The potential of physical prototyping for the university community

Masterthesis

Julian Weinmann
Goal of thesis

Lecture at TUM

Students in PRL
Content

1. Theory: Prototyping role and methods
2. Analysis: Stakeholders and facilities
3. Solutions: Implementations at TUM
1. Theory
• Categorization prototypes

• Production methods and facilities

• Product development principles
Categorization prototypes

[Source: Karl Ulrich, Steven Eppinger]
Categorization prototypes

[Source: Karl Ulrich, Steven Eppinger]
Exploring design space

Communication

Problem finding

Makeing ideas tangible

Knowledge transfer

Convincing customers

Milestones

System integration

Fine tuning

LEARNING

Categorization prototypes
Paper

3D-Printing

Turning

Forging

Production methods
Product development principles

Design Thinking [Stanford]

MVM - (Münchner Vorgehensmodell) [TUM]
2. Analysis
• Exploring Stanford and TUM

• Mapping facilities

• Mapping stakeholders
Questions

1. What is prototyping for you?
2. How do your classes incorporate prototyping?
3. Which facilities do you need/use?
4. …

Exploration
High School students

University Community

Large Companies

Start-Ups

PhDs

Professors

Students (BA/MA)

Mapping Stakeholders (university community)
3. Implementation
• Summarize general learnings

• Identify opportunities and decision makers

• Include TechShop in courses/programs
Challenges

1. Focus

2. Data and methods

3. Implementation
<table>
<thead>
<tr>
<th>Sheri [Stanford]</th>
<th>Helena [TUM]</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnternehmerTUM/ TechShop</td>
<td>Me</td>
</tr>
</tbody>
</table>

Focus
Data and methods
Implementation