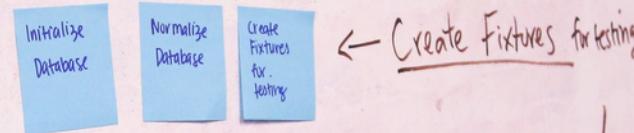
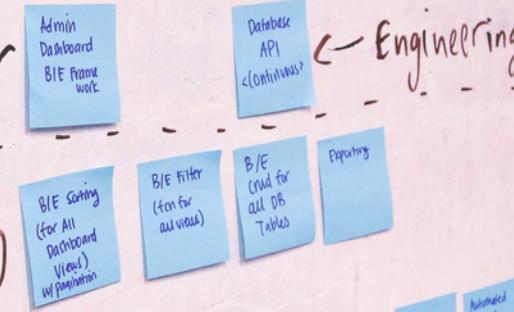


1) WEEK 4: Design



2) WEEK 5: Design



3) WEEK 6: Dev

ADMIN API

CRON
Automated (send) email B/E

Source: Tommy Wong

MINDSET FOR DEVELOPING CONNECTED PRODUCTS AND SERVICES

Bernard Suen

Center for Entrepreneurship

Chinese University of Hong Kong

MADE IN CHINA 2025





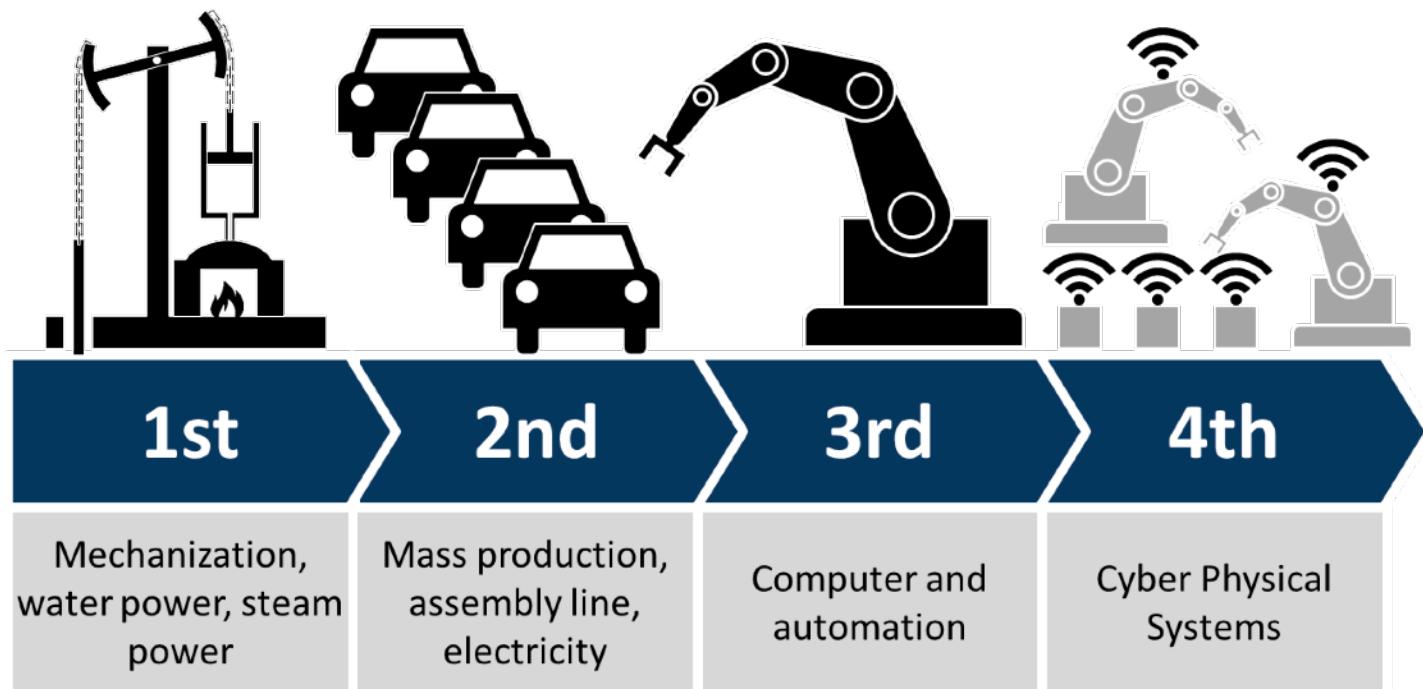
X



**MADE IN
CHINA
2025**

Industry 4.0

Source: china.org.cn



Source: Wikipedia Commons

香港智慧城市 Hong Kong Smart City 藍 Blueprint 圖





Hong Kong Smart City Blueprint

[Home](#) [Vision & Mission](#) [Development Plans](#) [Open e-Blueprint](#) [Download Blueprint](#) | 繁 簡 AAA

Open Data

[Home](#) > Open Data



Smart Mobility

Smart Living

Smart Environment

Smart People

Smart Government

Smart Economy

Open Data

NYC OpenData[Home](#) [Data](#) [About](#) ▾ [Learn](#) ▾ [Alerts](#) [Contact Us](#) [Blog](#)

Open Data for All New Yorkers

Where can you find public Wi-Fi in your neighborhood? What kind of tree is in front of your office? Learn about where you live, work, eat, shop and play using NYC Open Data.

Search Open Data for things like 311, Buildings, Crime



LONDON DATASTORE

Register an Account

Login 

Blog

Data 

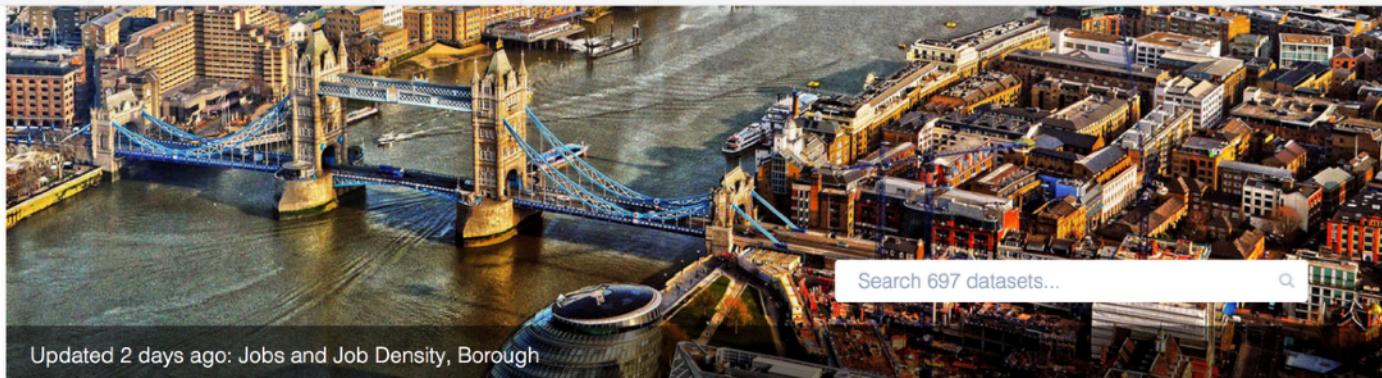
Apps & Analysis 

Developers 

Boroughs 

City Data Strategy 

More 



JOBs AND ECONOMY



TRANSPORT



ENVIRONMENT



COMMUNITY SAFETY



HOUSING



COMMUNITIES



HEALTH



LONDON AS A WORLD CITY



GLA PERFORMANCE



Click on a circle to see more...

Welcome to the Datastore

The London Datastore is a free and open data-sharing portal where anyone can access data relating to the capital. Whether you're a citizen, business owner, researcher or developer, the site provides over 700 datasets to help you understand the city and develop solutions to London's problems. Please do have a look around and [let us know](#) what you think.

IS THE WORLD GOING TO BE BETTER?

FROM RISE OF CHINA TO POSSIBLY THE ‘NEW’ COLD WAR

Huawei signals global 5G network leadership intentions



TOM BALL REPORTER

23RD FEBRUARY 2018

+ INCREASE / DECREASE TEXT SIZE -



Source: Computer Business Review Feb 2018



Windows



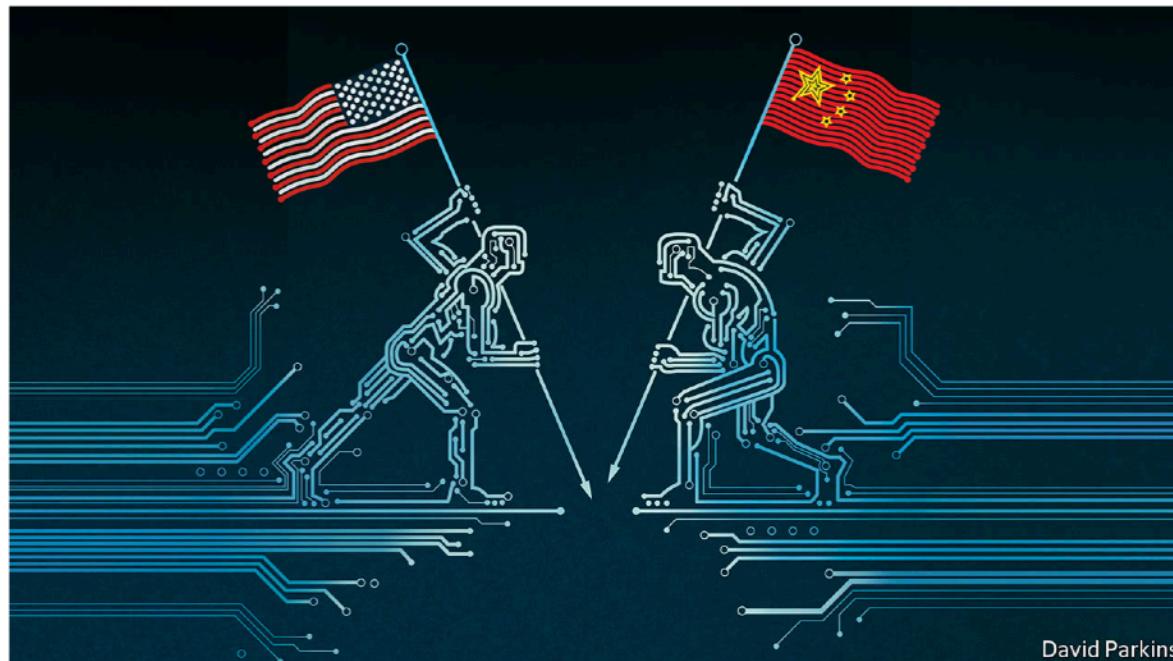
iOS

Source: wikipedia.org

America v China

The battle for digital supremacy

America's technological hegemony is under threat from China





Who Rules the Platform Will Rule the World

China vs. US – Top Players for Key Verticals



Source: China Internet Report 2018



Industry innovation and disruption comes from technology platforms

Synced

AI TECHNOLOGY & INDUSTRY REVIEW

FEATURE ▾

INDUSTRY ▾

TECHNOLOGY

COMMUNITY ▾

ABOUT US ▾



AI CHINA INDUSTRY UNITED STATES

Amazon Go vs Alibaba Tao Cafe: Staffless Shop Showdown

Amazon and Alibaba's brick-and-mortar-but-no-staff shops offer very different user experiences. To bring you first-hand feedback, Synced visited them.

Source: The Synced, Jan 22, 2018



Chinese Internet Giant Tencent Invests \$70 Million In Healthcare Group DXY

Catherine Shu @catherineshu / Sep 2, 2014

Comment



Source: Tech Crunch, Sep 2, 2014

The New York Times

Amazon Wants to Disrupt Health Care in America. In China, Tech Giants Already Have.

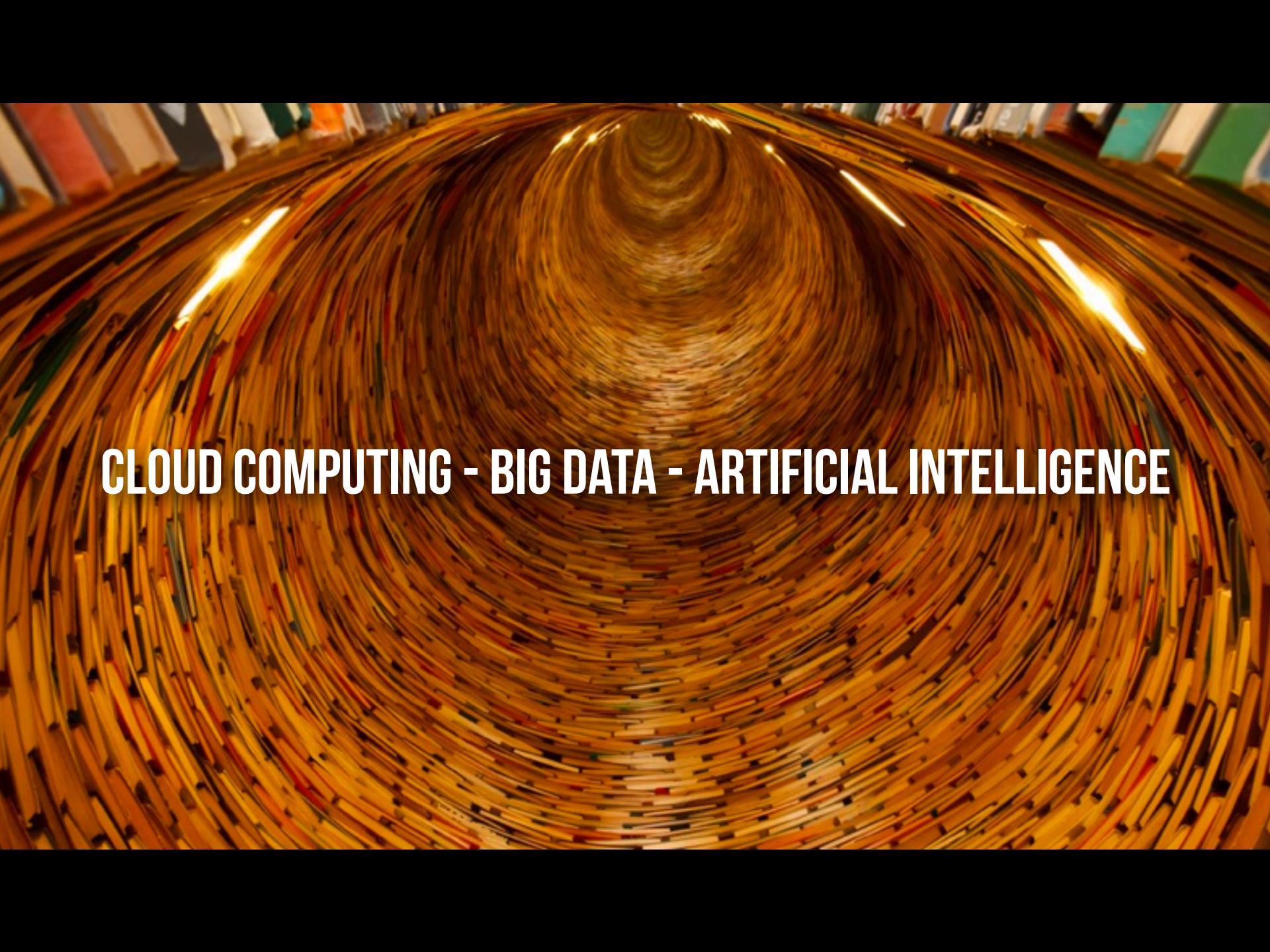
[查看简体中文版](#) | [查看繁體中文版](#)

By SUI-LEE WEE and PAUL MOZUR JAN. 31, 2018

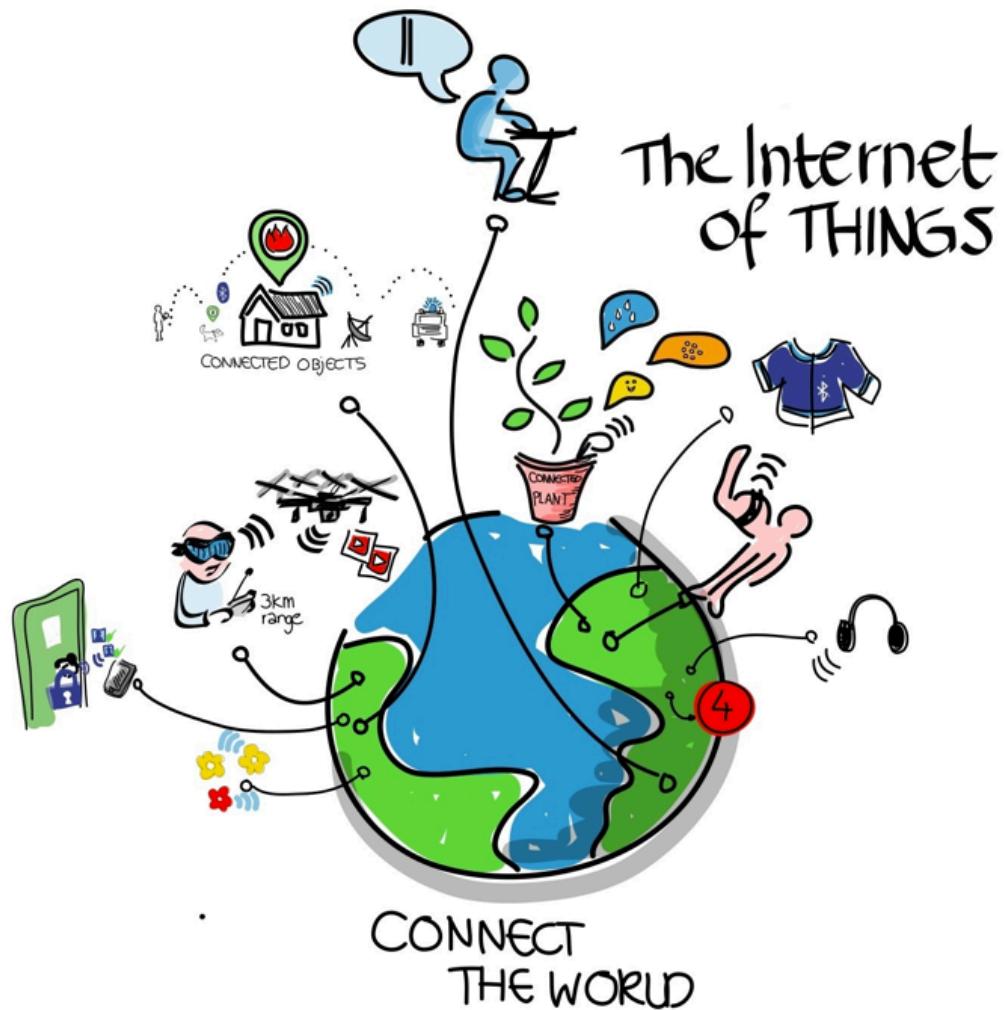


Source: The New York Times, Jan 31, 2018

**NEW TECHNOLOGIES KEEP EMERGING, BRINGING
ALONG DRASTIC CHANGES IN OUR CAREER AND LIFE**



CLOUD COMPUTING - BIG DATA - ARTIFICIAL INTELLIGENCE

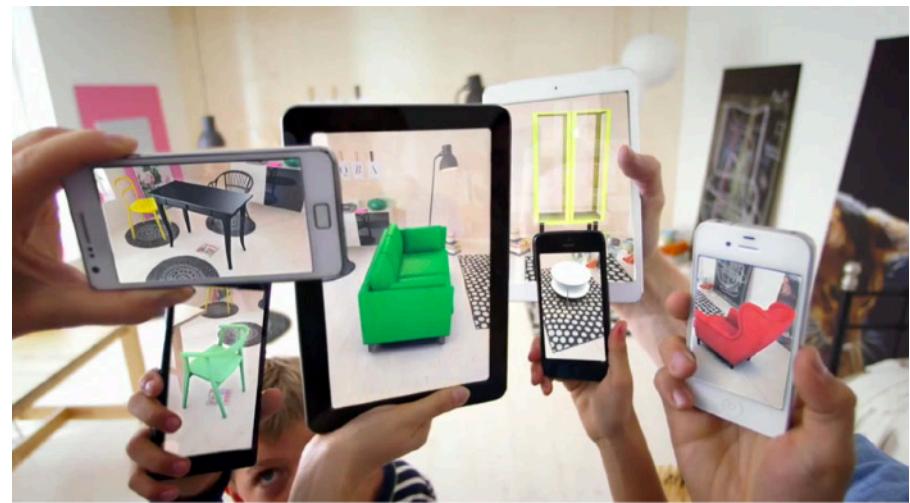


INTERNET OF THINGS



VIRTUAL REALITY

AUGMENTED REALITY



Source: Wikipedia



BLOCKCHAIN - BITCOIN

ARTIFICIAL INTELLIGENCE, BLOCKCHAIN, CLOUD COMPUTING, BIG DATA

The ABCD of Emerging Infrastructure
for Global Politics, Trade and Finance

PLATFORMS CROSSING BOUNDARIES AND TERRITORIES TO DISRUPT THE STATUS QUO



AT THE HEART OF THE PLATFORM IS SOFTWARE

ESSAY

THE WALL STREET JOURNAL.

Why Software Is Eating The World

By Marc Andreessen

August 20, 2011

This week, Hewlett-Packard (where I am on the board) announced that it is exploring jettisoning its struggling PC business in favor of investing more heavily in software, where it sees better potential for growth. Meanwhile, Google plans to buy up the cellphone handset maker Motorola Mobility. Both moves surprised the tech world. But both moves are also in line with a trend I've observed, one that makes me optimistic about the future growth...

RELATED VIDEO



Groupon Investor Marc Andreessen: 'No Tech Bubble'

In an interview with WSJ's Kevin Delaney, Groupon and LinkedIn investor Marc Andreessen insists that the recent popularity of tech companies does not constitute a bubble. He also stressed that both Apple and Google are undervalued and that "the market doesn't like tech."

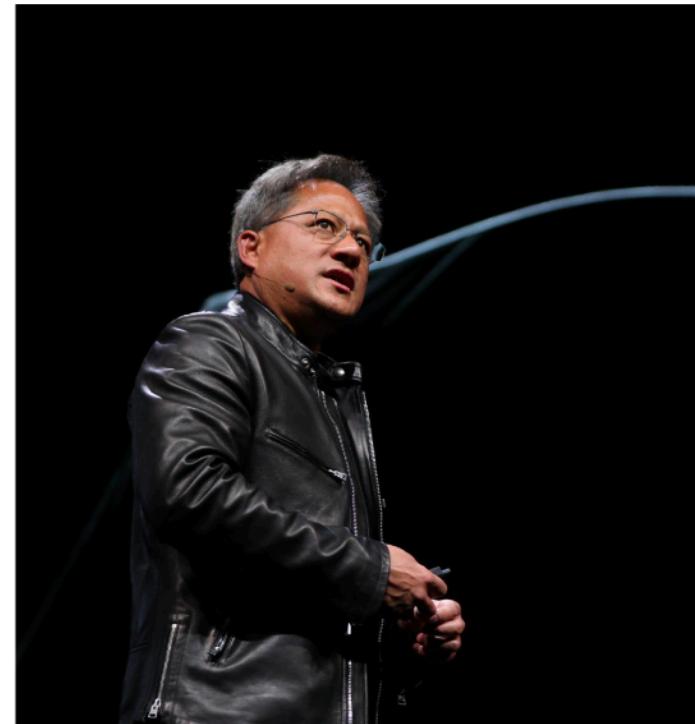
18

[Intelligent Machines](#)

Nvidia CEO: Software Is Eating the World, but AI Is Going to Eat Software

Source: MIT Technology Review, March 12, 2017

Jensen Huang predicts that health care and autos are going to be transformed by artificial intelligence.



ENTERPRISE | MEDIA | GOOGLE

No, Data Is Eating the World

Netflix and Google are still disruptive companies -- but no longer primarily because of their software.

BY DRIES BUYTAERT | JAN 7, 2015, 12:27PM EST

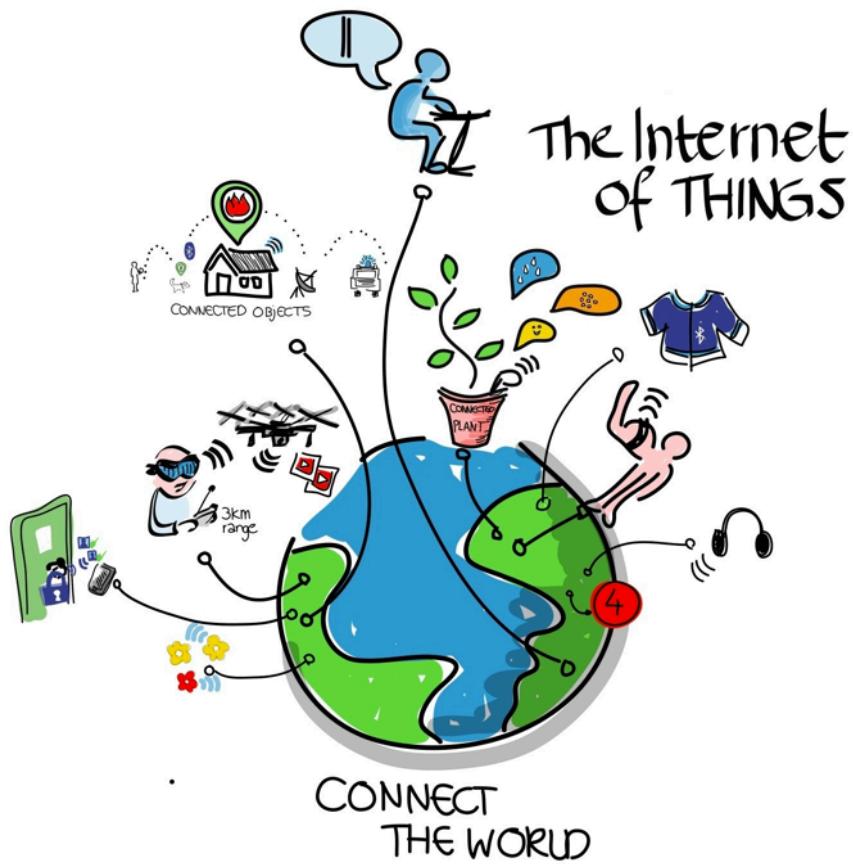
 TWEET

 SHARE

 LINKEDIN



SMART INFRASTRUCTURE TRENDS: INDUSTRY 4.0, SMART CITIES AND IoT



INTERNET OF THINGS

B-TO-B TO B-TO-C



Amazon Echo Dot



Apple HomePod



Source: Xiaomi Smart Home



ome

Source: Wikipedia Commons



ARTWORK: CHRIS LABROOY, BRAUN, TOASTER

COMPETITION

How Smart, Connected Products Are Transforming Competition

by Michael E. Porter and James E. Heppelmann

FROM THE NOVEMBER 2014 ISSUE

Source: Harvard Business Review



HARVARD | BUSINESS | SCHOOL



FACULTY & RESEARCH



FACULTY

RESEARCH

FEATURED TOPICS

ACADEMIC UNITS

FIND

Faculty, publications, topics



ARTICLE | HARVARD BUSINESS REVIEW

How Smart, Connected Products Are Transforming Competition

by Michael E. Porter and James E. Heppelmann



PRINT



SHARE



EMAIL

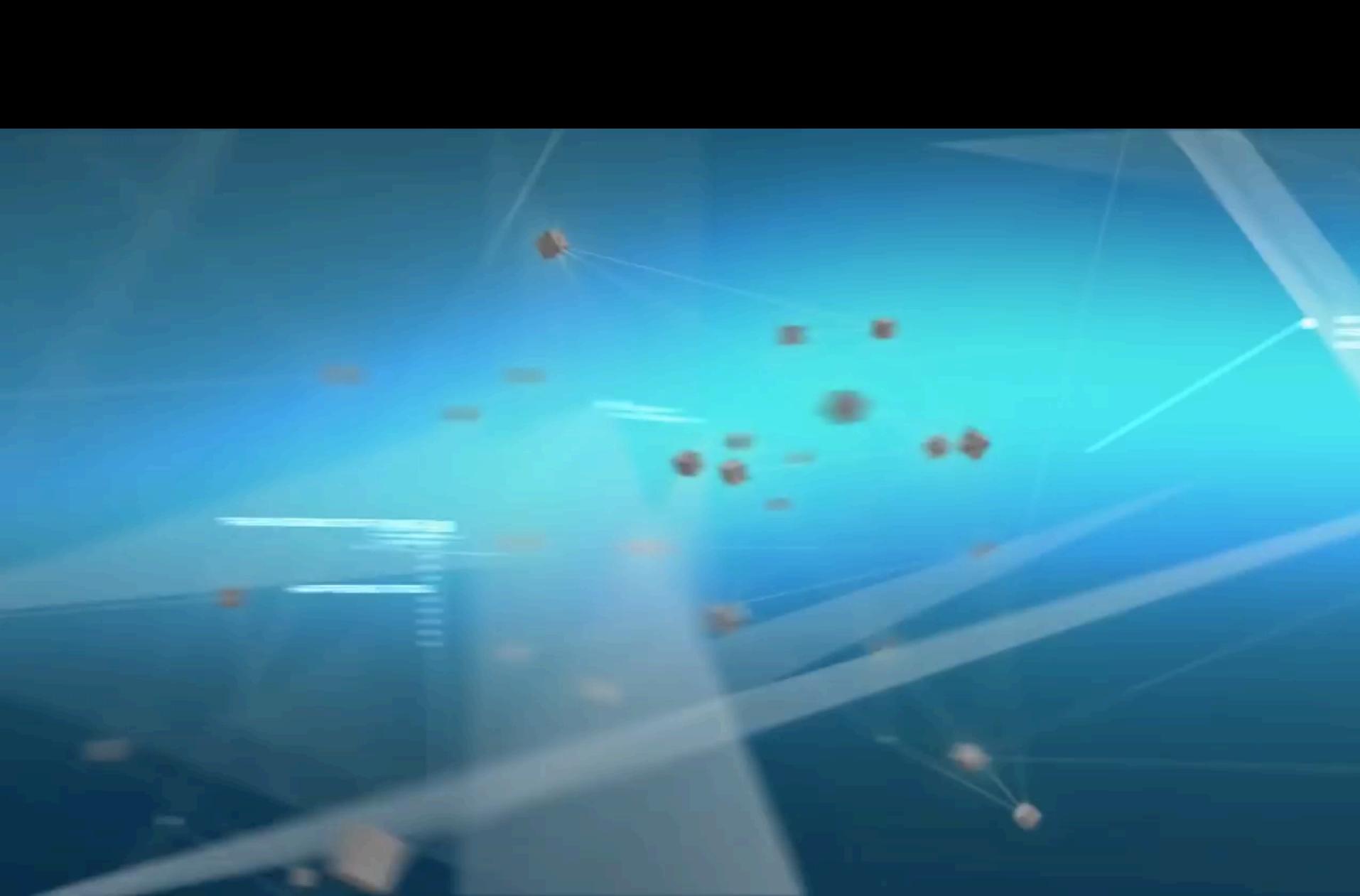
About the Author



Michael E. Porter
Strategy

[VIEW PROFILE »](#)

[VIEW PUBLICATIONS »](#)



Question: Fugitives were caught in concerts for 张学友? Social credit system and ‘health codes’ have been implemented throughout China. Are these signs of smart cities on the rise?

What are the implications of these shifts for COM5961?

A blurred landscape of trees and fields, suggesting rapid movement.

Can we cope with these changes?

**WHAT DO OUR STUDENTS NEED TO SURVIVE
AND SEEK FULFILMENT IN SUCH A WORLD?**



Search...



[Student Loans](#)

[Grants](#)

[Laws](#)

[Data](#)

Science, Technology, Engineering and Math: Education for Global Leadership



"STEM" EDUCATION COMES TO THE RESCUE.

"[Science]" "[Science] is more than a school subject, or the periodic table, or the properties of waves. It is an approach to the world, a critical way to understand and explore and engage with the world, and then have the capacity to change that world..."

— President Barack Obama, March 23, 2015



**WILL “STEM” AND COMPUTATIONAL THINKING BECOME OUR
STRONG SUIT?**

文西 SISY BIG DANG
大姐大

文化 遠見 雜誌 天下文化

見 雜誌 天下文化

文化 遠見 人工智慧來了

天下

所以这样延伸下去



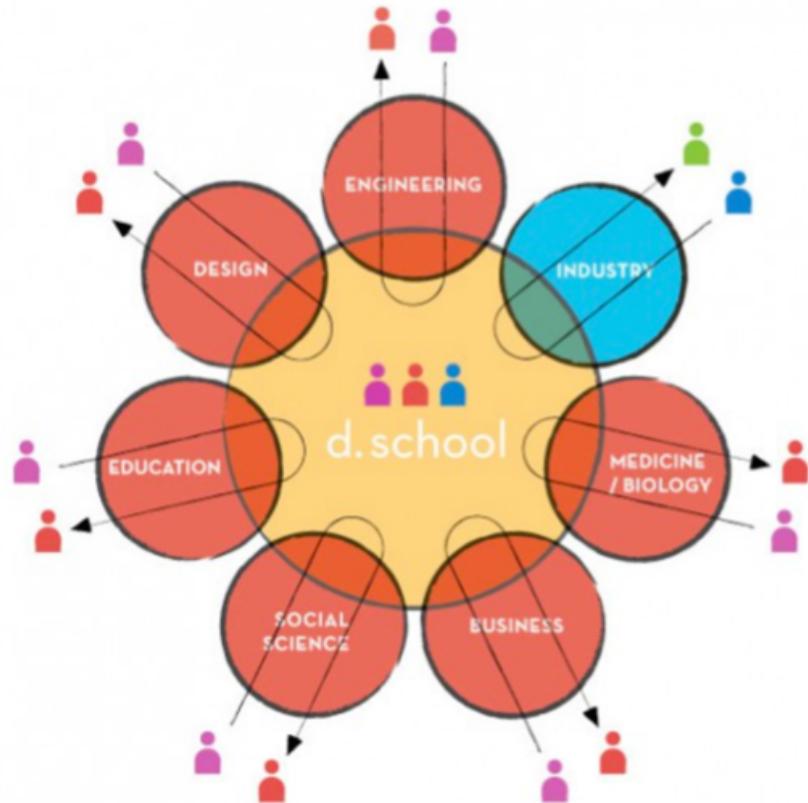
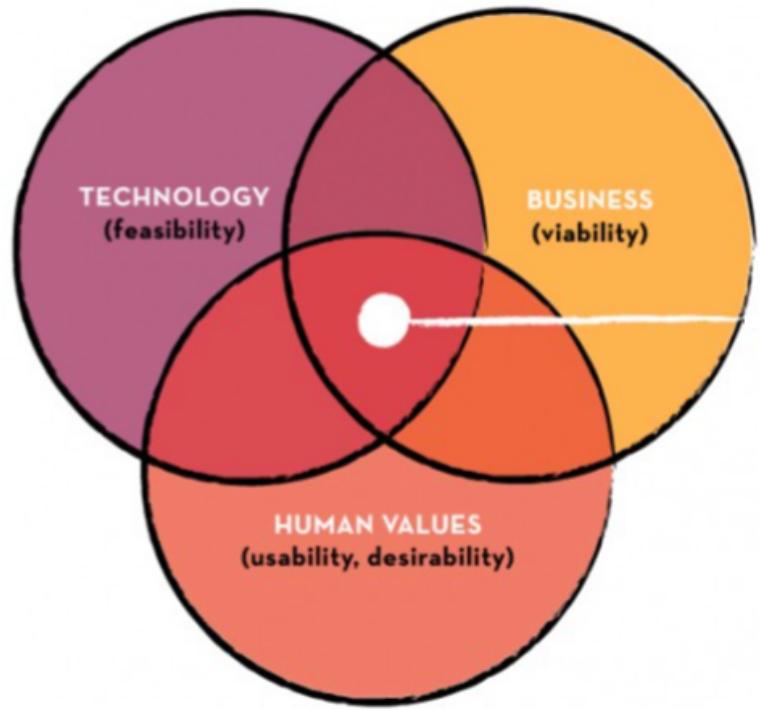
The surprising thing Google learned about its employees – and what it means for today's students

By Valerie Strauss December 20, 2017  Email the author



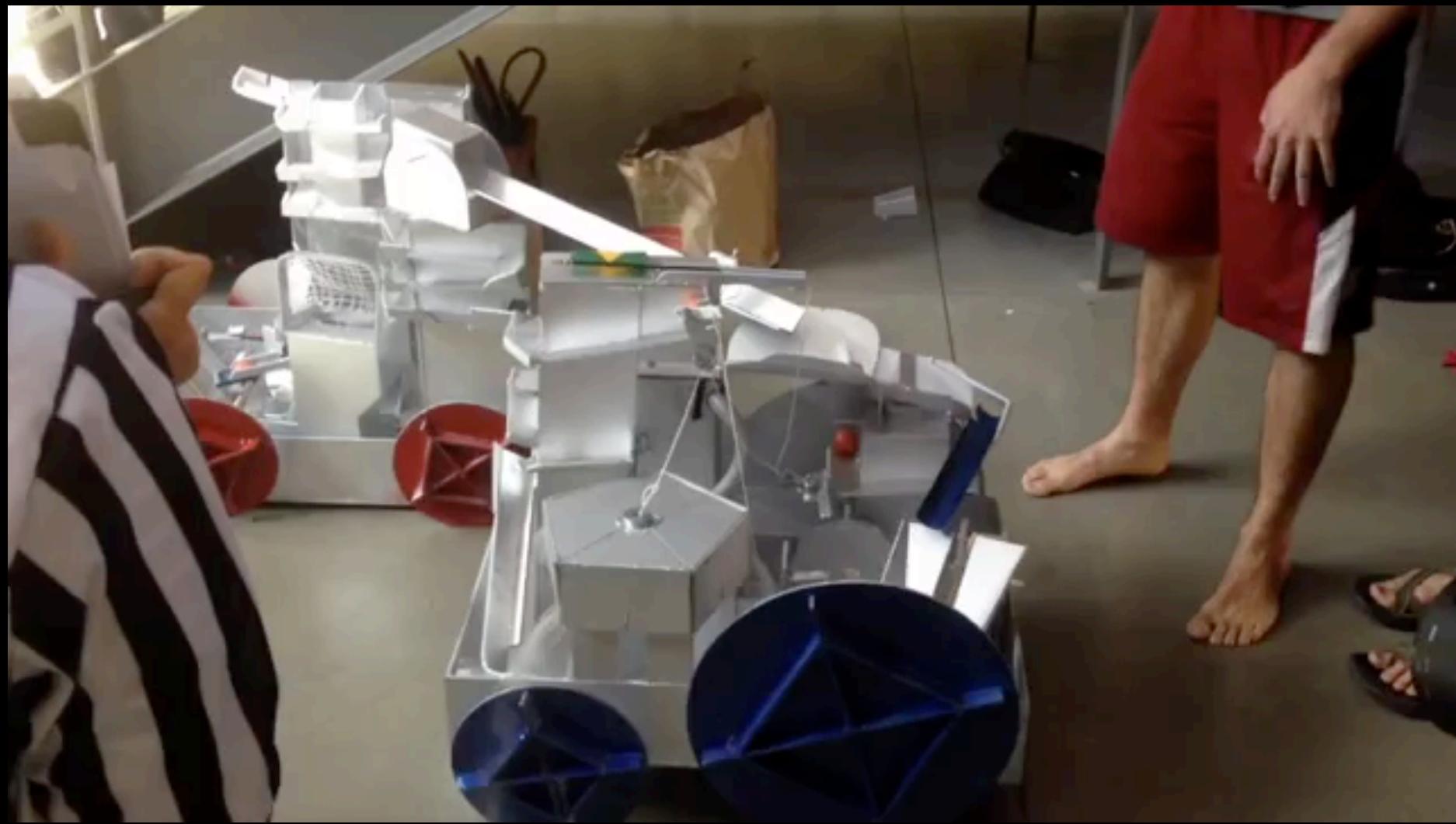
(Marcio Jose Sanchez/AP)

"In 2013, Google decided to test its hiring hypothesis by crunching every bit and byte of hiring, firing, and promotion data accumulated since the company's incorporation in 1998. Project Oxygen shocked everyone by concluding that, among the eight most important qualities of Google's top employees, STEM expertise comes in dead last. The seven top characteristics of success at Google are all soft skills: being a good coach; communicating and listening well; possessing insights into others (including others different values and points of view); having empathy toward and being supportive of one's colleagues; being a good critical thinker and problem solver; and being able to make connections across complex ideas."



Source: Stanford d.School







The STEAM Journal

Volume 3
Issue 1 *Sediment*

Article 11

November 2017

Creating STEAM with Design Thinking: Beyond STEM and Arts Integration

Danah Henriksen
Arizona State University

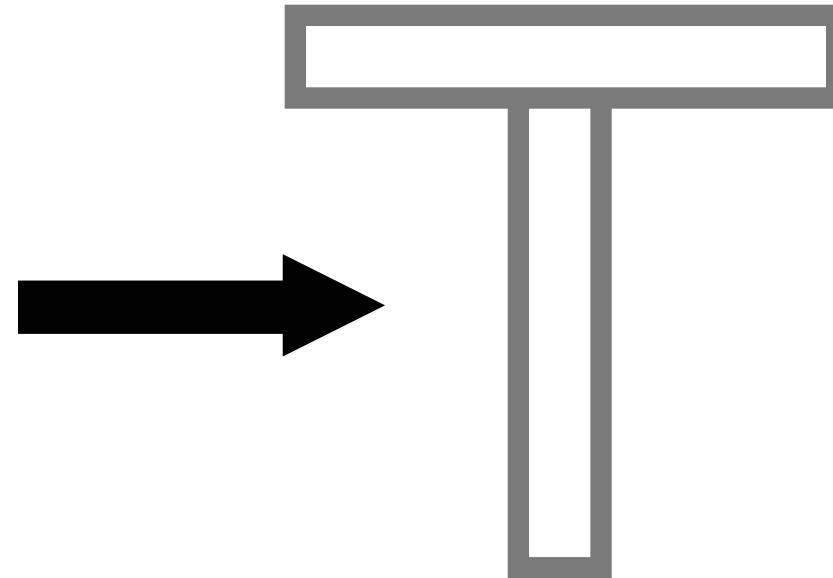
FROM STEM TO STEAM
FROM COMPUTATIONAL THINKING TO DESIGN THINKING

THE 21ST SKILLS FOR NURTURING ENTREPRENEURS, INNOVATORS AND MAKERS

**I-Shaped Talent of
the Industrial Age**



**T-Shaped Talent of
the Network Age**





BASc
Bachelor of
Arts & Sciences



BASc AppliedAI Design+ FinTech GHD SDS

ENTREPRENEURSHIP

INNOVATION



Bachelor of Arts & Sciences

The University of Hong Kong



BASc | HKU
Bachelor of Arts & Sciences

The new Bachelor of Arts & Sciences degrees, involving all ten faculties, are aimed at nurturing globally-minded thinkers and leaders able to leverage their interdisciplinary knowledge and skills to address the contemporary and future challenges of our increasingly complex world.



Bachelor of Arts & Sciences



AppliedAI



Design +



FinTech



Global Health & Development



Social Data Science

**We need to empower future T-shaped talents
to excel in a world connected with
smart cities, products, services, and systems**

**THAT'S WHY DESIGN THINKING AND COMPUTATION THINKING
WILL BE TAUGHT AS A METHODOLOGY IN THIS COURSE**

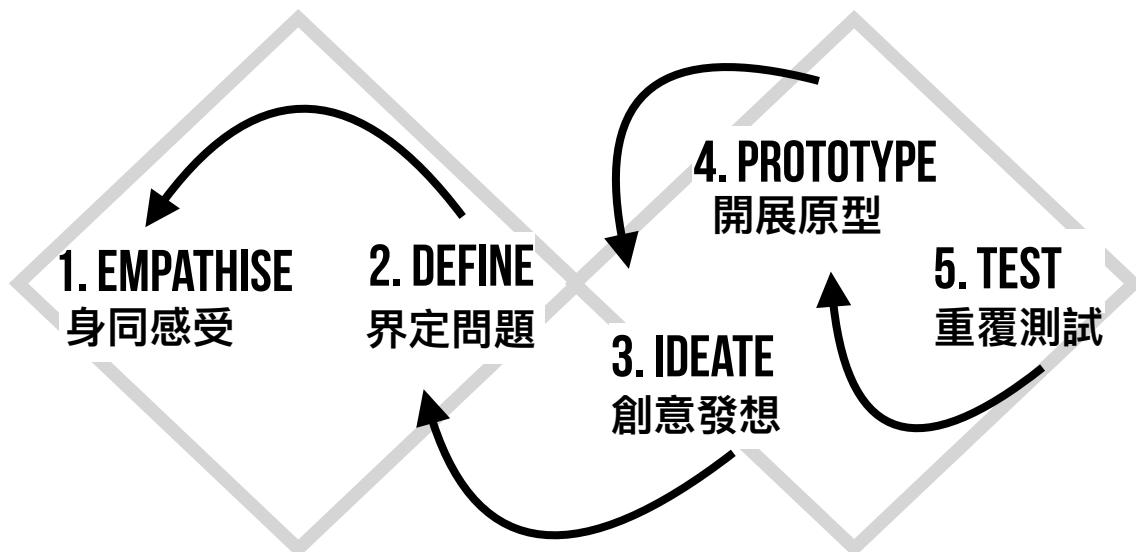
Let's see a few case studies to see how they work.

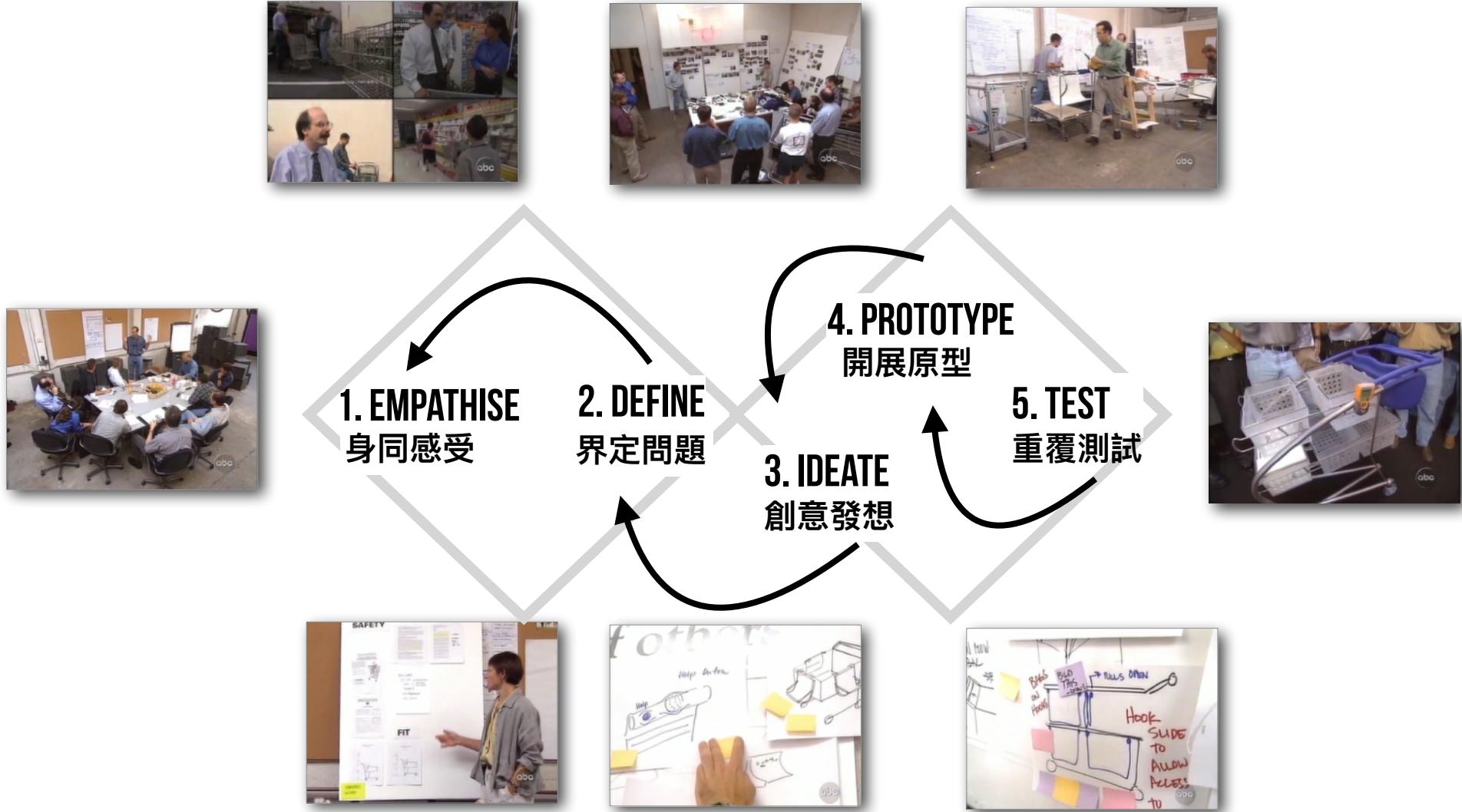


Case 1: Redesigning the Shopping Cart

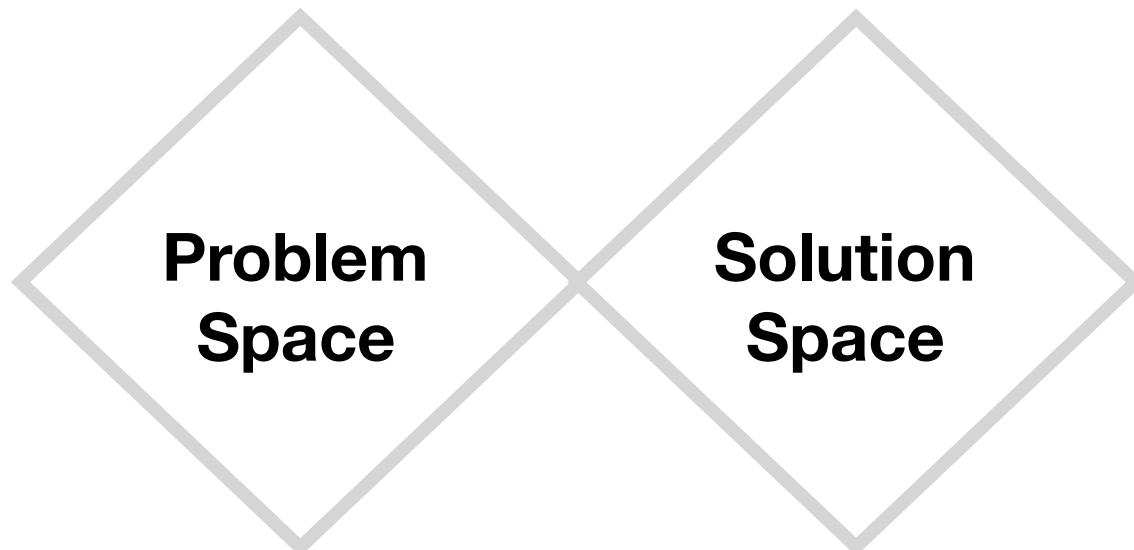
Source: IDEO

Double Diamond Model (雙鑽模式)

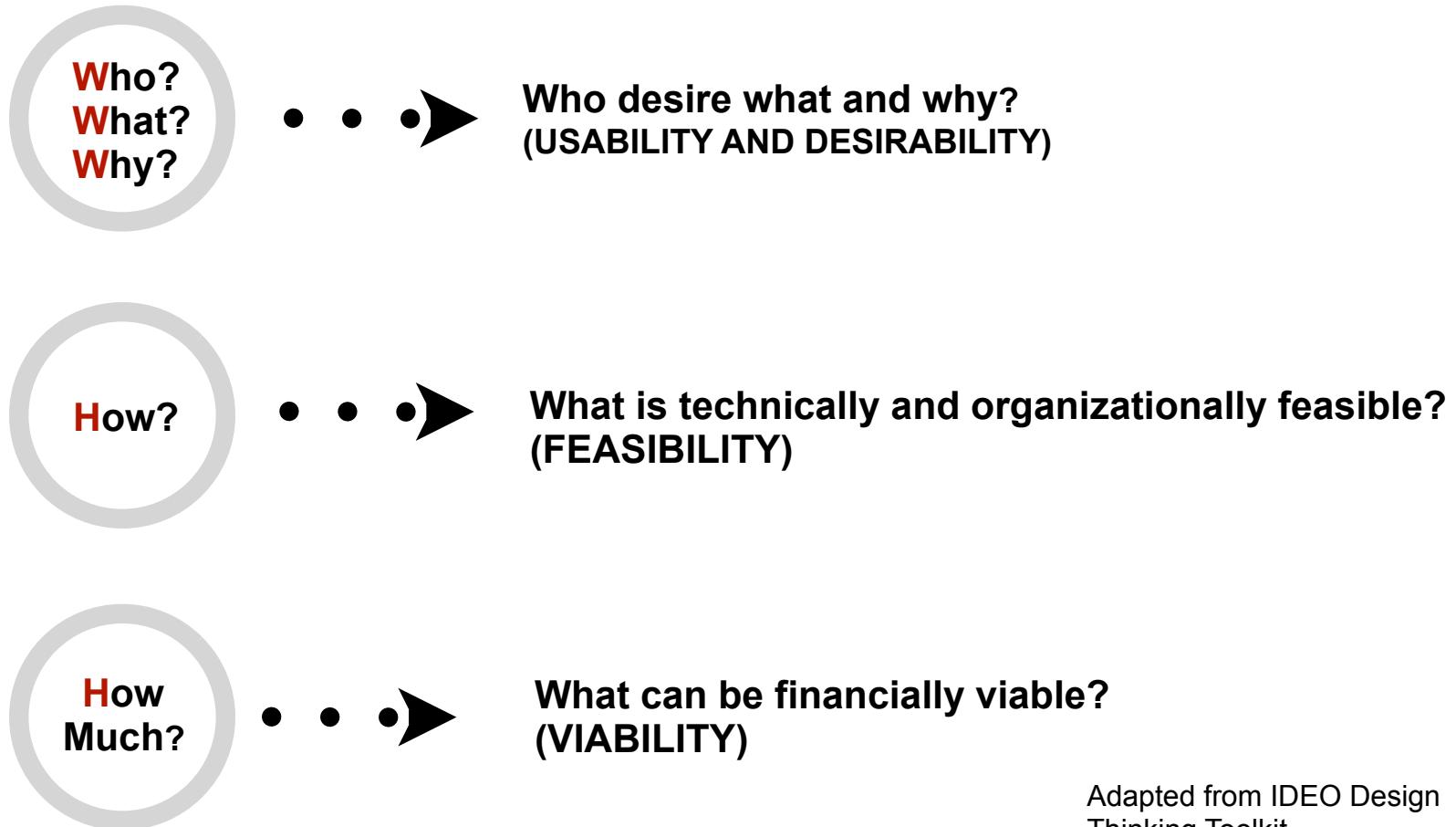




Double Diamond Model (雙鑽模式)



**Answer a few important questions
throughout the process.**



Adapted from IDEO Design Thinking Toolkit

USER EXPERIENCE AS A JOURNEY



Case 2: Redesigning the Train Interior

Source: IDEO



Acela for Amtrak

Interiors for high-speed train

- 
1. Learning (about routes, times etc.)
 2. Planning
 3. Starting
 4. Entering
 5. Ticketing
 6. Waiting
 7. Boarding
 8. Riding
 9. Arriving
 10. Continuing (on their journey).

Source: IDEO



EXPERIENCE OF USING "X"

EXPERIENCE = JOURNEY = STORY

THE JOURNEY AS A STORY

Elements

- 1. Persona
- 2. Context
- 3. Artifacts
- 4. Jobs

Structure

- 1. Onboarding
- 2. Alternatives
- 3. Gain/Pain
- 4. Conversion

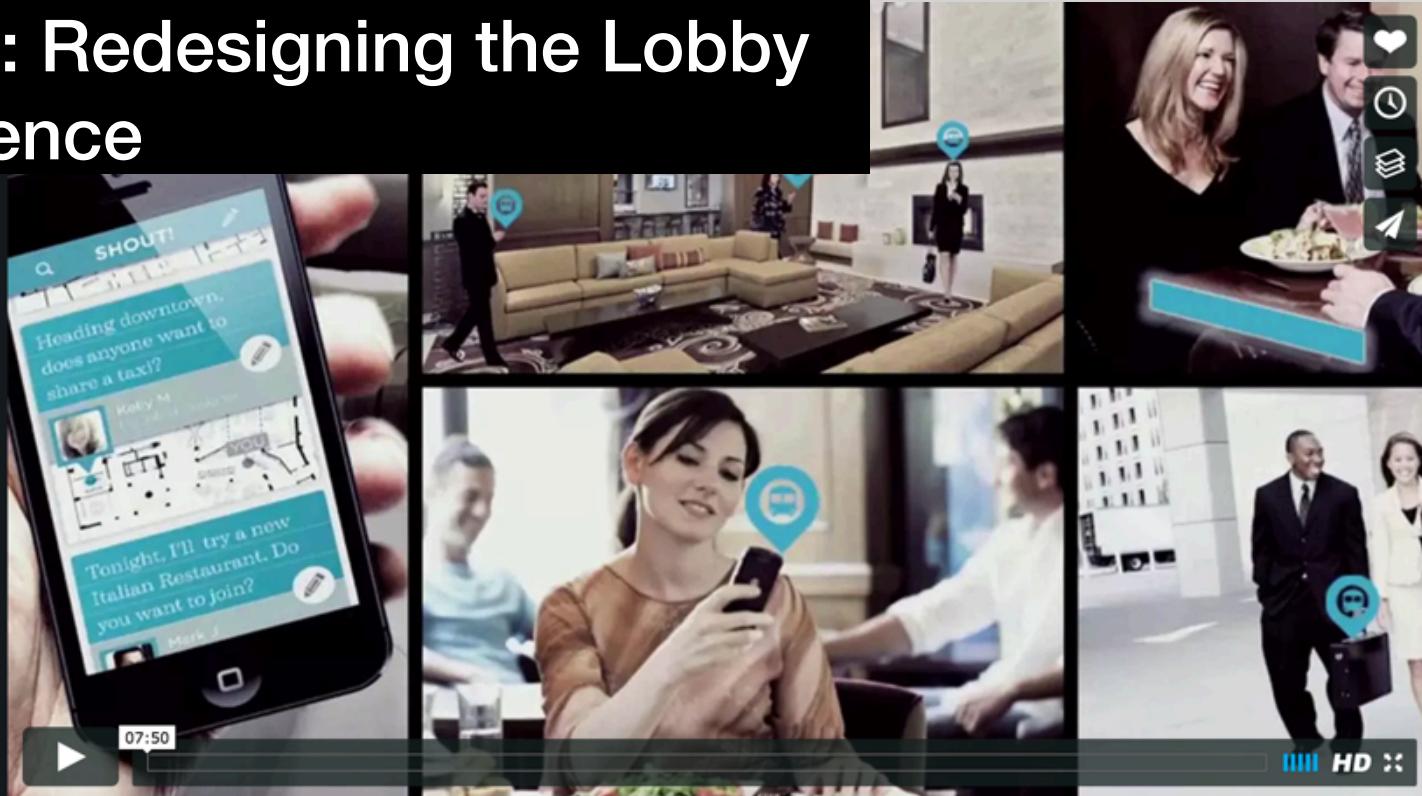
THE EXPERIENCE IS A JOURNEY



Question: What's the difference between UX and UI?

HOW TECHNOLOGY AND DATA ADD VALUES TO THE CUSTOMER EXPERIENCE

Case 3: Redesigning the Lobby Experience



Exploring the Hotel Experience of the Future with Marriott Hotels

Source: MIT Mobile Experience Lab

FIELD STUDY OBSERVATION AT THE HOTEL

We noticed a desire for customer autonomy, contextualized experiences, and public privacy.



Source: MIT Mobile Experience Lab



Source: MIT Mobile Experience Lab

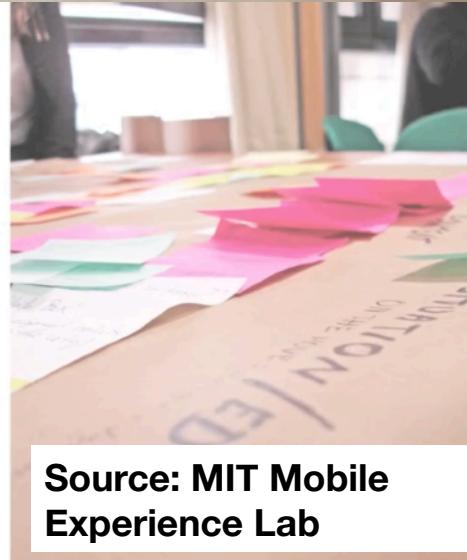
avid social explorer

Gen Y travelers seeking personalized yet serendipitous experiences, good company to share them with, and the ability to capture and celebrate them.



bored lobbygoer in transition

Anyone using the lobby as a meeting place or gathering point, looking to pass the time and avoid awkwardness.



Source: MIT Mobile Experience Lab

PROBLEM STATEMENT:

How might we make marriott guests
feel like **nodes within a network**
while encouraging
interactions in the lobby space?

**Source: MIT Mobile
Experience Lab**

HOME

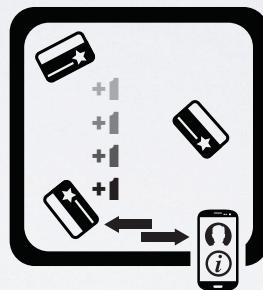


Joins loyalty program, creates a profile & installs phone app.

LOBBY



Given physical loyalty card on check-in — stores profile info, points & doubles as room key.



(Can be done in lobby or room)
Set availability via orientation of card. (Lobby only) Loyalty points awarded to cards at the same table. Table lights up to show activity, interests shown on table & lobby display map. Profiles added to app network.

ROOM

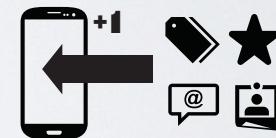
BOOKING

CHECK-IN

MEETUP

RETURN

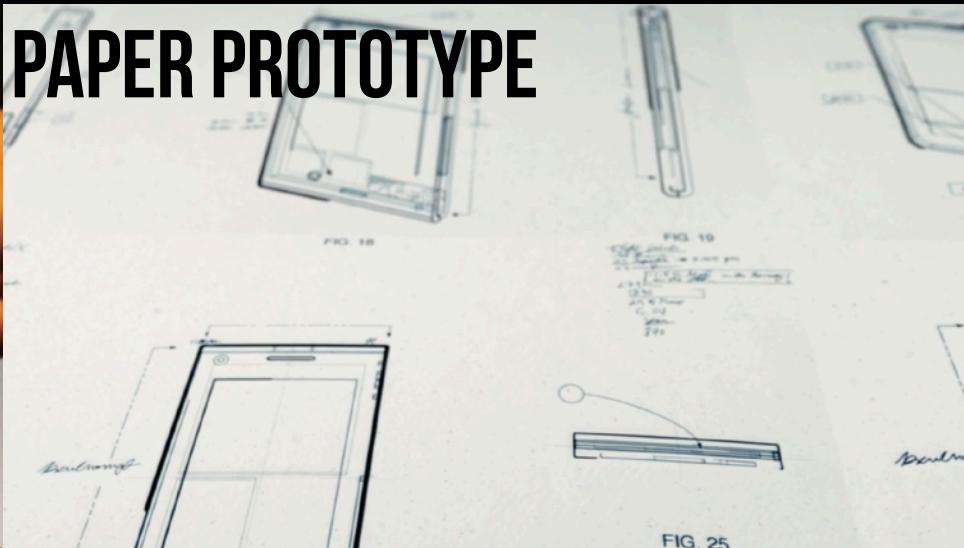
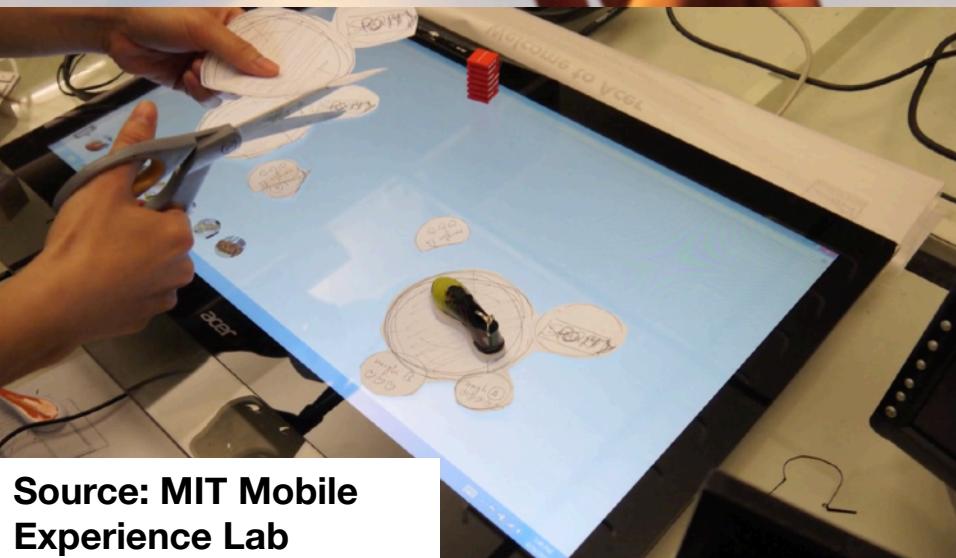
INTERACTIONS OUTSIDE HOTEL

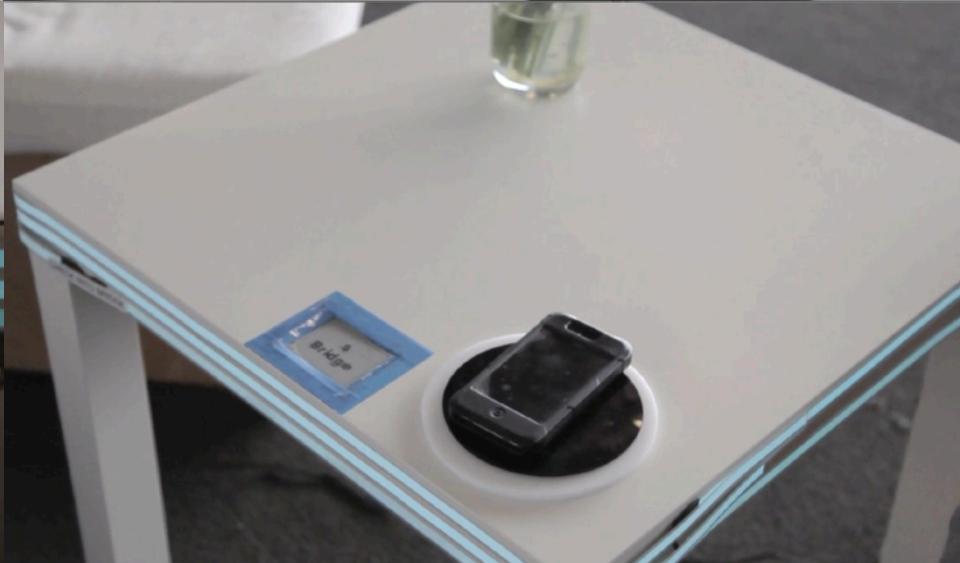
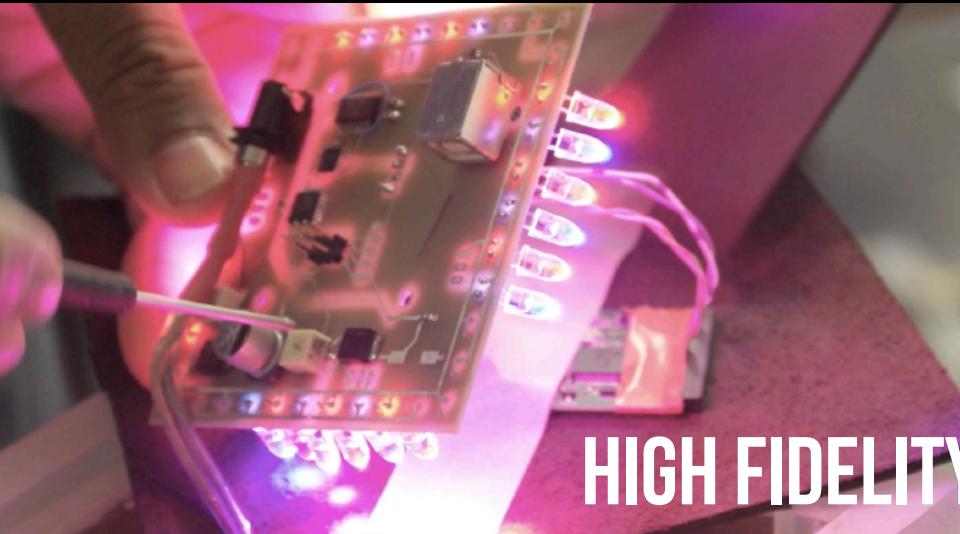


Prompted by app to tag places visited, ratings & social media for points — added to in-app database of recommendations.

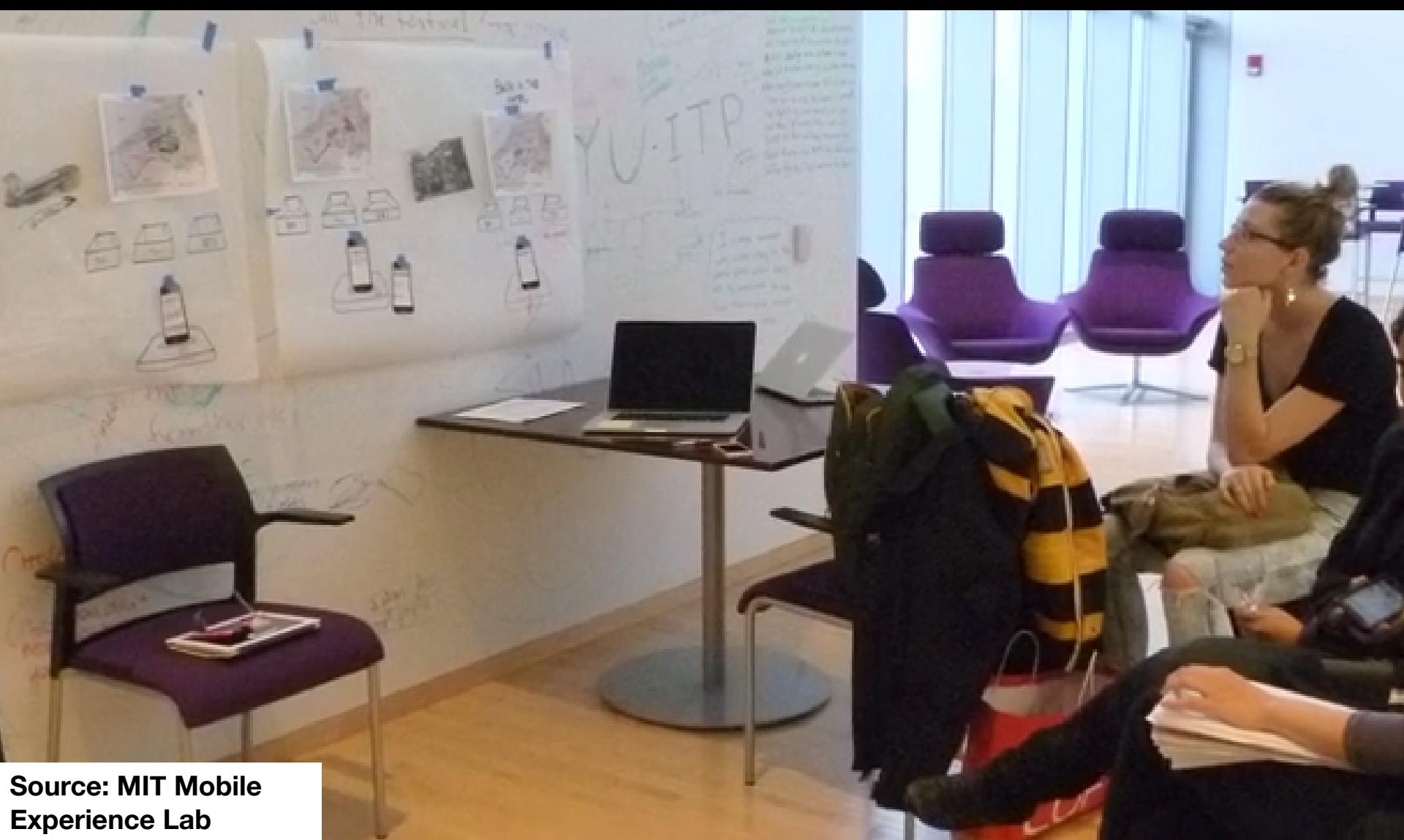
Source: MIT Mobile Experience Lab

SKETCH AND PAPER PROTOTYPE



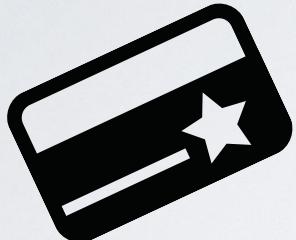


Source: MIT Mobile Experience Lab



**Source: MIT Mobile
Experience Lab**

THE CARD



room key
point counter
status symbol

THE TABLE



the social hub

THE APP



shared memory
social networks
recommendations

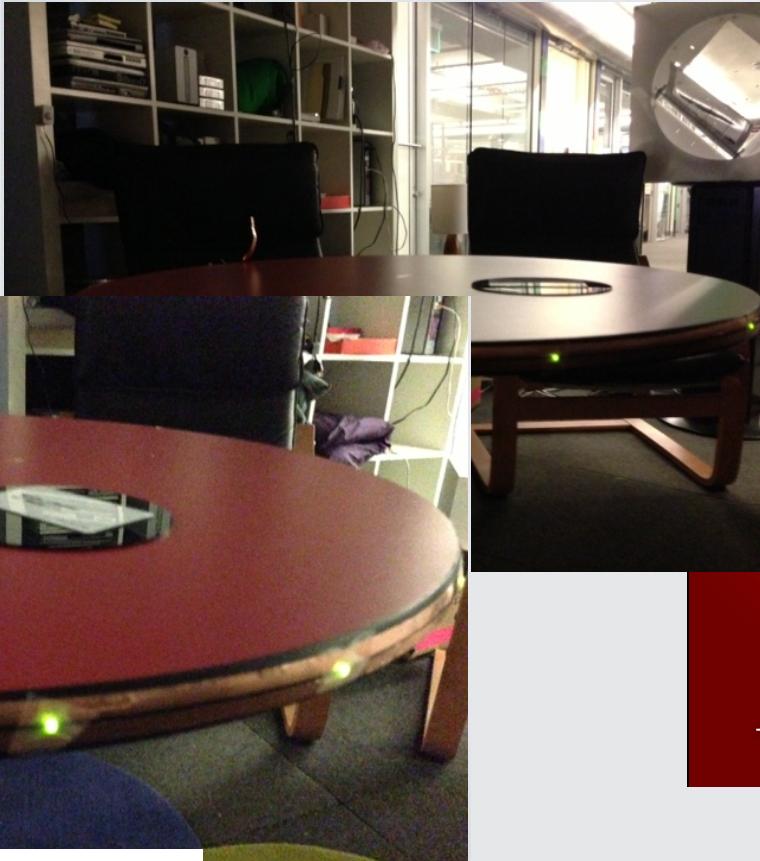
LOYALTY

INTERACTION

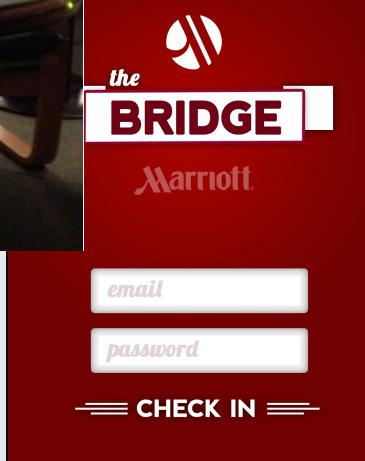
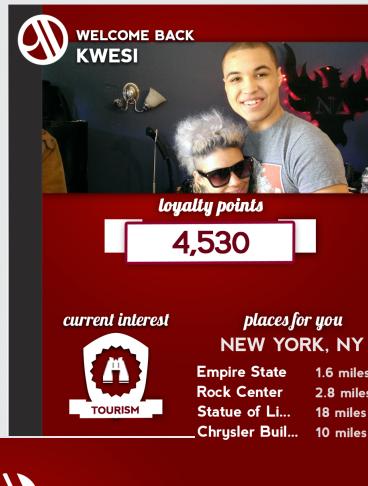
DATA

Source: MIT Mobile
Experience Lab

TABLE



Source: MIT Mobile Experience Lab

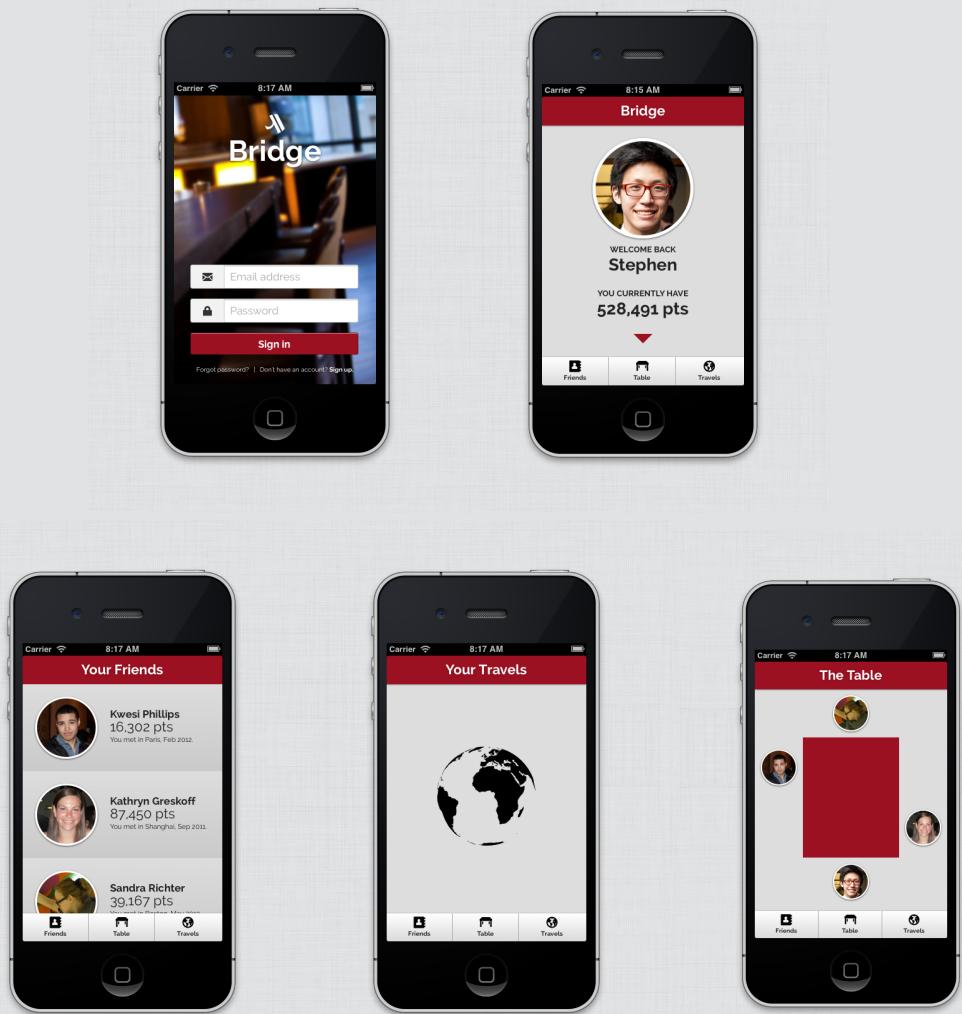


APP



MOCK-UP DIGITAL EXPERIENCE

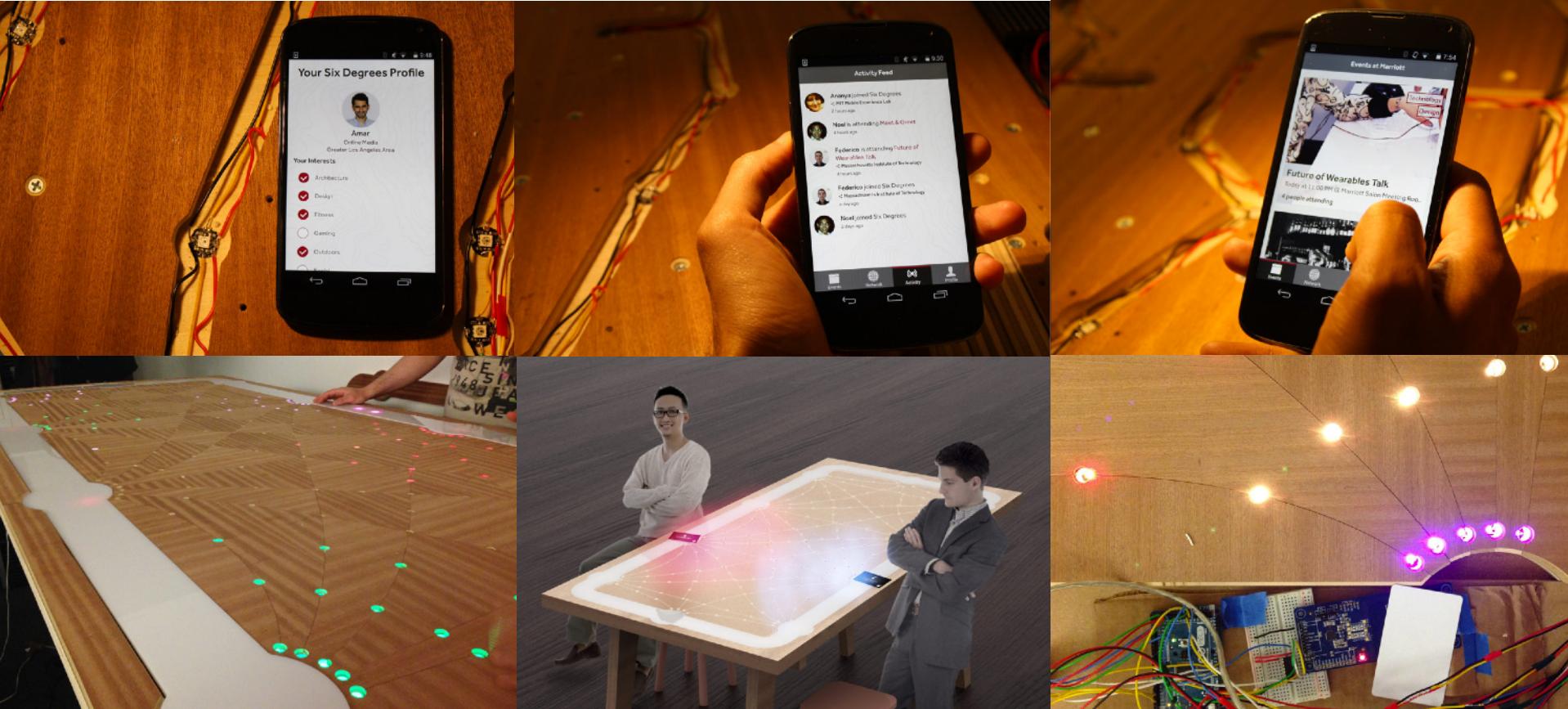
Source: MIT Mobile
Experience Lab





ROLE PLAY PHYSICAL EXPERIENCE

Source: MIT Mobile Experience Lab





MARRIOTT **SIX DEGREES**

A social network for the connected lobby



Six Degrees is a prototype social network designed for the hotel lobby by the [**MIT Mobile Experience Lab**](#) in collaboration with **Marriott Hotels**.

Through Six Degrees, guests can discover how they are connected to one another, and can socialize with one another in events planned by Marriott. The platform is designed to highlight the connections that already exist between guests, while encouraging new connections to form.

Source: Marriott

HOME

LOBBY

ROOM

BOOKING

CHECK-IN

MEETUP

RETURN



Booking
Data



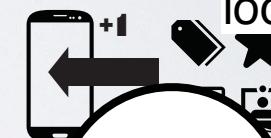
Check-in
Data



Interaction
Data

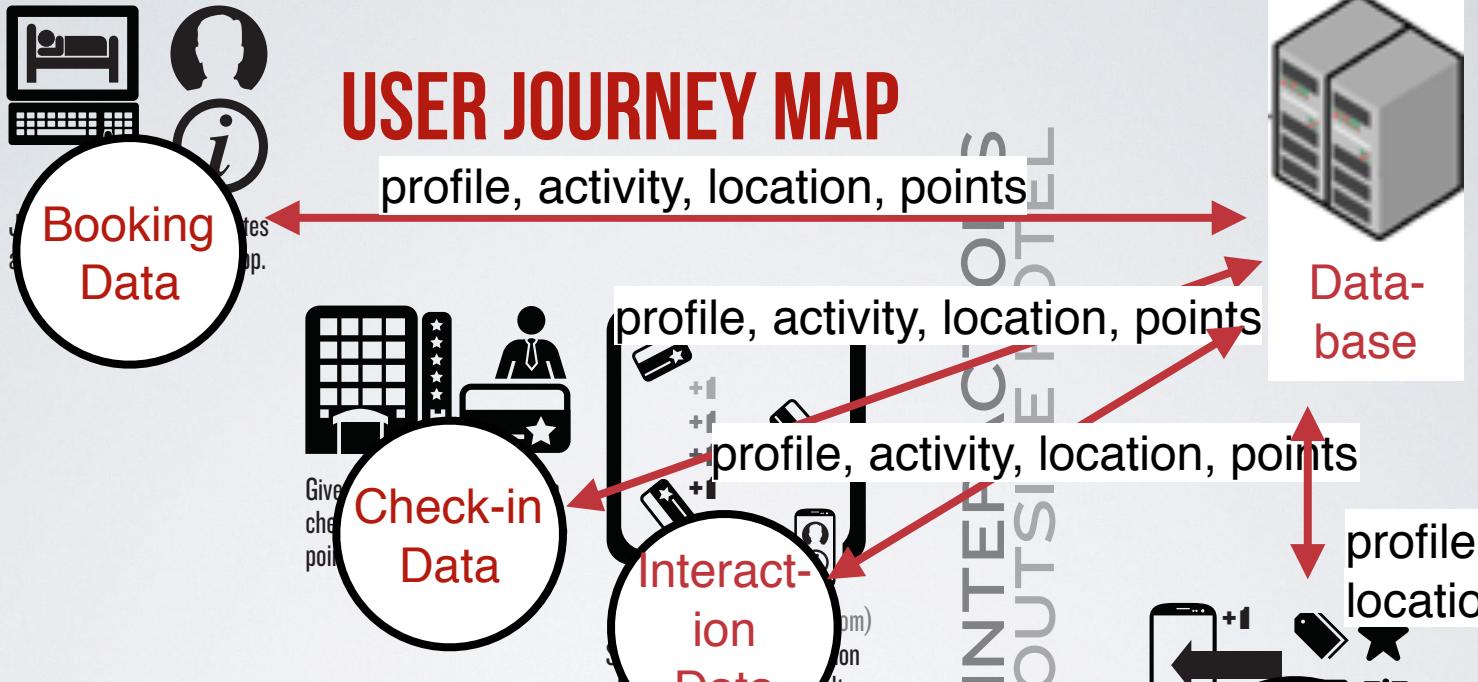


Data-
base



Review
Data

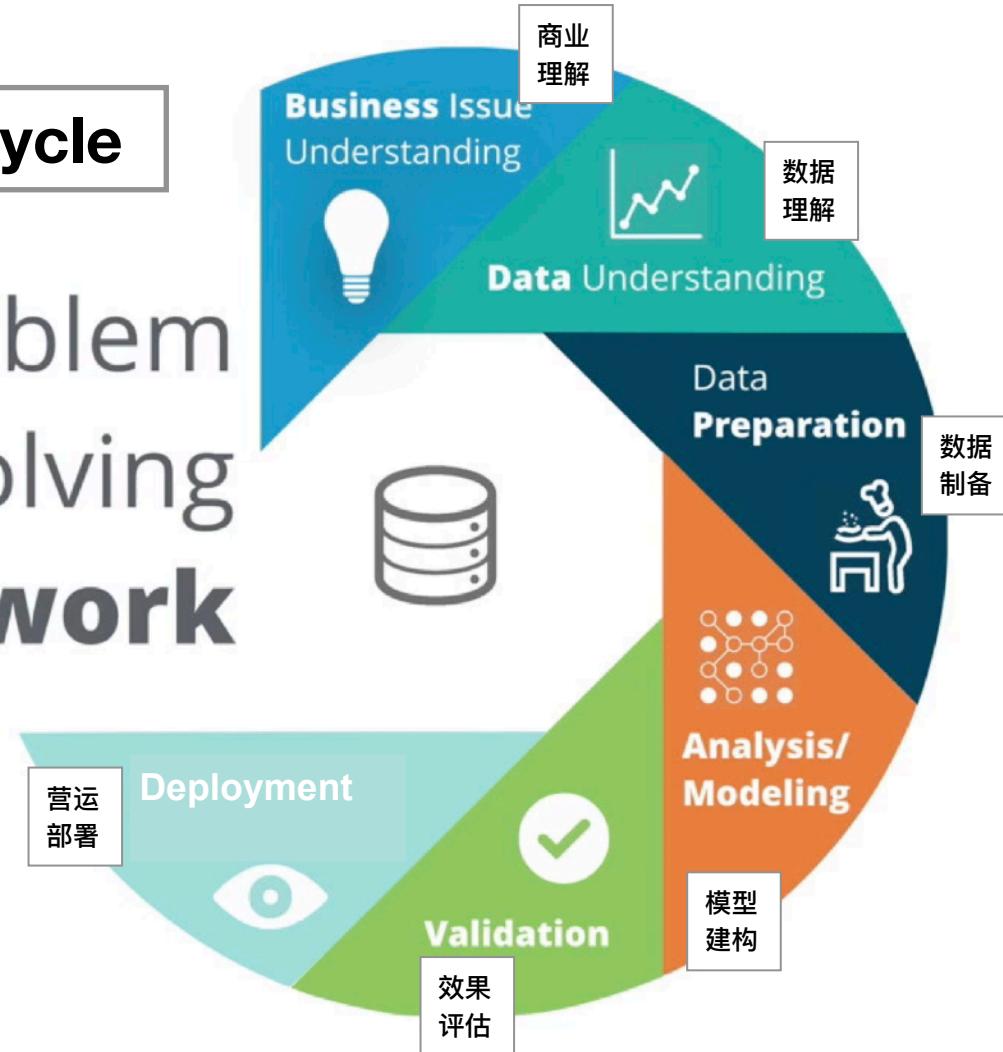
INTER
OUTSI



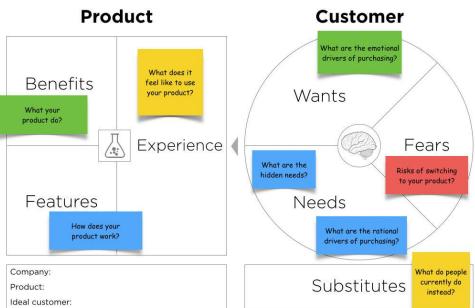
Source: MIT Mobile
Experience Lab

CRISP-DM Cycle

Problem Solving Framework



Business Requirements

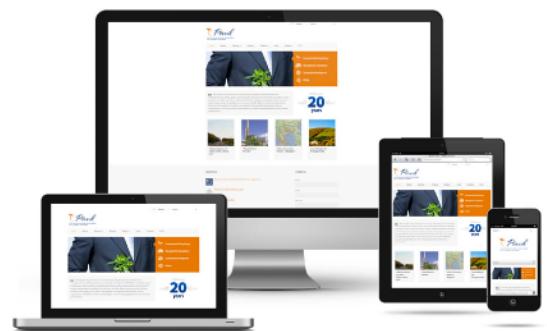


PROBLEM	SOLUTION	UNIQUE VALUE PROPOSITION	UNFAIR ADVANTAGE	CUSTOMER SEGMENTS
KEY METRICS		CHANNELS		
COST STRUCTURE		REVENUE STREAMS		

Design Transformation

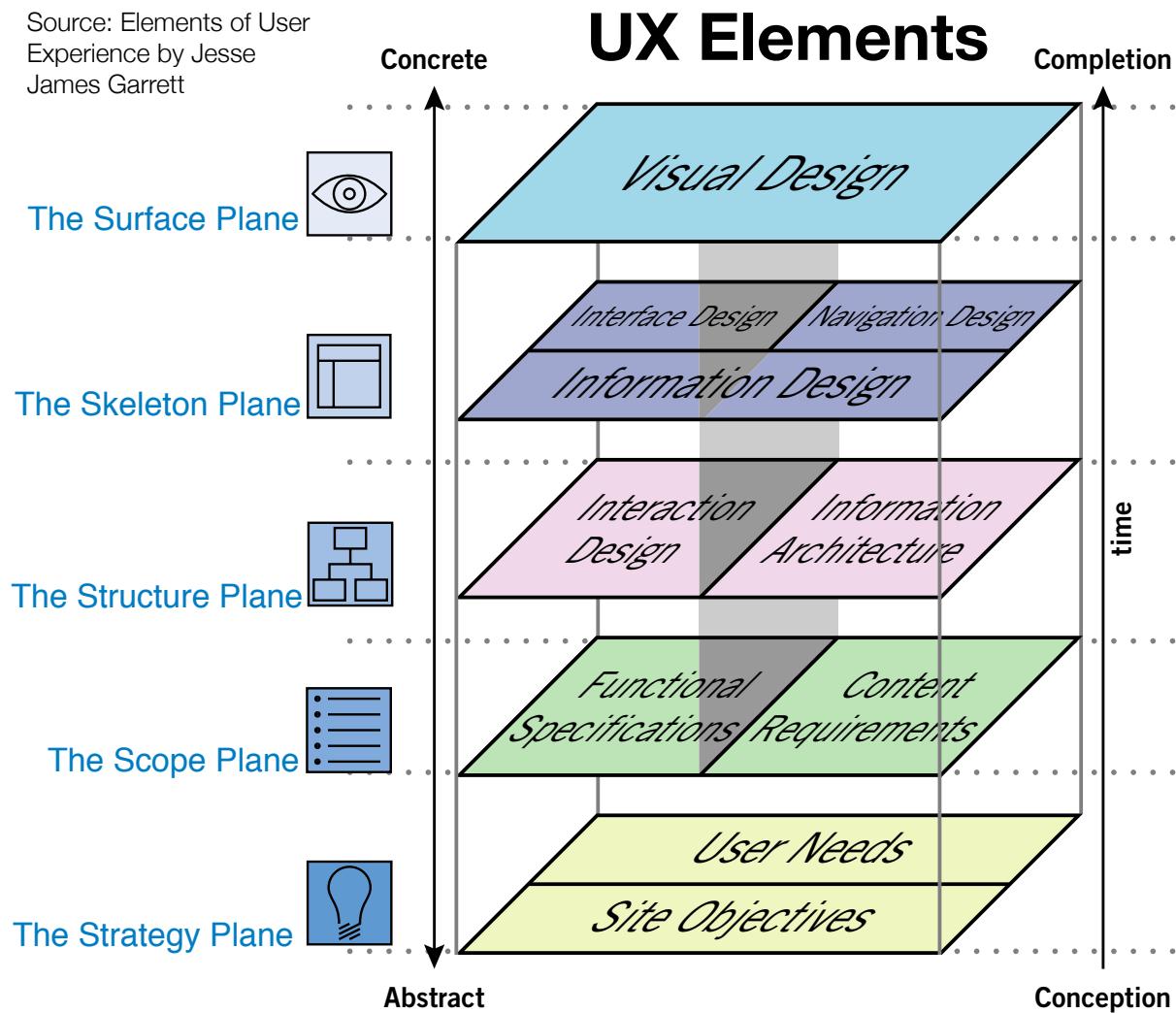


Product/System Engineering/ Production



ELEMENTS OF USER EXPERIENCE

Source: Elements of User Experience by Jesse James Garrett



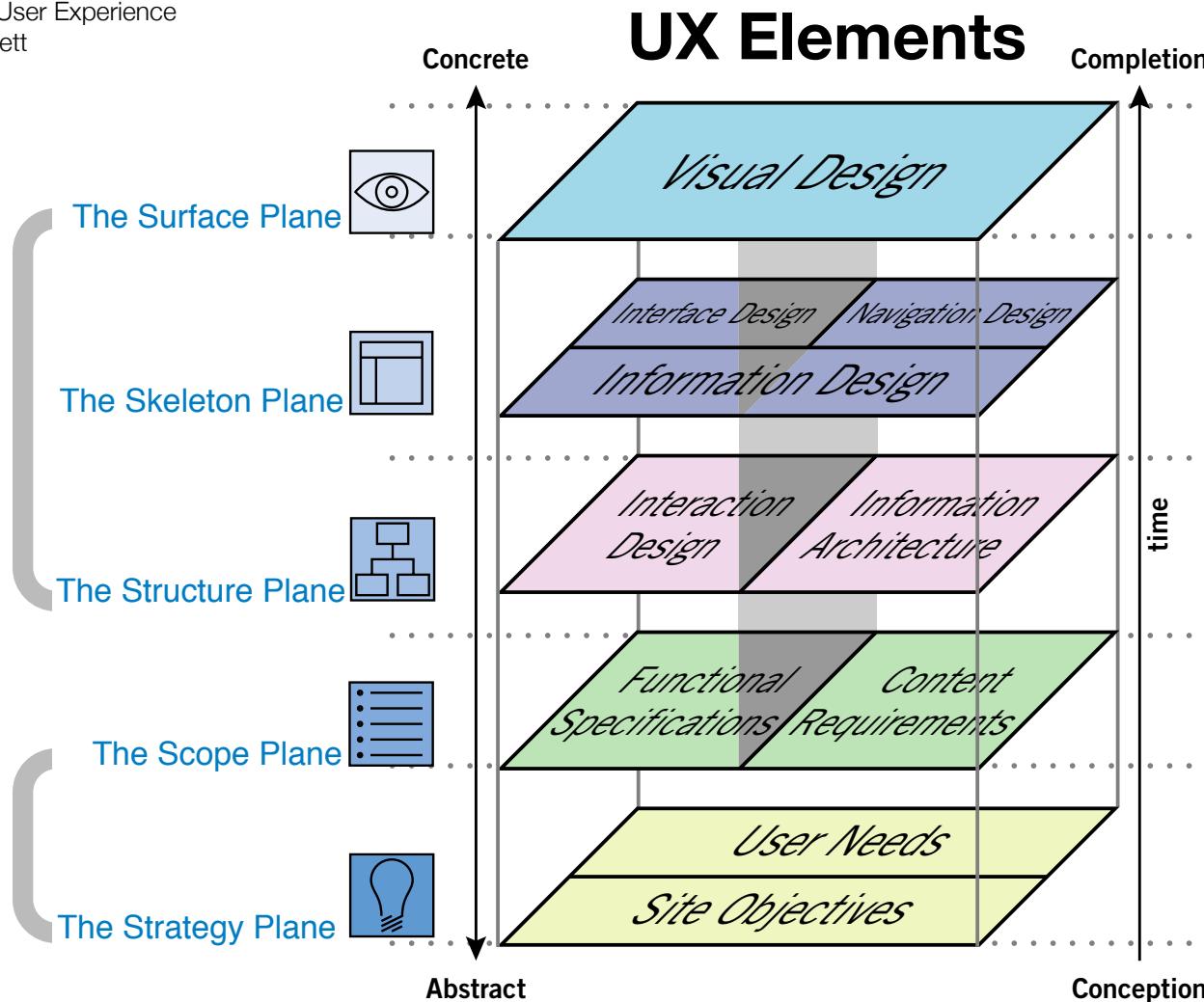
Source: Elements of User Experience
by Jesse James Garrett

Problem Solution

how and
how much

Problem Definition

who, what,
and why



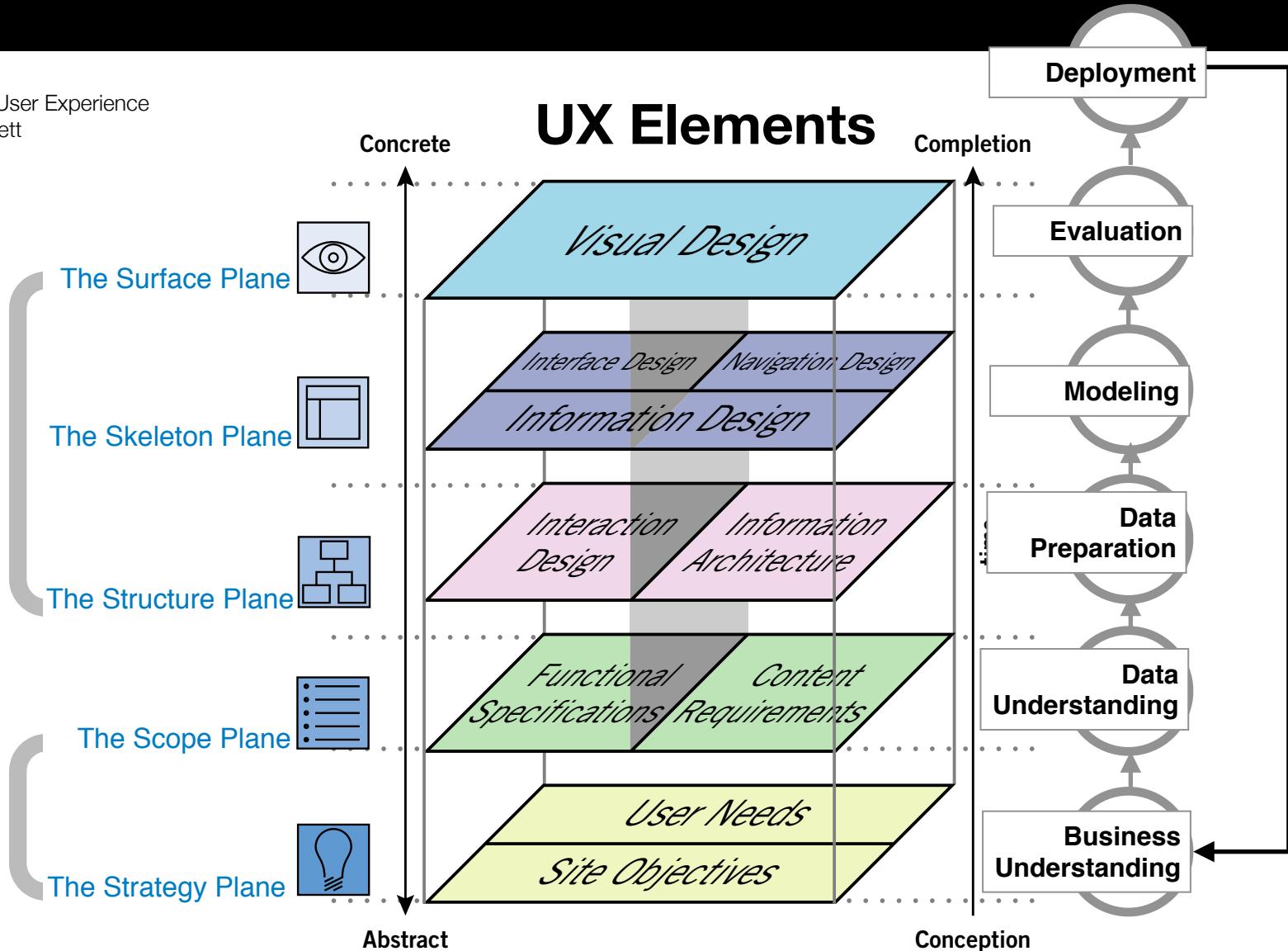
Source: Elements of User Experience
by Jesse James Garrett

Solution Space

how and
how much

Problem Space

who, what,
and why

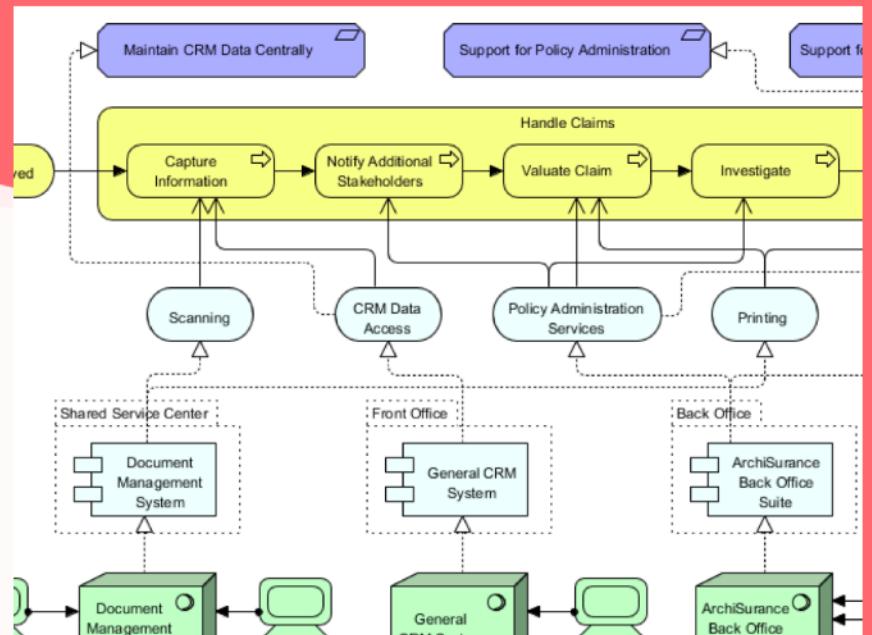


Tools for Journey Mapping and Data Mapping

The #1 Development Tool Suite

that drives your project to success

Suite of design, analysis and management tools that drive your IT project development and digital transformation.



<https://online.visual-paradigm.com/subscribe.jsp?t=diagrams>

ASSESSMENT CRITERIA

- **Coding problem sets: 50%**
- **Final project: 50%**

THANK YOU FOR YOUR TIME!