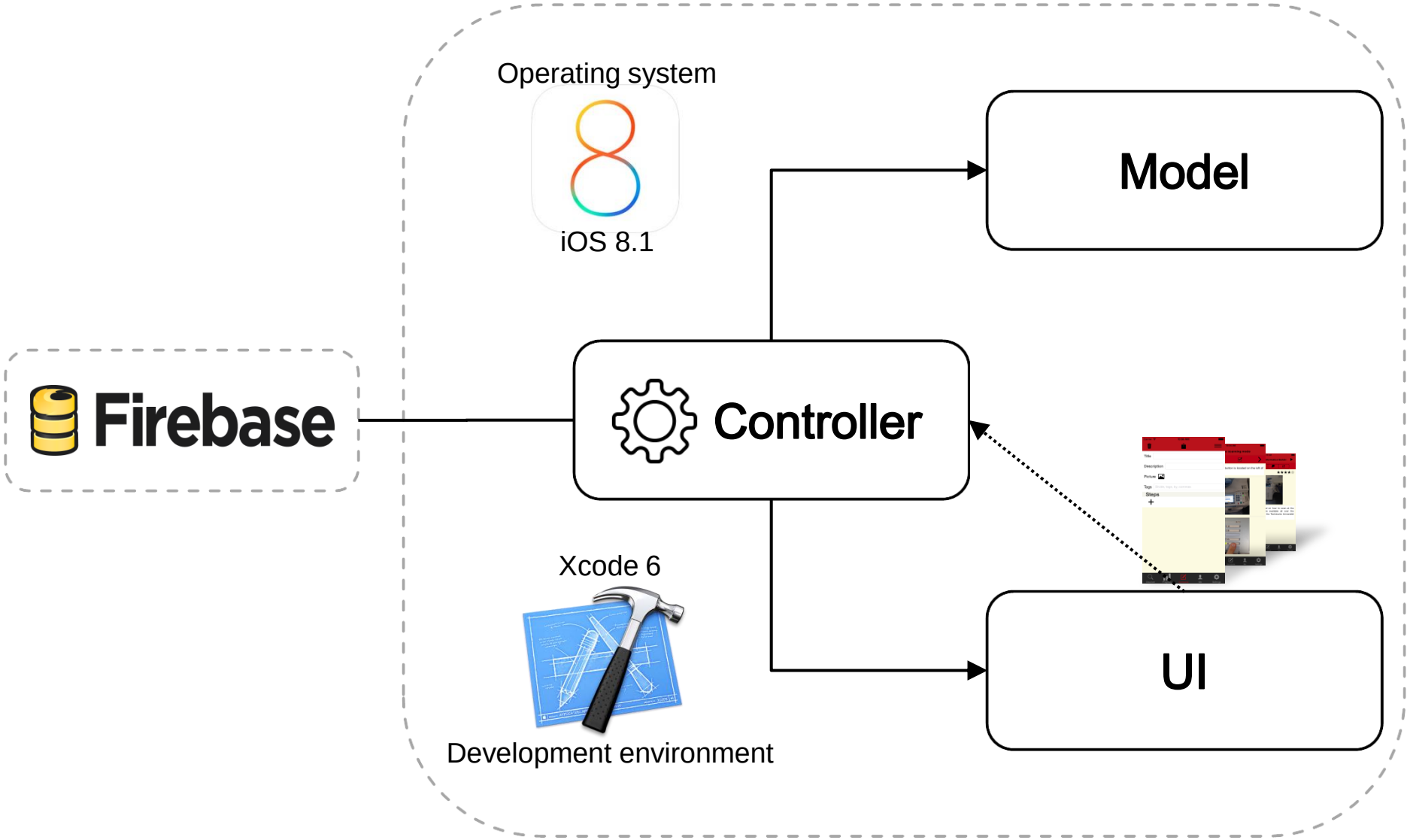
Implementation – Data Model (UML)



Implementation – System Design



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Implementation – Live Demo

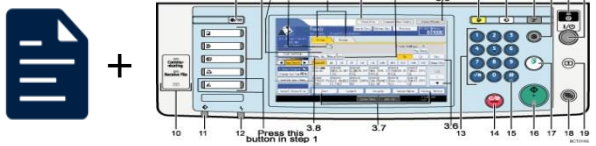
Evaluation – Basic Scenario

Task: Scan document at printer in Informatics building and send to given email address with the help of a process documentation

Participants: 25 students, aged 17-28, 24 male, 1 female

Five groups:

Group 1: **Text** on paper



Group 2: **Text** on paper with an **image of the control panel** of the printer

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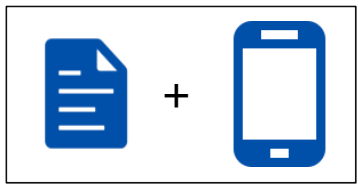
Group 3: **Text** with **images** in tutorial on **app**



Group 4: **Text** with **videos** in tutorial on **app**

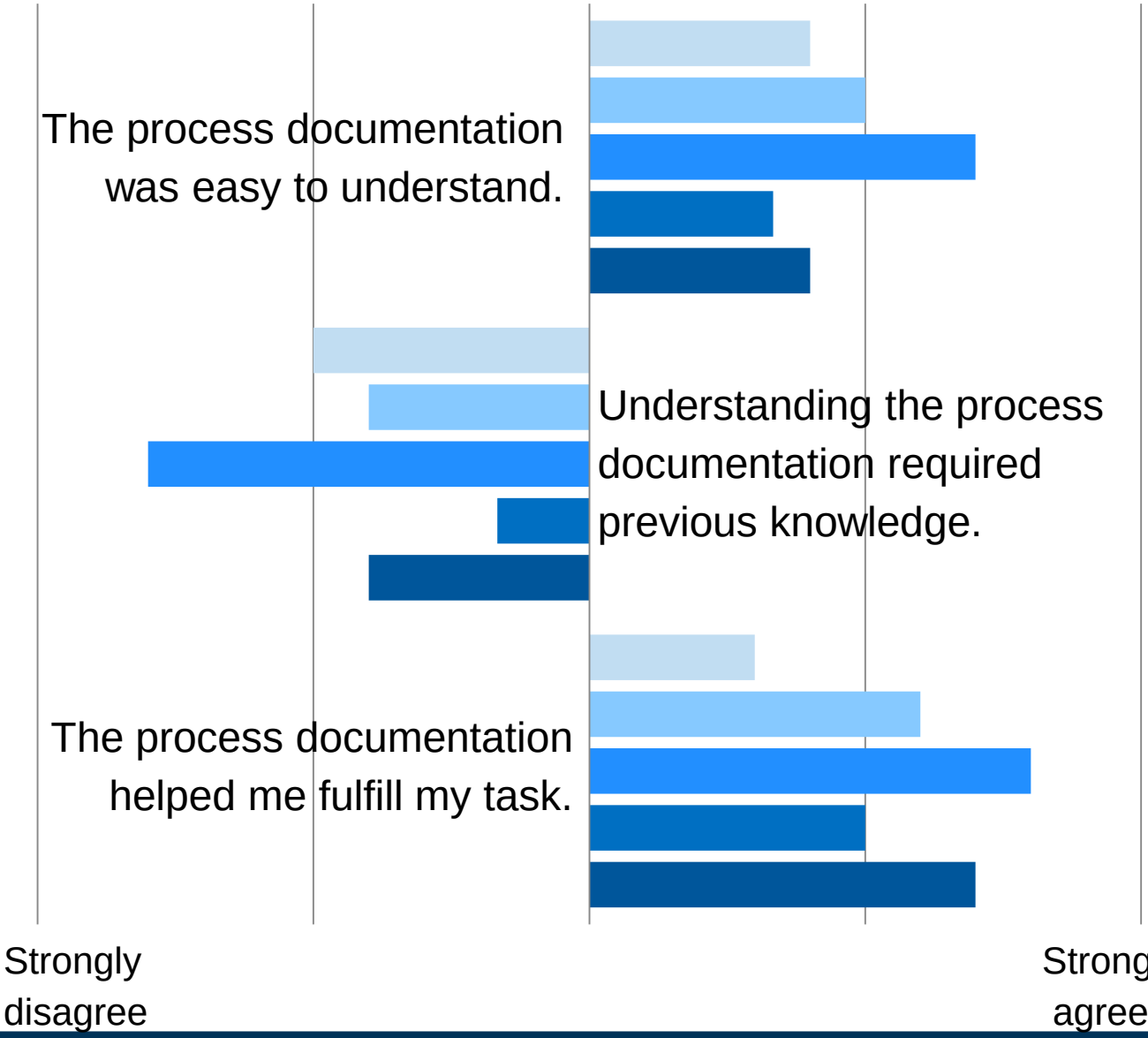
Group 5: **Text**  with **audio recordings** in tutorial on **app**

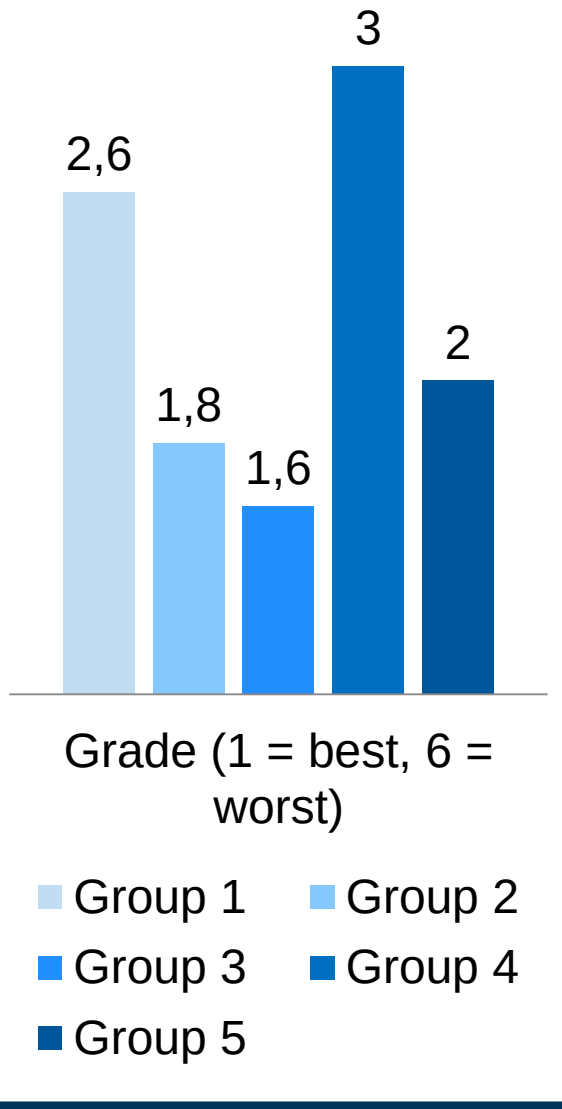
All icons from: https://www.iconfinder.com/iconsets/ionicons

Evaluation – Results Overview

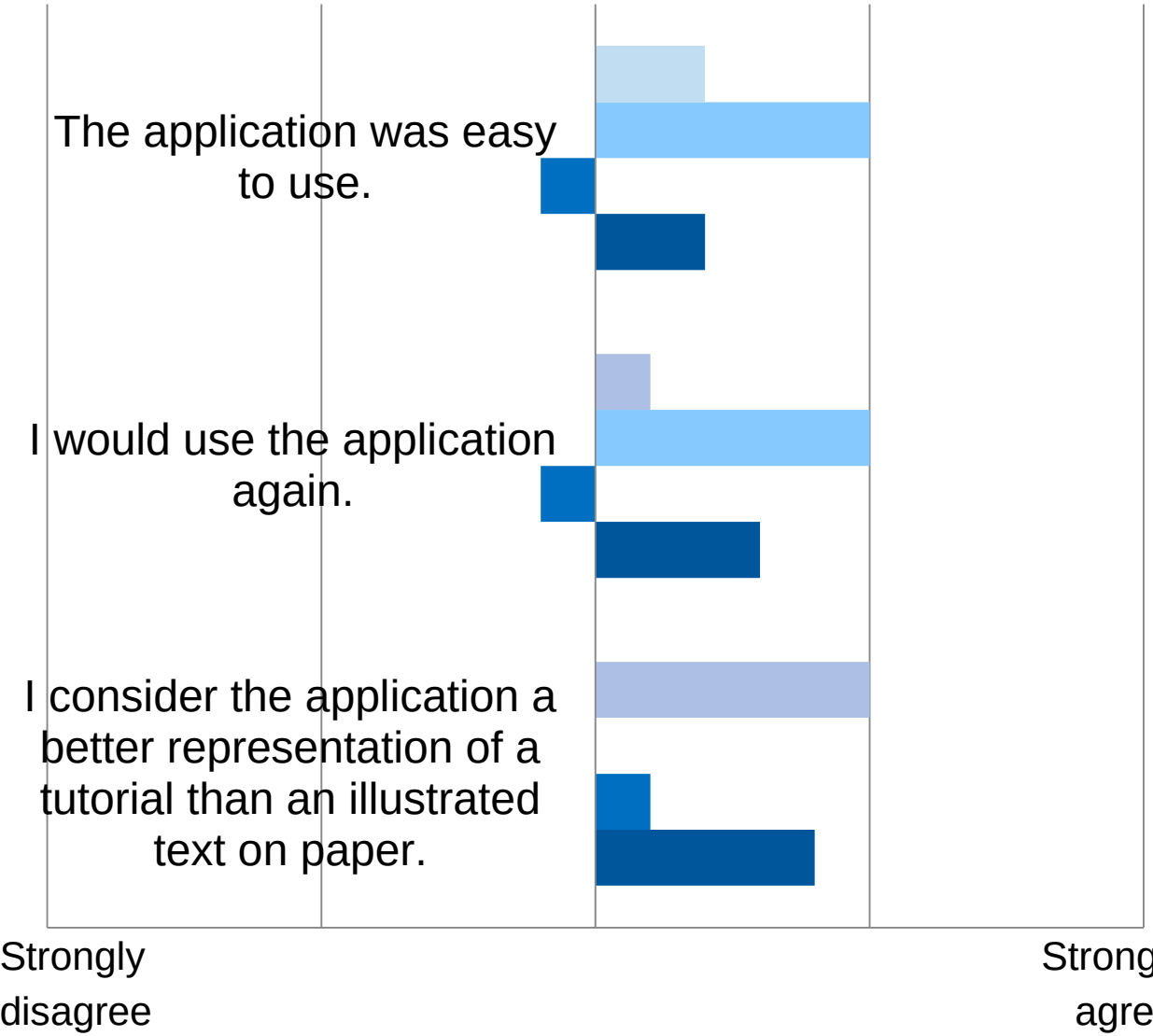
Group	Success Rate	Rate of Discontinuations	Average completion time in minutes
1	60%	20%	07:04,6
2	60%	20%	06:49,6
3	100%	0%	09:29,4
4	60%	40%	09:03,9
5	60%	0%	14:01,6

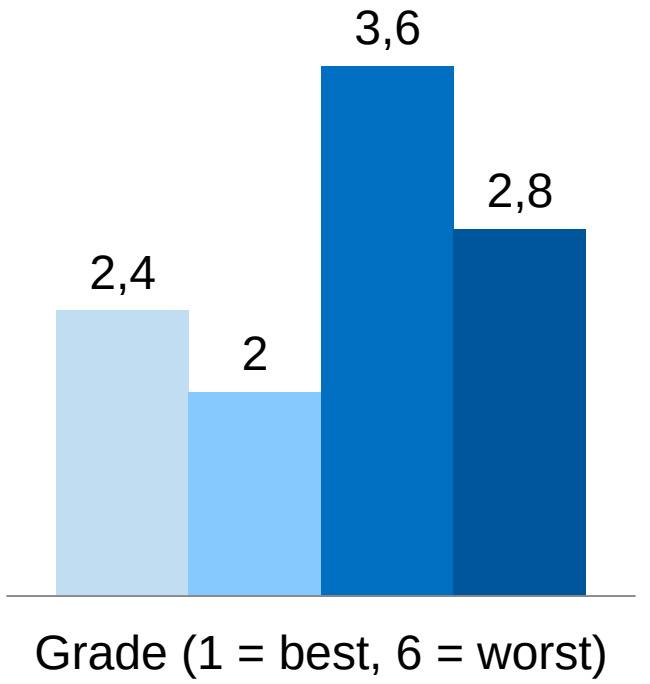
Evaluation – Process Documentation Rating





Evaluation – Rating of the Application





Evaluation - Discussion

- **H1**: increase the rate of successfully executing process documentations 
- **H2**: decrease the number of discontinuations of a process 
- **H3**: increase the understandability of process documentations by using informal, multimedia resources 
- **H4**: reduce process documentation creation and execution time 
  - ➔ Participants were unfamiliar with application
  - ➔ Screen recordings to determine ‘Time to locate tutorial’ and ‘Tutorial execution time’

Conclusion & Outlook

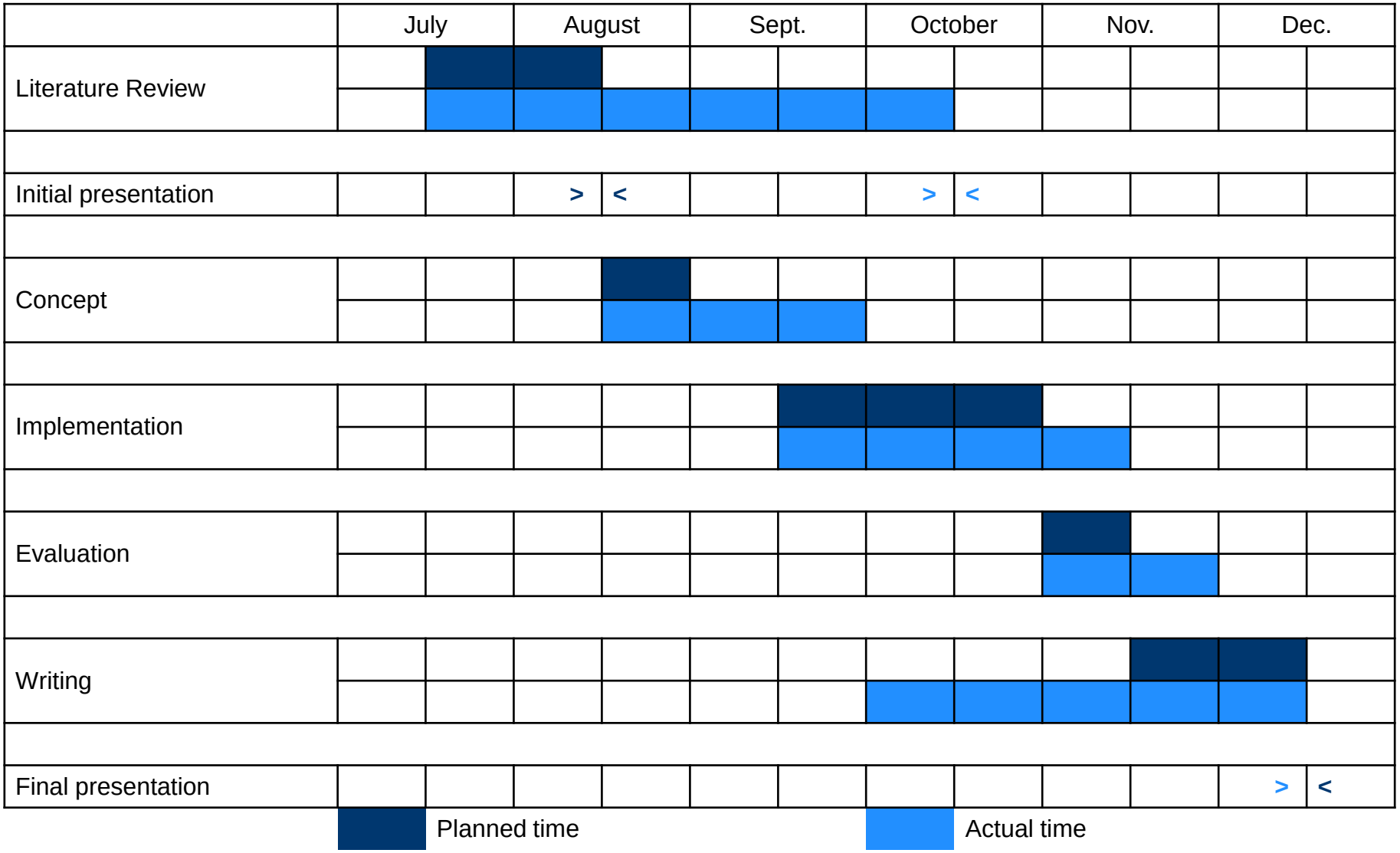
Prototype

- Decrease complexity and tendency to overwhelm
- Better distinction between consumer – creator space
- More functionality for business use: case distinction, roles/dates/reminders as step elements, etc.

Evaluation(s)

- Screen recordings
- Different processes to be executed
- More diverse group of participants

Timeline


July
August
Sept.
October
Nov.
Dec.
Literature Review
Initial presentation
Concept
Implementation
Evaluation
Writing
Final presentation
Planned time
Actual time

Thank you for your attention!

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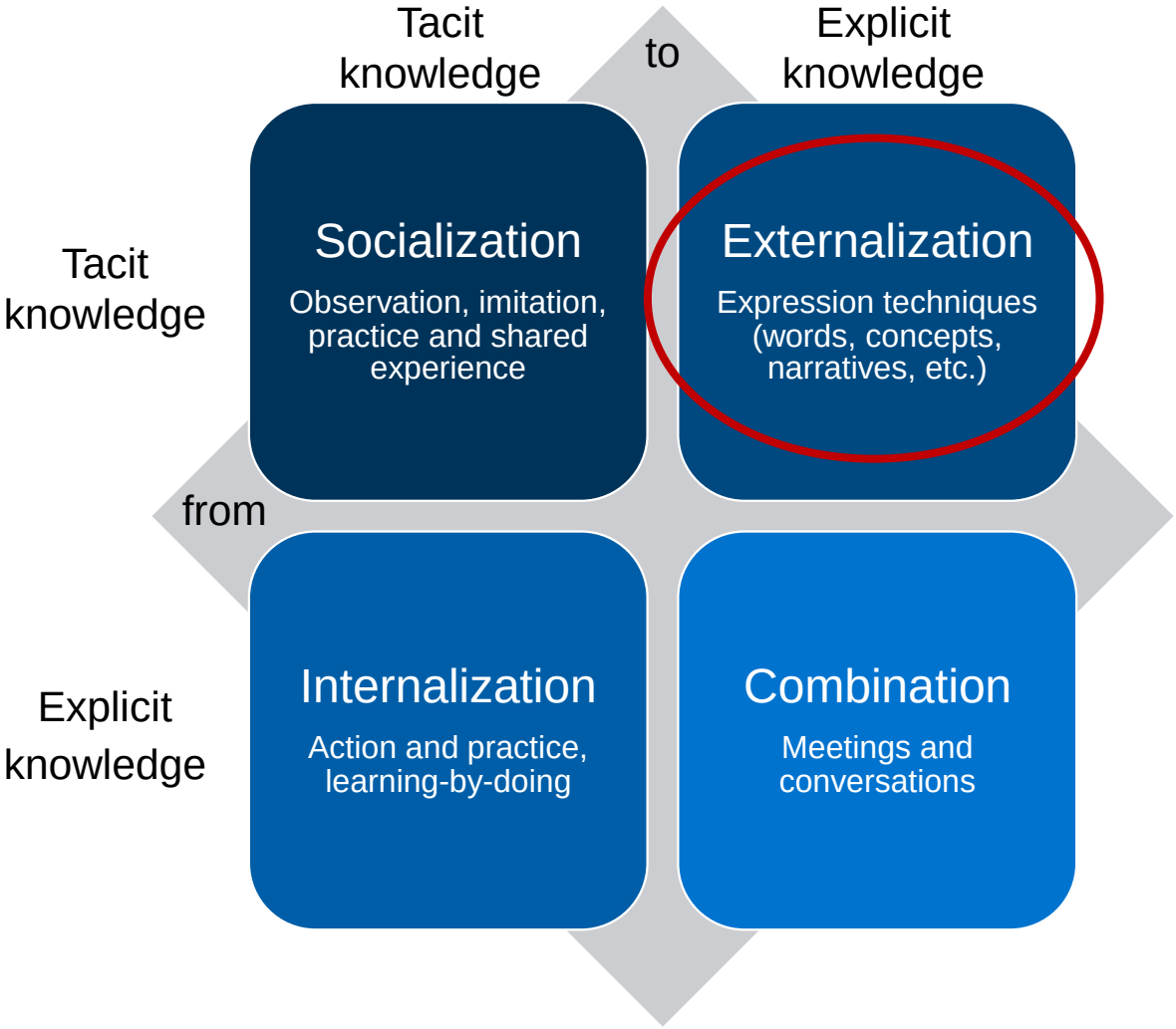
Questions?

The Theory of Organizational Knowledge Creation

(Nonaka 1994, p. 19)



Then why are many processes not documented?

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"The academic world did not pay sufficient attention to an **appropriate visualization of process models**" that are user-oriented and intuitive. (Rosemann 2006a, p. 254)

Most process models and corresponding languages are **rather puristic from a visual point of view** (Reijers et al. 2011, p. 340)

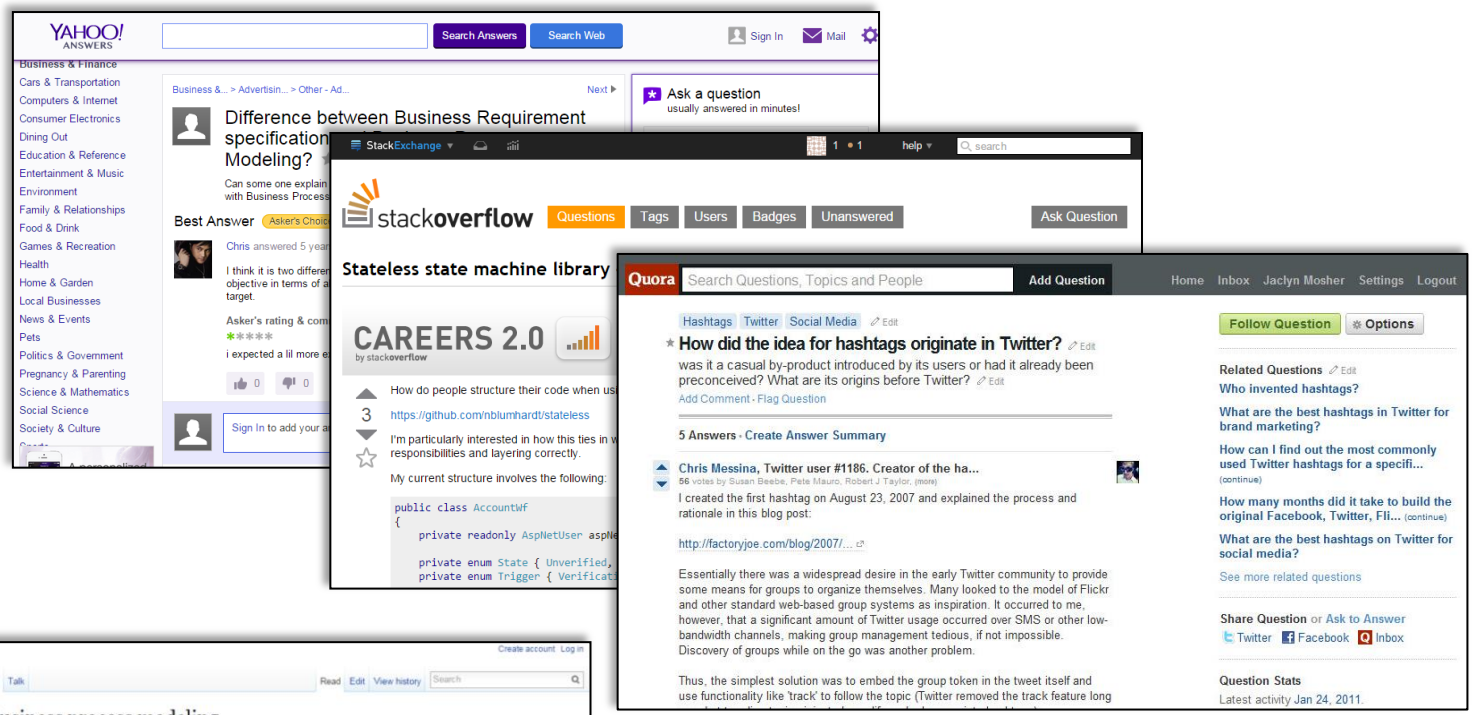
A **better use of graphical representations** is **needed** (van der Aalst, Wil M. P. et al. 2003, p. 6)

"**Minimal requirements for non-expert model interaction**" (Nolte, Prilla 2012, pp. 57–72):

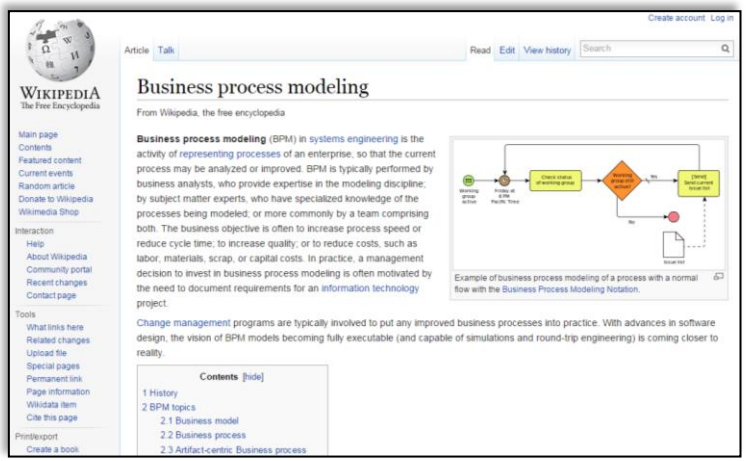
- **simpler elements** of the modeling notation,
- tools with **less features** to support the creation of simple tasks and
- simple ways of manipulating the model e.g. using a **touch screen**

The Solution: Informal Process Documentation

- **Q&A Forums**

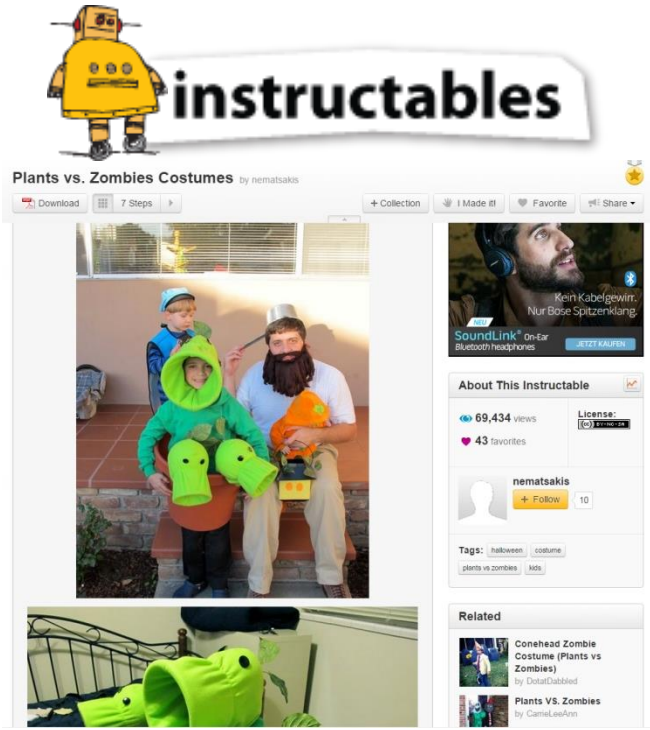


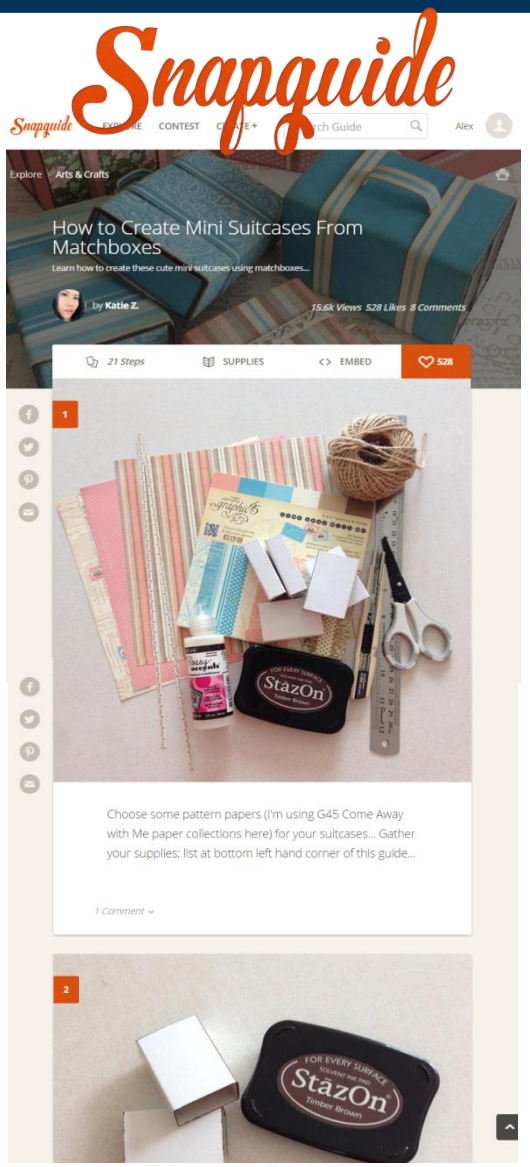
- **Wikis**

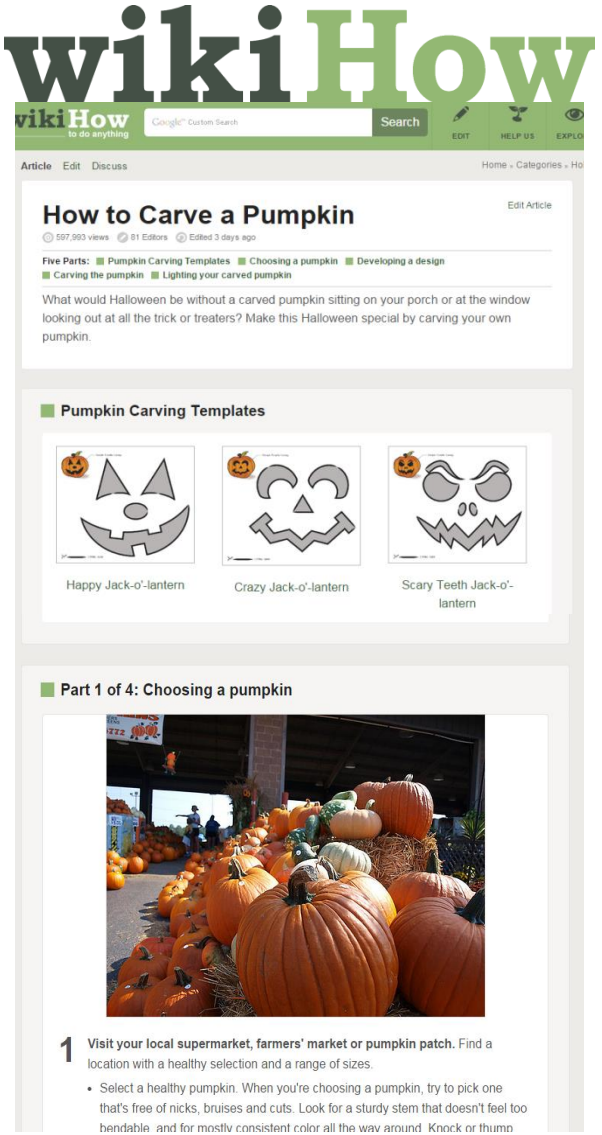


The Solution: Informal Process Documentation

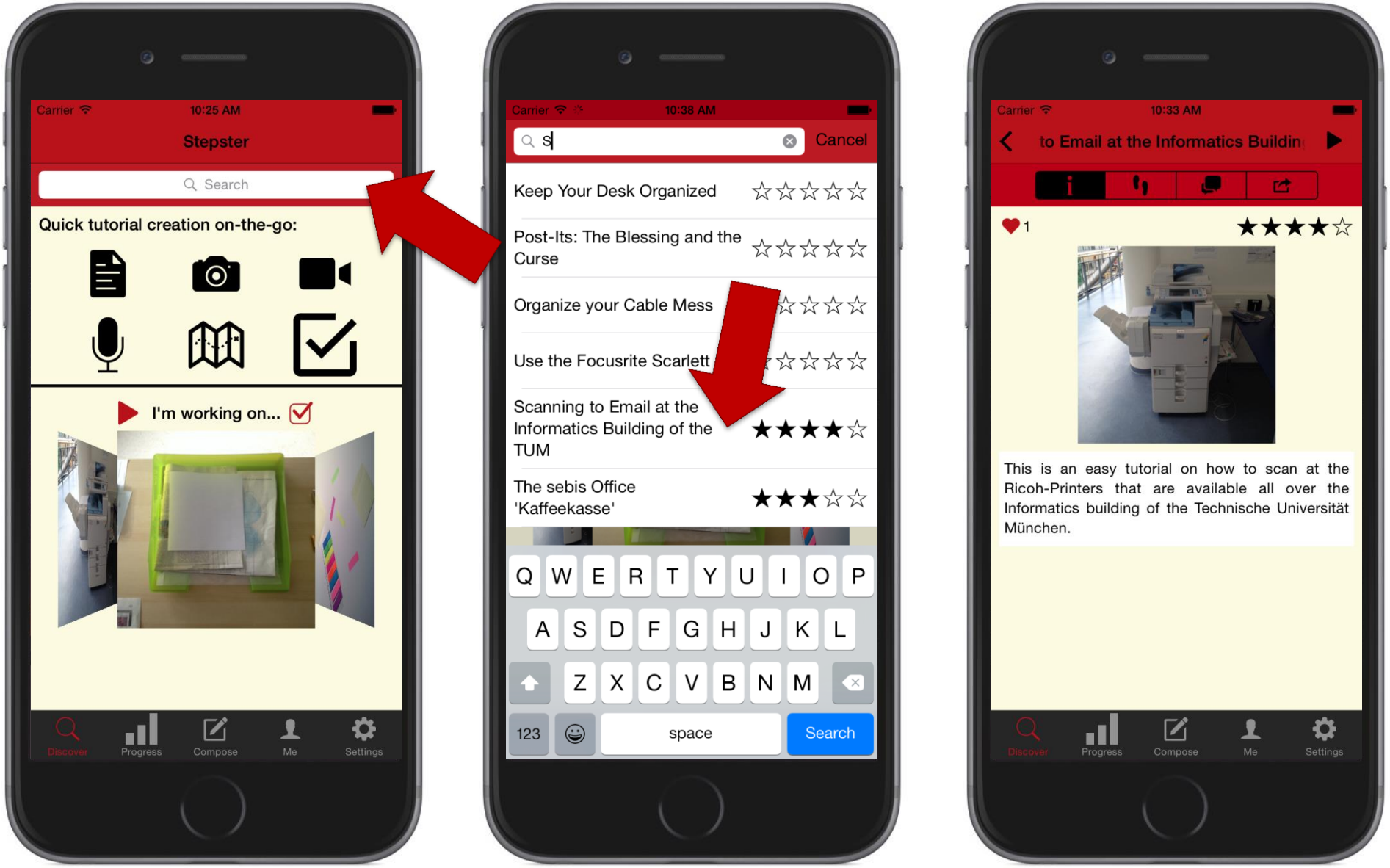
- **Tutorials**
  - Information literacy
  - Application usage
  - DIY & crafting



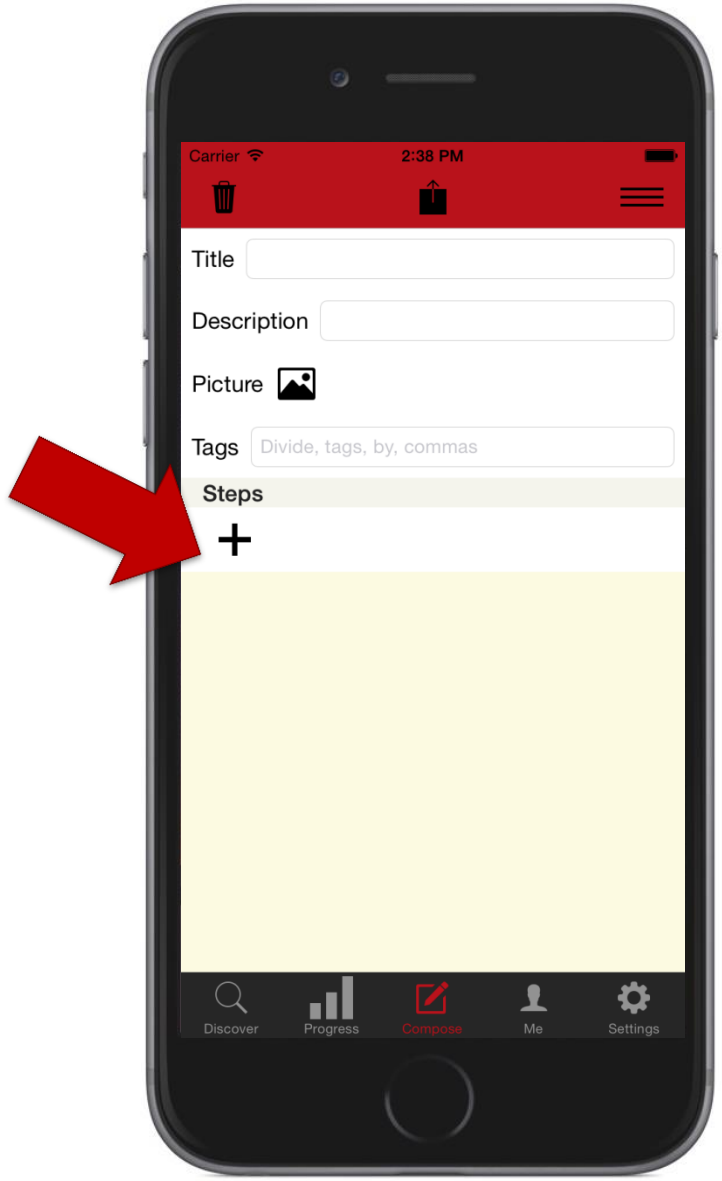


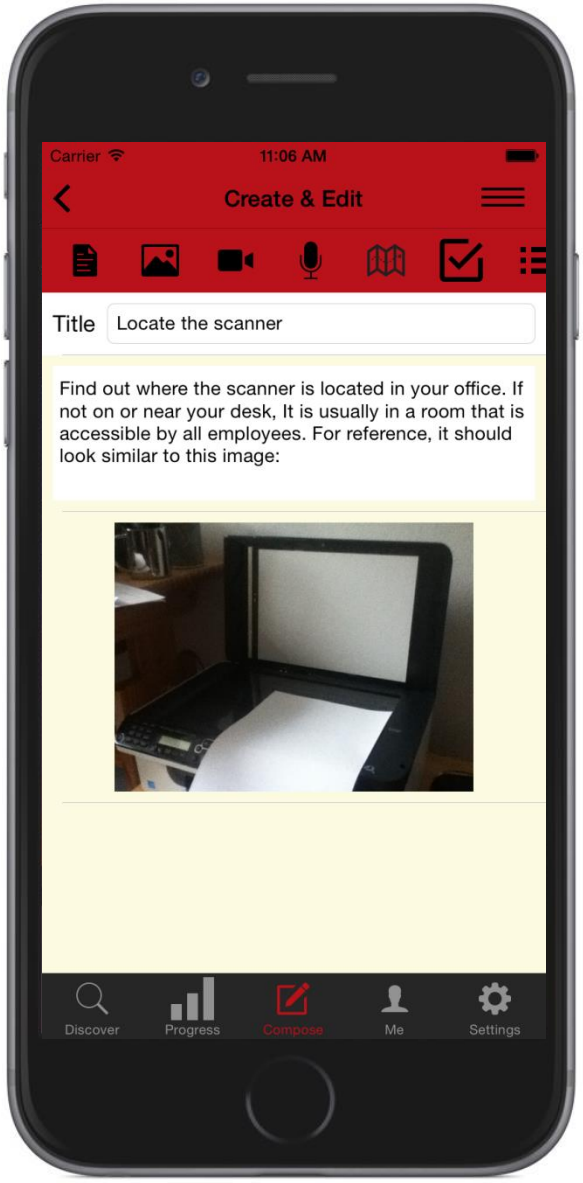


Screenshots – Tutorial Discovery

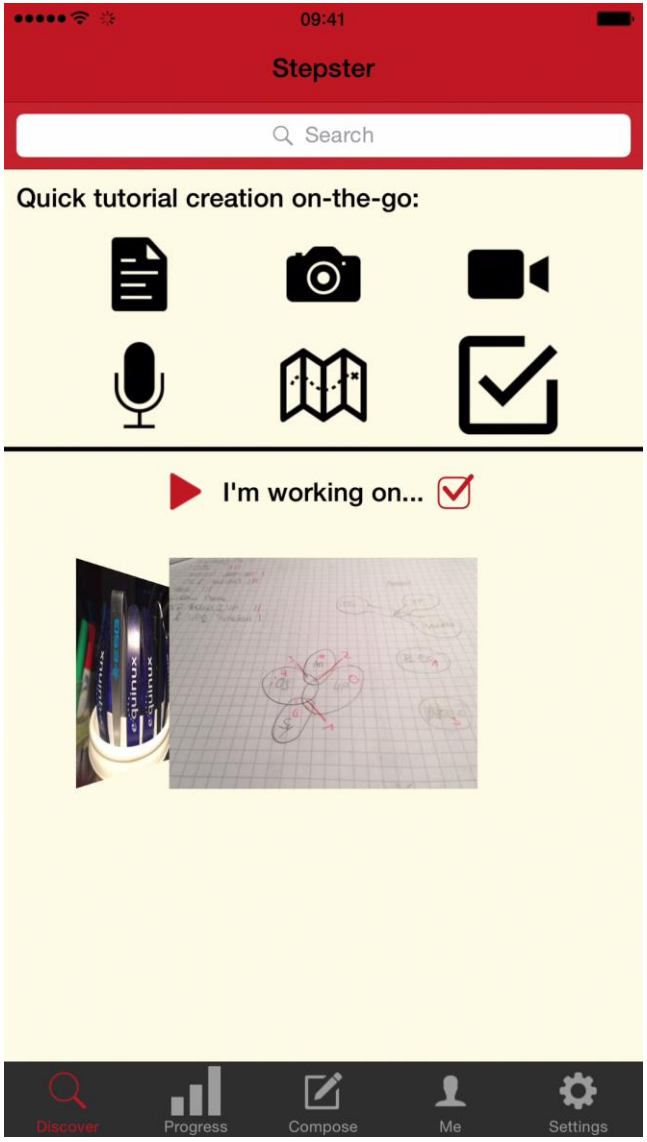


Screenshots – Create & Edit

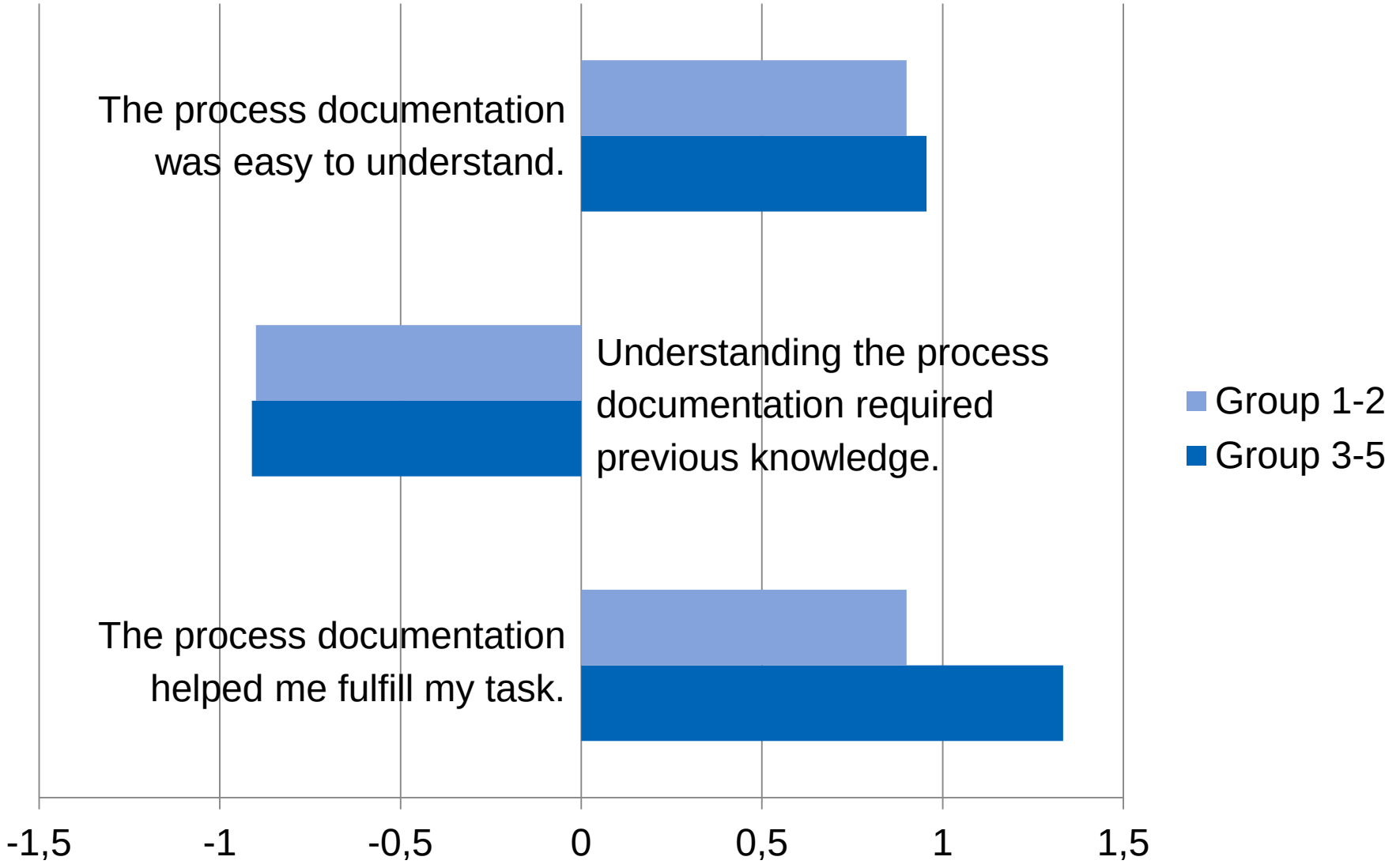




Implementation – Video Demo



Evaluation – Overall Process Documentation Rating



Sources

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Rosemann, Michael (2006a): Potential pitfalls of process modeling: part A. In *Business Process Management Journal* 12 (2), pp. 249–254. DOI: 10.1108/14637150610657567.

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van der Aalst, Wil M. P.; ter Hofstede, Arthur H. M.; Weske, Mathias (2003): Business Process Management: A Survey. In Gerhard Goos, Juris Hartmanis, Jan van Leeuwen, Arthur ter Hofstede, van der Aalst,Wil M. P, Mathias Weske (Eds.): Business Process Management, vol. 2678. Berlin, Heidelberg: Springer Berlin Heidelberg (Lecture Notes in Computer Science), pp. 1–12.