



COM5940 NEW MEDIA BUSINESS MODEL & INNOVATION:

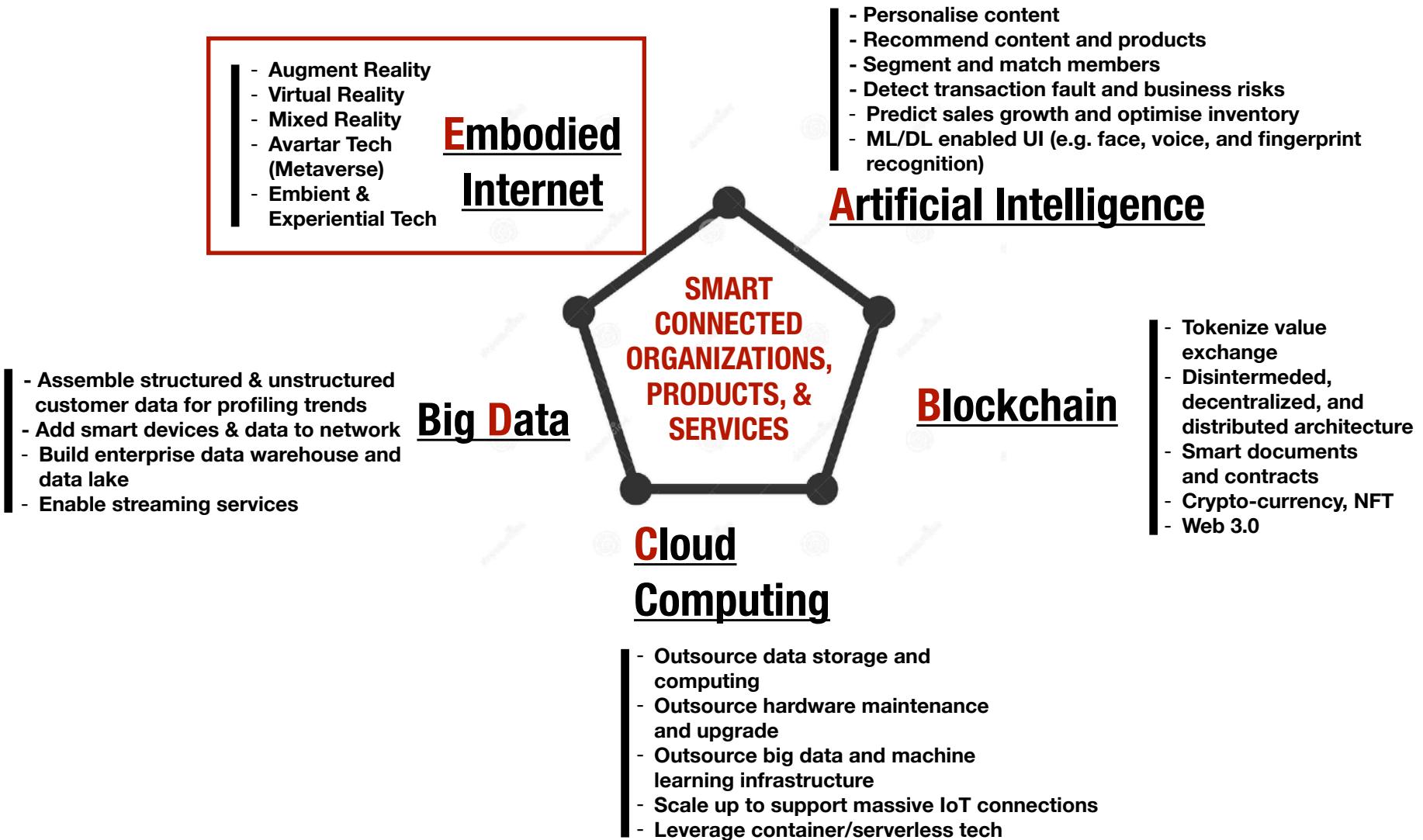
LESSON 12-IMMERSIVE TECHNOLOGIES II

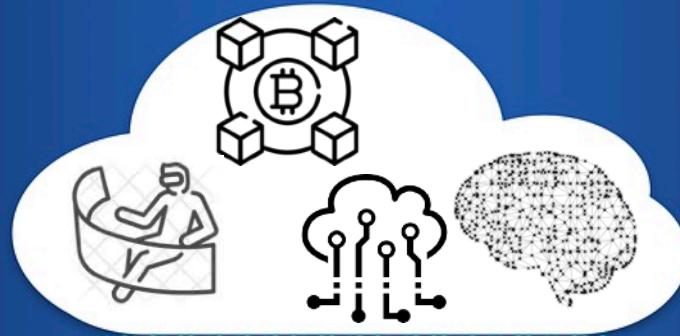
Bernard Suen
Center for Entrepreneurship
Chinese University of Hong Kong

Today's agenda.

1. From **3D** to **VR, AR and XR**.
2. **Marker-based and location-based AR.**
3. Enhancing product experience with AR, VR, and XR.
4. From community formation to commerce and monetization.
5. Quick summary of **COM5940**.

Immersive Tech for the Embodied Internet





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Dashboard



**Digital
Twin**



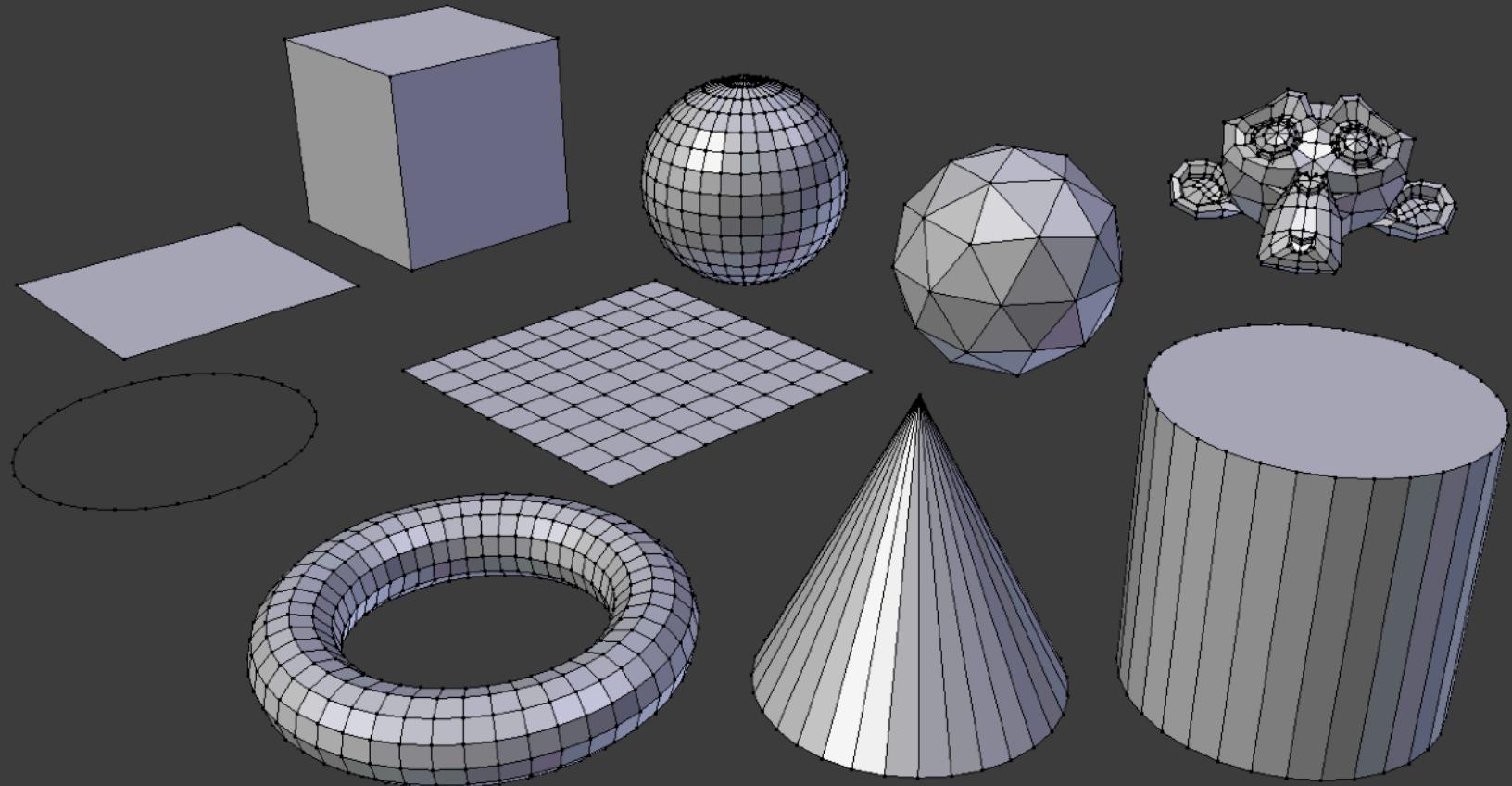
**Augment
Reality**



Metaverse



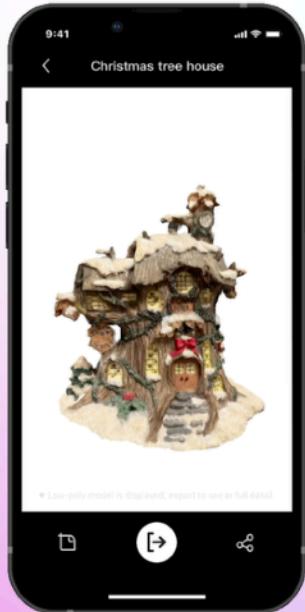
**From 2D to 3D images to
3D animation.**



Source: Blender documentation

1. Combining primitives - use basic shapes (e.g. cones, cylinders, cubes, sphere, torus, and tubes) as building blocks for forming 3D models.
2. Meshing - manipulate the vertices and polygons to transform the building blocks into target forms.
3. Texturing - add art works and material patterns to the surface of 3D objects, complemented with proper lighting to create photorealistic effects.
4. Animating - create illusion of movement through key framing, onion skinning, and tweening techniques built into the 3D animation software.
5. Compositing - combine different layers of image sources (e.g. background and different foreground objects) into a single scene.
6. Rendering - convert 3D image frames into photorealistic sequence. This is a CPU/GPU intensive process and requires heavy memory and processing power.

3D Model Scanning



KIRI Engine

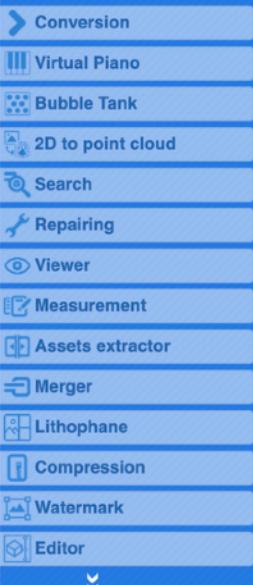
The World's Most Powerful 3D Scanner App for
iOS, Android, and Web Browsers

[KIRI Engine Official Website](#)



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

3D file conversion (different formats)



Free converter app for 3D file formats

Convert 3D file to Autodesk, Draco, Wavefront, 3D Studio and many other formats.

Powered by [aspose.com](#) and [aspose.cloud](#)



Drop or upload your file

 Enter Url



*By uploading your files or using our service you agree with our [Terms of Service](#) and [Privacy Policy](#).

Save as

FBX



CONVERT NOW



See the source code in

Conversion app is used to convert 3D files to different format. You do not need to install specialized software to convert a 3D document, just open this application using a web browser, and drag your document into the upload area, and click the convert button, your document will open in the browser regardless of whether you are using Windows, Linux, MacOS, Android or even a

<https://products.aspose.app/3d/conversion>

Free 3D Modelling and Animation Software

[Features](#)[Download](#)[Support](#)[Get Involved](#)[About](#)[Jobs](#)[Store](#)[Donate](#)

The Freedom to Create

"CHARGE" is the latest open movie by Blender Studio.

[Watch](#)[Download Blender](#)by Blender Studio

Latest News

Source: <https://www.blender.org/>

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Spline, a place to design and collaborate in 3D.

✓ Web-Based ✓ Real-time ✓ Collaborative

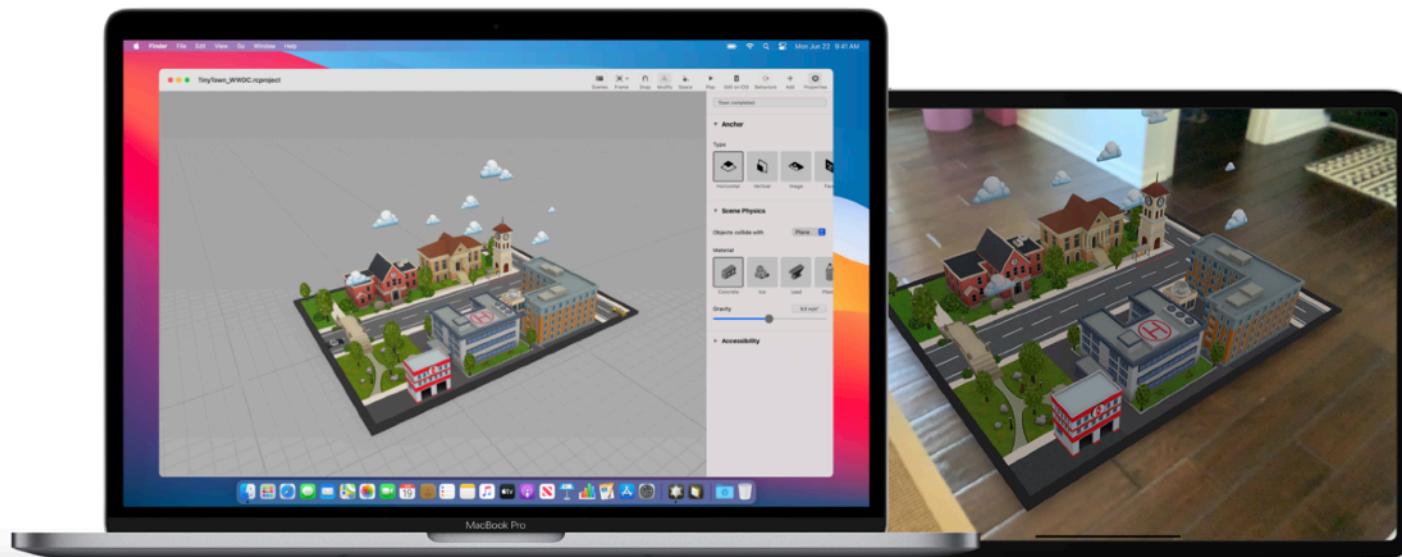
[Get started — it's free →](#)

Press and drag to orbit

Source: <https://spline.design/>

AR Creation Tools

Reality Composer is a powerful tool that makes it easy for you to create interactive augmented reality experiences with no prior 3D experience. Reality Converter quickly converts your existing 3D models to USDZ so it works seamlessly in our tools and on all AR-enabled iPhone and iPad devices.



Source: <https://developer.apple.com/augmented-reality/tools/>

Free 3D Models

Free3D

Cartoon Fruit Shop 3D Model
by CG_Dreamer



Blender Models



FBX Models

Cinema 4D
Models

3ds Max Models Maya Models



Obj Models



Rigged

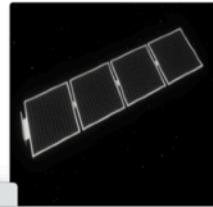
Animated
Models

Lowpoly Models

Architecture

Need a house 3d model for one of your projects? We have that. Need an entire City? Free3D has a dozen of those! A large number of the recent models have a lower polygon count and can be used in games straight.

Connecting...



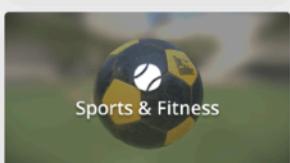
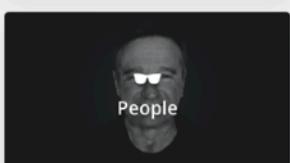
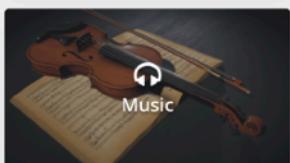
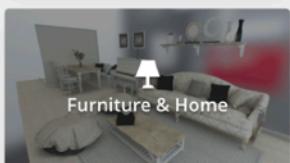
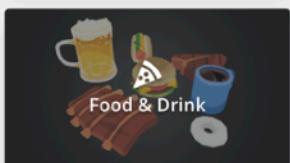
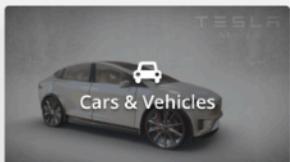
<https://free3d.com/>

Newsfeed

Notifications

Suggestions

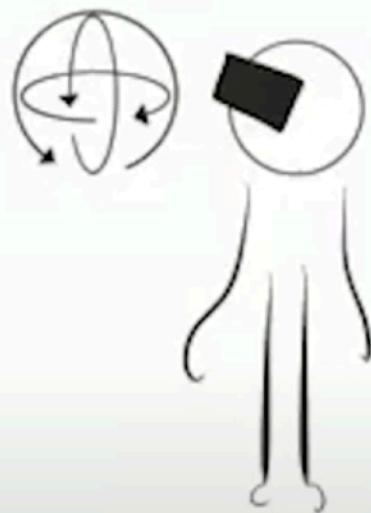
Personalize your experience.
What are you interested in?



<https://sketchfab.com/>

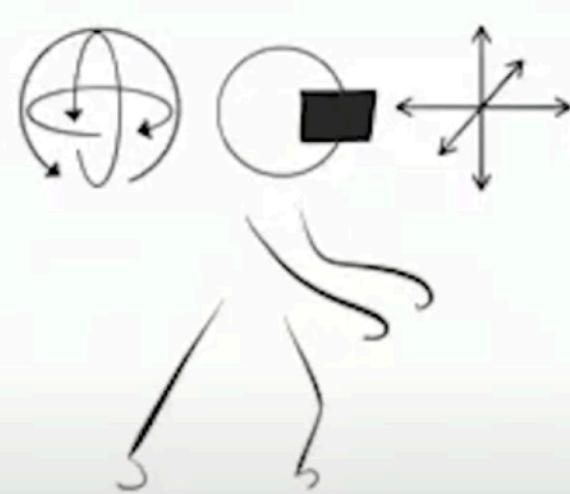
From 3D to VR, AR and XR

From 3D to VR



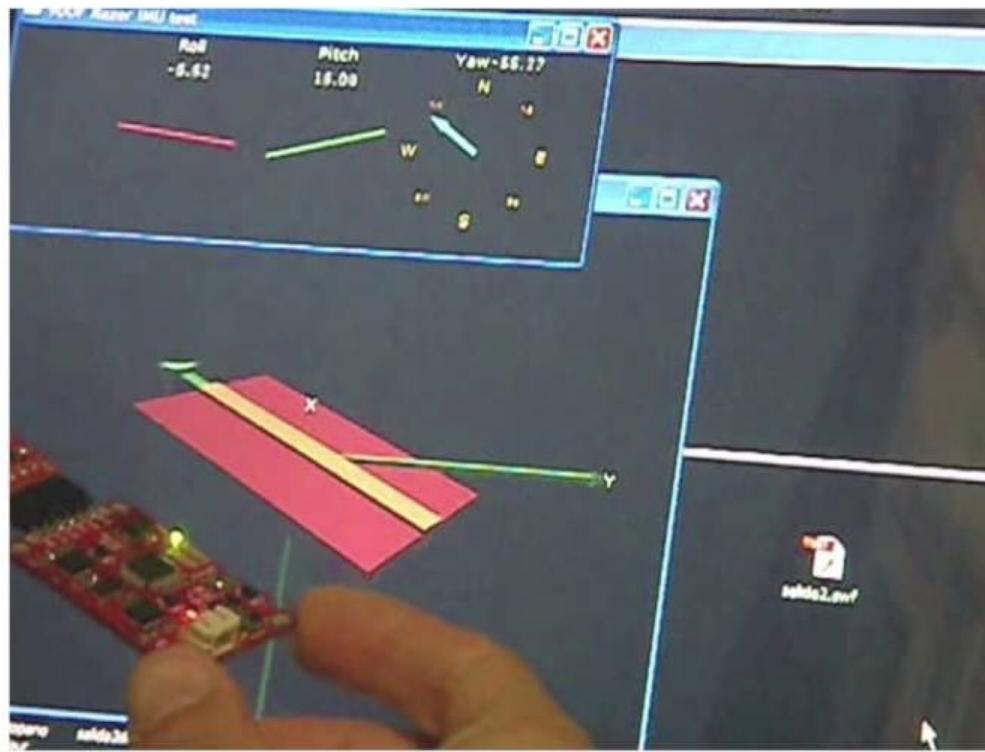
3DoF = Rotation Only

Source: Illustrations by Mike Harris @ CrossComm



6DoF = Rotation and Position

***DoF = Degree of Freedom



Source: https://www.youtube.com/watch?v=KwK6mi_hJKw&t=3s

Mobile VR



3-DoF tracking is performed by built-in Inertial Measurement Unit (IMU) hardware (e.g. accelerometer, gyroscopes, and magnetometer) inside the smart phone.

Desktop VR



6-DoF tracking is performed by built-in Inertial Measurement Unit (IMU) hardware inside the headset and internal and external sensors such as ultrasonic, magnetic, and infrared sensors.



HTC Vive

Source: https://www.youtube.com/watch?v=XreOJCjt_kE&t=5s

Demonstration of **Reality Composer**

Choose an Anchor



Horizontal

For tabletop and horizontally based experiences.



Vertical

For experiences anchored to a wall or vertical surface.



Image

For experiences attached to images in your environment, like a poster or a book.



Face

For augmenting faces using the TrueDepth camera.



Use template content

Cancel

Choose

AR Workflow

Model

Create 3D Object

Texture

Map Surface Texture

UX Design

Add Interactions

Deploy

Embed into Application
(e.g. E-Commerce)

A-FRAME

Blog

A-Frame 1.4.0 - Custom ele...

Examples

Hello WebVR

Model Viewer

Hand Tracking

Responsive UI

360° Image

360 Video

Anime UI

BeatSaver Viewer

Moon Rider

Gunters of OASIS 

Supercraft 

Super Says 

Towermax Fitness 

A-Blast 

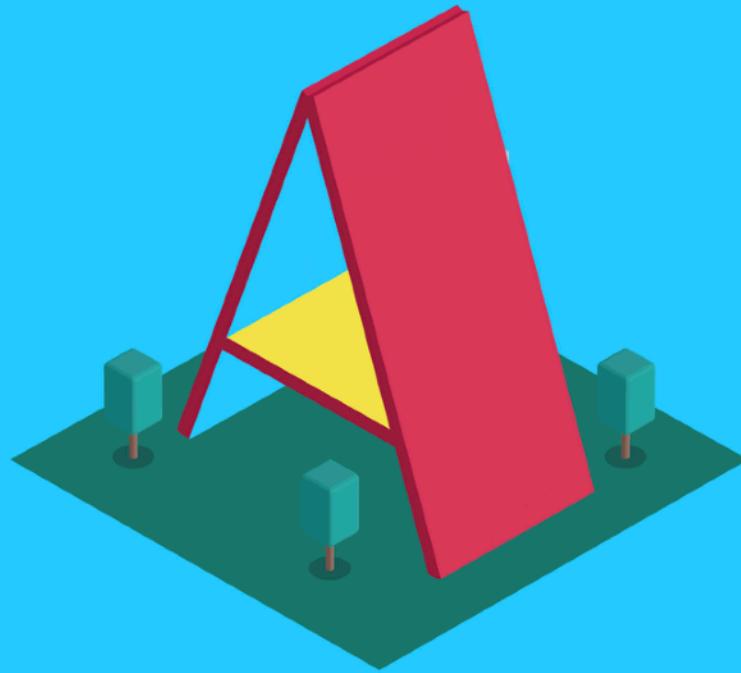
A-Painter 

A Saturday Night 

Subscribe to get updates on A-Frame and our VR projects!

EMAIL ADDRESS

SUBSCRIBE



DOCS FAQ BLOG COMMUNITY SHOWCASE

A web framework for building
3D/AR/VR experiences

Make 3D worlds with HTML and Entity-Component
On any headset, mobile and desktop

GET STARTED

Special Sponsors 

Source: <https://aframe.io/>

Web-enabled AR experiences

AR.js Studio is an open-source AR creation platform for building custom augmented reality experiences. You can create location-based or marker-based AR applications and deploy them straight to the web. That means you won't have to download any extra apps to access your experience! Working with AR.js Studio doesn't require any knowledge of coding, either. You can start creating your first AR project right now.

Pick your project type

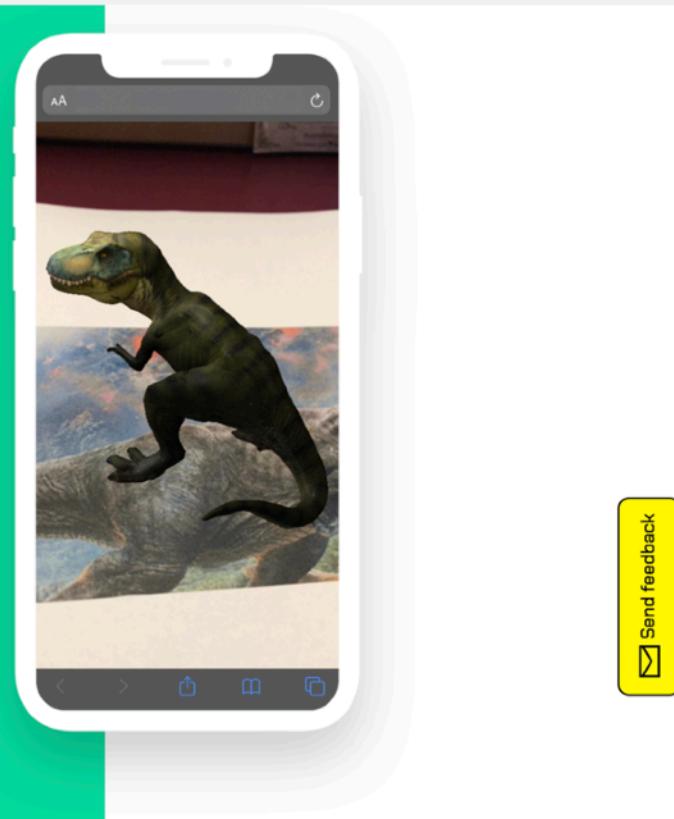
Location-based

Place your creation on a map, so it remains tied to a physical location.

Marker-based

Connect your creation to a visual marker, which can be moved to any location.

[Start building](#)



Source: <https://ar-js-org.github.io/studio/>



WebXR

The WebXR Device API provides access to input (pose information from headset and controllers) and output (hardware display) capabilities commonly associated with Virtual Reality (VR) and Augmented Reality (AR) devices. It allows you develop and host VR and AR experiences on the web.

You can read more about the goals of this standardisation effort by reading the [WebXR Explainer](#).

🔗 What does this mean...

For phones:

Enable VR by providing pose information and allowing the WebGL scene to be rendered side by side to be placed in a headset like the Cardboard

Enable AR by using the platforms AR capabilities such as ARCore to render the WebGL scene onto the users environment like a magic window.



For Desktops:

Desktop computers can make use of tethered VR hardware such as the Oculus Rift or HTC Vive to display the VR scene

For standalone AR Headsets:

Enable AR by using the platforms AR capabilities to render the WebGL scene immersively onto the users environment.

For standalone VR Headsets:

Source: <https://immersiveweb.dev/>



“ *Apple has been a drag on innovation in WebAR.*

Google's Chrome browser for Android began supporting WebXR in beta in 2018; Samsung and Opera added support to their respective mobile browsers in 2020. Apple, on the other hand, has yet to add WebXR support to Safari on iOS.

At the same time, there is no avenue for other browser-makers to bring WebXR to the iPhone, as Apple forces them to use Safari's WebKit rendering engine to build iOS versions of their browsers. Under the hood, the iOS version of Chrome is using Safari code — which means that Chrome on iOS isn't able to support WebXR. This arrangement means WebXR is effectively out of reach on the iPhone.

Consequently, that means that in the U.S., it's not an option for the majority of smartphone users. “They have blocked off a huge portion of our consumers from the most successful way to view AR experiences,” Steinberg said. “It's a shame that all these great experiences could be two clicks away.”

As a result of Apple's lack of commitment, the web is playing a relatively minor role in AR these days. In a recent survey, only 15% of respondents said they had used a web-based AR experience, while more than 50% had used AR in an app like Snapchat or Instagram.

“We would have seen a lot more everyday usage of AR on the web [if it wasn't] for this reluctance of theirs to step in, to support at all,” Lepkowski said.

Source: <https://www.protocol.com/entertainment/apple-webxr-ar-ios-iphone>

Marker-based and location-based AR

Enhancing product experience
with AR, VR, and XR.

**From community formation to
commerce and monetisation.**

Howdy, master

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Posts

Media

Pages

Comments

Custom CSS & JS

Choices

Exhibitions

Portfolios

Restaurants

Venues

User Frontend

Appearance

Plugins

Installed Plugins

Add New

Plugin Editor

Users

Tools

Settings

Pods Admin

Cache Cleaner

WP Data Access

WP File Manager

Collapse menu

 **WooCommerce**

WooCommerce is the world's most popular open-source eCommerce solution.

By [Automattic](#)

Install Now [More Details](#)

★★★★★ (3,699) **Last Updated: 3 weeks ago**

5+ Million Active Installations **✓ Compatible with your version of WordPress**

1 Store Details

2 Industry

3 Product Types

4 Business Details

5 Theme

Welcome to WooCommerce

Tell us about your store and we'll get you set up in no time 

I'm setting up a store for a client

Continue

[Skip setup store details !\[\]\(dfdb4c416f78a26e5f7c8df808bb7a87_img.jpg\)](#)

1 Store Details

2 Industry

3 Product Types

4 Business Details

5 Theme

Welcome to WooCommerce

Tell us about your store and we'll get you set up in no time i

Address line 1
12 Queen's Avenue

Address line 2 (optional)
North Point, Hong Kong

Country / Region
Hong Kong — Hong Kong Island

City
Hong Kong

Post code
NA

I'm setting up a store for a client

Continue

Skip setup store details i

Welcome to WooCommerce

Tell us about your store and we'll get you set up in no time [?](#)

Address line 1

12 Queen's Avenue

Address line 2 (optional)

North Point, Hong Kong

Build a better WooCommerce



Get improved features and faster fixes by sharing non-sensitive data via [usage tracking](#) that shows us how WooCommerce is used. No personal data is tracked or stored.

No thanks

Yes, count me in!

NA

I'm setting up a store for a client

Continue

Skip setup store details [?](#)

Store Details

2 Industry

3 Product Types

4 Business Details

5 Theme

In which industry does the store operate?

Choose any that apply

Fashion, apparel, and accessories

Health and beauty

Electronics and computers

Food and drink

Home, furniture, and garden

Education and learning

Other

Continue

What type of products will be listed?

Choose any that apply

<input checked="" type="checkbox"/> Physical products	
<input checked="" type="checkbox"/> Downloads	
<input type="checkbox"/> Subscriptions <small>i</small>	\$16.58 per month
<input type="checkbox"/> Memberships <small>i</small>	\$16.58 per month
<input type="checkbox"/> Bookings <small>i</small>	\$20.75 per month
<input type="checkbox"/> Bundles <small>i</small>	\$4.08 per month
<input type="checkbox"/> Customizable products <small>i</small>	\$4.08 per month

Continue

Display monthly prices

Billing is annual. All purchases are covered by our 30 day money back guarantee and include access to support and updates. Extensions will be added to a cart for you to purchase later.

The other check boxes require monthly fee payment.

1 Store Details

2 Industry

3 Product Types

4 Business Details

5 Theme

What type of products will be listed?

Choose any that apply

Physical products

Downloads

Subscriptions ⓘ \$199 per year

Memberships ⓘ \$199 per year

Bookings ⓘ \$249 per year

Bundles ⓘ \$49 per year

Customizable products ⓘ \$49 per year

Continue

Display monthly prices

Disable the button.

Billing is annual. All purchases are covered by our 30 day money back guarantee and include access to support and updates. Extensions will be added to a cart for you to purchase later.

Tell us about your business

We'd love to know if you are just getting started or you already have a business in place.

How many products do you plan to display?
I don't have any products yet.

Currently selling elsewhere?
No

facebook Market on Facebook
Grow your business by targeting the right people and driving sales with Facebook.

mailchimp Contact customers with Mailchimp
Send targeted campaigns, recover abandoned carts and much more with Mailchimp.

CreativeMail Email marketing for WooCommerce with Creative Mail
Create on-brand store campaigns, fast email promotions and customer retargeting with Creative Mail.

Google Ads Drive traffic to your store with Google Ads & Marketing by Kliken
Get in front of shoppers and drive traffic so you can grow your business with Smart Shopping Campaigns and free listings.

Continue

Disable all the buttons.

Store Details

Industry

Product Types

Business Details

5 Theme

Choose a theme

Choose how your store appears to customers. And don't worry, you can always switch themes and edit them later.

All themes

Paid themes

Free themes



Exhibition (1)

Currently active theme

Continue with my active theme



Premium Quality

(2 customer reviews)

\$15.00

\$12.00

Except Pellentesque habitant morbi tristique netus et malesuada fames ac turpis egestet; toror quam, feugiat vitae, ultricies eget, te arte. Donec eu libero sit amet quam egestat Aenean uttrices mi vitae est. Mauris placerat

- 1 +

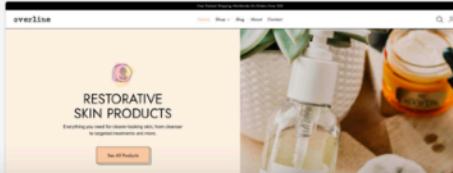
Add to wishlist

Storefront

Free

Choose

Live demo



Pick your theme
for integration.



Enhance your store with Jetpack and WooCommerce Shipping & Tax



Store management on the go

Your store in your pocket. Manage orders, receive sales notifications, and more. Only with a Jetpack connection.



Automated sales taxes

Ensure that the correct rate of tax is charged on all of your orders automatically, and print shipping labels at home.



Improved speed & security

Automatically block brute force attacks and speed up your store using our powerful, global server network to cache images.

Yes please!

No thanks

Pick “No thanks” to avoid receiving emails from WP.

Jetpack and WooCommerce Shipping & Tax plugins will be installed & activated for free, and you agree to our [Terms of Service](#).

COM5940 0 + New Delete Cache UpdraftPlus

Howdy, master

Dashboard Posts Media Pages Comments Custom CSS & JS Choices Exhibitions Portfolios Restaurants Venues User Frontend WooCommerce

Home Orders Customers Coupons Reports Settings Status Extensions

Products Analytics Marketing Appearance

Finish setup 5

Click "x" to finish the setup.

Welcome to your WooCommerce store's online HQ!

Here's where you'll find setup suggestions, tips and tools, and key data on your store's performance and earnings — all the basics for store management and growth.

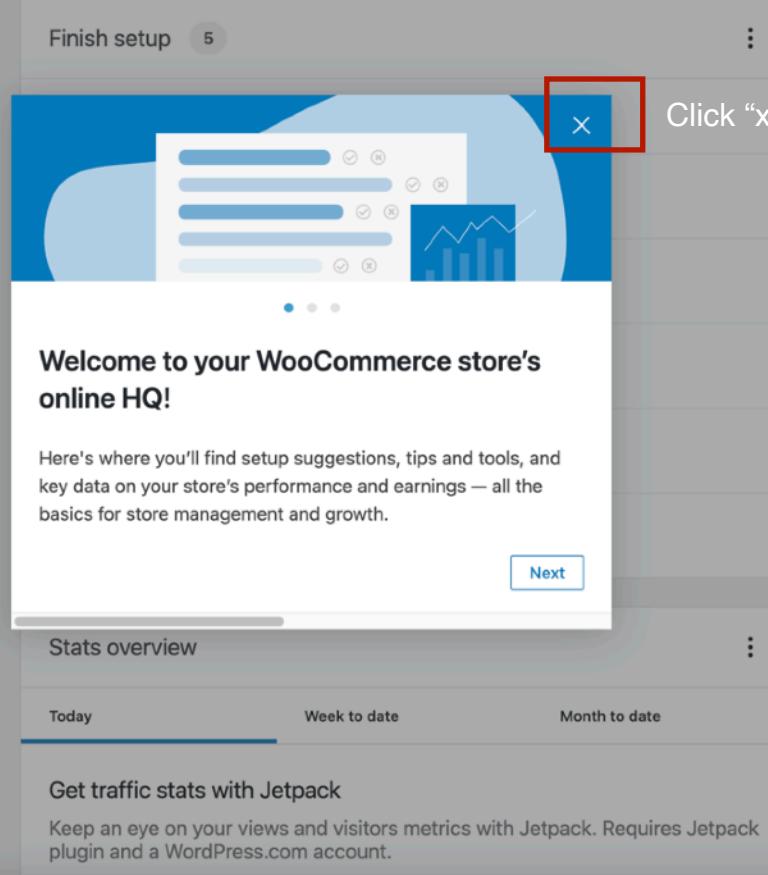
Next

Stats overview

Today Week to date Month to date

Get traffic stats with Jetpack

Keep an eye on your views and visitors metrics with Jetpack. Requires Jetpack plugin and a WordPress.com account.



W H COM5940 0 + New Delete Cache UpdraftPlus

Howdy, master

Choices Exhibitions Portfolios Restaurants Venues User Frontend WooCommerce

Home Orders Customers Coupons Reports Settings Status Extensions

Products Analytics Marketing Appearance Plugins Users Tools Settings Cache Cleaner

localhost/wp_demo/wp-admin/import.php

Available Tools

- Import
- Export
- Site Health
- Export Personal Data
- Erase Personal Data
- Scheduled Actions

Click Tools and Import.

Set up payments
2 minutes

Set up tax
1 minute

Set up shipping
1 minute

Personalize my store
2 minutes

Stats overview

Today Week to date Month to date

Get traffic stats with Jetpack

Keep an eye on your views and visitors metrics with Jetpack. Requires Jetpack plugin and a WordPress.com account.

Get Jetpack No thanks

Total Sales	Orders
£0	0 0%

[View detailed stats](#)

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Restaurants
Venues
User Frontend
WooCommerce
Products
Analytics
Marketing
Appearance
Plugins
Users
Tools

Available Tools

Import Import

Export
Site Health
Export Personal Data
Erase Personal Data
Scheduled Actions

Settings

Pods Admin
Cache Cleaner
WP Data Access 1
WP File Manager

Collapse menu



WP User Frontend - Version 3.5.13

Welcome to the new version of WP User Frontend. See what's been changed in the 3.5.13 version.

What's New?

Howdy, master

If you have posts or comments in another system, WordPress can import those into this site. To get started, choose a system to import from below:

Blogger Import posts, comments, and users from a Blogger blog.

[Install Now](#) | [Details](#)

Categories and Tags Converter Convert existing categories to tags or tags to categories, selectively.

[Install Now](#) | [Details](#)

LiveJournal Import posts from LiveJournal using their API.

[Install Now](#) | [Details](#)

Movable Type and TypePad Import posts and comments from a Movable Type or TypePad blog.

[Install Now](#) | [Details](#)

RSS Import posts from an RSS feed.

[Install Now](#) | [Details](#)

Tumblr Import posts & media from Tumblr using their API.

[Install Now](#) | [Details](#)

WooCommerce products (CSV) Import products to your store via a csv file.

[Run Importer](#)

Select WooCommerce products (CSV).

WooCommerce tax rates (CSV) Import tax rates to your store via a csv file.

[Run Importer](#)

WordPress Import posts, pages, comments, custom fields, categories, and tags from a

WordPress export file.

If the importer you need is not listed, [search the plugin directory](#) to see if an importer is available.

W COM5940 0 + New Delete Cache UpdraftPlus

Restaurants
Venues
User Frontend
WooCommerce
Products
Analytics
Marketing
Appearance
Plugins
Users
Tools

Available Tools

Import

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[Run Importer](#)

WordPress Import posts, pages, comments, custom fields, categories, and tags from a

[Install Now](#) | [Details](#)

If the importer you need is not listed, [search the plugin directory](#) to see if an importer is available.

Go back to the importer and import the CSV file.

Howdy, master

Import Products

Your store does not appear to be using a secure connection. We highly recommend serving your entire website over an HTTPS connection to help keep customer data secure. [Learn more here.](#)

Upload CSV file Column mapping Import Done!

Import products from a CSV file

This tool allows you to import (or merge) product data to your store from a CSV or TXT file.

Choose a CSV file from your computer: No file chosen
Maximum size: 32 MB

Update existing products Existing products that match by ID or SKU will be updated.
Products that do not exist will be skipped.

Show advanced options Continue

Go back to the importer and import the fie.

COM5940 New Delete Cache UpdraftPlus

Inbox Store Setup

Posts Media Pages Comments Custom CSS & JS Choices Exhibitions Portfolios Restaurants Venues User Frontend WooCommerce Products

All Products Add New Categories Tags Attributes

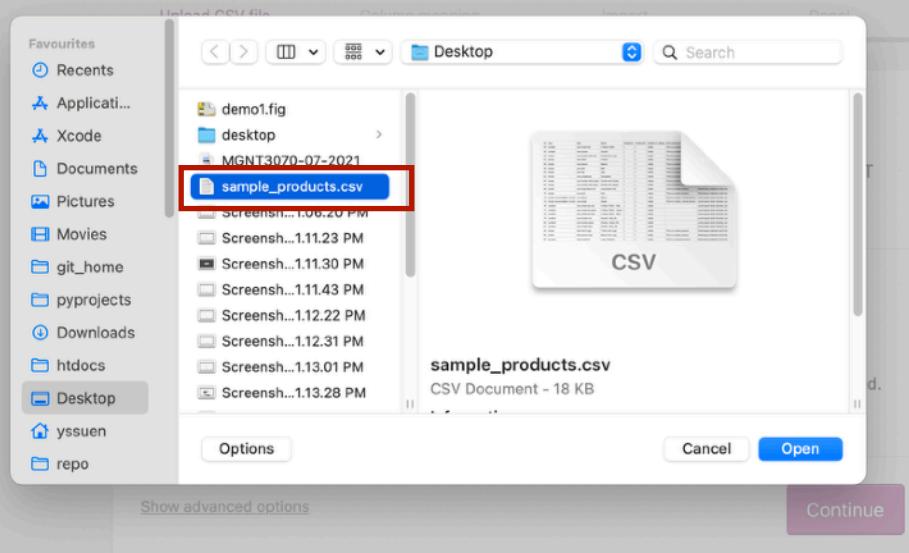
Analytics Marketing Appearance Plugins Users Tools Settings

Import Products

IMPORT PRODUCTS

Your store does not appear to be using a secure connection. We highly recommend serving your entire website over an HTTPS connection to help keep customer data secure. [Learn more here.](#)

[Dismiss](#)



Choose “sample_products.csv” file for import.

- Posts
- Media
- Pages
- Comments
- Custom CSS & JS
- Choices
- Exhibitions
- Portfolios
- Restaurants
- Venues
- User Frontend
- WooCommerce
- Products**
- All Products
- Add New
- Categories
- Tags
- Attributes
- Analytics
- Marketing
- Appearance
- Plugins
- Users
- Tools
- Settings

Import Products

Import Products

Your store does not appear to be using a secure connection. We highly recommend serving your entire website over an HTTPS connection to help keep customer data secure. [Learn more here.](#)

Dismiss

Upload CSV file

Column mapping

Import

Done!

Import products from a CSV file

This tool allows you to import (or merge) product data to your store from a CSV or TXT file.

Choose a CSV file from your computer:

sample_products.csv

Maximum size: 32 MB

Update existing products

Existing products that match by ID or SKU will be updated.

Products that do not exist will be skipped.

[Show advanced options](#)

W COM5940

0 + New Delete Cache UpdraftPlus

Exhibitions

Portfolios

Restaurants

Venues

User Frontend

WooCommerce

Products

All Products

Add New

Categories

Tags

Attributes

Analytics

Marketing

Appearance

Plugins

Users

Tools

Settings

Pods Admin

Cache Cleaner

WP Data Access

WP File Manager

Collapse menu

Howdy, master

Inbox Store Setup

Import Products

Attribute 1 global Sample: 1	Is a global attribute?
Attribute 2 name Sample: Size	Attribute name
Attribute 2 value(s) Sample: Large, Medium, Small	Attribute value(s)
Attribute 2 visible Sample: 1	Attribute visibility
Attribute 2 global Sample: 1	Is a global attribute?
Meta: _wpcom_js_markdown Sample: 1	Import as meta data
Download 1 name	Download name
Download 1 URL	Download URL
Download 2 name	Download name
Download 2 URL	Download URL

Run the importer

Take the default values and run the importer.

Dashboard

Posts

Media

Pages

Comments

Custom CSS & JS

Choices

Exhibitions

Portfolios

Restaurants

Venues

User Frontend

WooCommerce

Products

All Products

Add New

Categories

Tags

Attributes

Analytics

Marketing

Appearance

Plugins

Users

Import Products



Inbox



Store Setup

Help

Import Products

Your store does not appear to be using a secure connection. We highly recommend serving your entire website over an HTTPS connection to help keep customer data secure. [Learn more here.](#)

[Dismiss](#)

Upload CSV file

Column mapping

Import

Done!

Importing

Your products are now being imported...



Import in progress...

Posts

Media

Pages

Comments

Custom CSS & JS

Choices

Exhibitions

Portfolios

Restaurants

Venues

User Frontend

WooCommerce

Products

All Products

Add New

Categories

Tags

Attributes

Analytics

Marketing

Appearance

Plugins

Users

Tools

Settings

Import Products

IMPORT PRODUCTS

Your store does not appear to be using a secure connection. We highly recommend serving your entire website over an HTTPS connection to help keep customer data secure. [Learn more here.](#)

[Dismiss](#)

Upload CSV file

Column mapping

Import

Done!



Import complete! 25 products imported. File uploaded:

sample_products.csv

[View products](#)

All done.



Inbox



Store Setup

localhost/wp_demo/wp-admin/edit.php?post_type=product

Howdy, master

Dashboard Posts Media Pages Comments Custom CSS & JS Choices Exhibitions Portfolios Restaurants Venues User Frontend WooCommerce Products

All (18) | Published (18) | Sorting

Add New Import Export

Your store does not appear to be using a secure connection. We highly recommend serving your entire website over an HTTPS connection to help keep customer data secure. [Learn more here.](#) [Dismiss](#)

Screen Options Help

	Name	SKU	Stock	Price	Categories	Tags	Date
<input type="checkbox"/>	Cap ID: 387 Edit Quick Edit Trash View Duplicate	woo-cap	In stock	£10 £16	Accessories	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Sunglasses ID: 388 Edit Quick Edit Trash View Duplicate	woo-sunglasses	In stock	£90	Accessories	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Hoodie with Pocket ID: 389 Edit Quick Edit Trash View Duplicate	woo-hoodie-with-pocket	In stock	£45 £35	Hoodies	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Hoodie with Zipper ID: 390 Edit Quick Edit Trash View Duplicate	woo-hoodie-with-zipper	In stock	£45	Hoodies	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Long Sleeve Tee ID: 391 Edit Quick Edit Trash View Duplicate	woo-long-sleeve-tee	In stock	£25	Tshirts	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Polo ID: 392 Edit Quick Edit Trash View Duplicate	woo-polo	In stock	£20	Tshirts	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Album ID: 393 Edit Quick Edit Trash View Duplicate	woo-album	In stock	£15	Music	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Single ID: 394 Edit Quick Edit Trash View Duplicate	woo-single	In stock	£3 £2	Music	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	T-Shirt with Logo ID: 401 Edit Quick Edit Trash View Duplicate	Woo-tshirt-logo	In stock	£18	Tshirts	—	★ Published 2021/03/05 at 5:43 am
<input type="checkbox"/>	Beanie with Logo ID: 402 Edit Quick Edit Trash View Duplicate	Woo-beanie-logo	In stock	£20 £18	Accessories	—	★ Published 2021/03/05 at 5:43 am

Imported data.

Howdy, master

COM5940

New Delete Cache UpdraftPlus

Choices Exhibitions Portfolios Restaurants Venues User Frontend

WooCommerce

General

Shipping location(s) Ship to all countries you sell to

Default customer location Shop base address

Enable taxes Enable tax rates and calculations Rates will be configurable and taxes will be calculated during checkout.

Enable coupons Enable the use of coupon codes Coupons can be applied from the cart and checkout pages.
 Calculate coupon discounts sequentially When applying multiple coupons, apply the first coupon to the full price and the second coupon to the discounted price and so on.

Currency options

The following options affect how prices are displayed on the frontend.

Currency Hong Kong dollar (\$)

Currency position Left

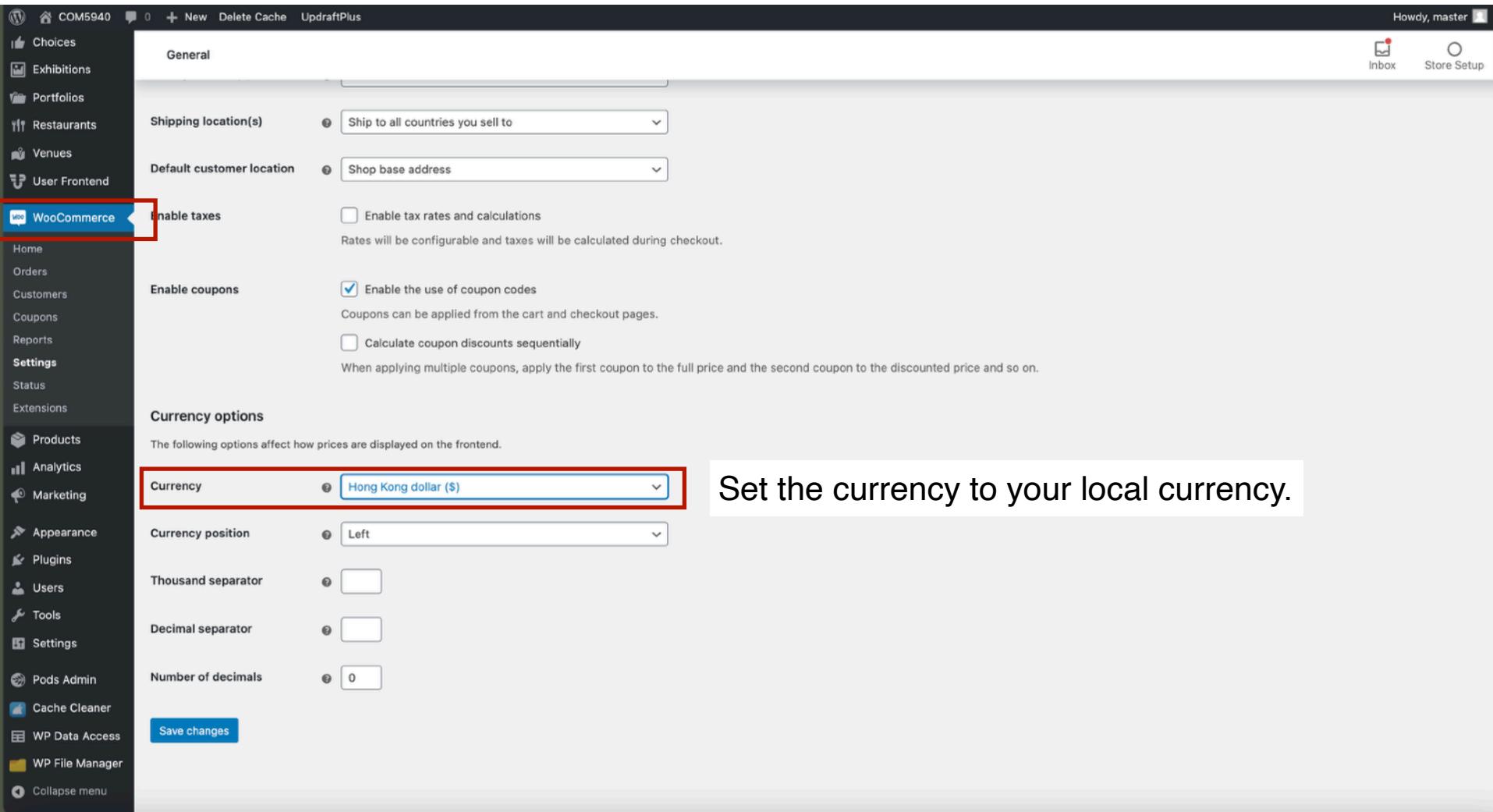
Thousand separator

Decimal separator

Number of decimals 0

Save changes

Set the currency to your local currency.



COM5940 0 + New Delete Cache UpdraftPlus

Visit Site Visit Store

Dashboard Home Updates

Screen Options Help

Visit Store

“Visit Store” to see what the store-front looks like.

Welcome to WordPress!

We've assembled some links to get you started:

Get Started

Customize Your Site

or, [change your theme completely](#)

Next Steps

- [Edit your front page](#)
- [Add additional pages](#)
- [View your site](#)

More Actions

- [Manage menus](#)
- [Turn comments on or off](#)
- [Learn more about getting started](#)

Site Health Status

Should be improved

Your site has critical issues that should be addressed as soon as possible to improve its performance and security.

Take a look at the 8 items on the [Site Health screen](#).

At a Glance

6 Posts 19 Pages

WordPress 5.6.2 running [Exhibition](#) theme.

Activity

Recently Published

Date	Post Title
Mar 4th, 2:39 pm	Sunday Post
Mar 4th, 9:13 am	Tale of Two Cities
Mar 4th, 4:23 am	test again for tinymce function in JQuery

Quick Draft

Title

Content

What's on your mind?

Save Draft

Drag boxes here

WordPress Events and News

Enter your closest city to find nearby events.

City: Cincinnati Submit Cancel

Loading...

展·视·台

首页 热门推荐 按条件查找 展馆 户口 联系我们

[Twitter](#) [Facebook](#) [Instagram](#) [LinkedIn](#)

Shop

Showing 1-16 of 17 results



Album
£15

Add to cart

Beanie
£20 £18

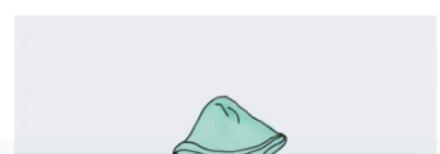
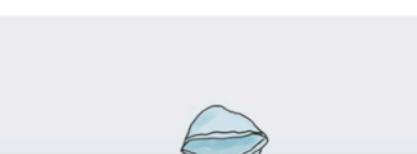
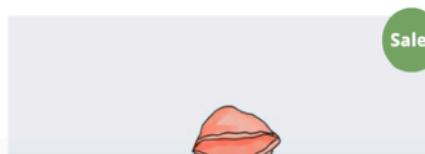
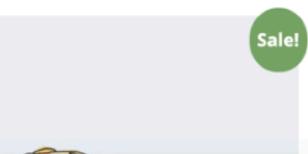
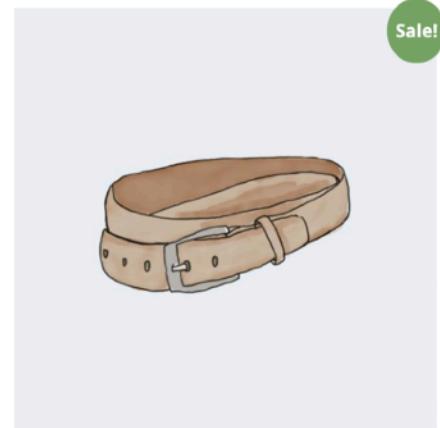
Add to cart

Beanie with Logo
£20 £18

Add to cart

Belt
£65 £55

Add to cart



Default sorting

Sale!



[GA4] Demo account

Learn by experimenting with data from the Google Merchandise Store and Flood-It!

The Google Analytics demo account is a fully functional Google Analytics account that any Google user can access. It contains one Universal Analytics property and two Google Analytics 4 properties. The demo account is a great way to look at real business data and experiment with Google Analytics features.

In this article:

- [Access the demo account](#)
- [Where the data comes from](#)
- [Ways to use the demo account](#)
- [Limitations](#)
- [Remove access to the demo account](#)

Access the demo account

To access the demo account, click one of the three links at the end of this section. When you click a link:

- If you already have a Google account, you're prompted to log in to that account.
- If you don't have a Google account, you're prompted to create an account and then log in.

<https://support.google.com/analytics/answer/6367342?hl=en#zippy=%2Cin-this-article>

Help

[GA4] Demo account

Reports snapshot

Real-time

Life cycle

▶ Acquisition

▶ Engagement

Monetisation

Overview

E-commerce purchases

In-app purchases

Publisher ads

Retention

User

▶ Demographics

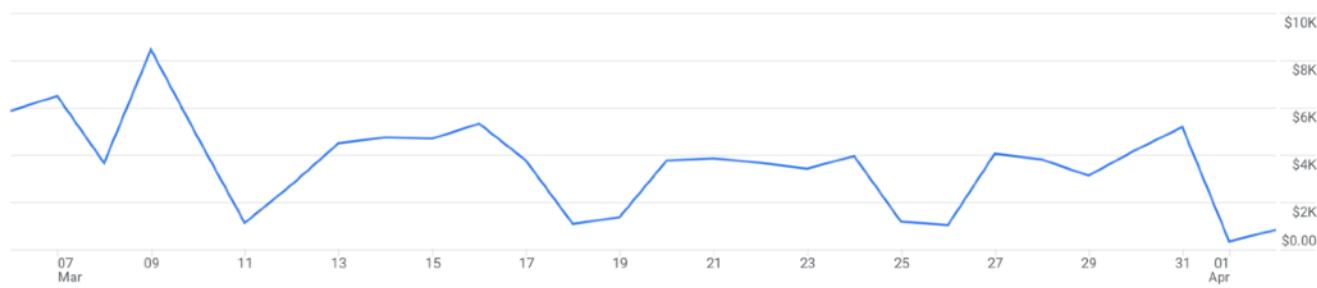
▶ Tech

A All Users Add comparison +

Last 28 days 6 Mar - 2 Apr 2023

Monetisation overview

Total revenue \$101K Purchase revenue \$101K Total ad revenue \$0.00



Total purchasers 760 First time purchasers 670



Analytics | All accounts > Demo Account
GA4 - Google Merchandise ...

Try searching "Behaviour overview"

Last 28 days 6 Mar - 2 Apr 2023

E-commerce purchases: Item name

ITEMS VIEWED

Google Campus Bike Google Cloud Journal Chrome Dino Collectible Figurines

Search... Rows per page: 10 Go to: 1 1-10 of 478

Item name	↓ Items viewed	Items added to cart	Items purchased	Item revenue
	60,031 100% of total	563 100% of total	8,610 100% of total	\$100,790.04 100% of total
1	1,931	0	0	\$0.00
2 Google Campus Bike	1,283	1	23	\$1,045.00
3 Google Cloud Journal	1,128	1	41	\$740.00
4 Chrome Dino Collectible Figurines	961	4	7	\$204.00
5 Google Land & Sea Recycled Puffer Blanket	918	0	0	\$0.00
6 Google RIPL Ocean Blue Bottle	843	2	4	\$176.00
7 Google Recycled Black Backpack	783	0	10	\$756.00
8 Google Eco Tee Black	733	0	0	\$0.00
9 Google Adventure Backpack Black	686	0	5	\$545.60
10 Chrome Dino Dark Mode Collectible	584	1	9	\$258.00

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Howdy, master

Posts

Media

Pages

Comments

Custom CSS & JS

Choices

Exhibitions

Portfolios

Restaurants

Venues

User Frontend

Appearance

Plugins

Installed Plugins

Add New

Plugin Editor

Users

Tools

Settings

Pods Admin

Cache Cleaner

WP Data Access

WP File Manager

Collapse menu

WooCommerce

WooCommerce is the world's most popular open-source eCommerce solution.

By Automattic

Install Now

More Details

5+ Million Active Installations

Last Updated: 3 weeks ago

✓ Compatible with your version of WordPress

Site Kit by Google – Analytics, Search Console, AdSense, Speed

Site Kit is a one-stop solution for WordPress users to use everything Google has to offer to make them successful on the web.

By Google

5+ Million Active Installations

Last Updated: 3 weeks ago

✓ Compatible with your version of WordPress



USE GOOGLE SITE KIT IN WORDPRESS

A screenshot of a smartphone displaying the WordPress dashboard. The left sidebar is dark-themed and includes links for Dashboard, Posts, Media, Pages, Comments, Appearance, Plugins, Users, Site Kit (which is highlighted in blue), Dashboard, Search Console, Analytics, AdSense, PageSpeed Insights, Settings, Tools, and Settings. The main content area shows the "Site Kit" interface with the title "All Traffic" and a pie chart titled "How people found your site." The chart shows the following distribution: Organic Search (35.6%), Direct (34%), Referral (11.4%), Social (7.6%), and Email (12.6%). Below the chart, it says "Source: Site Kit Analytics". Further down, there's a "Search Funnel" section with a table showing Impressions (17.3k) and Clicks (5.6k).

Category	Value
Impressions	17.3k
Clicks	5.6k

Source: https://www.youtube.com/watch?v=t_gVu1bldiw

Site Kit is the official WordPress plugin from Google for insights about how people find and use your site. Site Kit is the one-stop solution to deploy, manage, and get insights from critical Google tools to make the site successful on the web. It provides authoritative, up-to-date insights from multiple Google products directly on the WordPress dashboard for easy access, all for free.

Bringing the best of Google tools to WordPress

Site Kit includes powerful features that make using these Google products seamless and flexible:

- Easy-to-understand stats directly on your WordPress dashboard
- Official stats from multiple Google tools, all in one dashboard
- Quick setup for multiple Google tools without having to edit the source code of your site
- Metrics for your entire site and for individual posts
- Easy-to-manage, granular permissions across WordPress and different Google products

Supported Google tools

Site Kit shows key metrics and insights from different Google products:

- **Search Console:** Understand how Google Search discovers and displays your pages in Google Search. Track how many people saw your site in Search results, and what query they used to search for your site.
- **Analytics:** Explore how users navigate your site and track goals you've set up for your users to complete.
- **AdSense:** Keep track of how much your site is earning you.
- **PageSpeed Insights:** See how your pages perform compared to other real-world sites. Improve performance with actionable tips from PageSpeed Insights.
- **Tag Manager:** Use Site Kit to easily set up Tag Manager- no code editing required. Then, manage your tags in Tag Manager.
- **Optimize:** Use Site Kit to easily set up Optimize- no code editing required. Then, set up A/B tests in Optimize.

Version: 1.96.0

Author: [Google](#)

Last Updated: 3 weeks ago

Requires WordPress Version: 5.2 or higher

Compatible up to: 6.1.1

Requires PHP Version: 5.6 or higher

Active Installations: 3+ Million

[WordPress.org Plugin Page »](#)

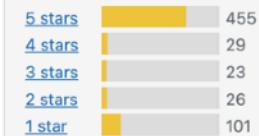
[Plugin Homepage »](#)

AVERAGE RATING

★★★★★
(based on 634 ratings)

REVIEWS

Read all reviews on WordPress.org or write your own!



CONTRIBUTORS

[Google](#)

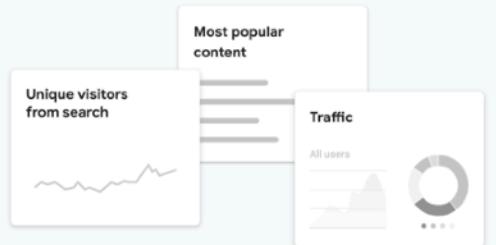
Latest Version Installed



Set up Site Kit

Get insights on how people find your site, as well as how to improve and monetize your site's content, directly in your WordPress dashboard.

- Connect Google Analytics as part of your setup.** Activate Google Analytics to track how much traffic you're getting and how people navigate your site.



- Help us improve Site Kit by sharing anonymous usage data.
All collected data is treated in accordance with the [Google Privacy Policy](#).

Sign in with Google



- Dashboard
- Posts
- Media
- Pages
- Comments
- Custom CSS & JS
- Assessments
- Chapters
- Manuals
- Partners
- Query Wrangler
- Groups
- weForms
- Appearance
- Plugins
- Users
- Tools
- Settings
- ProfilePress
- Shortcodes
- WP ULike
- Forums

Site Kit

Connect Service

Analytics

Please select the account information below. You can change this later in your settings.

Account: suenlabs

Property: steam.cuhkcfe.io (UA-13275851-11)

View: All Web Site Data

★ You need to connect the Google Analytics 4 property that's associated with this Universal Analytics property.

Property: steam.cuhkcfe.io - GA4 (G-Y9Q0468RHM)

Learn more

Configure Analytics

Cancel

- Dashboard
- Posts
- Media
- Pages
- Comments
- Custom CSS & JS
- Assessments
- Chapters
- Manuals
- Partners
- Query Wrangler
- Groups
- weForms
- Appearance
- Plugins
- Users
- Tools
- Settings
- ProfilePress
- Shortcodes
- WP ULike
- Forums

Site Kit

URL Search

Last 28 days



Congrats on completing the setup for Analytics!

You'll only see Universal Analytics data for now. [Learn more](#)

OK, Got it!



Traffic

Content

Speed

Monetization

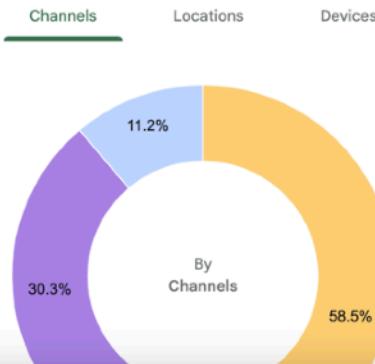
Find out how your audience is growing

Track your site's traffic over time

All Users

188

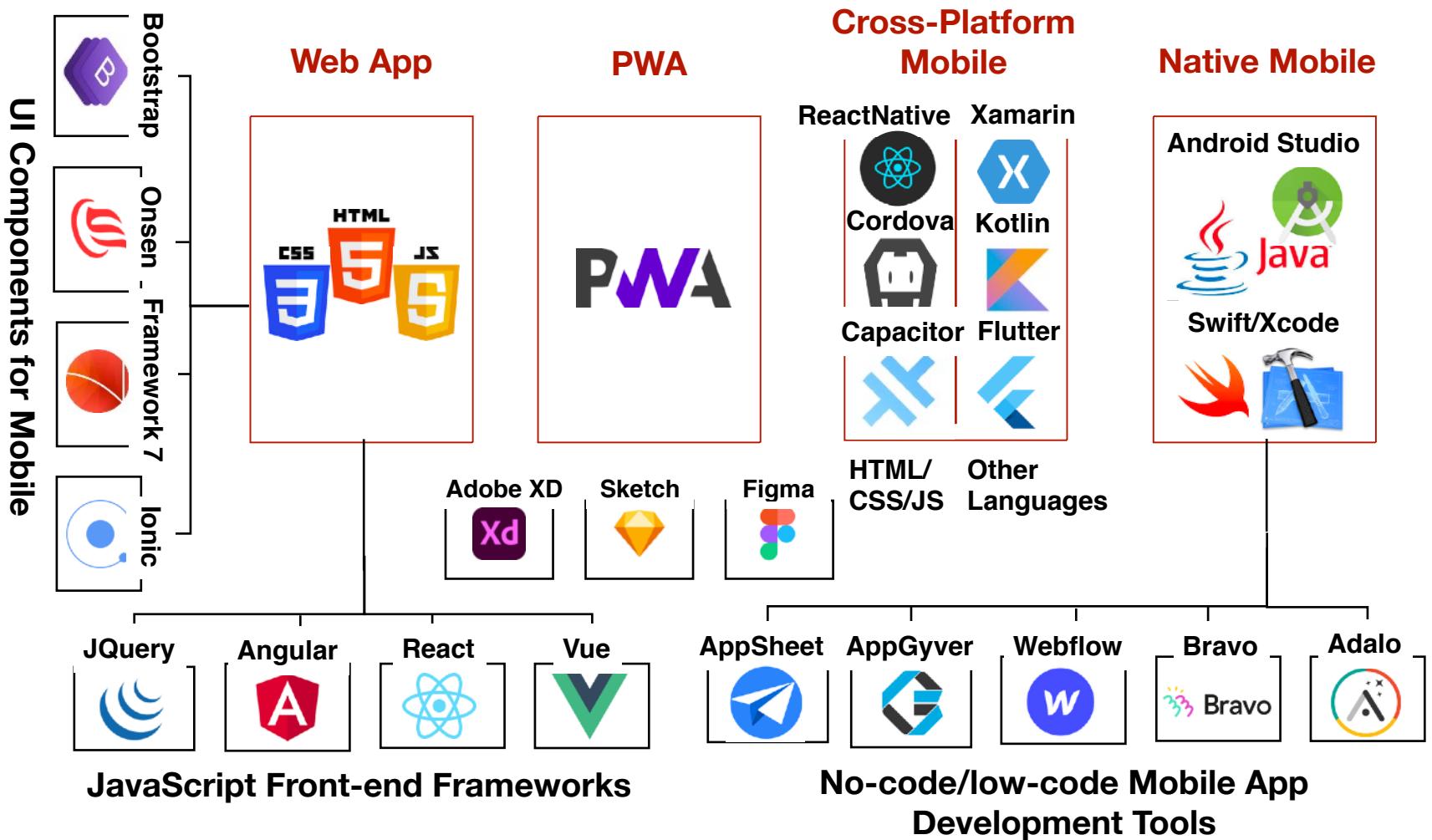
↑82.5% compared to the previous 28 days

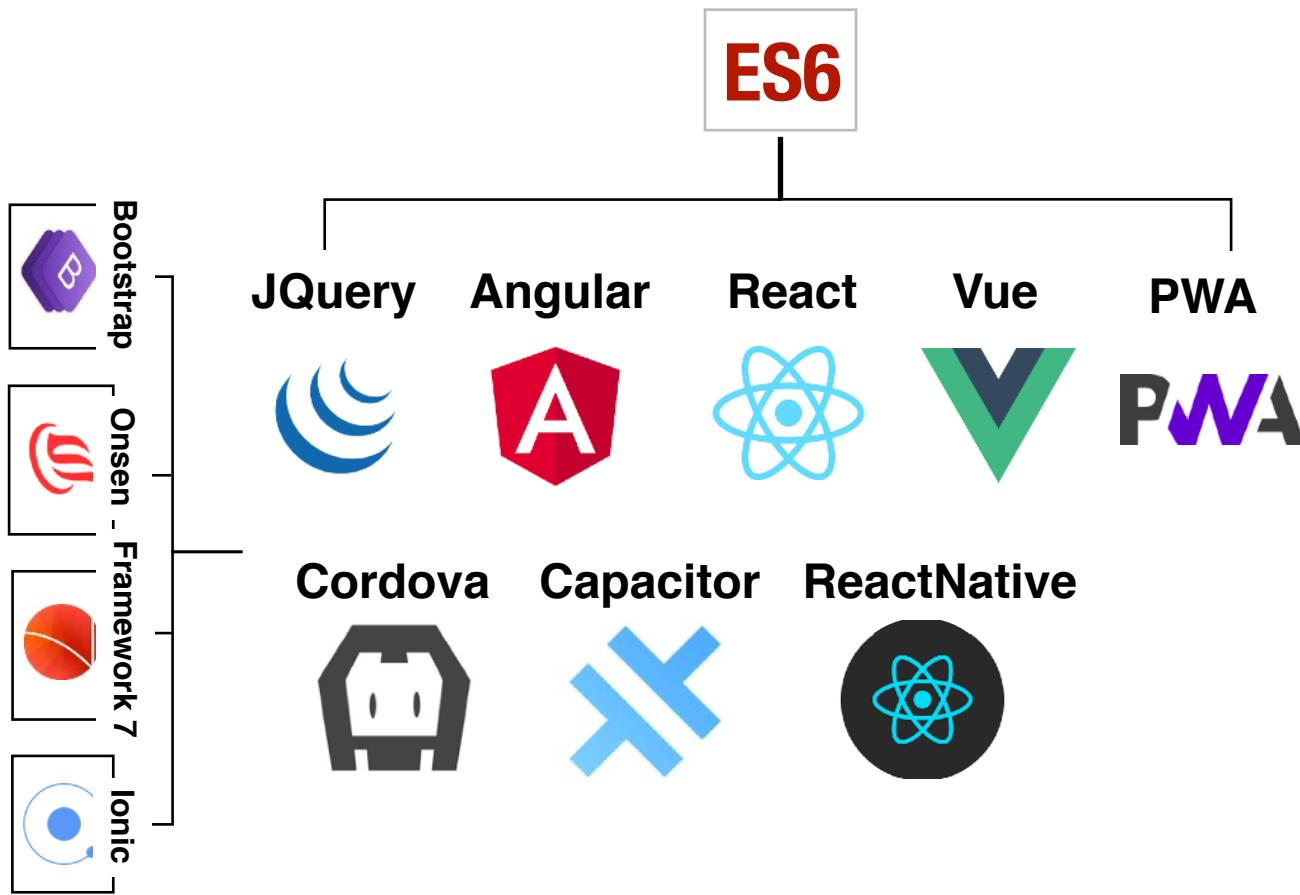


What We Have Learned from COM5940

Lesson 0: One Day Workshop on ES6

- 1. Review standard JavaScript by comparing with Python and introduce JS ES6.**
- 2. From responsive web app to native mobile app, hybrid mobile app, PWA, and nocode/lowcode app development.**
- 3. Callback, anonymous and arrow functions.**
- 4. Use of backtick in HTML templating.**
- 5. Javascript class and module import.**





Features	Web	PWA	Hybrid	Native	No-code/ Low-code
Knowledge of HTML/CSS/JS	✓	✓	✓	✗	NA
Many front-end frameworks to choose from	✓	✓	✓	✗	NA
Easy to build and cheaper	✓	✓	✗	✗	✓
Cross-Platform Support	✓	✓	✓	✗	✓
Run in a browser	✓	✓	✗	✗	✗
Faster performance	✗	✗	✗	✓	✗
Downloadable from app store	✗	✗	✓	✓	✓
Prebuilt component support	✗	✗	✗	✗	✓
Device support (camera, push notification, geolocation, etc)	✗	✗	✓	✓	✓
Flexibility and control over UI and device	✗	✗	✓	✓	✗

No - ✗ / Somewhat - ✘ / Yes - ✓ / NA

Lesson 1: Introduction to REST API, User Authentication and Authorization

1. Introduction to REST API And CRUD.
2. Perform CRUD operations using Postman.
3. Understand the HTTP status codes.
4. Authentication and Authorisation through Basic Authentication, JWT, and Oauth2.

API (e.g. REST)



BACK-END TECHNOLOGY

后台

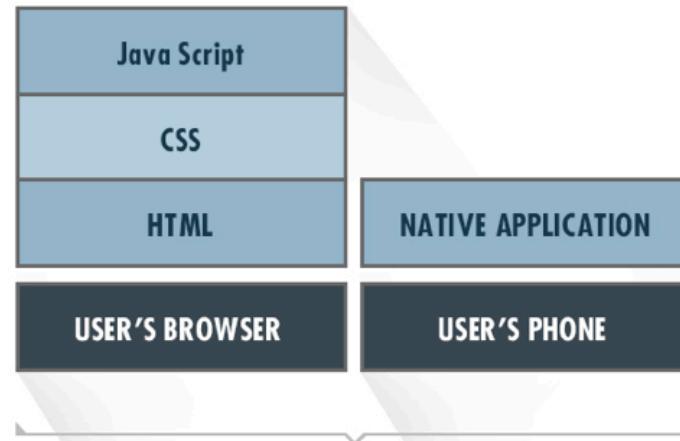
WHAT IS YOUR “CLOUD” AND “STACK” STRATEGY?

云架构及前端和后端的全栈策略

{ JSON }



THE INTERNET



CLIENT-SIDE

FRONT-END TECHNOLOGY

前台



CRUD Operations in REST API

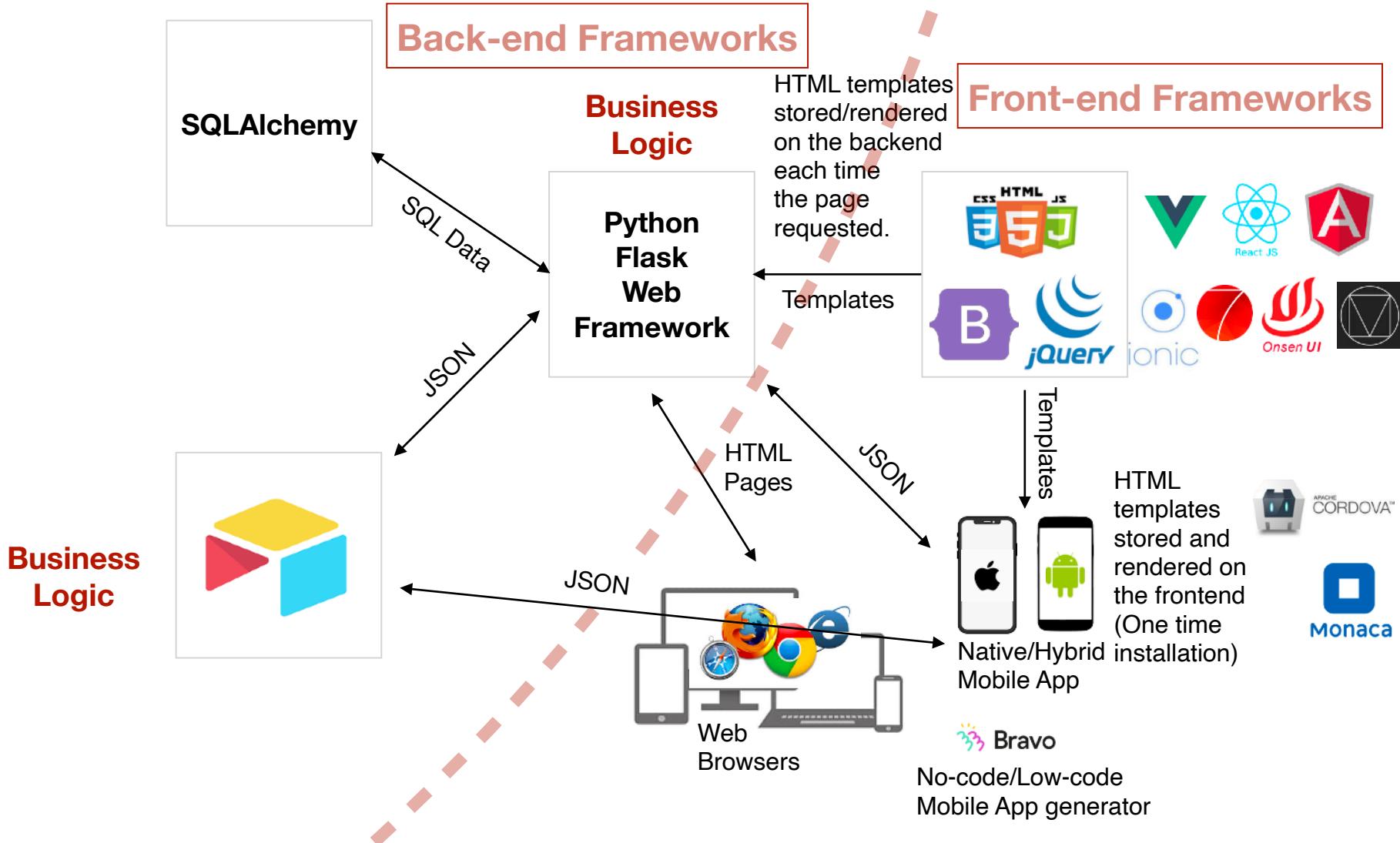


3 Common API Authentication/Authorization Methods

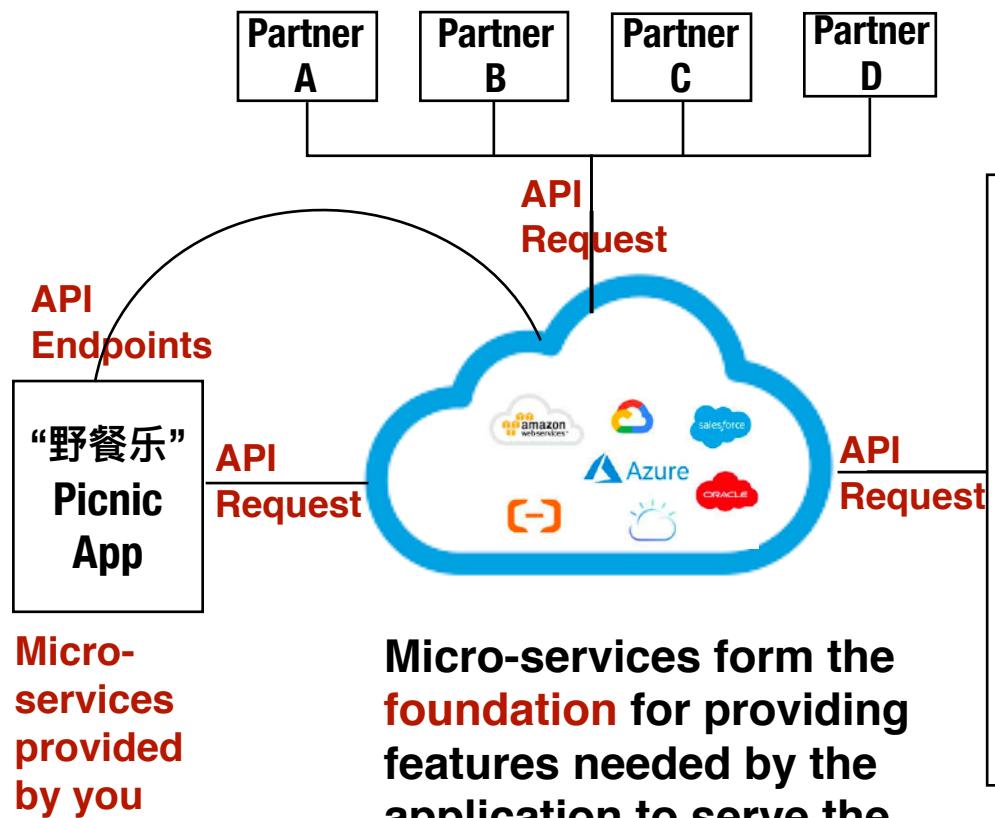
	BASIC AUTH	OAUTH 2	Access Token (e.g. JWT)
Encryption	No (Rely on https)	Yes	Yes
Authentication	User Name/ Password	Token (from resource provider)	Token (stored locally)
Authorization	NA Rely on server- side programs.	Yes	Yes
Multiple Parties	NA	Yes	NA

Lesson 2: No-code/Low-code Application Development

- 1. Overview of no-code/low-code app development.**
- 2. Front-end Development Using Bravo Studio and Monaca.**
- 3. Nocode/Low-code database and app development in Airtable.**
- 4. Perform SQL-like operations in Airtable without coding.**
- 5. Secure team collaboration in Airtable for project management.**

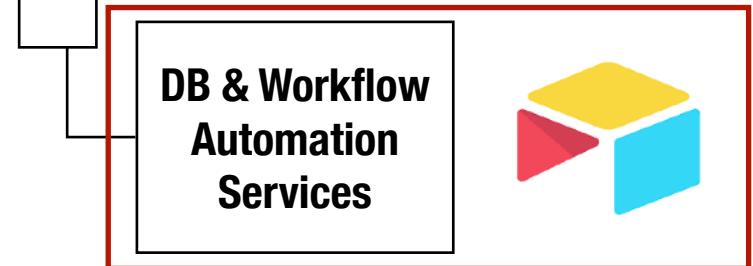
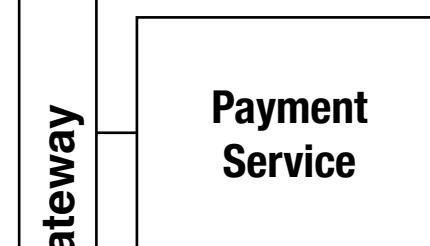


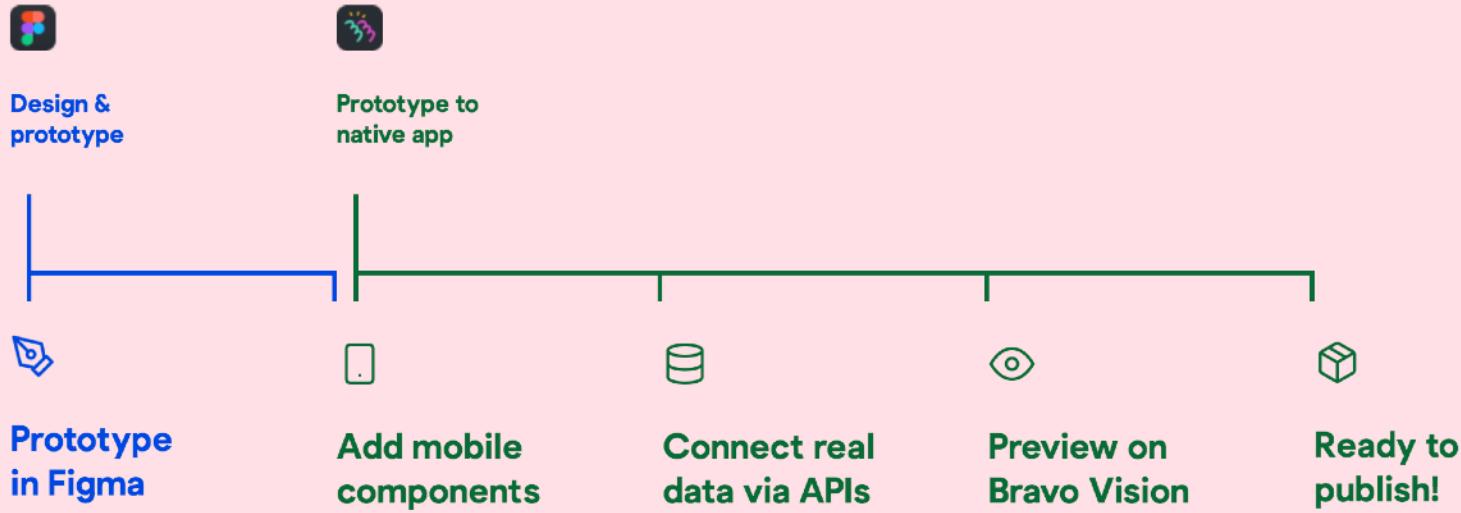
Business partners requesting your services through API requests.



Micro-services form the foundation for providing features needed by the application to serve the ultimate users/customers

Micro-services





<https://www.bravostudio.app/>

Lesson 3: Integrate Mobile Front-end with REST API Back-end Services

1. Manage Flask CRUD data with Flask-Admin.
2. REST API and CRUD support in Airtable.
3. Build mobile app with CRUD and authentication and authorisation support in Bravo Studio.
4. Introduction to Airtable automation.



Useful Links

[Flask](#)
[Flask-Admin @ github](#)

Quick search

 Go

Flask-Admin

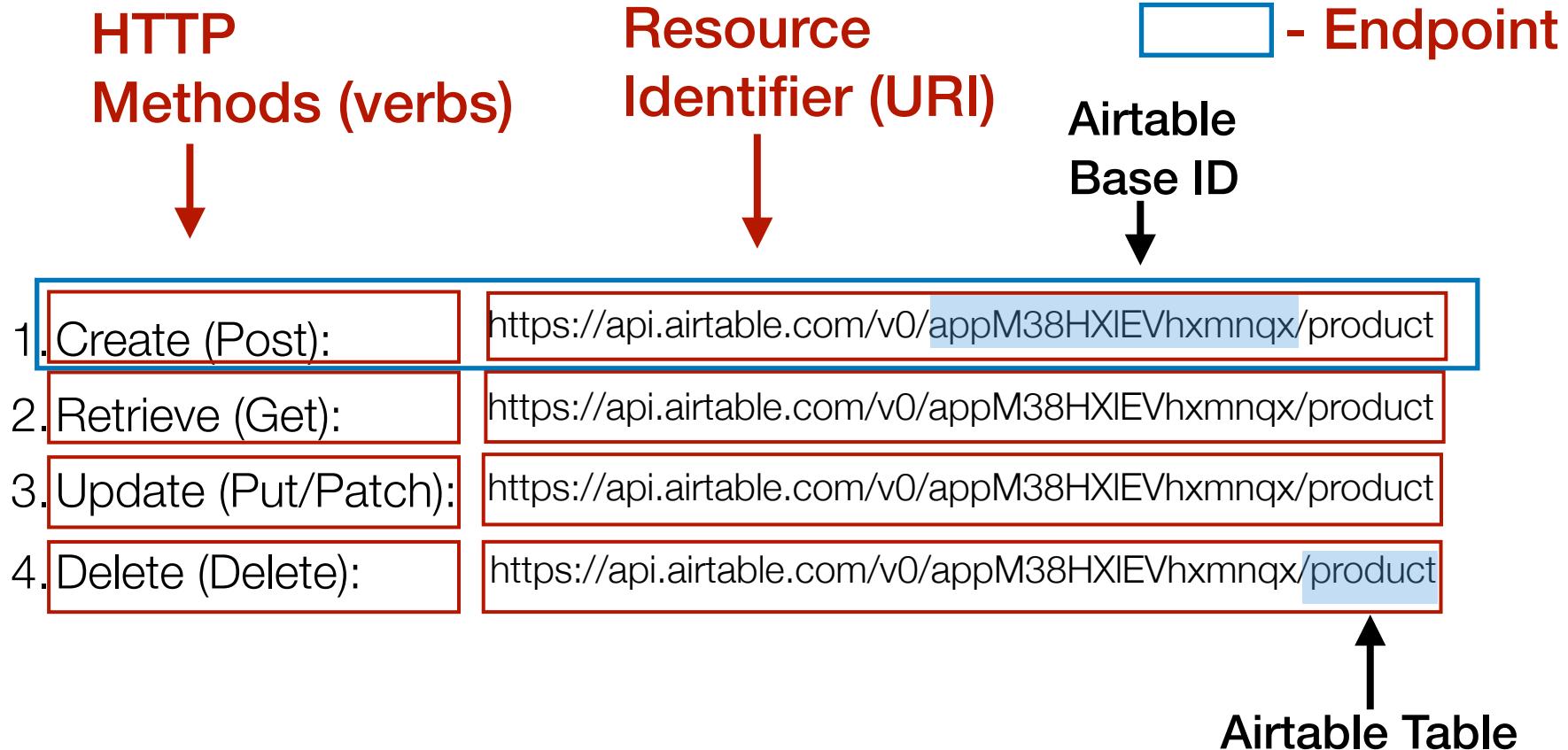
Why Flask? As a micro-framework, [Flask](#) lets you build web services with very little overhead. It offers freedom for you, the designer, to implement your project in a way that suits your particular application.

Why Flask-Admin? In a world of micro-services and APIs, Flask-Admin solves the boring problem of building an admin interface on top of an existing data model. With little effort, it lets you manage your web service's data through a user-friendly interface.

How does it work? The basic concept behind Flask-Admin, is that it lets you build complicated interfaces by grouping individual views together in classes: Each web page you see on the frontend, represents a method on a class that has explicitly been added to the interface.

Source: <https://flask-admin.readthedocs.io/en/latest/>

Basic RESTful Methods and Structure for Airtable



Send Email Confirmation com5940

Data

Automations

Interfaces



Share



Automations List

ON Email_Confirmation

Run History

Test Automation

Properties

ACTION DETAILS

Action type

Send email

LABELS

Description

Registration Test

CONFIGURATION

Action will run...

Always

* Gmail account

Gmail account

* To

Separate multiple emails with commas

email



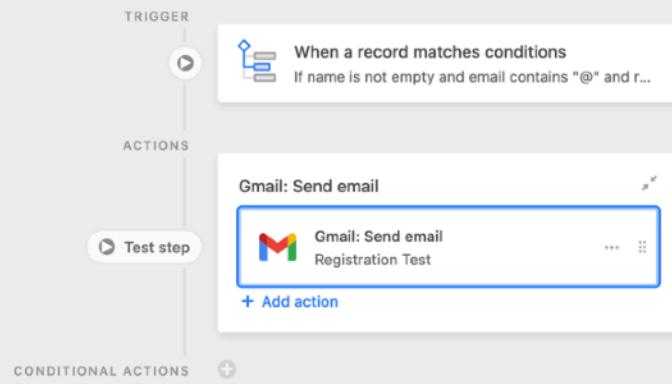
Show more options >

* Subject

Email Confirmation



* Message

Use markdown or HTML for rich text formatting: **bold**, *italics*,

Create...

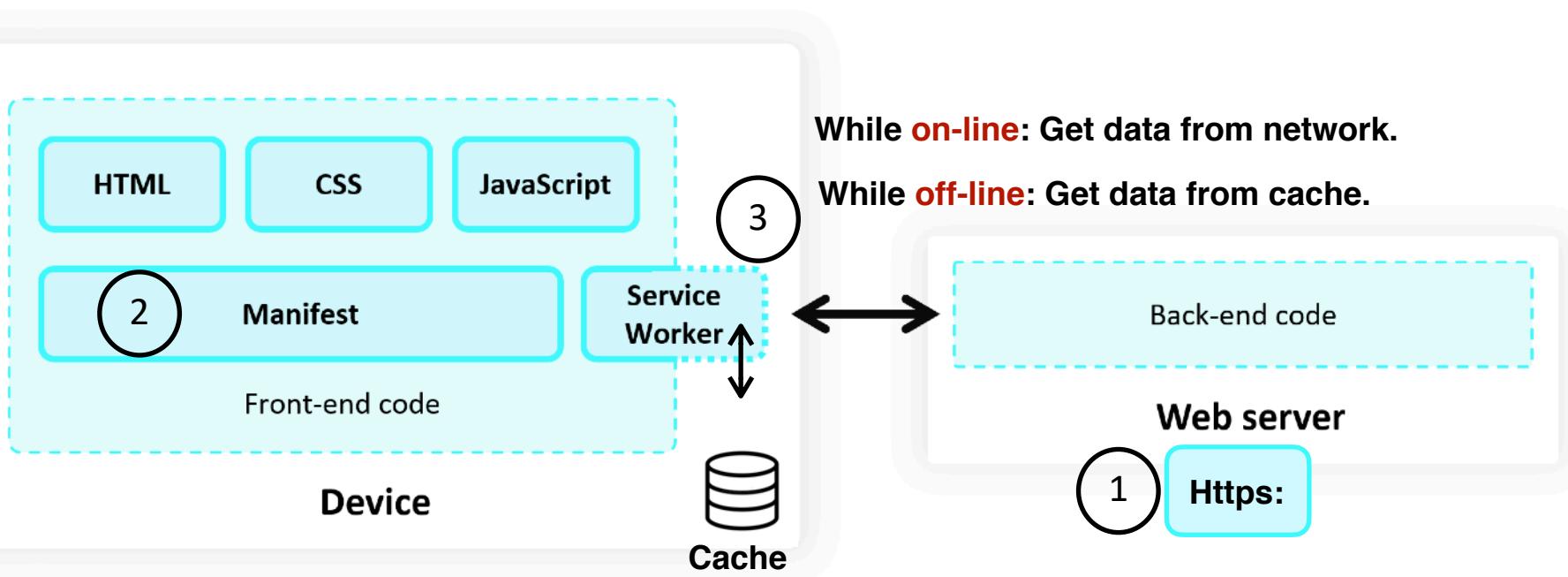
Create automation



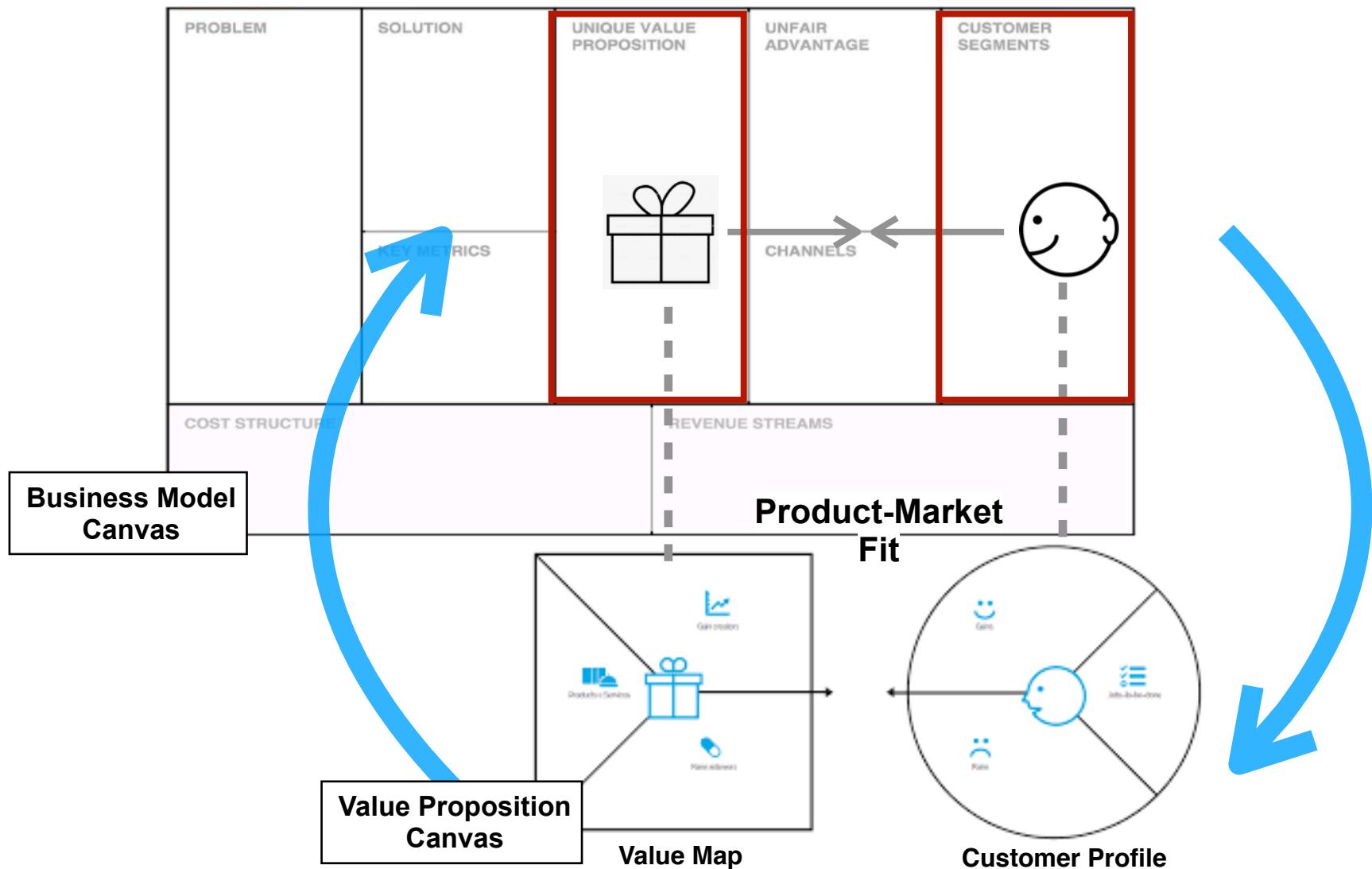
Lesson 4: 1 Business Model Design and Testing Using the Lean Methods

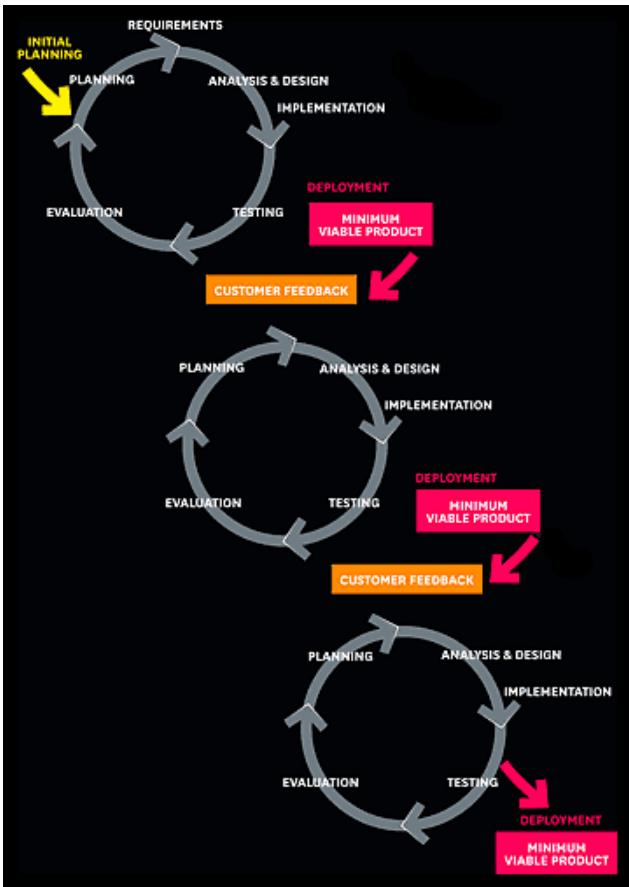
1. 3 Steps to turn your website into a **PWA**.
2. From **UX journey** to **business model** design.
3. The **Lean** method and **Agile** product development using **SCRUM**.
4. Implement SCRUM with **Airtable automation**.

How PWA works?

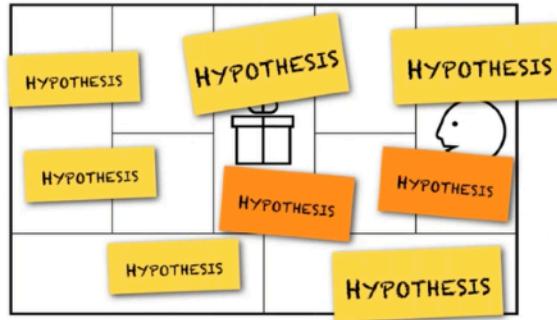


Adapt from: Microsoft Learn (<https://learn.microsoft.com/en-us/microsoft-edge/progressive-web-apps-chromium/how-to/>)

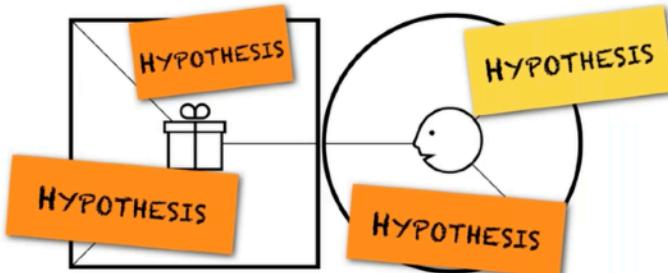




Source: "Why Lean Start-up Changes Everything"
by Steve Blank



Source: Strategyzer



Each build-measure-learn cycle involves **validation of hypothesis**
(explicitly defined in story map as product features & benefits).

Lesson 5: Go-to Market Strategy and Growth Hacking

1. Review of **Airtable** Automation through **Flask API** request.
2. **TREND** Analysis for planning product roadmap and release timing.
3. Crafting Go-to-market strategy with **Pirate Metrics (2A3R)** and **3C** (content, community, and commercialisation).
4. Total **Addressable Market** and key financial metrics.

SOCIOCULTURAL

TECHNOLOGY

- 網絡文化
- 城市化
- 全球化
- 本土運動
- 環保觀念
- 宗教運動
- 品牌文化
- 環境能源技術
- 交通運輸技術
- 雲計算/大數據
- 人工智能
- Blockchain
- 物聯網
- VR/AR/MR/XR
- 生物科技
- 物料創新

Suppliers

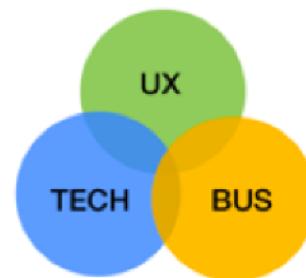
- 80/90/00後
- 兩性關係
- 隔代關係
- 工作模式
- 生活模式
- 學習模式

Techonlogy Model

- 人口老化
- 兩性比例
- 出生率下降
- 人口遷移
- 人口失衡

Competitors

Experience Model



Complementors

- 產業政策, 政制發展
- 人口政策, 教育政策
- 文化政策, 科技政策
- 社福政策, 房屋政策
- 運輸政策, 金融政策
- 外交/軍事/維穩政策
- 公共衛生/環保政策

REGULATORY

- 基礎產業
- 產業發展
- 中小企創業
- 失業就業率
- 生產指數
- 投資營商環境
- 貿易消費額
- 汇市/樓市
- 股市/債市

Customers

- 全球經濟
- 區域經濟
- 本土經濟
- 新興經濟
- 去美元化
- 資本市場
- 網絡經濟

ECONOMIC

DEMOGRAPHIC

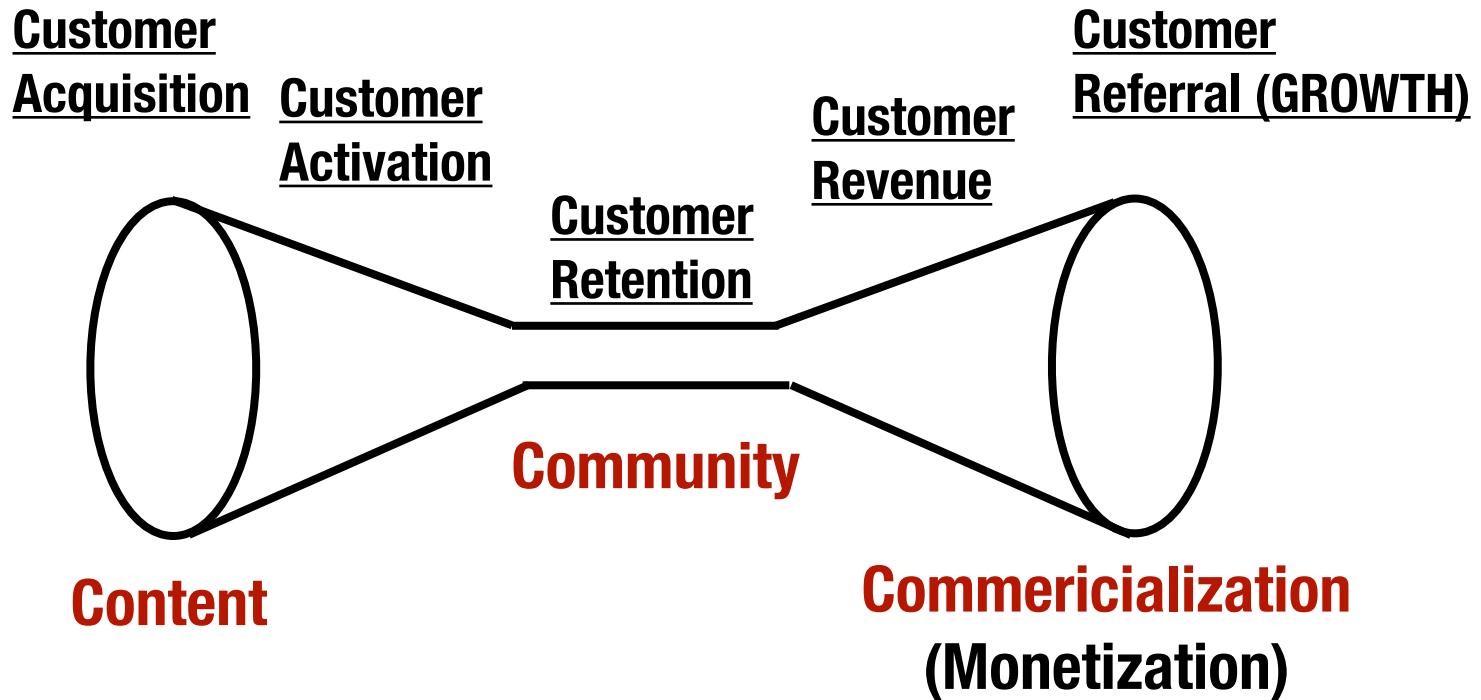
Adapted From Co-opetition, Adam Brandenburger & Barry Nalebuff

NATURAL



Direct impact of COVID-19

USING **3C** TO DRIVE CUSTOMER DEVELOPMENT (**2A3R**)



The Conversion Funnel Through the 3C

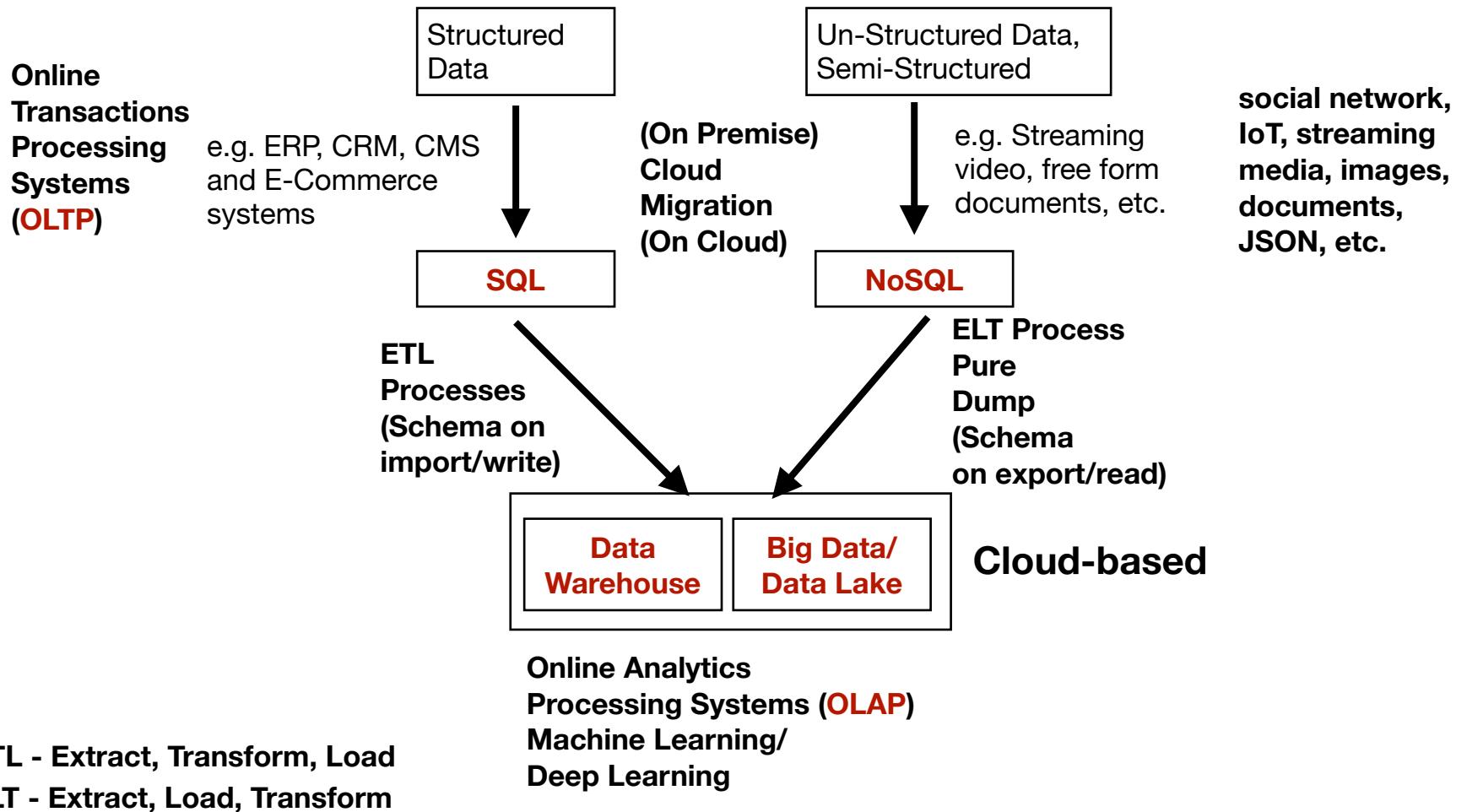
Total Addressable Market and your initial sharable target.

4 Key Financial Metrics

- 1. Burn Rate**
- 2. Break-even Point** (e.g. number of units sold, number of subscription)
- 3. ROI (Return on Investment)**
- 4. NPV (Net Present Value) or IRR (Internal Rate of Return)**

Lesson 6: From SQL to NoSQL and Big Data

- 1. Introduction to Big Data and Data Warehouse concepts.**
- 2. Cloud infrastructure and PaaS.**
- 3. Introduction to WordPress.**
- 4. Implementation of **3C** (content, community, and commercialisation) in WordPress.**



SQL

Data uses Schemas

Relations!

Data is distributed across multiple tables

Horizontal scaling is difficult / impossible; Vertical scaling is possible

Limitations for lots of (thousands) read & write queries per second

NoSQL

Schema-less

No (or very few) Relations

Data is typically merged / nested in a few collections

Both horizontal and vertical scaling is possible

Great performance for mass (simple) read & write requests

Source: Academind

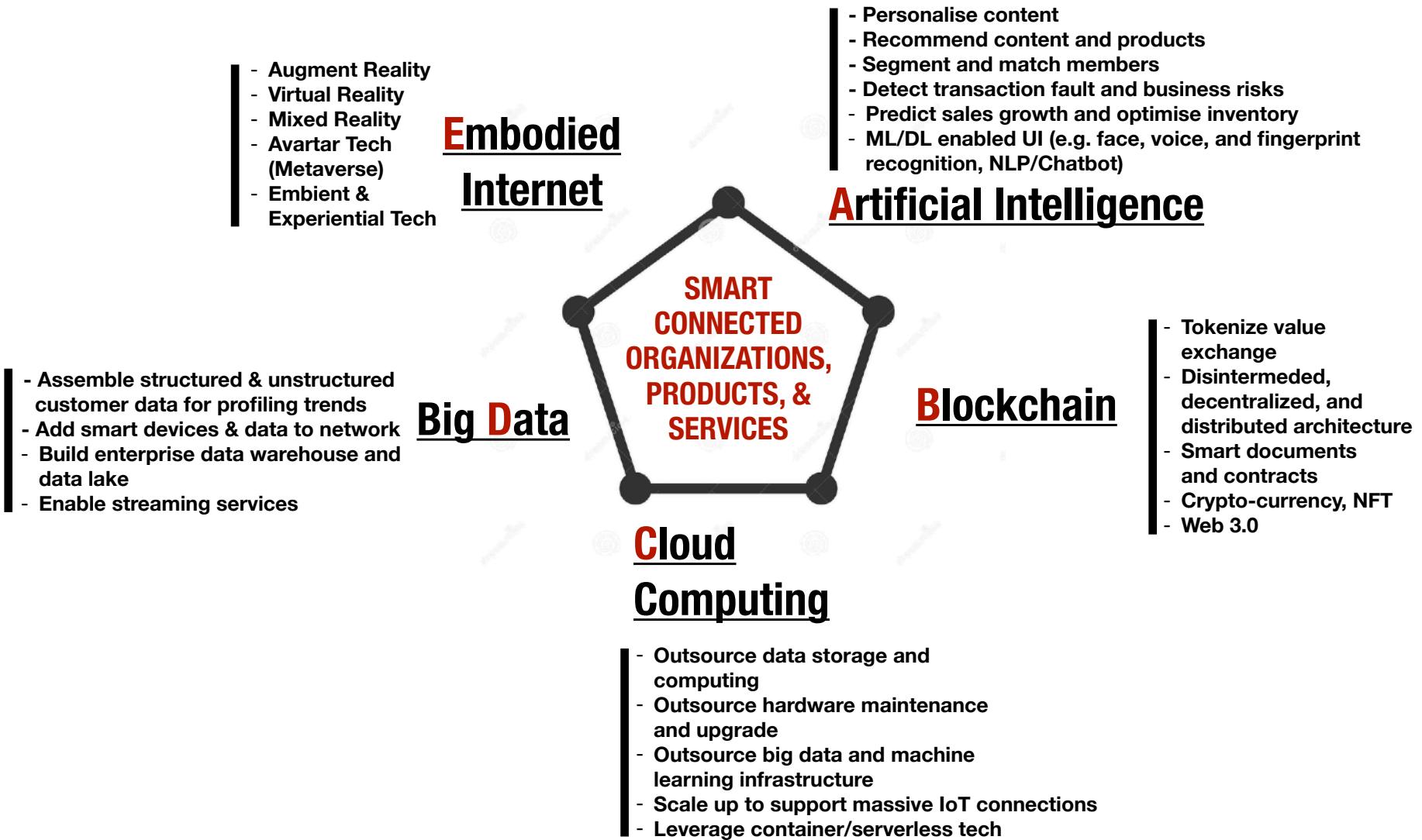
Pages and **posts** provide the basic functions for generating static (e.g. About Us) and dynamic (e.g. Latest news) contents.

- **Dashboard** | Status Updates
- **Posts** | Content
- **Pages** | Types -
Data
- **Media** | Model
- **Appearance** | View/Menu
- **Plugins** | Add-on features
- **Users** | Control Access
- **Tools** | Data import/export
- **Settings** | System Defaults

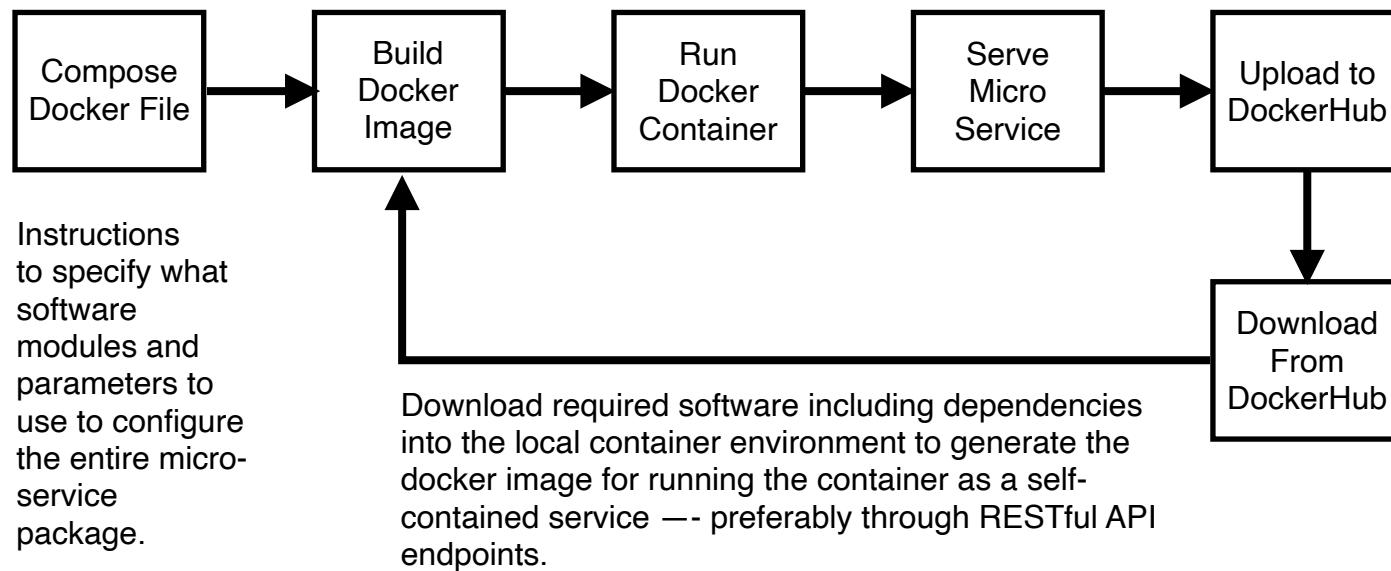
**Key
WordPress
Operations**

Lesson 7: Deploy Docker Container to the Cloud

1. **MVP development in WordPress.**
2. **From virtual machine to container and serverless services in the cloud.**
3. **Demonstration of container and serverless technology.**
4. **Implications for your final project and job application.**
5. **3C implementation in WordPress.**

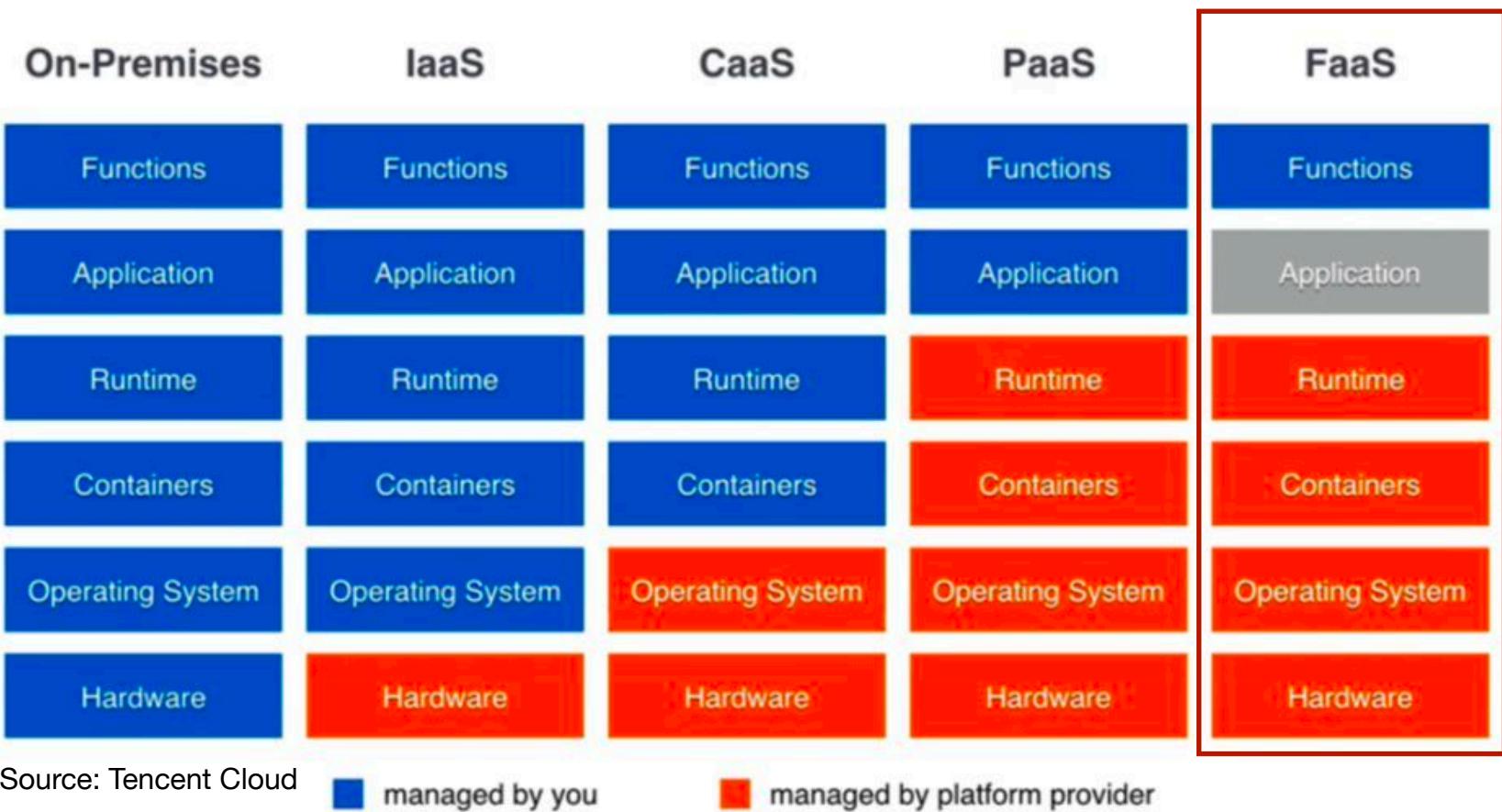


How Docker works.



云计算的发展

Serverless



Lesson 8: Innovative Applications of ML - Part I

1. Use of the **methodology map** for determining the appropriate approach to tackle a data problem.
2. Introduction to the **Teachable Machine** for getting started with supervised learning and deep learning.
3. Use of Teachable Machine trained models in **ML5.js/P5.js** for ML application and deployment.
4. **Data Science** approach to AI, Machine Learning, and Deep Learning using the **CRISP-DM** data cycle.
5. The machine learning **pipeline**.

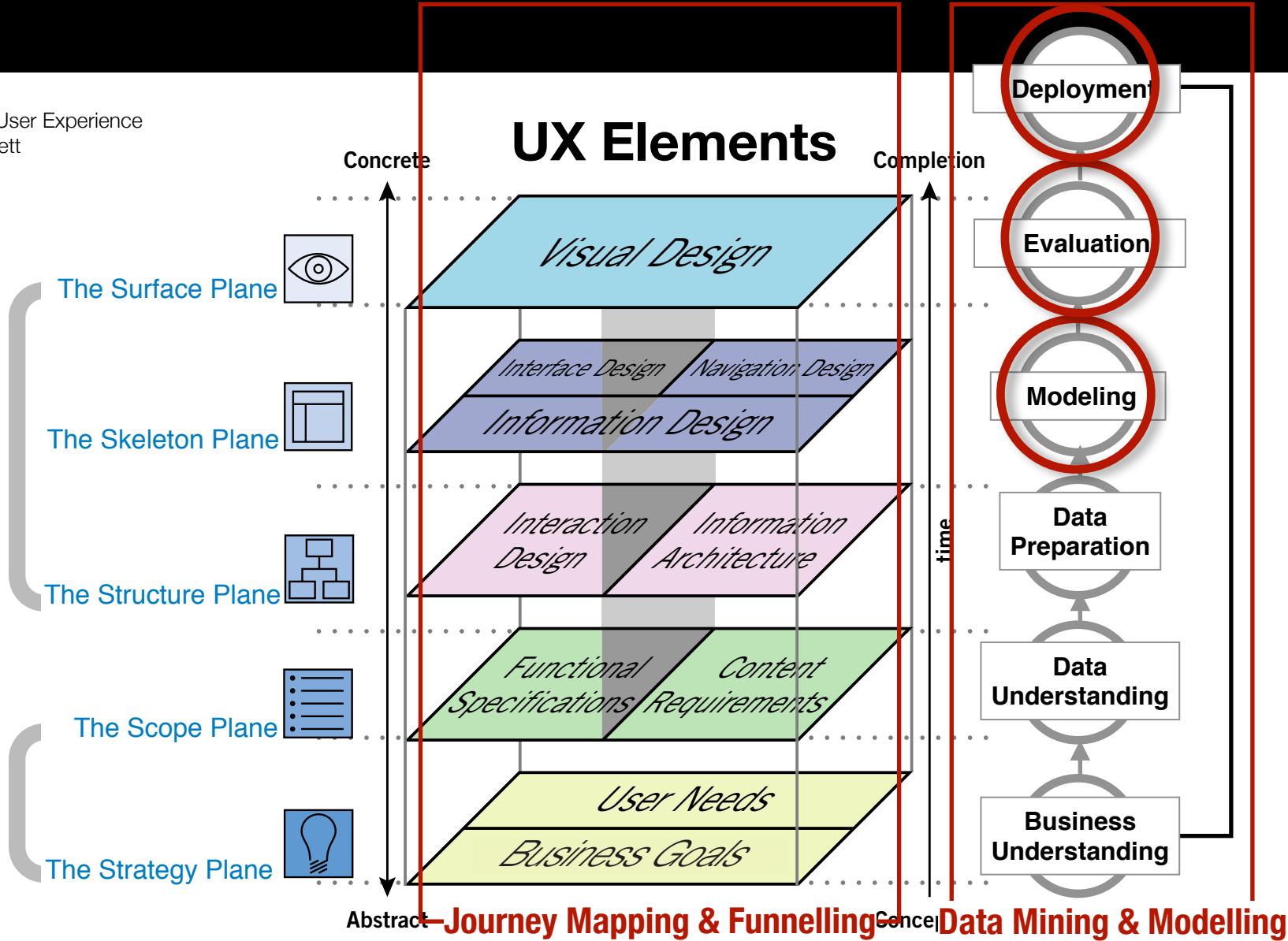
Source: Elements of User Experience
by Jesse James Garrett

Solution Space

how and
how much

Problem Space

who, what,
and why



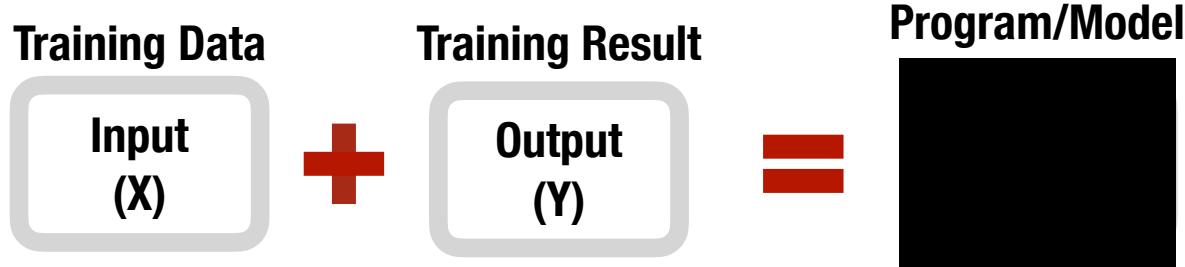
聚焦未来					聚焦过去和现在
Predict Outcome					Data Analysis
Data Rich			Data Poor	Geospatial	
Numeric		Classification		A/B Test	Segmentation
Continuous	Count	Binary	Non Binary	<ul style="list-style-type: none"> Inferential Statistics (t-test, Chi square, etc.) 	Aggregation
<ul style="list-style-type: none"> Linear Regression, Multiple Regression 	<ul style="list-style-type: none"> Count Regression 	<ul style="list-style-type: none"> Logistic Regression Decision Tree 	<ul style="list-style-type: none"> Random Forest K-Nearest Neighbour 		Descriptive
Popular tools: Scikit-learn, Tensorflow, PyTorch, Keras, ML5.js, Brain.js, Knime, Orange, BigQuery ML etc.				e.g. SPSS, Jamovi	e.g. SQL, SPSS, Jamovi

Source: Udacity Model Selection Methodology Map

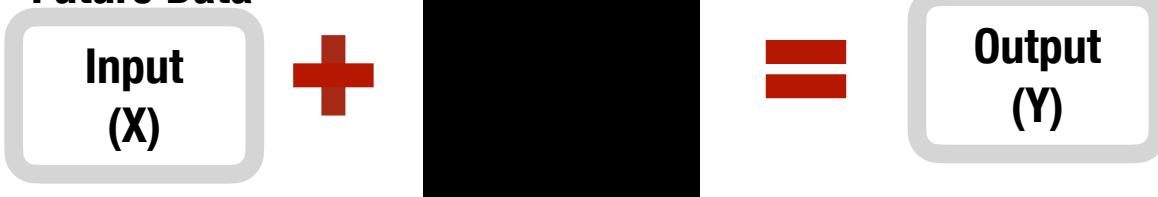
**Traditional
Programming**



**Machine
Learning**

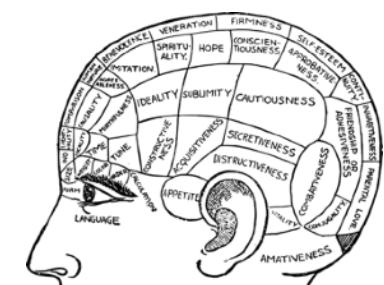
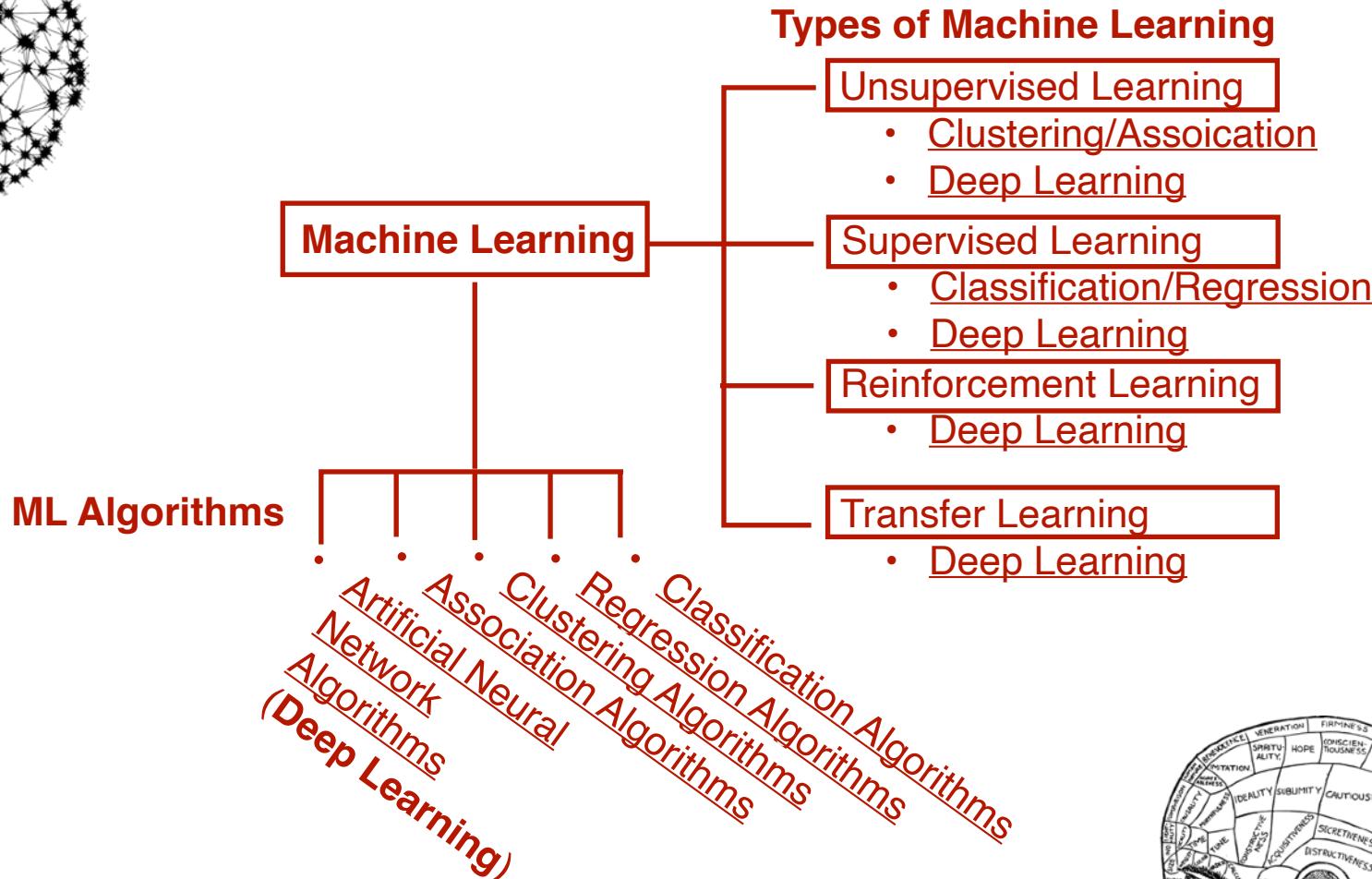
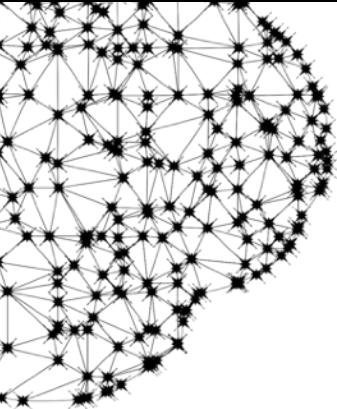


**Testing/
Future Data**

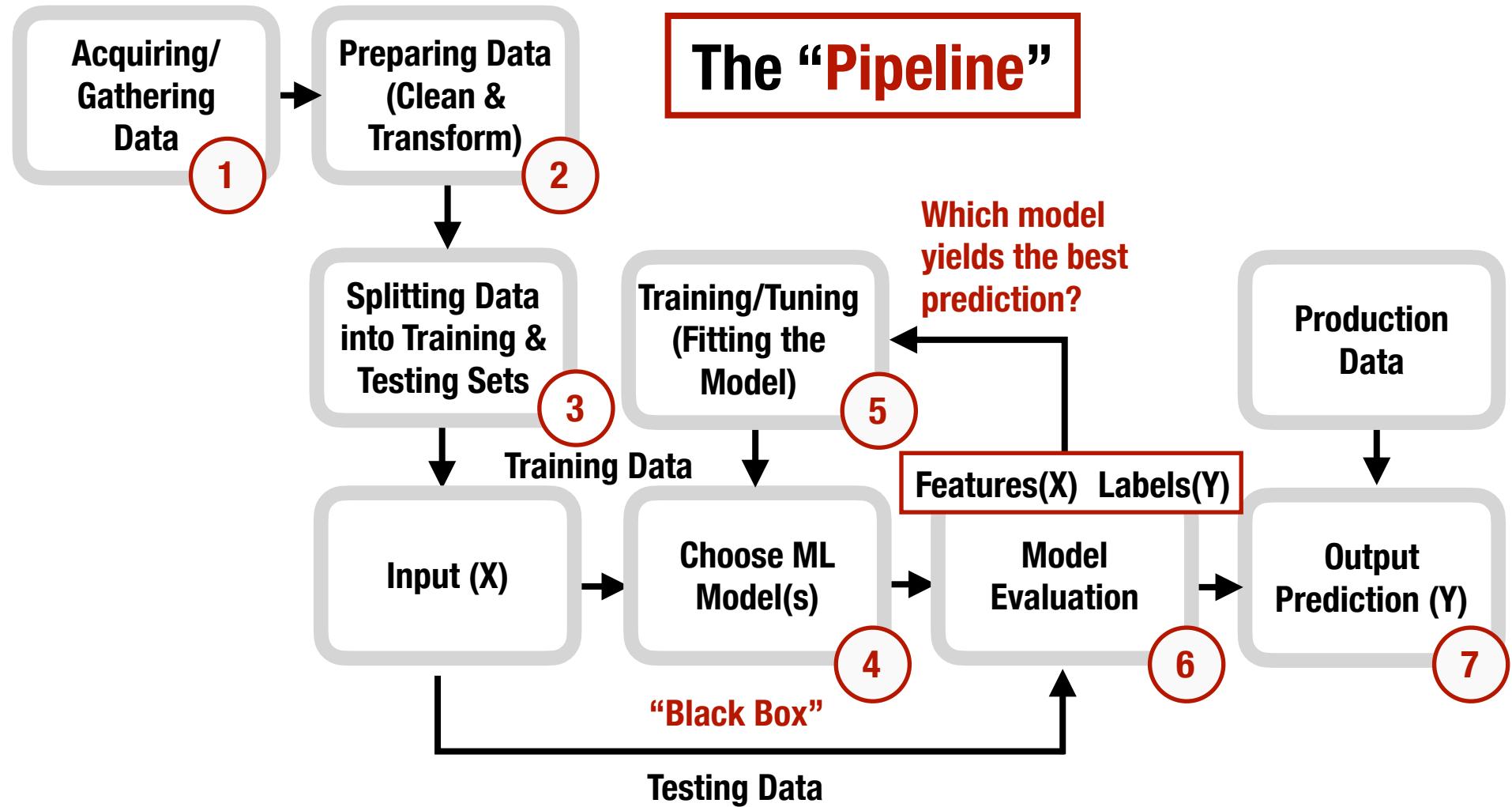


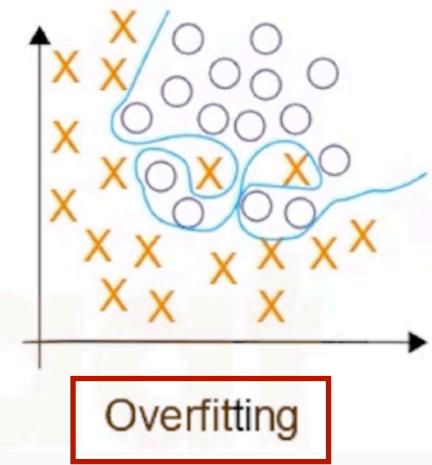
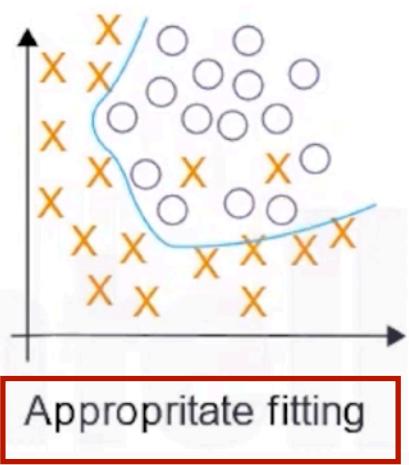
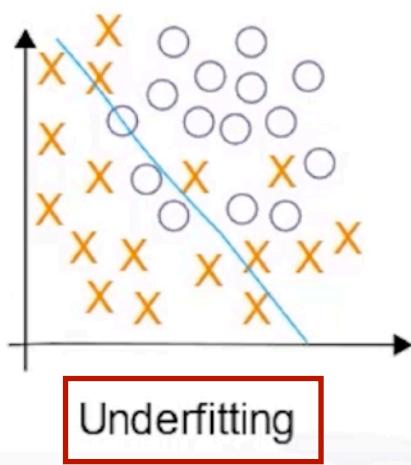
Lesson 9: Innovative Applications of ML - Part II

1. Major branches of AI for practical applications.
2. Review of the modelling **pipeline** and its **applications**.
3. Introduction to Natural Language Processing (**NLP**) and its applications.
4. Introduction to building image classifier pipeline using **Teachable Machine**, **P5.js/ML5.js**, and **TensorFlow/Keras**.
5. Deploy machine learning model using **Flask** and **Docker**.



The “Pipeline”





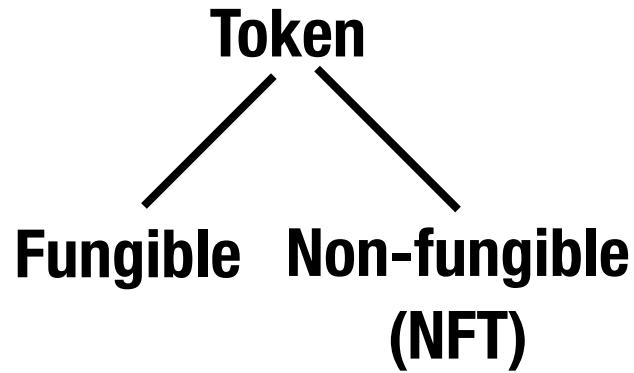
Source: Data School (<https://www.youtube.com/channel/UCnVzApLJE2ljPZSeQyISEyg>)

Lesson 10: Introduction to Web 3.0 and Blockchain

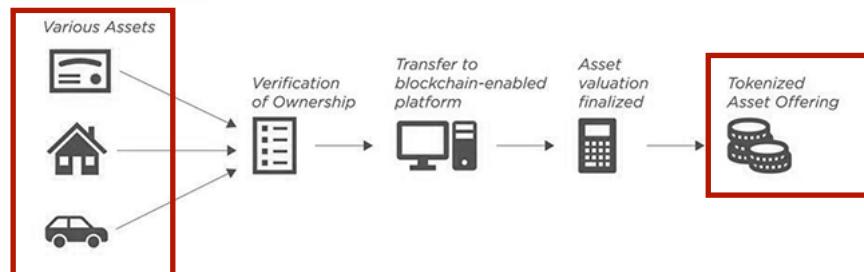
1. **Serverless Data Warehouse and Machine Learning**
2. **From Web 2.0 to Web 3.0**
3. **Application of Blockchain Beyond Crypto-Currency**
4. **Experiential Tech for the Embodied Internet**
5. **NFT and the future of the Metaverse.**

Platform Network vs. Token Network

	Platform Network	Token Network
Web Paradigm	Web 2.0 (Centralised)	Web 3.0 (Decentralised)
Network Architecture	Client-Server	Peer-to-Peer
Openness/Transparency/ Mutability	Closed/Non-transparent/ Mutable	Open/Transparent/Immutable
Transaction Exchange Mechanism	Gov't Backed Legal/ Financial/Trading System	Concensus Based Supported by Miners and Validators
Membership	Member as User and/or Customer and Producer	Member as User, Producer, Customer and/or Investor and Voter
Unit of Value Exchange in the Economy	Country Currency	Token
Fund Raising and Capital Formation	IPO	ICO (Forbidden by many governments) and Minting/Staking
Organisation Entity	Corporations/NGOs/Gov't	Decentralized Autonomous Organizations (DAOs)
Legal Binding (Law)	Business Contract	Smart Contract
Application Development	Web and Mobile App	Dapp (Decentralised App)
Wallet	E-Payment Wallet	Crypto Wallet



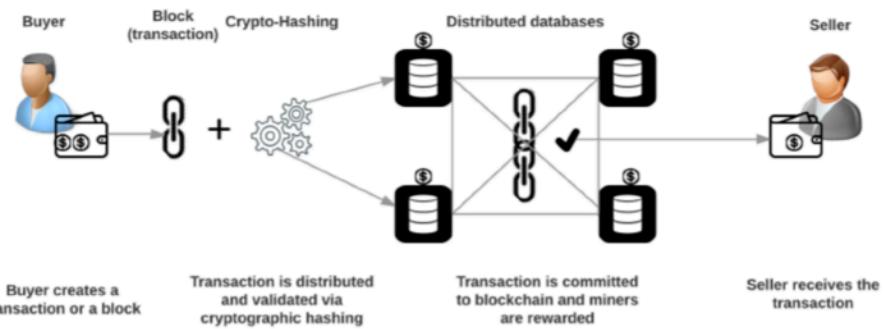
ASSET TOKENIZATION PROCESS



Source: [Moneta Holdings](#)

3 價值機制

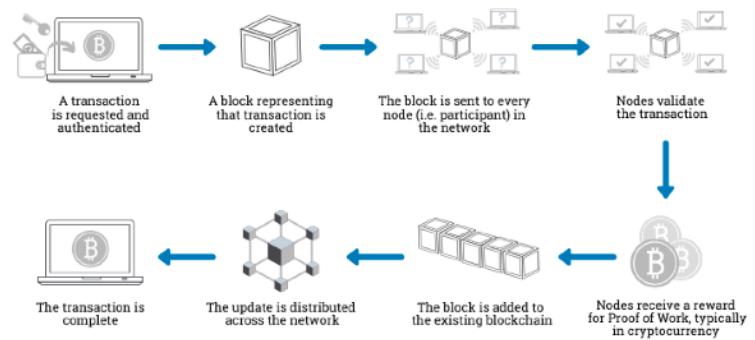
Blockchain - Process



1 加密機制

Source: [Wikipedia](#)

How does a transaction get into the blockchain?



Source: [Euromoney Learning](#)

2 誘因機制

© Euromoney Learning 2020

Fungible vs. Non-Fungible Token

	Fungible	Non-Fungible
Interchangability	Interchangeable	Not interchangeable
Uniformity (Unit of Value)	Standardised	Unique
Disibility	Divisible	Not divisible
Example	Bitcoin	CryptoKitties
Token Protocol	ERC-20	ERC-721
Market Exchange	Binance (https://www.binance.com)	OpenSea (https://opensea.io)
Data Storage	On-chain/off-chain	Generally off-chain (e.g. stored on IPFS)

Lesson 11: Innovative Applications of Immersive Technology I

1. **3C revisited: Content driven community formation and monetisation using gamification techniques.**
2. **Immersive technologies for gamifying user experience in developing **virtual communities**.**
3. **2D, 3D, VR, AR and XR technologies for building compelling and engaging UX.**
4. **Product features for strengthening **community stickiness** in Flask and WordPress.**
5. **Introduction to Spline and Reality Composer: Nocode 3D modeling and rendering with ease.**

Gamification is ...

the use of game elements and game design techniques in non-game contexts for engaging players (users) and improving organizational productivity.

~ Wikipedia

Recap of Important Lessons in Gamification

- 1. Gamification Design Process: 6D.**
- 2. Common Gamification Elements: AP(PBL).**
- 3. Player Journey: Onboarding, scaffolding, mastery and the recurring activity loops (engagement & progress).**
- 4. Have “Fun” and balance extrinsic and intrinsic motivations.**

YourCommunityName Minimal Viable Community



Community Canvas



Check out the
full Community
Canvas [here](#)



1. Purpose Why does the community exist?

Gather a group of people who want to seek stimulation, explore new relationships and gain self-understanding through simulated life situations.

2. Audience Who is this for and what is our selection process?

- | | |
|---|--|
| 1) Hardcore gamers (who attended the game for 2+ times) | 2) Outside potential gamers (who have expressed their interests but never get a chance to attend the game) |
| 3) General gamers (who attended the game at least 1 time) | |
| 4) Joker Game helpers (who wants to be involved in game designing or hosting) | |

6. Roles What different roles can members play in our community? What's the give/get relationship?

- 1) New Gamer
- 2) J Gamer
- 3) Venue host
- 4) Game host
- 5) Game designer
- 6) Game tester

3. Values Which 3 principles are important to us?

- 1) Life is a social game
- 2) The life social game involves co-opetition (cooperation and competition)
- 3) JG wants to build a community of gamers who can master life lessons and gain inspiration from JG

4. Goals In the next 12 months, what are 3 metrics that will define success for us?

- 1) monthly visit
- 2) paid monthly visit
- 3) # of puzzle
- 4) return monthly visit
- 5) willing to pay for 1st game
- 6) no. of J-Gamers
- 7) subscription revenue
- 8) monthly new game

7. Rules What guidelines and boundaries help us achieve our purpose and represent our values?

You'll play an offline "liar game" in a rule that you have never heard about

You'll play the game with 12 strangers that you have never met before

Points,
Badges, &
Leader Board

Game loop.

5. Experience What happens in our community on a recurring basis that helps us achieve our goals and expresses our values in action? Also consider onboarding: how does the experience in the community start?

- 1) onboarding (e.g. online puzzle)
- 2) scaffolding (e.g. trial play)
- 3) mastery (e.g. become J-Gamer)

- Welcome ritual (introduction of players and hosts, venue floor plan, props,etc)
- Trial play and real play
- Progress ranking
- Final result announcement and debriefing.

8. Governance How do we make decisions? Who gets to decide what?

- 1) Pre-event planning
- 2) Event progress monitoring
- 3) Post-event debriefing and result updates

9. Communication What are the simplest channels for us to communicate with each other? What is a healthy rhythm?

- 1) Email/Social media
- 2) Website
- 3) Event venue

Lesson 12: Innovative Applications of Immersive Technology II

1. From **3D** to **VR, AR and XR**.
2. **Marker-based and location-based AR.**
3. Enhancing product experience with AR, VR, and XR.
4. From community formation to commerce and monetization.
5. Quick summary of **COM5940**.

Dashboard



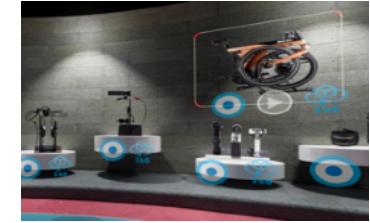
**Digital
Twin**



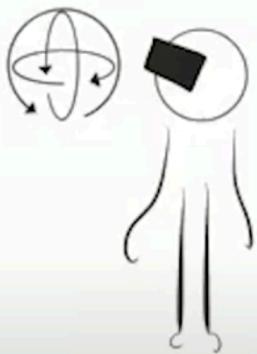
**Augment
Reality**



Metaverse

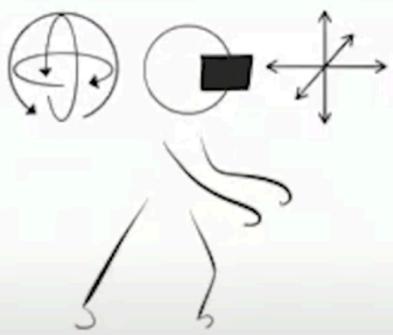


From 3D to VR



3DoF = Rotation
Only

Source: Illustrations by Mike Harris @ CrossComm



6DoF = Rotation and Position

***DoF = Degree of Freedom

Mobile VR



Desktop VR



3-DoF tracking is performed by built-in Inertial Measurement Unit (IMU) hardware (e.g. accelerometer, gyroscopes, and magnetometer) inside the smart phone.

6-DoF tracking is performed by built-in Inertial Measurement Unit (IMU) hardware inside the headset and internal and external sensors such as ultrasonic, magnetic, and infrared sensors.

AR Creation Tools

Reality Composer is a powerful tool that makes it easy for you to create interactive augmented reality experiences with no prior 3D experience. Reality Converter quickly converts your existing 3D models to USDZ so it works seamlessly in our tools and on all AR-enabled iPhone and iPad devices.

Source: <https://developer.apple.com/augmented-reality/tools/>

A-FRAME

- Blog
- A-Frame 14.0 - Custom ele...
- Examples
- Hello WebVR
- Model Viewer
- Hand Tracking
- Responsive UI
- 360° Image
- 360 Video
- Anime UI
- BeatSaver Viewer
- Moon Rider
- Guns of OASIS ↗
- Supercraft ↗
- Super Say's ↗
- Towermax Fitness ↗
- A-Blast ↗
- A-Painter ↗
- A Saturday Night ↗

Subscribe to get updates on A-Frame and our VR projects!

[EMAIL ADDRESS](#) [SUBSCRIBE](#)

Docs **FAQ** **BLOG** **COMMUNITY** **SHOWCASE**

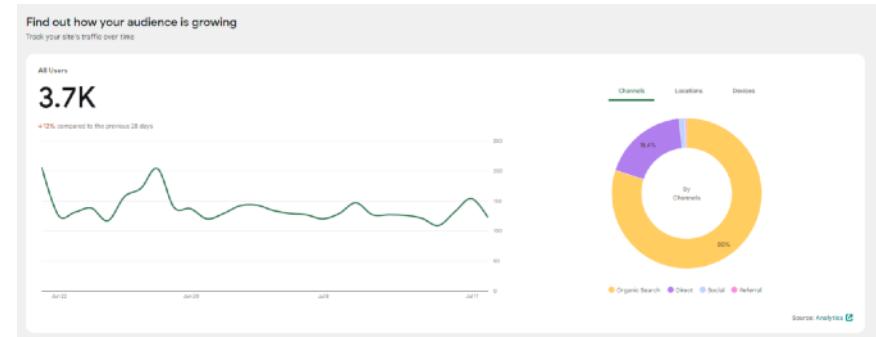
A web framework for building 3D/AR/VR experiences

Make 3D worlds with HTML and Entity-Component
On any headset, mobile and desktop

[GET STARTED](#)

Special Sponsors

Source: <https://aframe.io/>



AR.js studio

Web-enabled AR experiences

AR.js Studio is an open-source AR creation platform for building custom augmented reality experiences. You can create location-based or marker-based AR applications and deploy them straight to the web. That means you won't have to download any extra apps to access your experience! Working with AR.js Studio doesn't require any knowledge of coding, either. You can start creating your first AR project right now.

Pick your project type

Location-based
Place your creation on a map, so it remains tied to a physical location.

Marker-based
Connect your creation to a visual marker, which can be moved to any location.

[Start building](#)

[Send feedback](#) ↗

Source: <https://ar-js-org.github.io/studio/>

Thank you for your time!