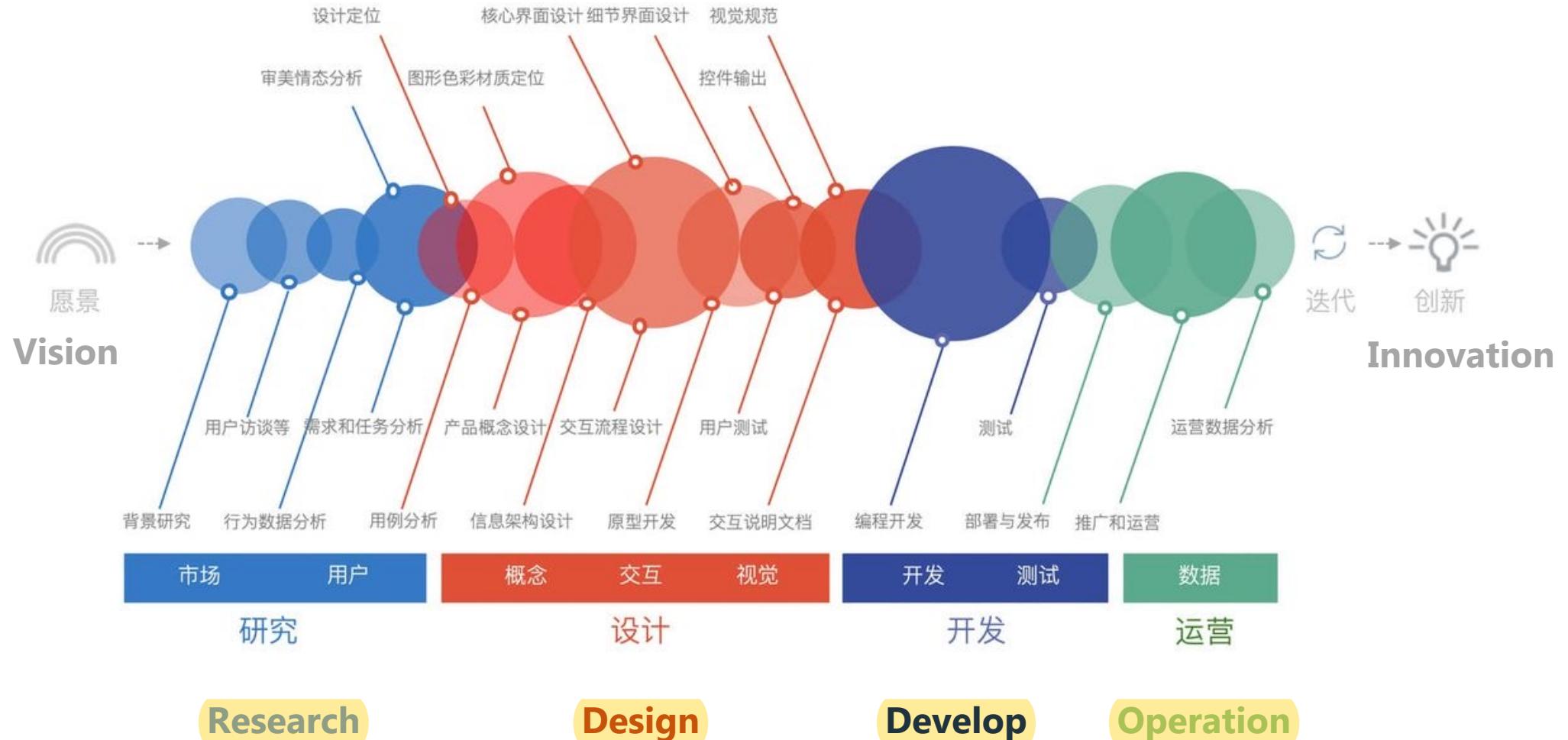


Technologies for E- Commerce

CAN302

**Department of Communications and Networking
Xi'an Jiaotong-Liverpool University (XJTLU)**

Lec 4 – Typical project life cycle



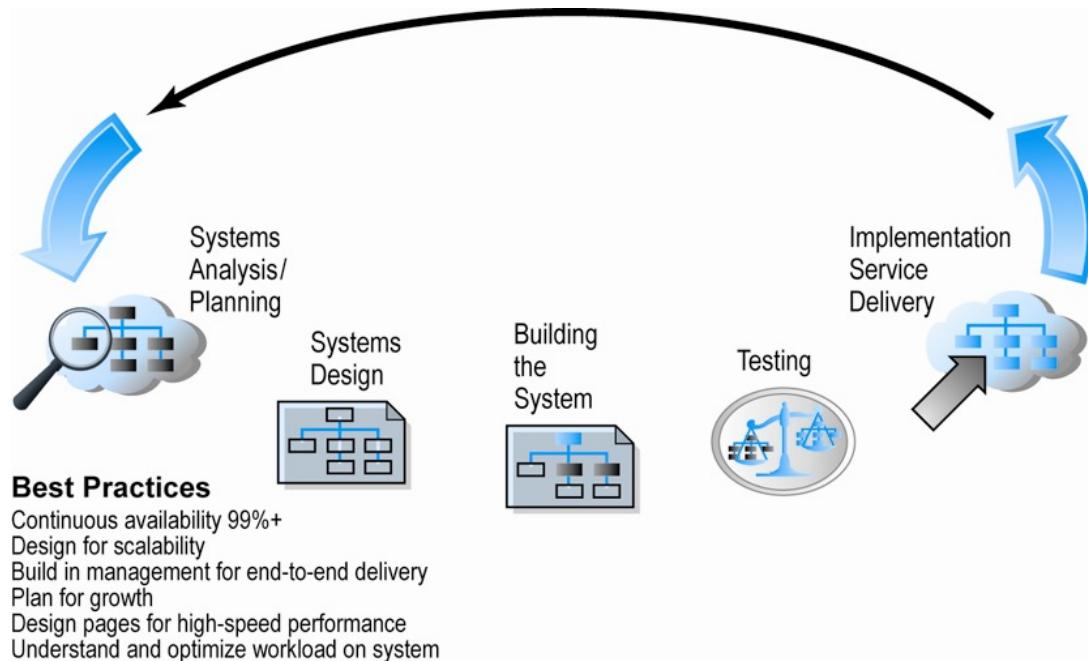
Outline

1. Research

2. Design

3. Develop

Research



- You may see some diagram like the left one.
- Analysis means someone know the demands and you just need to collect them.
- It is OK for “clear” demands.
- Innovation always start from a vision, well nobody can tell you the demands rather than yourself.
- So, for innovation project, research is always the first stage.

Vision or dream

- Research or not?

It depends how we define "Research".

The innovation starts from a vision, only the soul can lead it.

You can never expect "consultants" can give you the correct answer for an innovation idea.

While the market research can find out potential traps in a mature market.

You need to go first because you will never be ready!!!

AMERICA'S MOST ADMIRED COMPANIES

Steve Jobs speaks out

In an exclusive interview, Apple's CEO talked with Fortune senior editor Betsy Morris in February in Kona, Hawaii, where he was vacationing with his family, about the keys to the company's success, the prospect of Apple without Jobs, and more. Here are excerpts.

◀ BACK

NEXT ▶

3 of 15

On choosing strategy

"We do no market research. We don't hire consultants. The only consultants I've ever hired in my 10 years is one firm to analyze Gateway's retail strategy so I would not make some of the same mistakes they made [when launching Apple's retail stores]. But we never hire consultants, per se. We just want to make great products.

"When we created the iTunes Music Store, we did that because we thought it would be great to be able to buy music electronically, not because we had plans to redefine the music industry. I mean, it just seemed like writing on the wall, that eventually all music would be distributed electronically. That seemed obvious because why have the cost? The music industry has huge returns. Why have all this [overhead] when you can just send electrons around easily?"

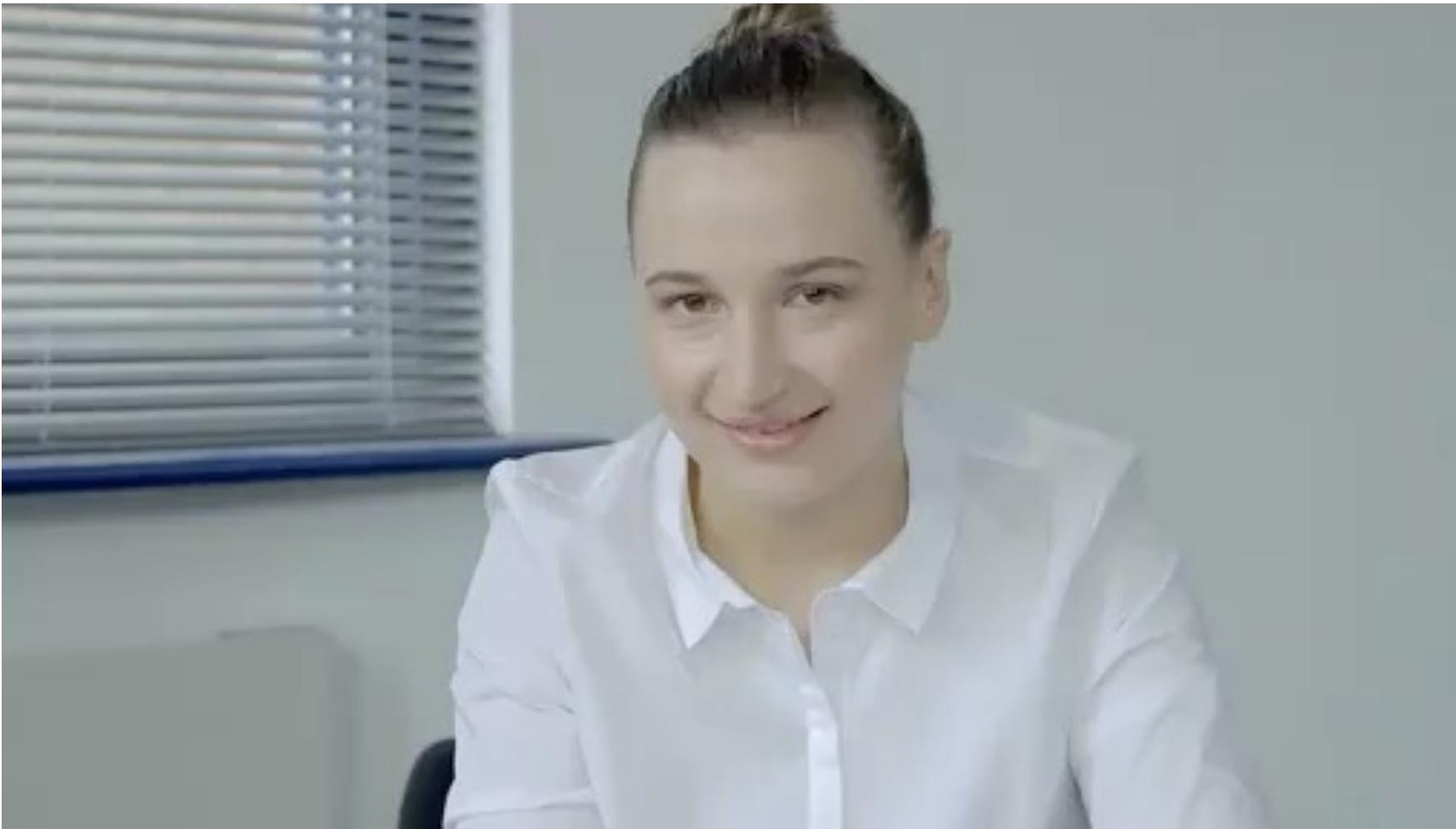
LAST UPDATED MARCH 07 2008: 7:10 PM ET

知乎 @臻臻



PHOTO: OLIVER STRATMANN/AFP/GETTY

A funny story: seven perpendicular red lines



https://www.sohu.com/a/421356638_778033

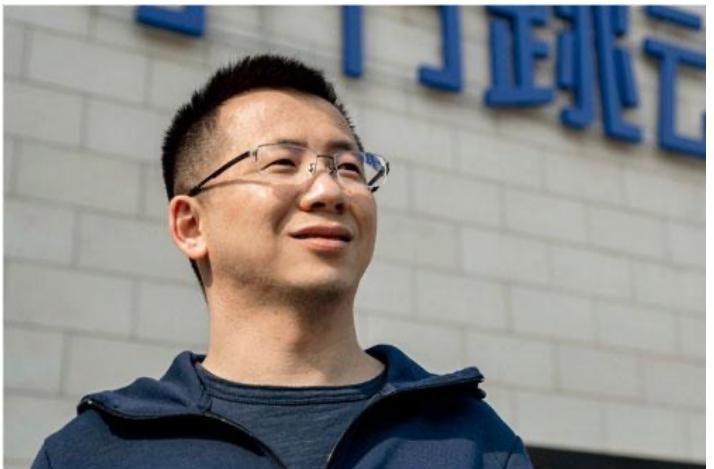
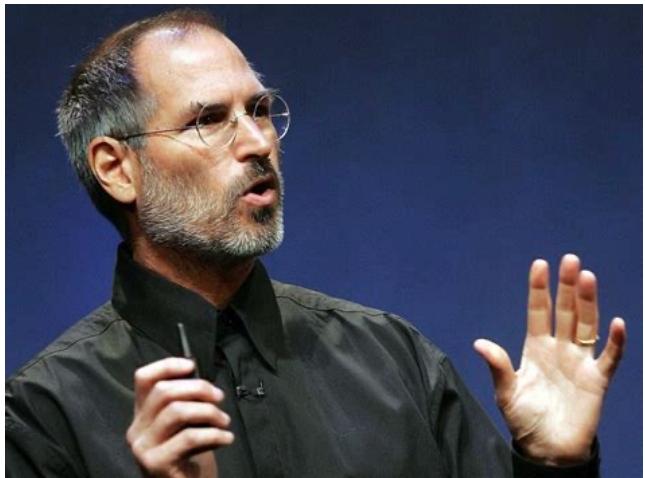
Vision of iPhone



Research what?



Some soul guys



Innovation or me²



- Potential energy = New – Old



Outcome of the research



https://wikimili.com/en/Business_plan

A business plan is a formal written document containing the **goals** of a business, the **methods** for attaining those goals, and the **time-frame** for the achievement of the goals. It also describes the **nature** of the business, **background information** on the organization, the organization's **financial projections**, and the **strategies** it intends to implement to achieve the stated targets.

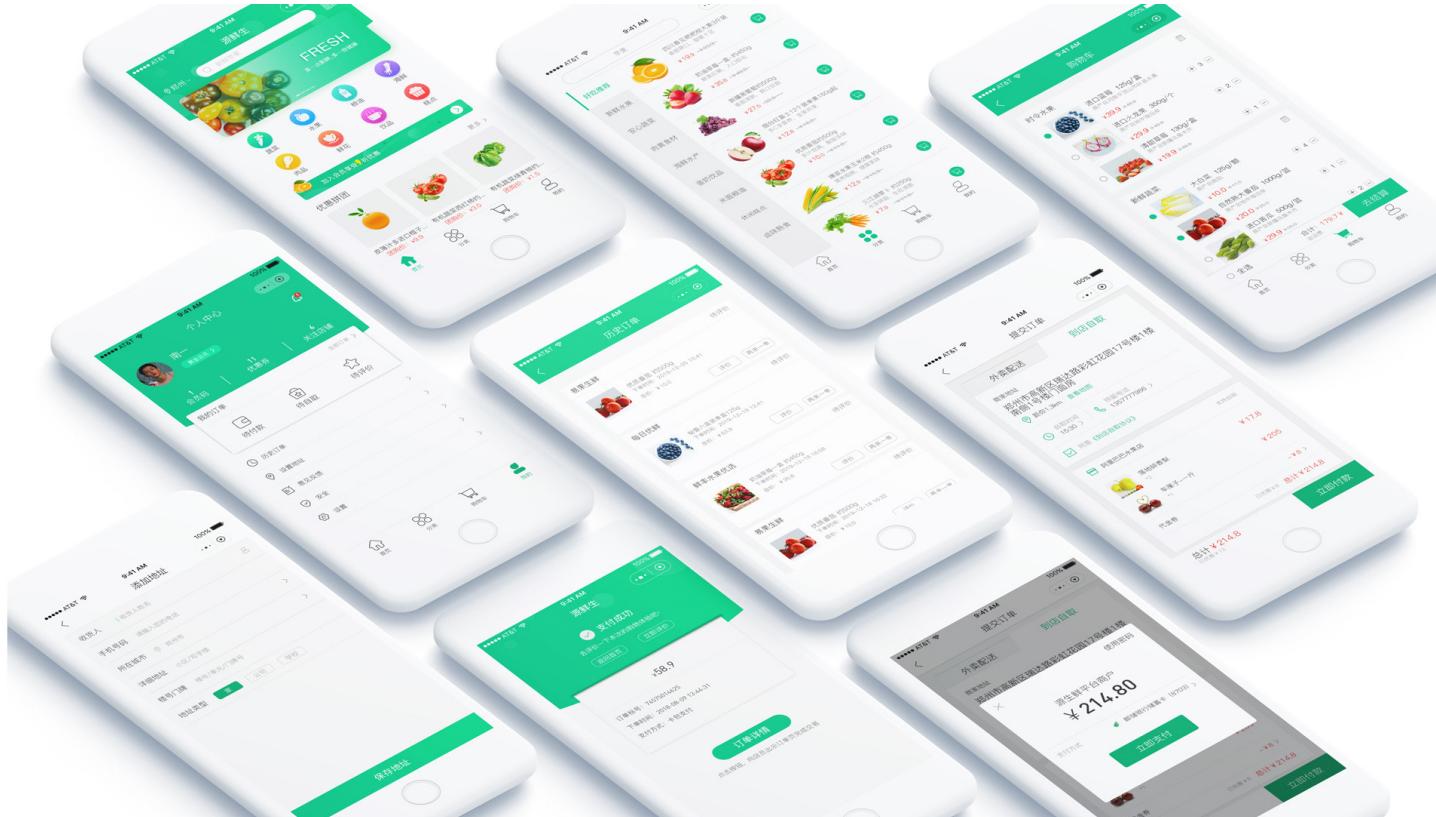
In its entirety, this document serves as a **road-map** (a plan) that provides direction to the business.

Design



<https://www.zhihu.com/question/27928975>

UI: user interface



The user interface (UI) is the point of human-computer interaction and communication in a device. This can include display screens, keyboards, a mouse and the appearance of a desktop.

<https://searchapparchitecture.techtarget.com/definition/user-interface-UI>

IxD: interaction design

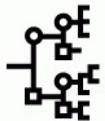


Interaction Design (IxD) defines the structure and behavior of interactive systems. Interaction Designers strive to create meaningful relationships between people and the products and services that they use, from computers to mobile devices to appliances and beyond.

IA: information architecture



你需要这样去整理：



分类与架构



制作标签



导航与路径寻找



搜索

信息架构

将人与他们想获取的信息联系起来



UX: user experience



- In the digital design world, UX refers to everything that affects a user's interaction with a digital product. When people use a product, they usually evaluate their experiences according to the following criteria:
 - **Value.** Does this product give me value?
 - **Function.** Does this product work?
 - **Usability.** Is it easy to use?
 - **General impression.** Is it pleasant to use?
- UX is not solely, it is more like a lighthouse to guide the UI, IA and IxD



<https://xd.adobe.com/ideas/career-tips/what-is-ux-design/>

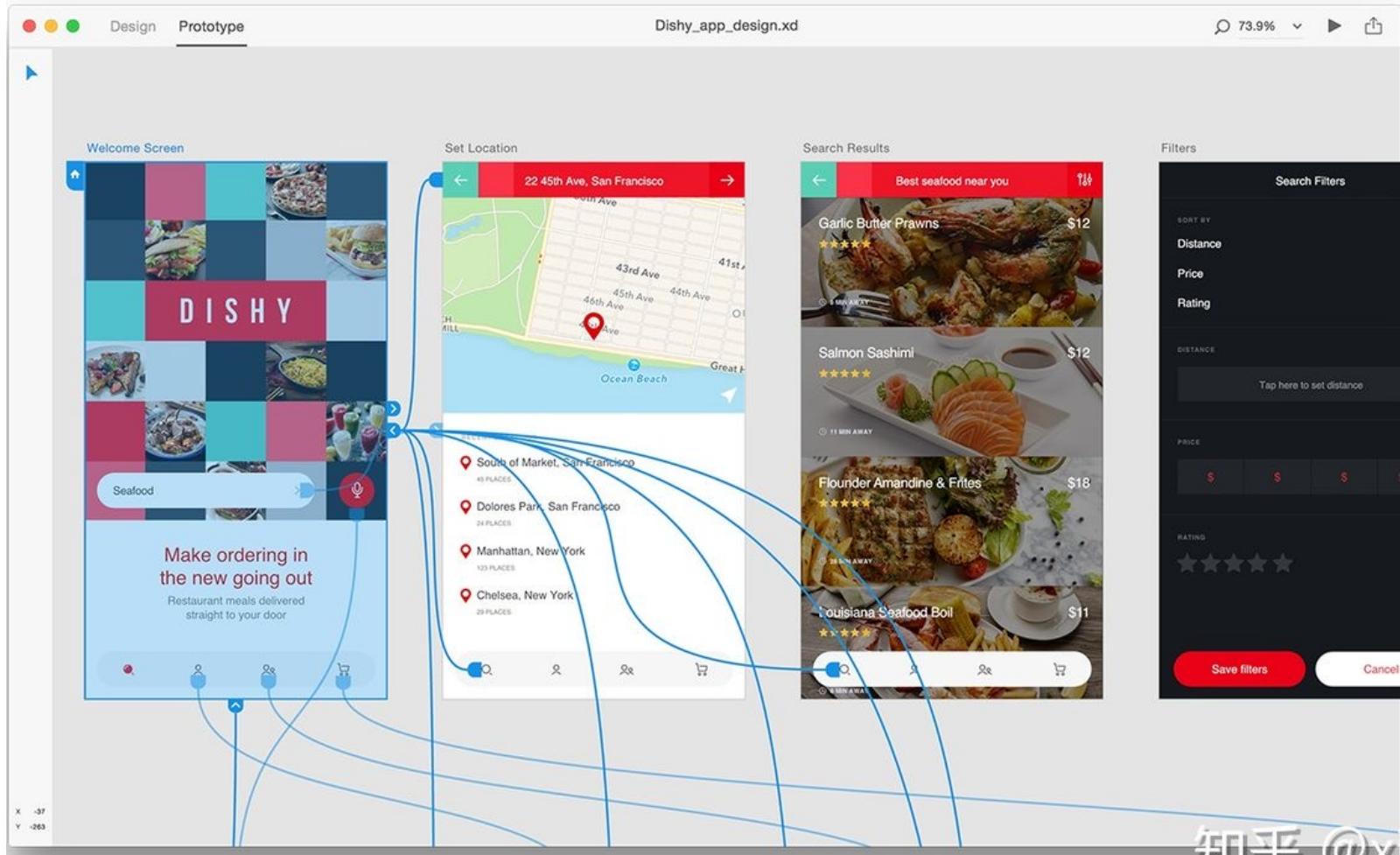
<https://www.interaction-design.org/literature/topics/ux-design>

Product Design is NOT only UI

What is...



Design tools



Sketch、Adobe XD、墨刀、Mockplus、Axure RP

<https://zhuanlan.zhihu.com/p/82214705>

Outcome of the design

Introduction <ul style="list-style-type: none">■ Purpose■ Document Conventions■ Intended Audience■ Project Scope■ References	Overall Description <ul style="list-style-type: none">■ Product Perspective■ Product Features■ User Roles and Rights■ Operating Environment■ Design and Implementation Constraints■ User Documents■ Assumptions and Dependencies	System Features <ul style="list-style-type: none">■ Description and Priority■ Stimulus/Response Sequences■ Functional Requirements
External Interfaces <ul style="list-style-type: none">■ UI/UX■ Hardware Interfaces■ Software Interfaces■ Project Scope■ Communication Interfaces	Concerns/Queries/Doubts <ul style="list-style-type: none">■ Performance■ Safety■ Security■ Software Quality Attributes	Others <ul style="list-style-type: none">■ Limitations■ Presumptions■ Glossary■ Analysis Models■ Issue List

A product requirements document (PRD) defines the requirements of a particular product, including the product's purpose, features, functionality, and behavior. It serves as a guide for business and technical teams to help build, launch, or market the product.

PRD is not only the UI/UX, it should address 5 types of requirements:

- Business Requirements
- Market Requirements
- Functional Requirements
- Non-Functional Requirements
- UI/UX Requirements

You may not have best answers to all questions during the beginning stage, but try to answer all of them.

<https://www.atlassian.com/agile/product-management/requirements>

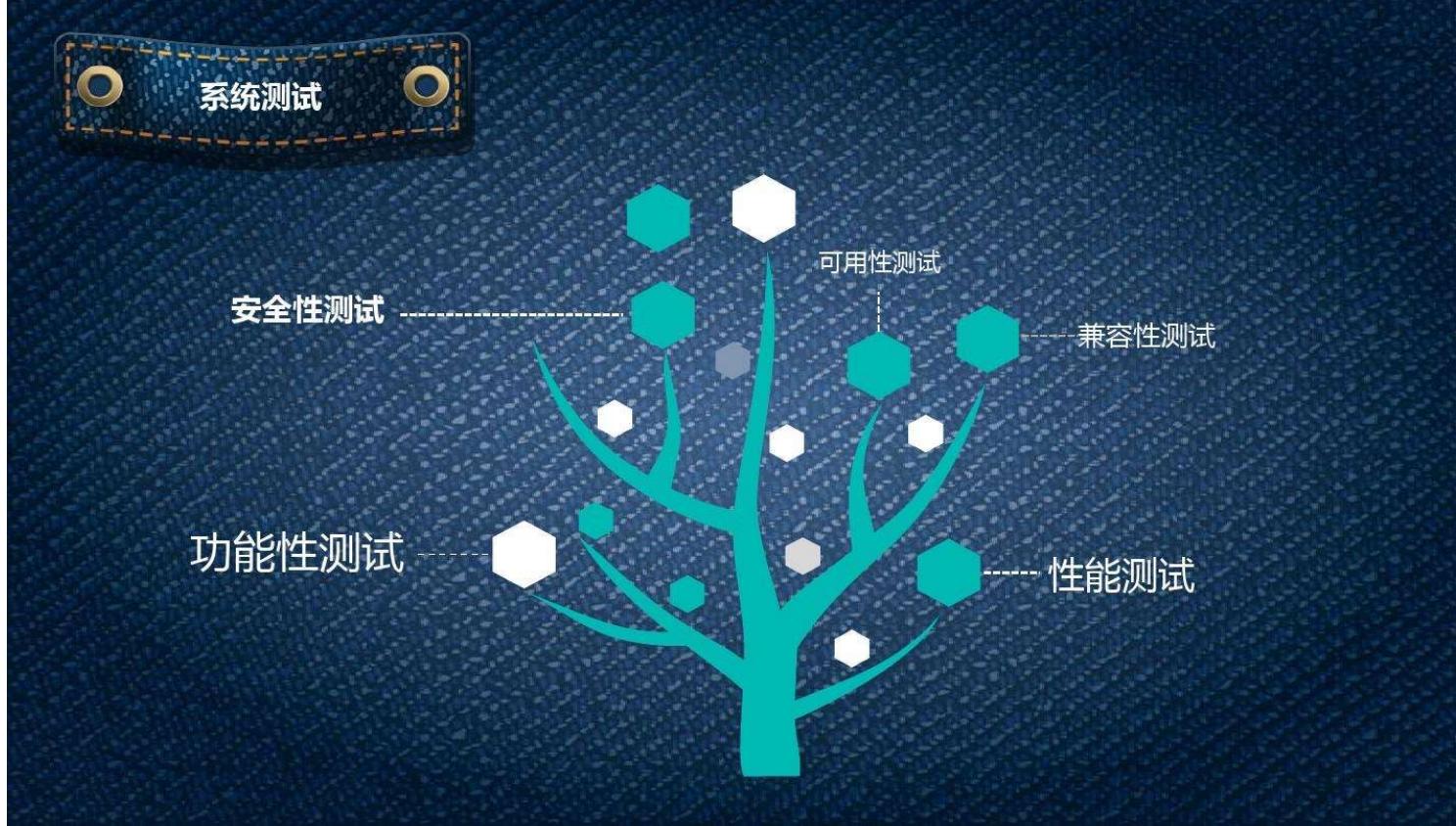
<https://www.nimbleappgenie.com/blogs/how-to-write-the-product-requirement-document-for-your-mobile-app/>

<https://zhuanlan.zhihu.com/p/39744545>

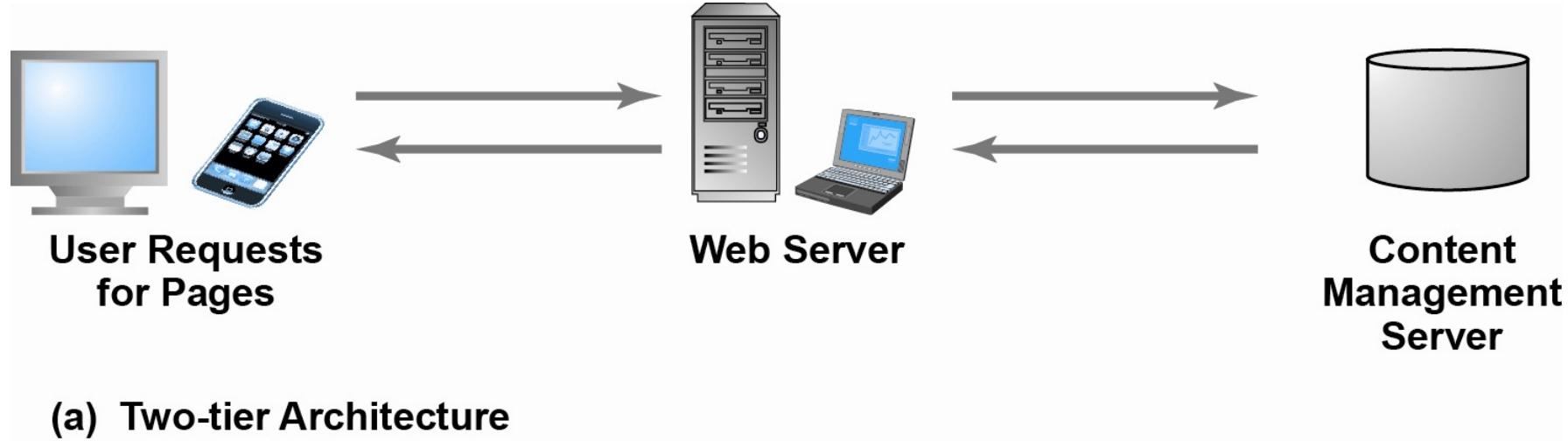
Develop



Develop is NOT only coding



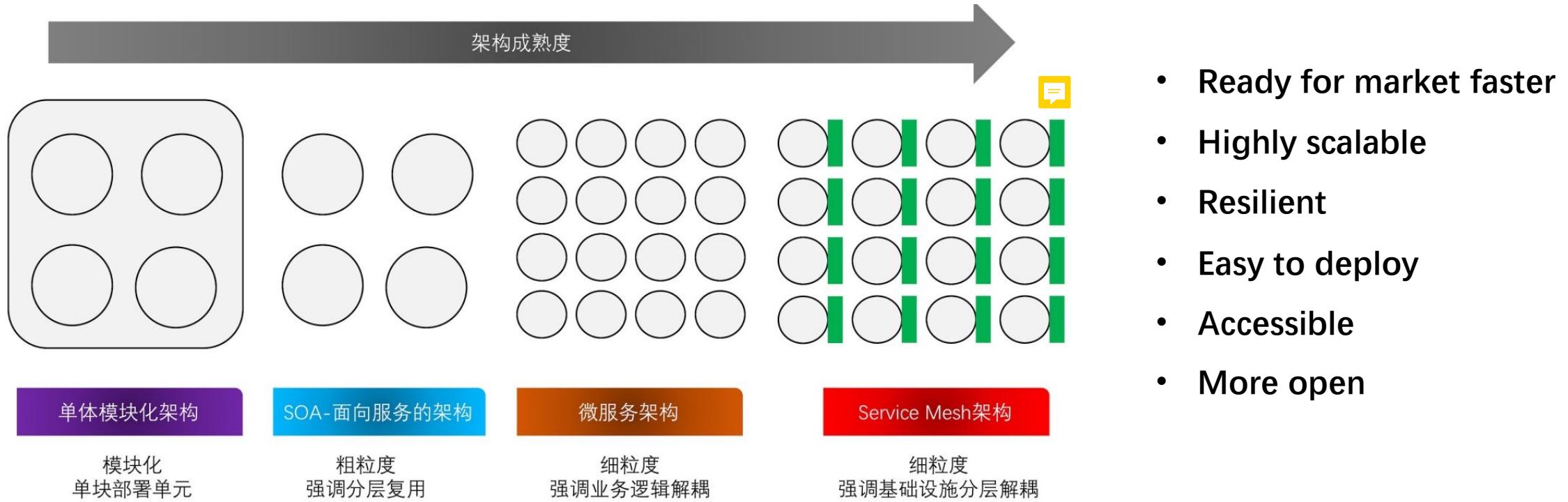
Single server model



- For example, **XAMPP** is an easy to install Apache distribution containing MariaDB, PHP, and Perl.
- **WordPress** is a Module on top of the XAMPP server stack, can make the news web every easy.
- One engineer can take everything, kind of “full stack” but not true.

<https://www.apachefriends.org/download.html>
<https://bitnami.com/stack/xampp#wordpress>

Micro service model (F/B split)



<https://www.redhat.com/en/topics/microservices/what-are-microservices>

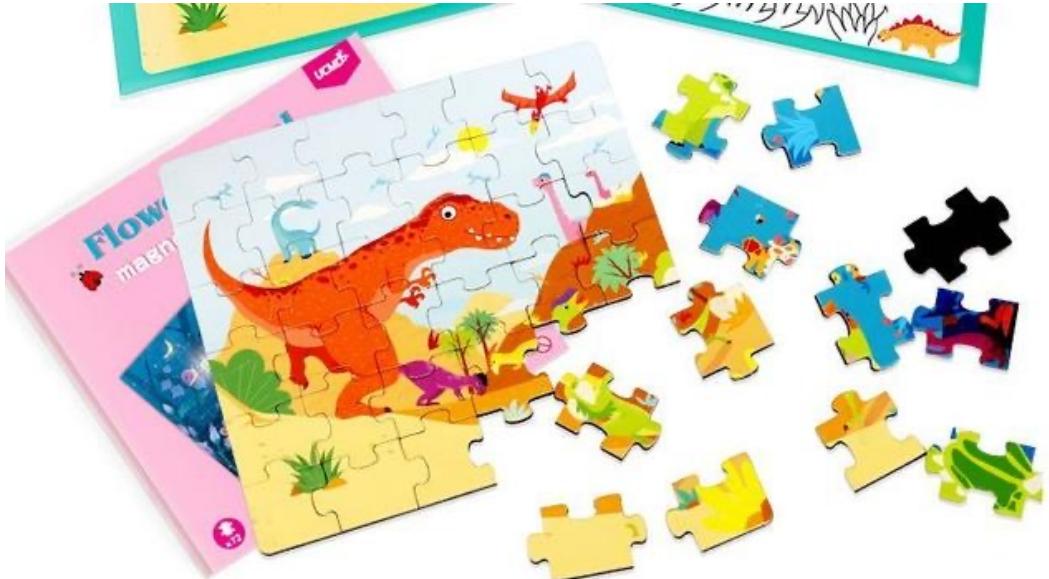
<https://microservices.io/patterns/index.html>

https://www.sohu.com/a/227349221_198222

<https://zhuanlan.zhihu.com/p/81580928>

<https://zhuanlan.zhihu.com/p/80265643>

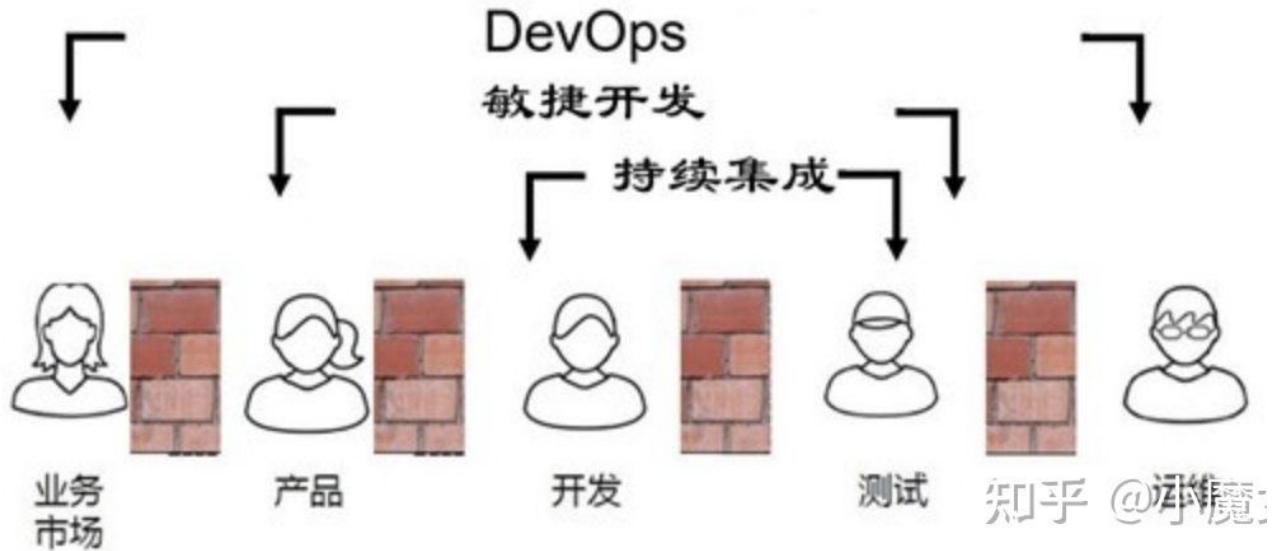
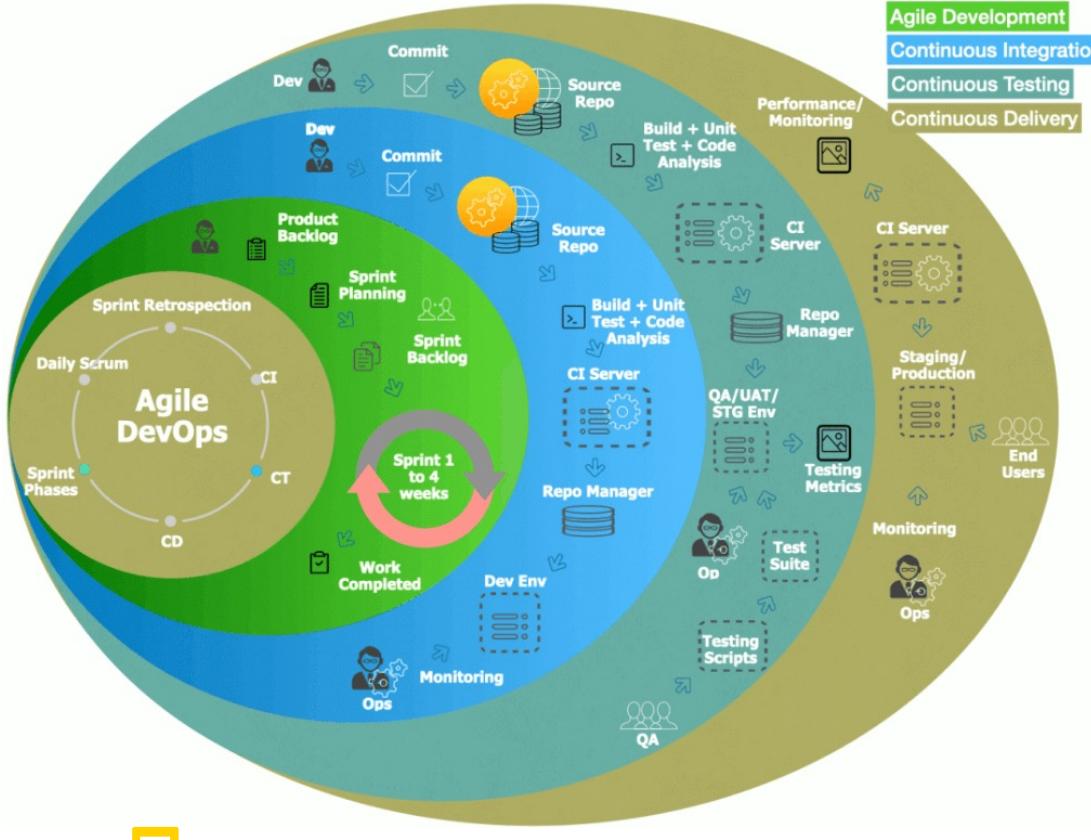
Microservice and CI/CD



- **Continuous Integration** is a software development practice where members of a team integrate their work frequently, usually each person integrates at least daily - leading to multiple integrations per day. Each integration is verified by an automated build (including test) to detect integration errors as quickly as possible. Many teams find that this approach leads to significantly reduced integration problems and allows a team to develop cohesive software more rapidly.
- **Continuous Deployment** is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time and, when releasing the software, doing so manually.



DevOps



People + Platform + Process



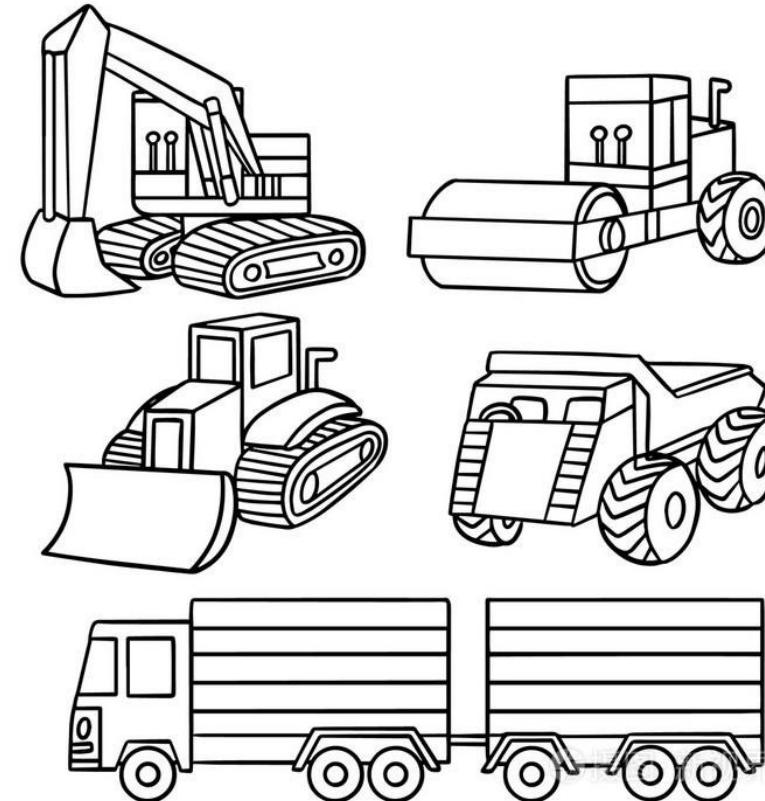
DevOps is an operational philosophy promotes collaboration between Development and Operations Team to deploy code to production faster and removing systematic barriers between dev and operations teams?

<https://www.zhihu.com/question/58702398>

<https://techblob.com/key-difference-between-agile-vs-devops-part-5/>

Typical tools for DevOps

- Project management: Jira
- Code repo and CI/CD : GitLab, GitLab CI, GitLab CD
- Service mesh: K8S + Istio + Docker
- Log system: ELK
- Monitoring: Prometheus
- Tracing: Zipkin
- Documents: SVN/Confluence



<https://blog.csdn.net/qianshangding0708/article/details/109685019>
<https://zhuanlan.zhihu.com/p/124085062>

So, which programming language?



Front-end and back-end split

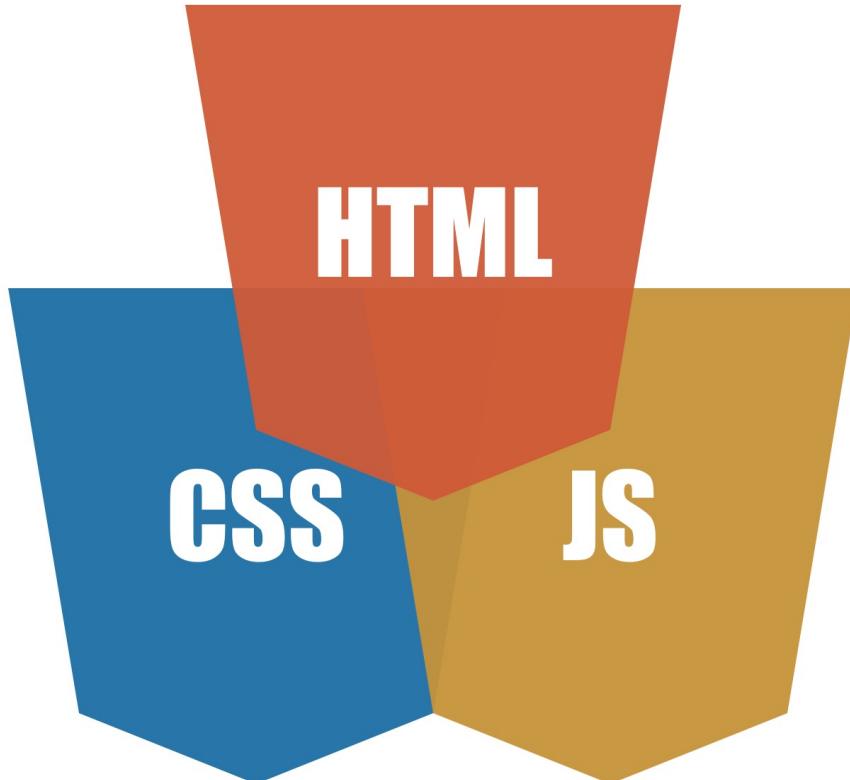


- Ajax (**A**synchronous **J**ava**S**cript **A**nd **X**ML) enable browser (front-end) to interact with web server (back-end) within the same webpage.
- Ajax make the webpage could be dynamic.

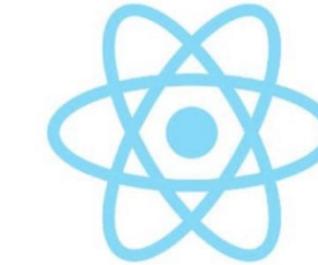


Discussion: Ajax is powered by what technology?

Front-end



Bootstrap



- **Bootstrap is a good framework for multi-pages applications.**
- **VUE, React and Angular are three mainstream SPA framework.**
- **Element, iView, AntDesign are popular components library.**

Back-end

Usage statistics of server-side programming languages for websites

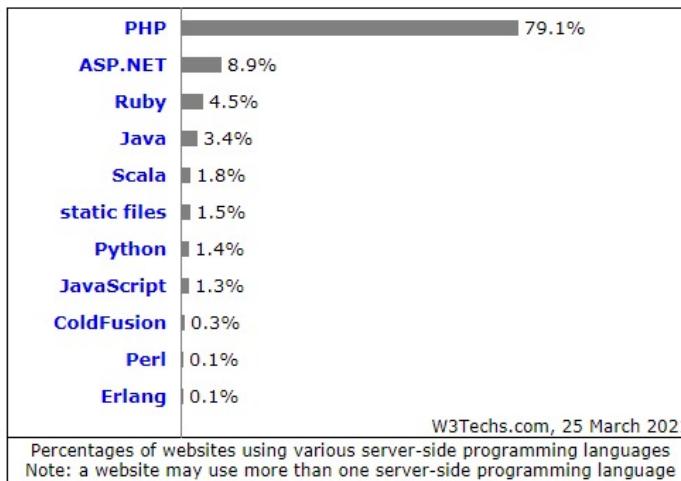
This diagram shows the percentages of websites using various server-side programming languages. See [technologies overview](#) for explanations on the methodologies used in the surveys. Our reports are updated daily.

Request an extensive server-side programming languages market report.

[Learn more](#)

How to read the diagram:

PHP is used by 79.1% of all the websites whose server-side programming language we know.



# Ranking	Programming Language	Percentage (YoY Change)	YoY Trend
1	JavaScript	17.955% (-2.192%)	
2	Python	15.943% (+0.071%)	
3	Java	12.977% (+1.573%)	
4	Go	8.203% (-0.612%)	
5	TypeScript	7.212% (-0.276%)	
6	C++	6.683% (-0.251%)	
7	Ruby	6.488% (+0.303%)	
8	PHP	4.937% (-0.093%)	
9	C#	3.366% (-0.350%)	
10	C	2.958% (+0.068%)	

- Which one is the best of the best?

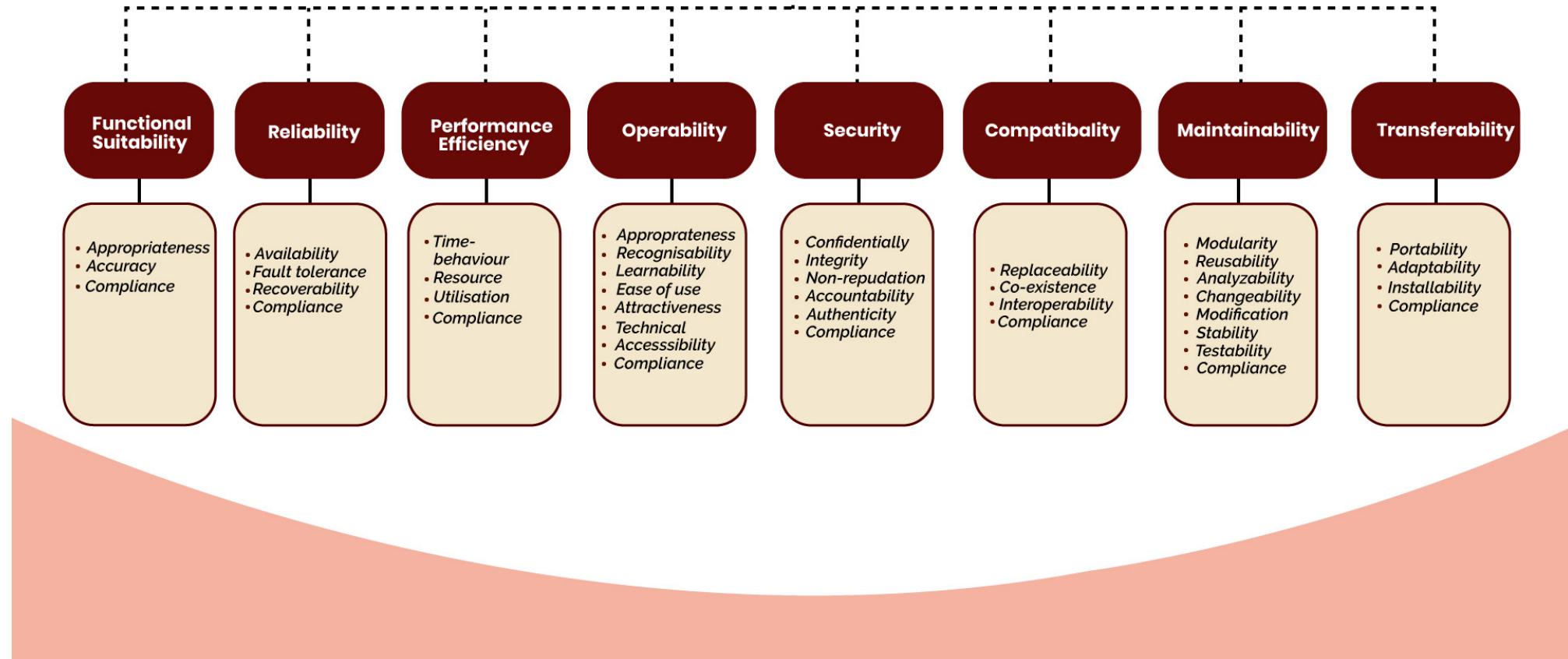
https://madnight.github.io/git hut/#/pull_requests/2021/3

<https://www.zhihu.com/question/435974651/answer/1640454504>

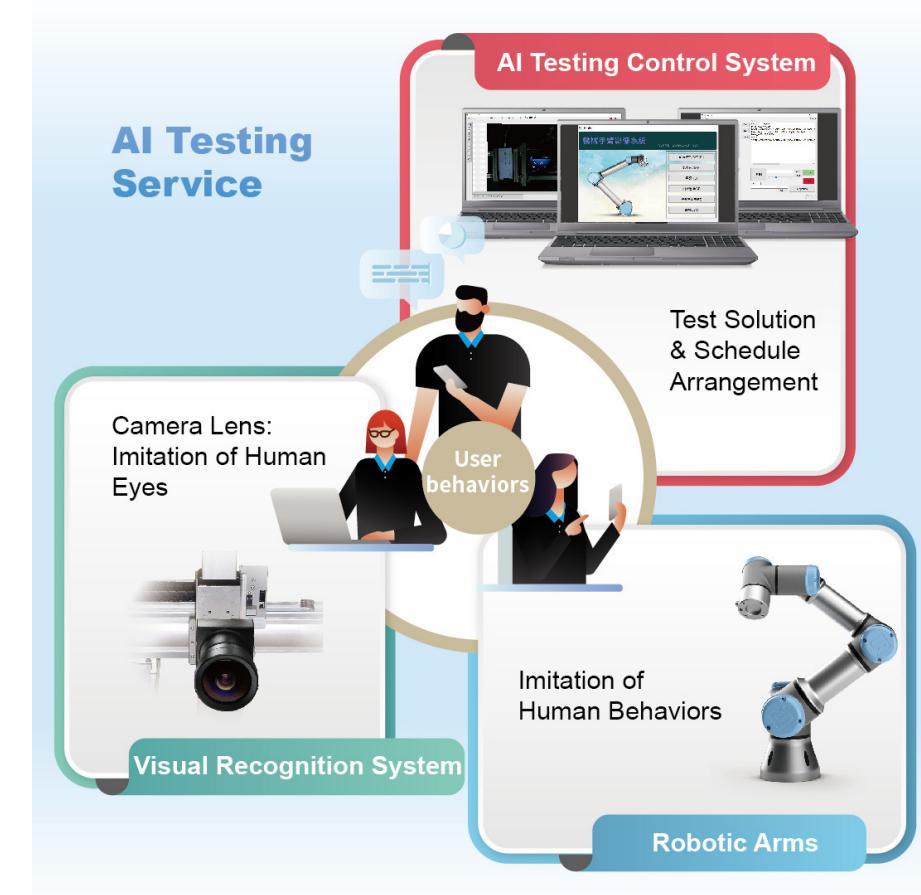
ISO/IEC 25010:2011 Software Quality Model



Software Product Quality



Test before you go

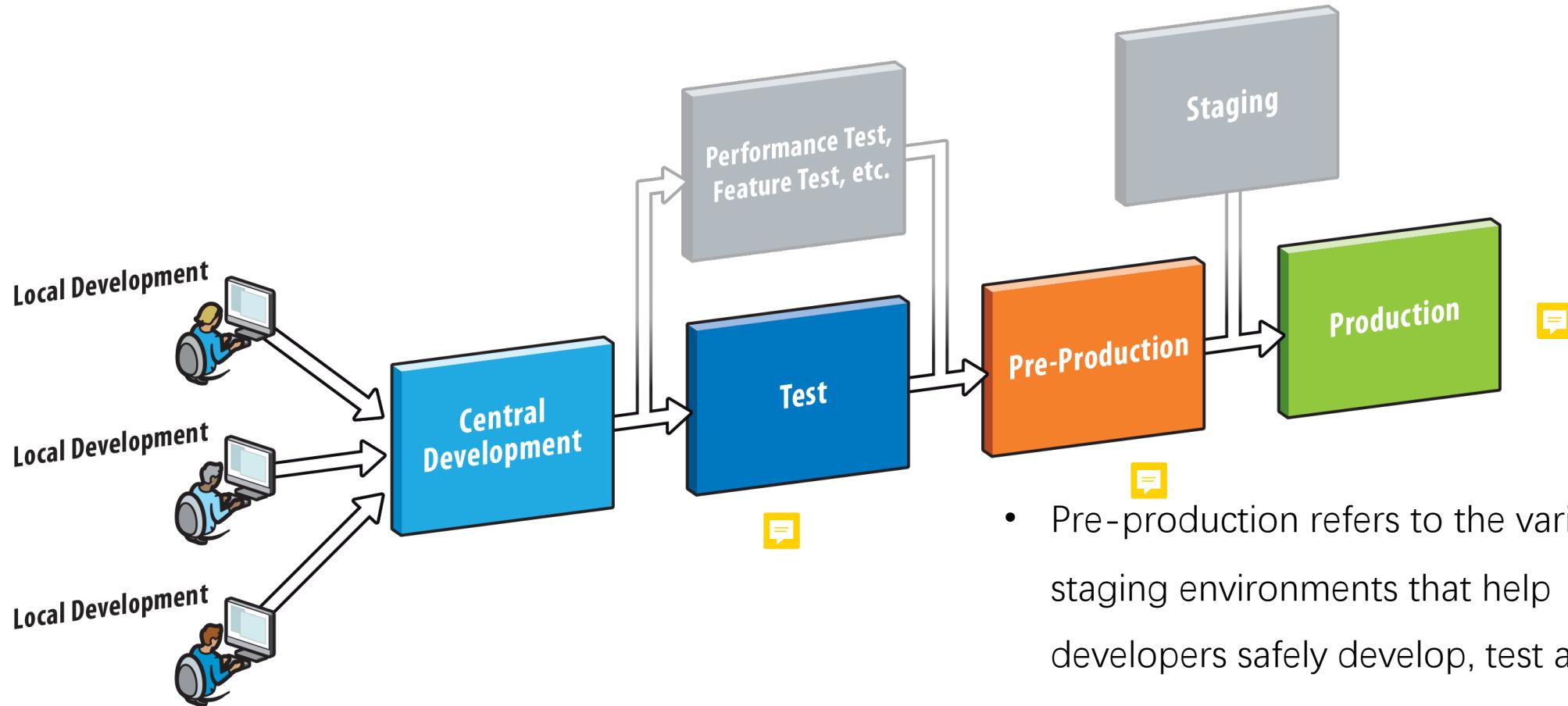


<https://www.softwaretestinghelp.com/types-of-software-testing/>

<https://usersnap.com/blog/software-testing-basics/>

<https://zhuanlan.zhihu.com/p/44520077>

Different environments



- Pre-production refers to the various staging environments that help developers safely develop, test and integrate new code.

<https://www.jianshu.com/p/ba20b064fd25>

<https://thenewstack.io/pre-production-environments-key-concepts-and-best-practices/>

Outcome of develop



“Hello World!”

Operation



**Build a website is only the beginning.
Run the business is the core for e-commerce.**



Some sample sites for e-commerce

- <http://sogos.in/index.php>
- http://www.macrozheng.com/#/foreword/mall_foreword_01
- <https://uniapp.v4.niuteam.cn/>
- <https://demo.leadshop.vip/index.php>