

On the development of Quantified UX Metric

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Agenda

- **Motivation**
- **Design & Dev Process**
 - Stage 1: Paper Wireframe
 - Stage 2: Development
 - Stage 3: Working System
 - Demonstration
- **Design Principles**
 - Ant Design
 - ElementJS v.s. iViewJS
- **Summary**

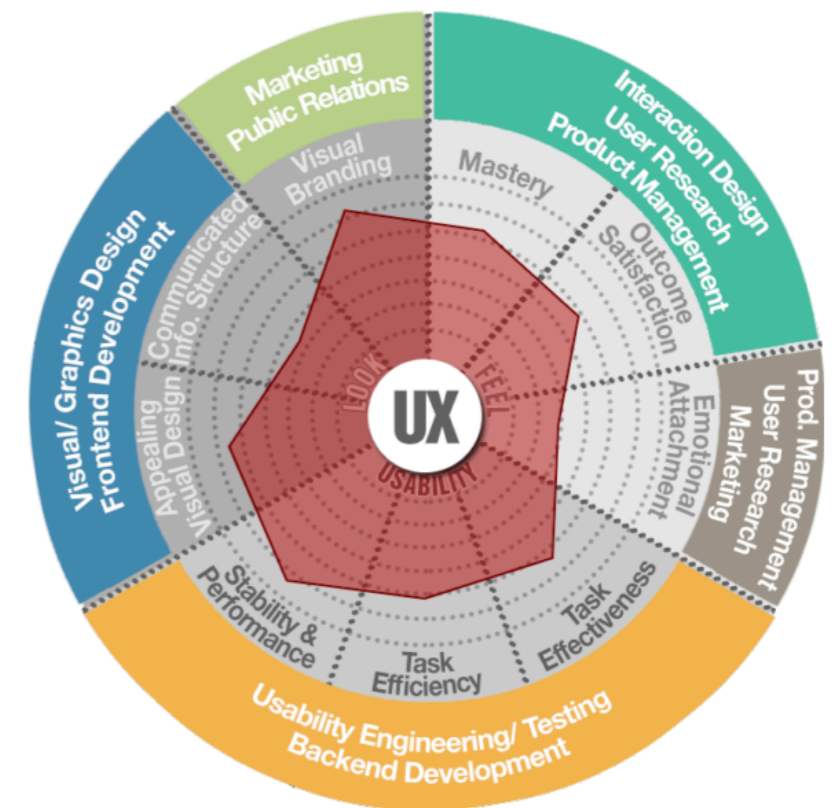
Motivations

	1	2	3	4	5	6	7		
annoying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	enjoyable	1
not understandable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	understandable	2
creative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	dull	3
easy to learn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	difficult to learn	4
valuable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	inferior	5
boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	exciting	6
not interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	interesting	7
unpredictable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	predictable	8
fast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	slow	9
inventive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	conventional	10
obstructive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	supportive	11
good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	bad	12
complicated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	easy	13
unlikeable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	pleasing	14
usual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	leading edge	15
unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	pleasant	16
secure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	not secure	17
motivating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	demotivating	18
meets expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	does not meet expectations	19
inefficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	efficient	20
clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	confusing	21
impractical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	practical	22
organized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	cluttered	23
attractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	unattractive	24
friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	unfriendly	25
conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	innovative	26

Understanding The Theory

Area	Dimension	Scales	ID	Related Work
Look	<i>Appealing Visual Design</i>	How balanced and harmonic do you find the product? Do you like the design, colors, fonts used in this product? Do you find the text:image ratio appropriate?	d1	[11, 20, 37, 61]
	<i>Communicated Information Structure</i>	Does the product provide clear navigation and orientation? How consistently is the content and information organized? Do you find the provided information understandable?	d2	
	<i>Visual Branding</i>	Do you trust this brand? Do you think this is an honest brand? Do you feel the brand is safe?	d3	
Feel	<i>Mastery</i>	Do you find this product easy to use? Do you find it easy to learn (and to remember) how to use the product? Do you feel you have full control over the product?	d4	
	<i>Outcome Satisfaction</i>	How satisfied are you with the outcome? To what extent are you feeling successful with the outcome? How happy are you with the outcome?	d5	
	<i>Emotional Attachment</i>	How pleasurable do you find using the product? Does the process of using the product provide you with gratification? Do you feel excited when you are using the product?	d6	
Usability	<i>Task Effectiveness</i>	Do you think the product does what it is supposed to do? Do you find the product effective? Does the product help you fulfill your task?	d7	
	<i>Task Efficiency</i>	Is the product the fastest way to achieve your goal? Is the product the most convenient way to achieve your goal? Does using the product fit with your schedule?	d8	
	<i>Stability and Performance</i>	Does the system run smoothly? Are errors handled well? Does the product work fast and responsively?	d9	

Table 4. Interdisciplinary UX dimensions with corresponding questionnaire items and related work for in-depth, follow-up analyses.

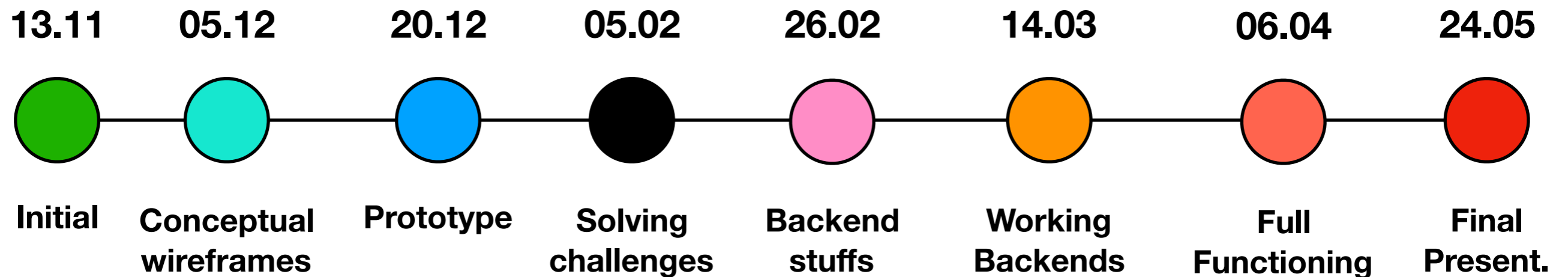


[Lachner et al. Quantified UX: Towards a Common Organizational Understanding of User Experience, NordiCHI'16]

General Goal

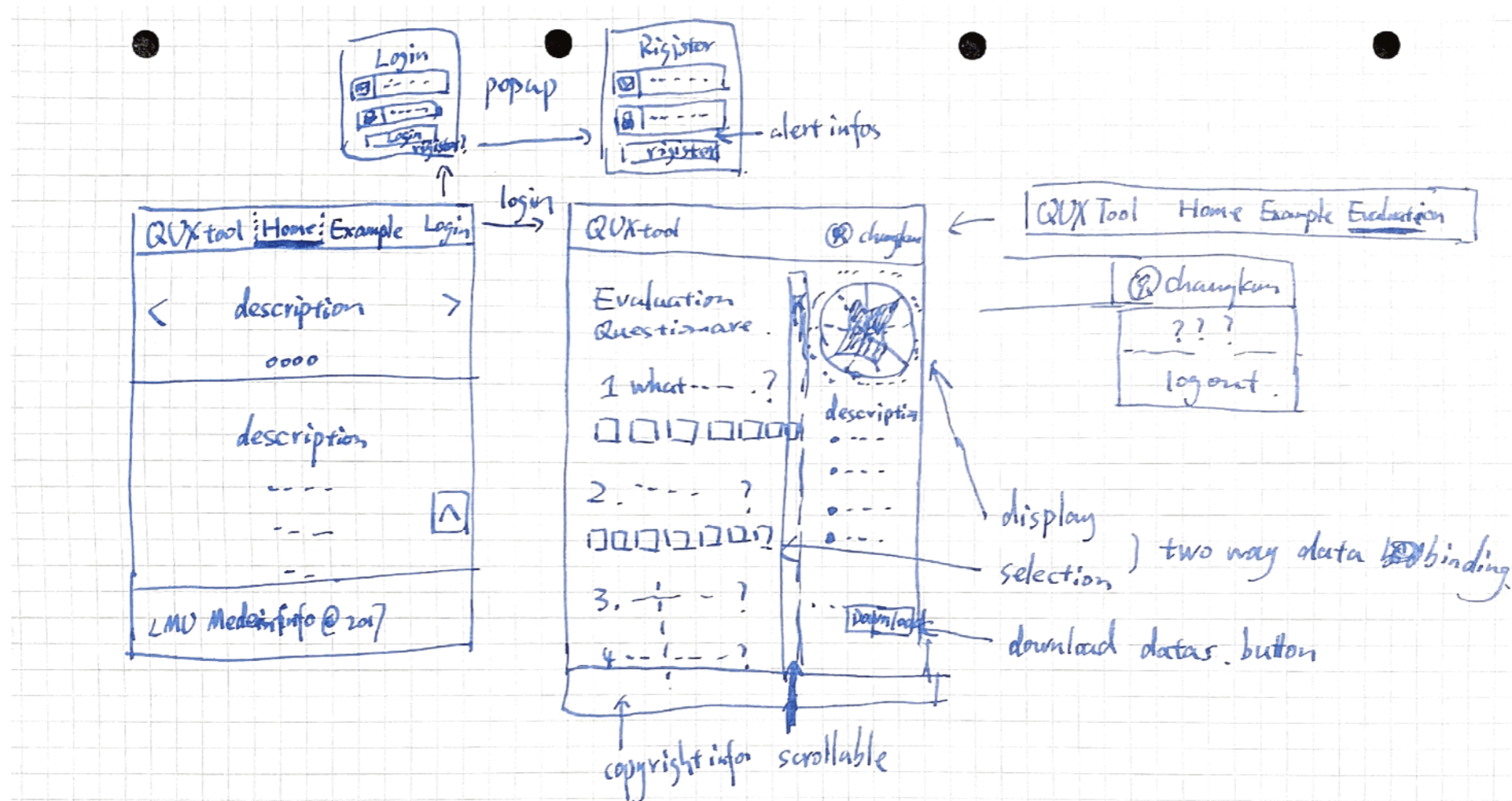
- *Developing a website serve the theory*

Design & Dev Process



Stage I: Paper wireframe v1

- Requirement Engineering: Misunderstanding of requirements



1. Theme color?

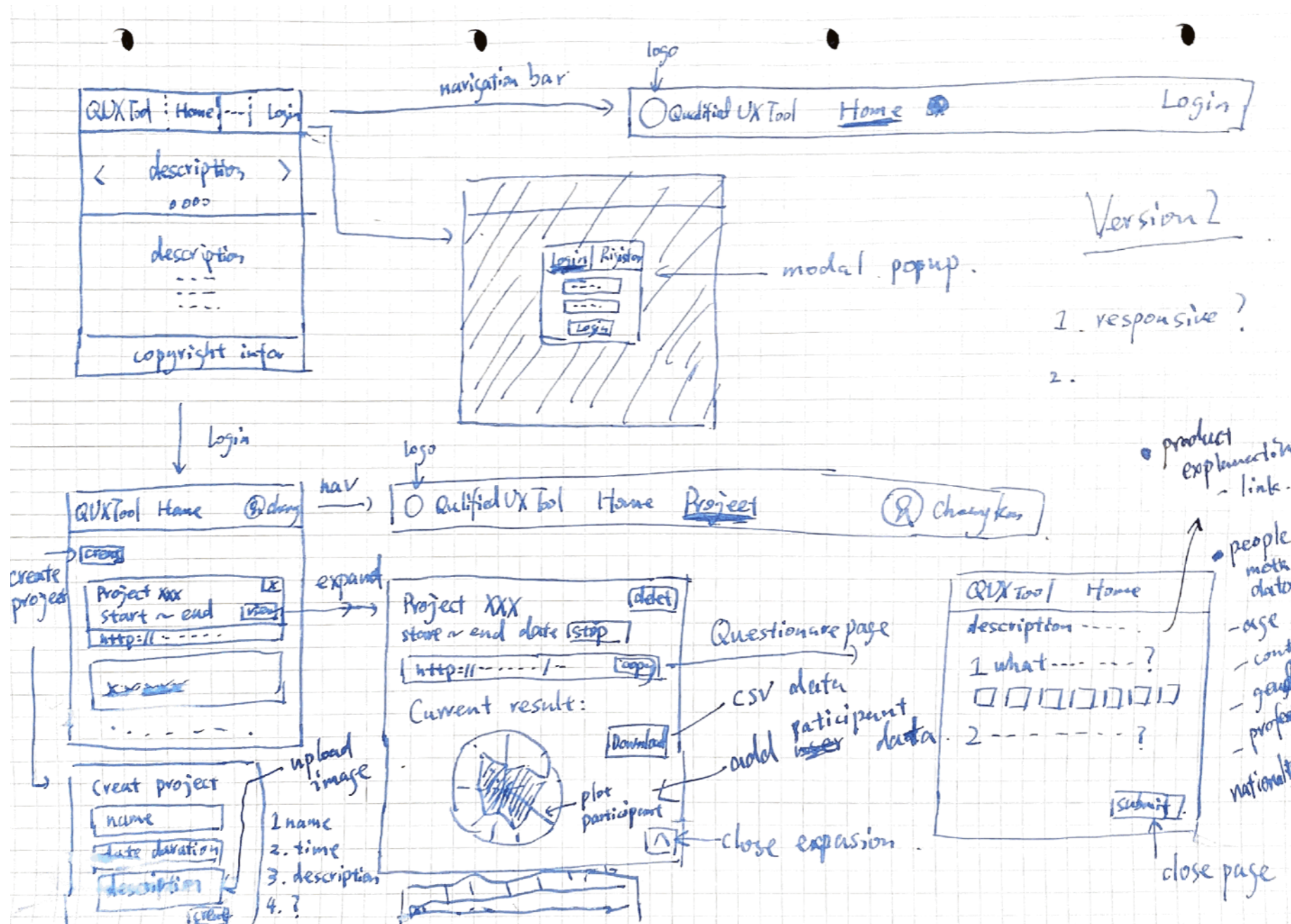
2. Desktop version?

3. backend support?

- login user: email, name, company, Version 1
 - country, region, geo position

Stage I: Paper wireframe v2

- Overall wireframe, requirements verification



Framework Selection: Fullstack JavaScript



Frontend



Backend

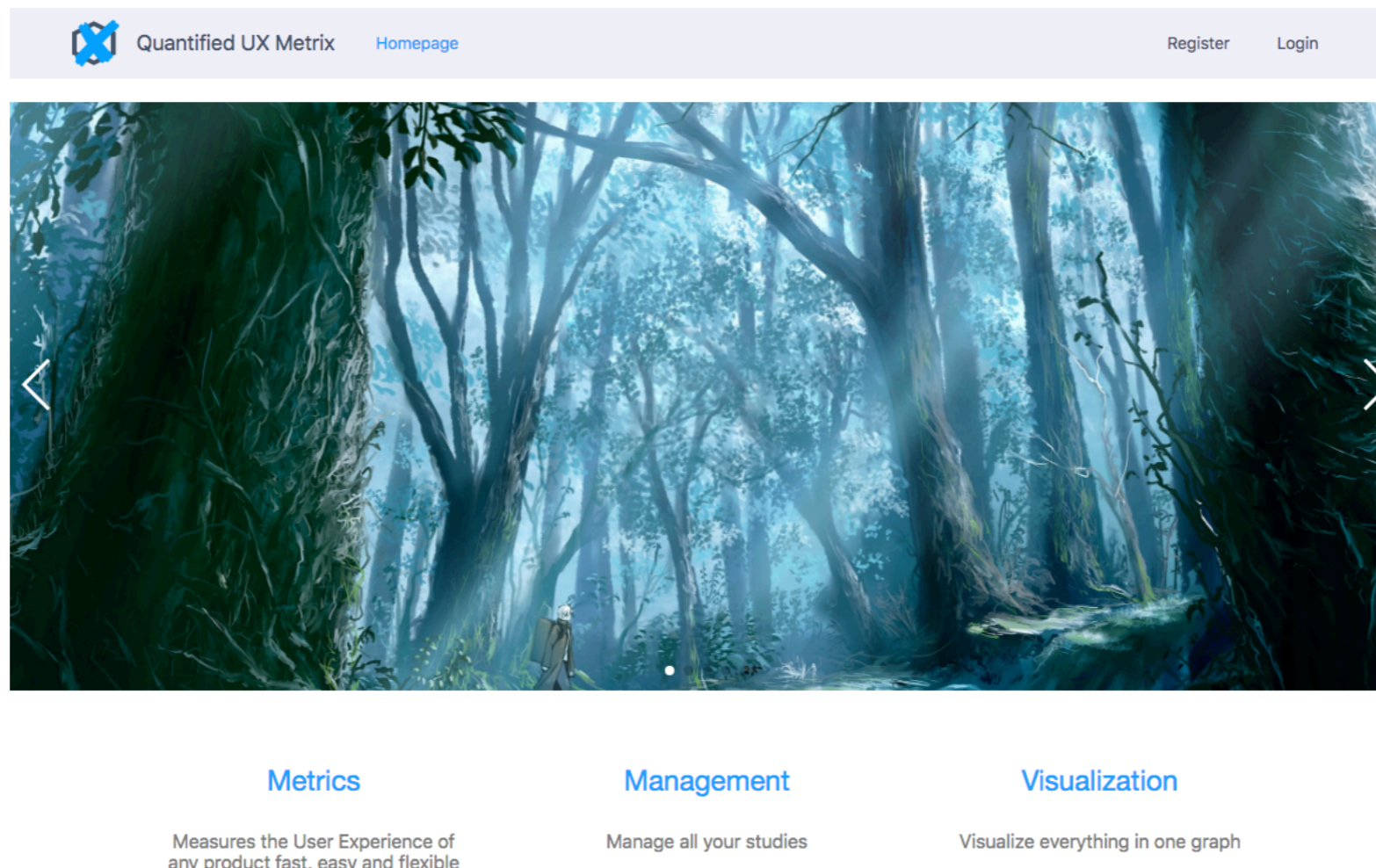


Devtool

Others: lodash, swiper, vue-router, vuex, babel, eslint, mockjs, vue-loader, webpack... More than 70+ state-of-the-art technologies

Stage II: Frontend

- Main Challenges
 - Design
 - Capabilities between frameworks
 - New technologies



Stage III: Full Functioning System

- Main features:
 - Register/Login
 - Questionnaire Authorization
 - UX Project Management
 - Data Visualization
 - Report Download
 - 20+

The screenshot displays the 'Quantified UX Metric' web application. The top navigation bar includes 'Homepage' and 'Projects', with a user profile 'changkun' on the right. The main content area features a project overview for 'The Website of LMU HCI Group', including a thumbnail of the website, a description, and a progress indicator: 'Project starts from Fri Apr 06 2018 | remains 31 days'. Below this is a URL input field and a 'Download Report' button. The 'Current result' section shows a radar chart with six axes: Visual Branding, Mastery, Outcome Satisfaction, Stability, Appealing Visual Design, and Communicated Information Structure. The chart displays a red star-shaped area representing the current performance levels across these dimensions.

Project Description

Calendar Chart

The UX Radar Chart

Participants Statistics

Quantified UX Metric *Beta* Homepage Projects changkun

The Website of Quantified UX Tool

The Website of Quantified UX Tool provides a tool to quantify a product user experience. There are three property here: 1. Metrics: Measures the User Experience of any product fast, easy and flexible; 2. Management: Manage all your studies and researchers in a website; 3. Visualization: Visualize everything related to UX in ONE radar chart.

Project starts from Fri Apr 06 2018 | remains 16 days

<http://www.ouchangkun.com/questionnaire?code=55C5BE>

Download Raw Data

Current results

The following charts are based on your participants answers.

You can download your whole data set by clicking on the green download button for further analyses.

How did your users evaluate the UX?

What is the age distribution of your participants?

Total: 20 Unknown: 0

Demonstration

Online Testing
at

www.ouchangkun.com

Available until the end of May 2018
Submit Bugs: hi@changkun.us

Design Principles

Should *Luke Wroblewski* responsible for the “Death” of Material Design?

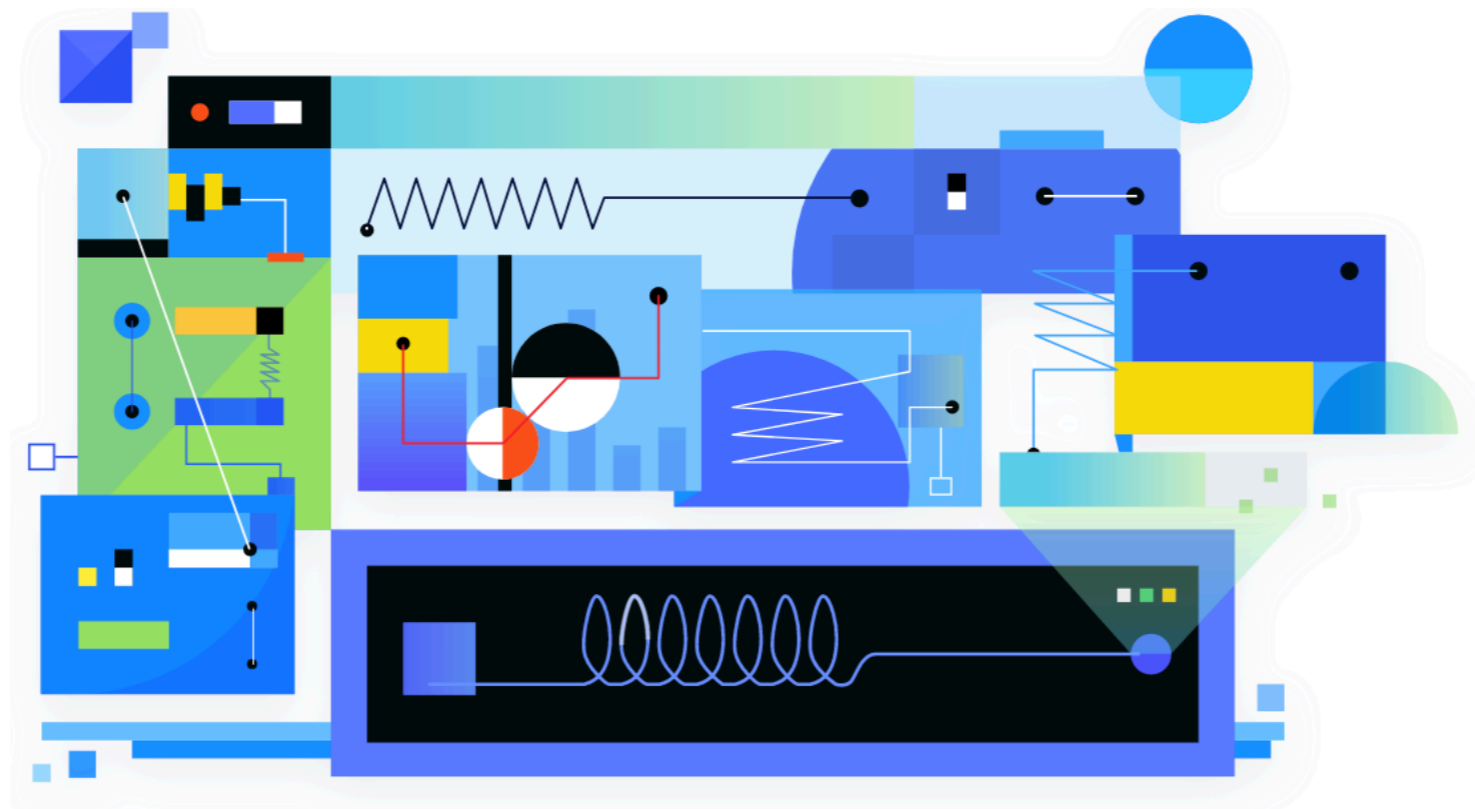
<https://www.zhihu.com/question/66894704>

TL;DR: Material design hasn't died yet, but its reputation and influence have reached a low point; the reason for the status quo is largely due to Google's own destruction of the norm, which has begun with Luke.

Design Language: Ant Design (Pro)

- Proposed by Alibaba Inc.
- Integrated in every Alibaba Inc. Products
- 1,000,000,000+ users, large-scale applications
- Only for *ReactJS*

TL; DR: Ant Design is a UI design language, which is abstracted and applied to enterprise-level back-office products.



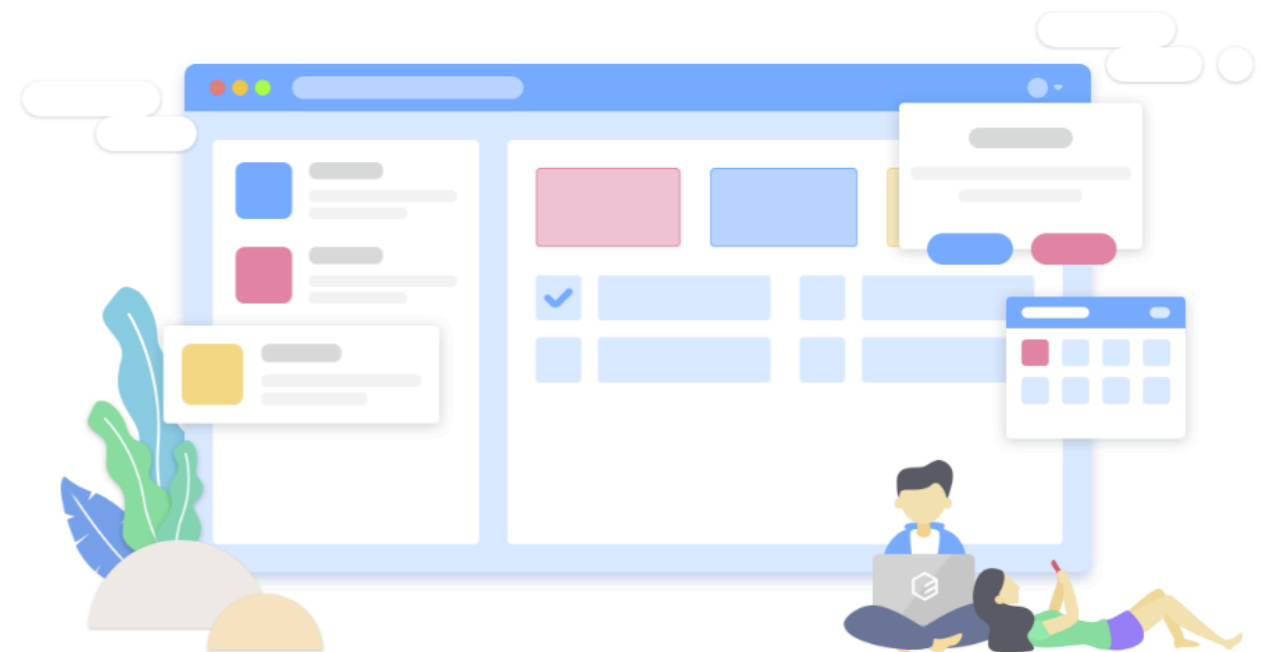
<https://ant.design/>
<https://pro.ant.design/>

Framework Adaption: ElementJS v.s. iView

- Other implementations of Ant Design
- Capable with VueJS

<https://element.eleme.io/>

<https://www.iviewui.com/>



Summary

- Lessons learned
 - Ant Design
 - Massive frontend technologies combination
 - The first time write both everything in JS
- Challenge
 - D3JS in VueJS
- Outlooks
 - Future features: Administrator UI
 - Machine learning analysis: outlier detection, etc.
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