



Microsoft AI Platform Overview

Alan Tsai





AI 肯定是顯學



The current AI wave is poised to finally break through

Investment in AI is growing at a high rate, but adoption in 2017 remains low

In 2016, companies invested
\$26B to \$39B
in artificial intelligence

TECH GIANTS
\$20B to \$30B

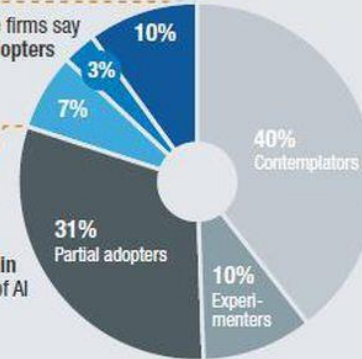
STARTUPS
\$6B to \$9B

3x External investment growth since 2013

20% of AI-aware firms say they are adopters

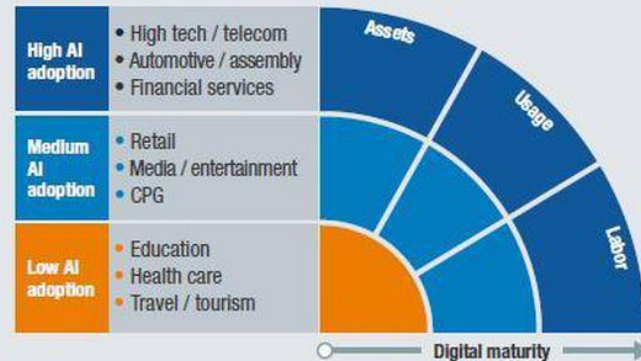
- 3+ technologies
- 2 technologies
- 1 technology

41% of firms say they are uncertain about the benefits of AI

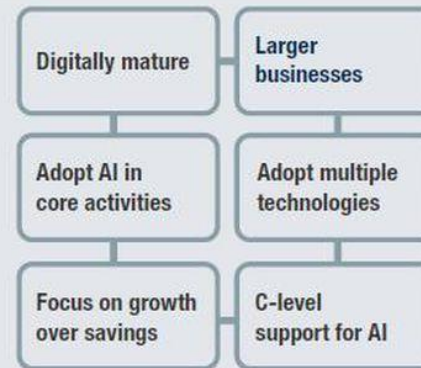


How companies are adopting AI

AI adoption is greatest in sectors that are already strong digital adopters



Six characteristics of early AI adopters





ABB



+20%

Increase in
customer satisfaction



kodisoft

+32%

Increase in sales



Rockwell
Automation



\$300K

Cost savings per day



f^2 FINANCIAL
FABRIC



90%

Reduced time from
documents to insights



TAL




40x

More insurance cases reviewed



200K

Customers interacting
with chatbots





AI 肯定是顯學



根據 Gartner 發佈之 2022 年重大技術趨勢，預估到 2025 年生成式 AI 產製的內容將佔所有數位內容 10%。Gartner 也指出，從技術成熟度曲線（Gartner Hype Cycle）來看，生成式 AI 已邁向主流市場應用的高峰期。

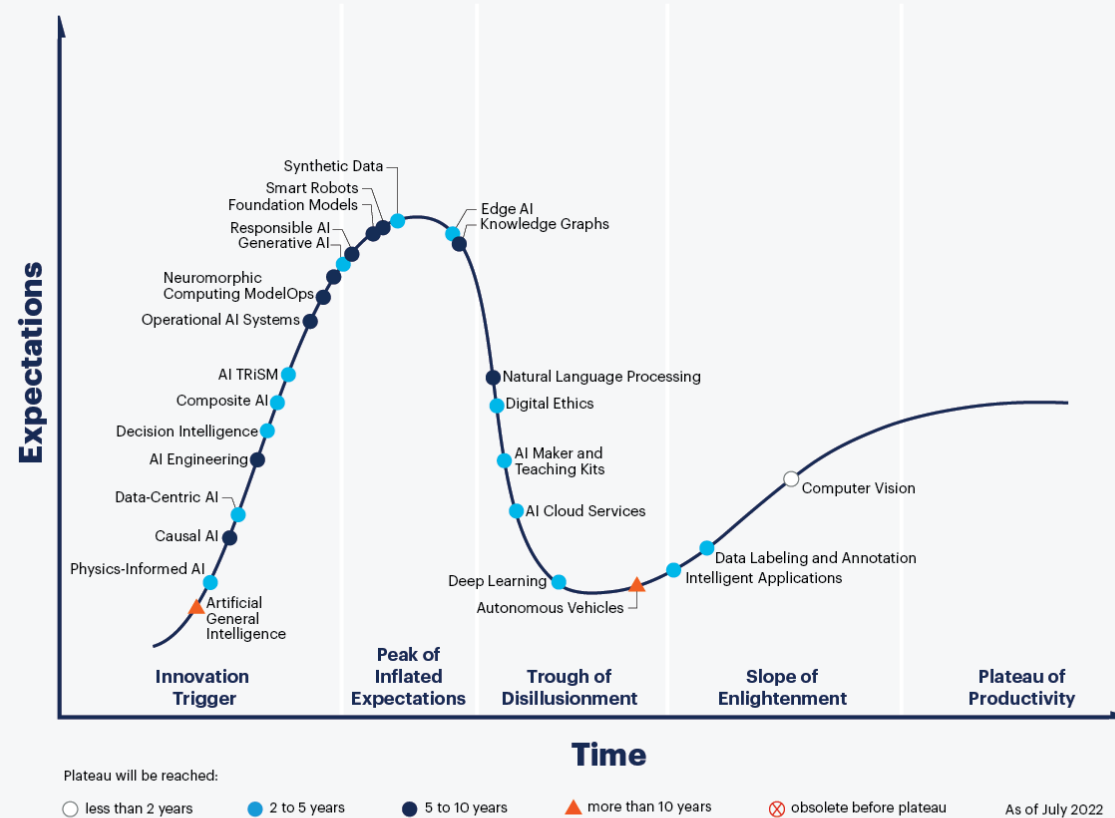
2023年AI應用趨勢，不只帶動內容與圖像的創作，在行銷領域也有更務實的進展



AI 肯定是顯學



Hype Cycle for Artificial Intelligence, 2022

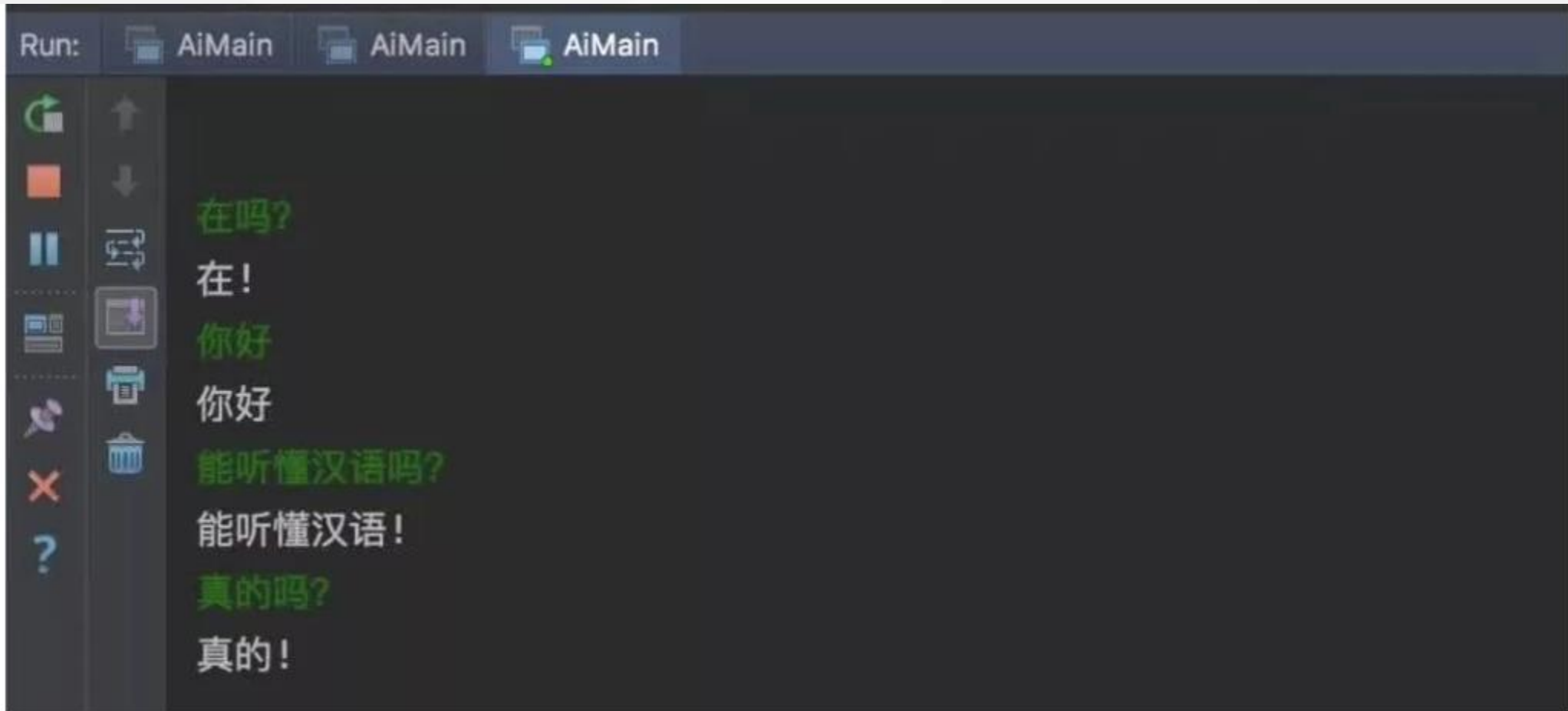


[gartner.com](https://www.gartner.com)

Source: Gartner
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Gartner

What's New in Artificial Intelligence from the 2022 Gartner Hype Cycle





估值一個億的代碼



```
5  /**
6   * AI核心代碼, 估值1个亿
7   */
8  public class AiMain {
9      public static void main(String[] args) {
10         Scanner sc = new Scanner(System.in);
11         String str;
12         while (true) {
13             str = sc.next();
14             str = str.replace( target: "吗", replacement: "");
15             str = str.replace( target: "?", replacement: "!");
16             str = str.replace( target: "? ", replacement: "!");
17             System.out.println(str);
18         }
19     }
20 }
21
```



Agenda



- AI對於開發者來說是什麼？
- Microsoft AI Platform
 - Service
 - Infrastructure
 - Tools
- Cognitive Service
- Responsible AI

AI對於開發者來說是什麼？





世界變得複雜



- 如果需要取得訂餐需求.....
 - 我要1份漢堡
- 傳統程式開發
 - 文字處理,語意處理
 - if else if else if else if else ...
 - 變化怎麼辦？
 - 不同產品
 - 不同數量表達方式
- 全部列出來？

```
if(orderString.Contains("漢堡"))  
{  
    ...  
}  
else if()  
....
```



神阿救救我吧

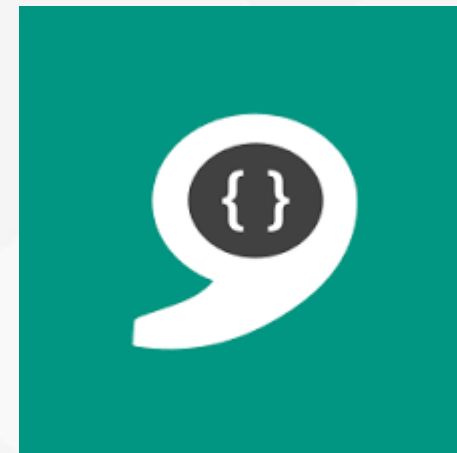


- 有沒有這種東西....

$f(x)$ {

“我要**1份漢堡餐可樂加大**，
然後還要**1份蘋果派**，在
來**2個布丁霜淇淋**”

客戶要點的餐點是什麼？





需要識別出圖片的內容



- 是否能夠告訴我這張圖片有什麼？

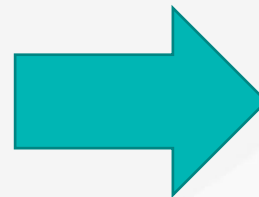
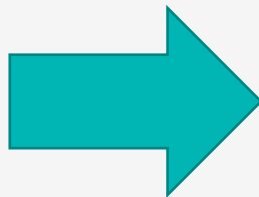




Model就是一個黑箱子



“我要一份漢堡餐可樂加大，
然後還要一份蘋果派，在
來2個布丁霜淇淋”



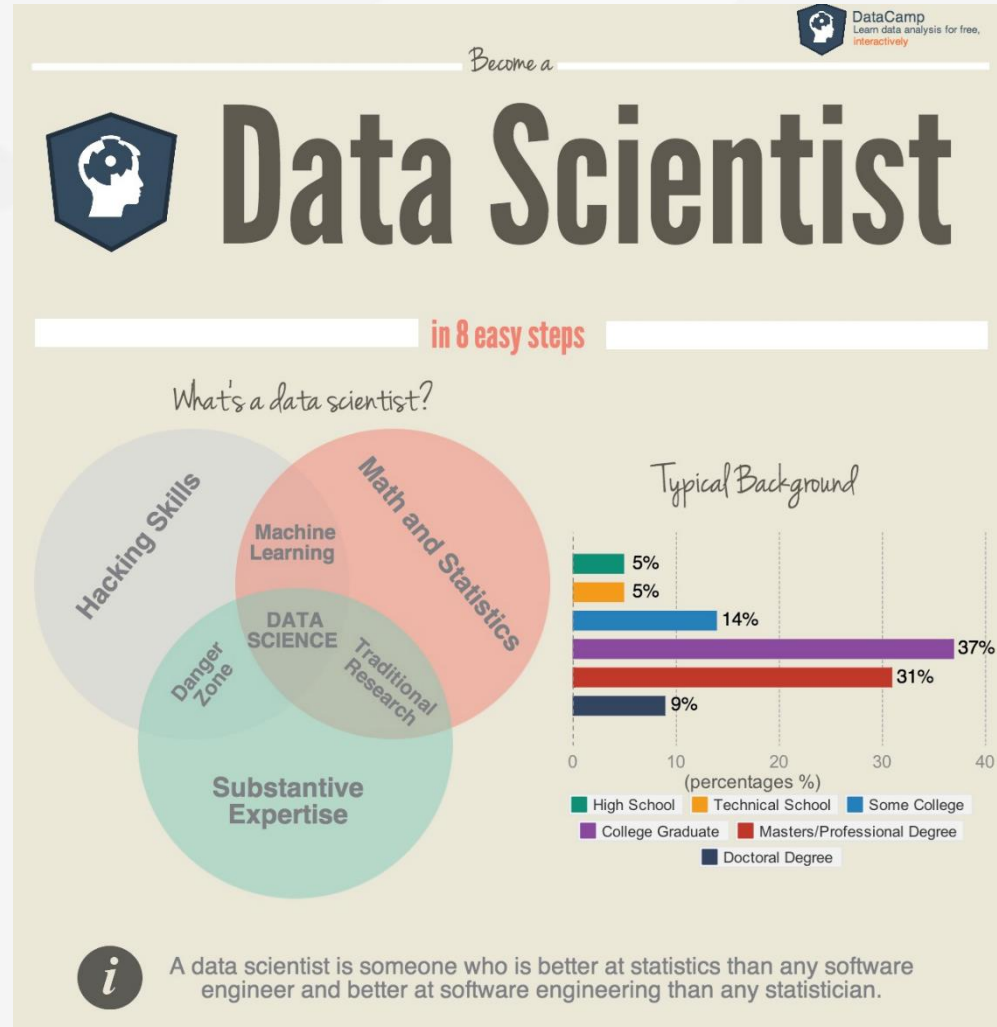
訂餐

- 1x 漢堡
- 1x 可樂(大)
- 1x 蘋果派
- 2x 布丁霜淇淋

a young man riding a
skateboard

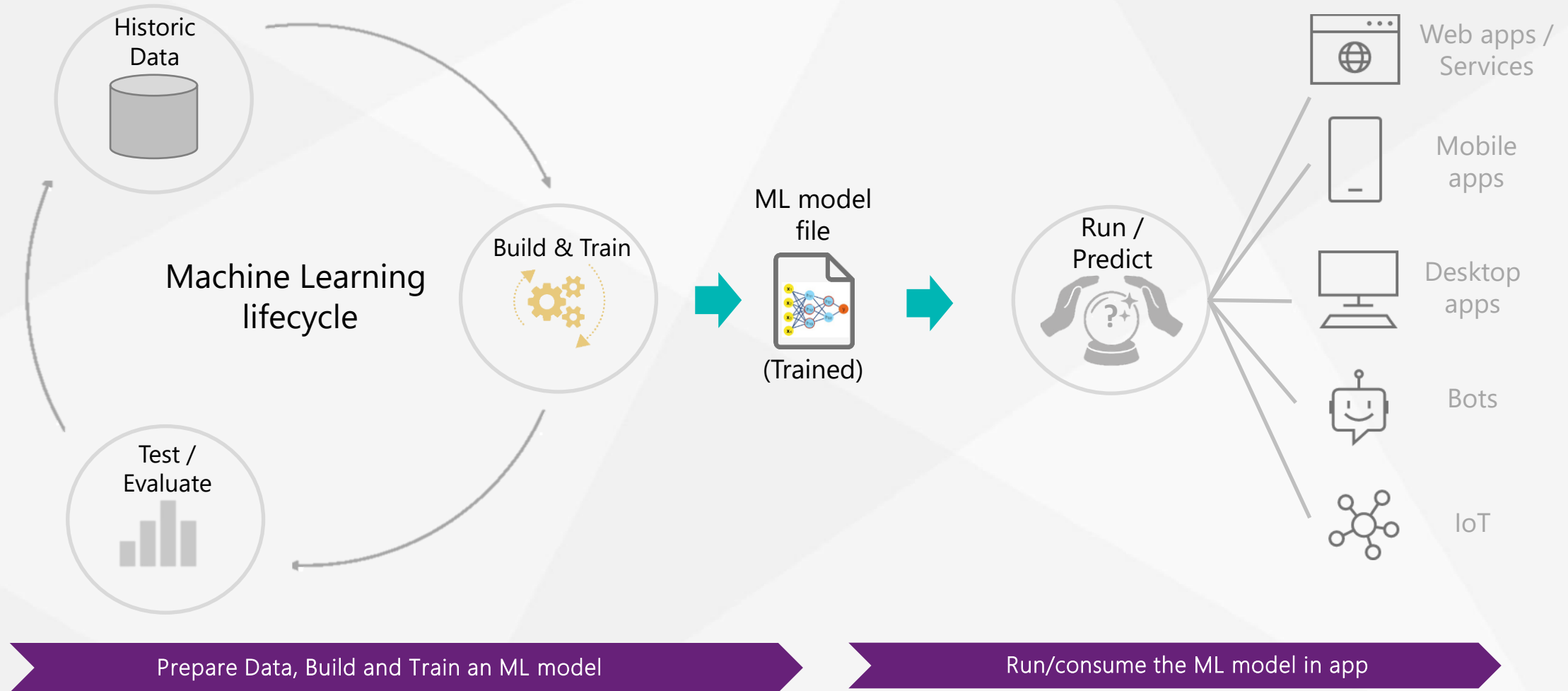


Model怎麼來？





建立Model的流程





AI vs Machine Learning vs Deep Learning



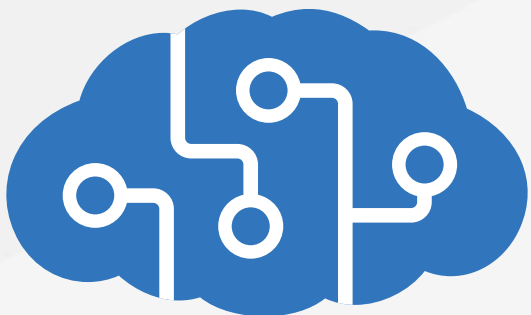
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Microsoft AI Platform





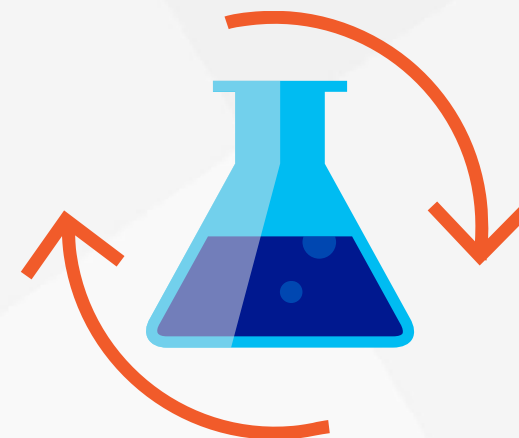
AI Services in Azure



Pre-Built AI
Azure Cognitive Services



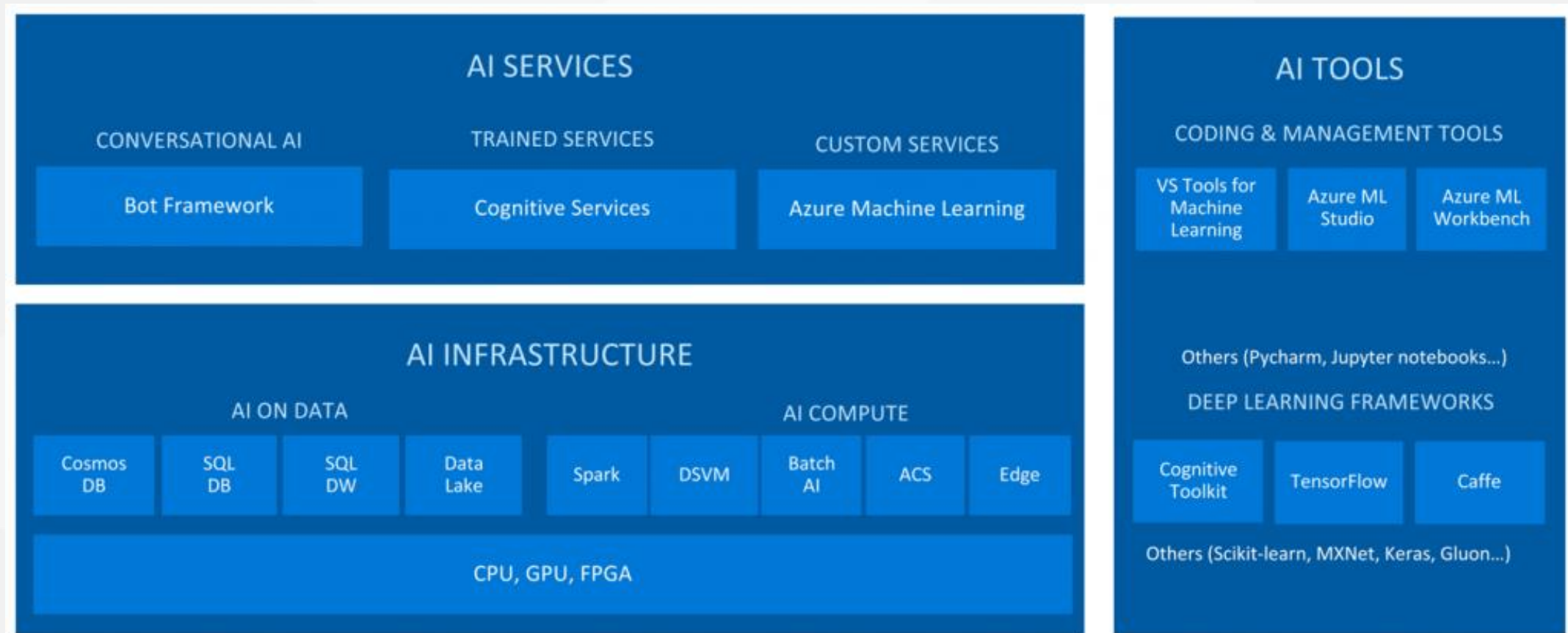
Conversational AI
Azure Bot Service



Custom AI
Azure Machine Learning



Microsoft AI Platform

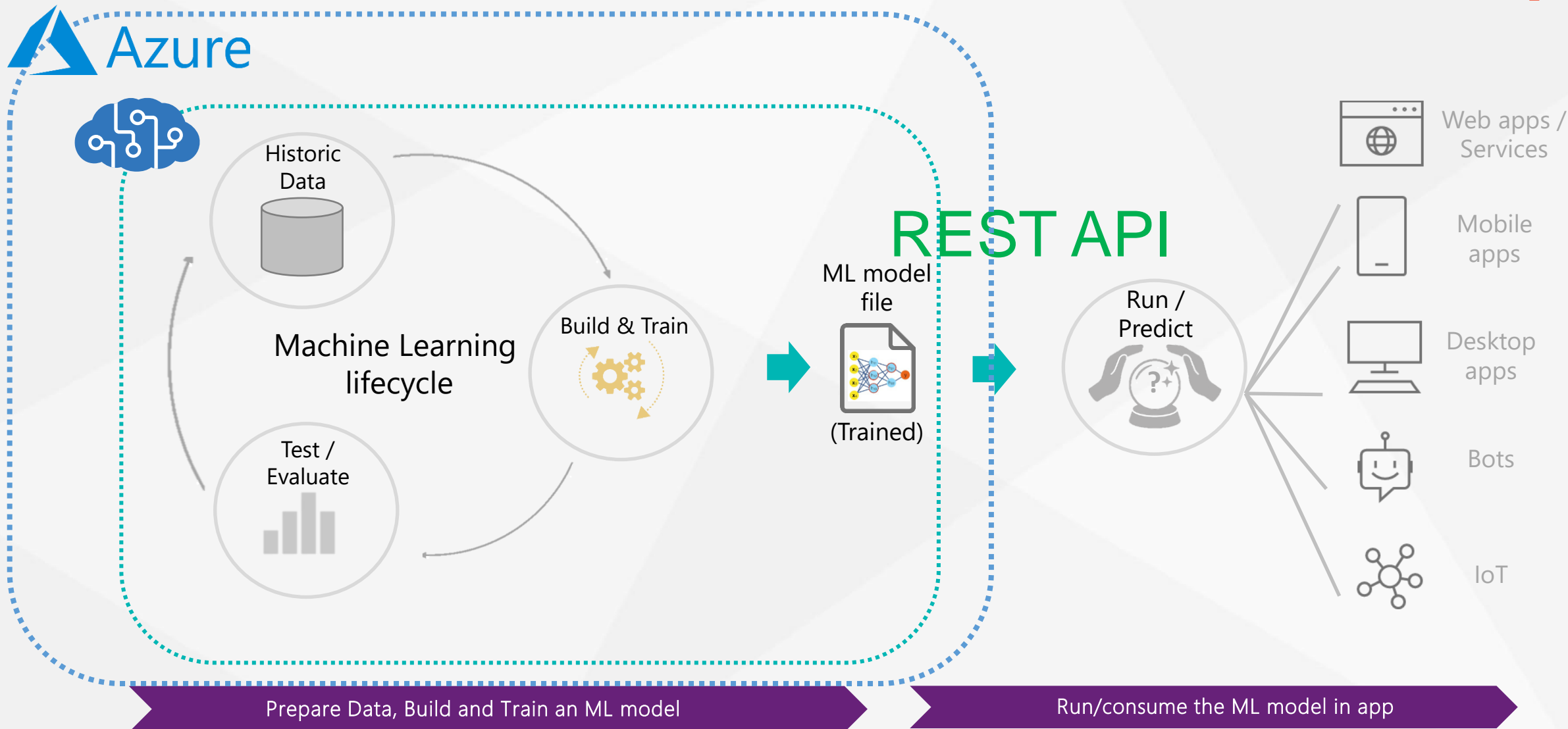


Cognitive Service



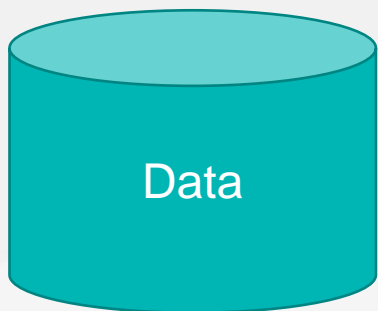


Cognitive Service

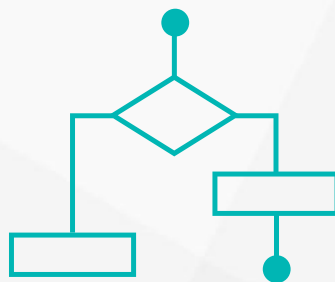




優點



資料提供以及處理
由微軟負責



不用自己刻寫演算法

HTTP

非常容易呼叫使用

不用擔心:

- Performance
- Availability
- Security



市面上的Cognitive Service



Microsoft Azure
Cognitive Service

Computer Vision API
Speech Service API
Text Analytics API
.....

2016 03

IBM Watson

Personality Insight API
Visual Recognition API
Speech to Text API
.....

2015 09

Google Cloud Platform

Translation API
Video Intelligent API
Vision API
.....

2016 03

Amazon Web Service

Amazon Rekognition
Amazon Lex
Amazon Polly
.....

2016 11



Cognitive Service SLA



SLA Uptime Calculator

Enter an SLA percentage to calculate it's downtime allowance.

99.9 % [Calculate](#)

An advertised SLA uptime of 99.9% gives the following possible periods of downtime:

Daily	1 minutes 26 seconds
Weekly	10 minutes 5 seconds
Monthly	43 minutes 12 seconds
Yearly	8 hours 45 minutes 36 seconds



Price



- 每一個服務不同
- 都有免費等級可以使用
 - 不保證SLA



幾種不同類型的服務



Cognitive Services



Vision



Language



Speech



Search



Knowledge

Computer vision

Face

Emotion

Content Moderator

Video

NEW

Video Indexer

NEW

Cognitive Services Labs

Text analytics

Spell check

Web language model

Linguistic analysis

Translator

Speaker recognition

Speech

Web search

Image search

Video search

News search

Autosuggest

Academic knowledge

Entity linking service

Knowledge exploration

Recommendations

QnA maker



不符合需求自己弄 – Custom Vision



- Computer Vision 識別 乖乖 不成功



功能名稱：	值
說明	{ "tags": ["green", "table", "food", "sitting", "street", "refrigerator", "bus", "computer", "phone", "sign", "tall", "standing"], "captions": [{ "text": "a close up of a sign", "confidence": 0.519103467 }] }
標籤	[]
影像格式	"Jpeg"
影像尺寸	300 x 300
美工	1




- 可以用Custom Vision



部分服務可以客制



Cognitive Services

 Vision	 Language	 Speech	 Search	 Knowledge
Computer vision Face Emotion Content Moderator Video NEW Video Indexer NEW Cognitive Services Labs	Text analytics Spell check Web language model Linguistic analysis Translator	Speaker recognition Speech	Web search Image search Video search News search Autosuggest	Academic knowledge Entity linking service Knowledge exploration Recommendations QnA maker
NEW Custom Vision Service	Custom Language Understanding	Custom Speech Service	NEW Custom Search	NEW Custom Decision Service



Video Indexer



Microsoft Build 2016

Private Created one month ago by Avner Levi

Download

见解 时间线

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搜索

178 人员

Scott Guthrie

出现在 9.94% 的视频中 显示传记 在必应上查找

16 Topics

Technology / Information systems / Cloud computing

Technology / Software and applications

+ 14 个其他主题

117 Labels

Pricing Privacy Statement Service Agreement Feedback Documentation API Reference © Microsoft

Responsible AI





Challenges and risks with AI



Challenge or Risk	Example
Bias can affect results	A loan-approval model discriminates by gender due to bias in the data with which it was trained
Errors may cause harm	An autonomous vehicle experiences a system failure and causes a collision 天眼誤判「路人衣服上字母」成車牌號 開出烏龍罰單
Data could be exposed	A medical diagnostic bot is trained using sensitive patient data, which is stored insecurely
Solutions may not work for everyone	A home automation assistant provides no audio output for visually impaired users 效率不達標自動開除！亞馬遜打造AI監控員工：比監獄還糟
Users must trust a complex system	An AI-based financial tool makes investment recommendations - what are they based on?
Who's liable for AI-driven decisions?	An innocent person is convicted of a crime based on evidence from facial recognition – who's responsible? 開啟自動駕駛！男自拍雙手離開方向盤不久撞上翻覆卡車喪命

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-challenges-with-ai>



Responsible AI



Fairness

AI systems should treat all people fairly

▶ [Play video on fairness](#)

Reliability & Safety

AI systems should perform reliably and safely

▶ [Play video on reliability](#)

Privacy & Security

AI systems should be secure and respect privacy

▶ [Play video on privacy](#)

Inclusiveness

AI systems should empower everyone and engage people

▶ [Play video on inclusiveness](#)

Transparency

AI systems should be understandable

▶ [Play video on transparency](#)

Accountability

People should be accountable for AI systems

▶ [Play video on accountability](#)

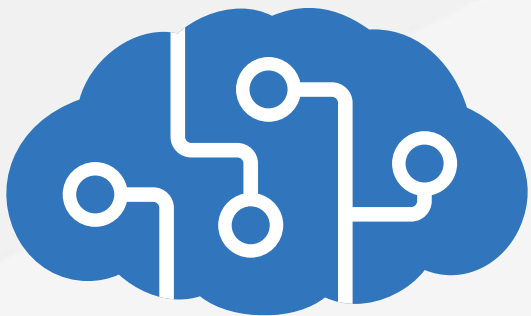
<https://www.microsoft.com/en-us/ai/responsible-ai>

總結





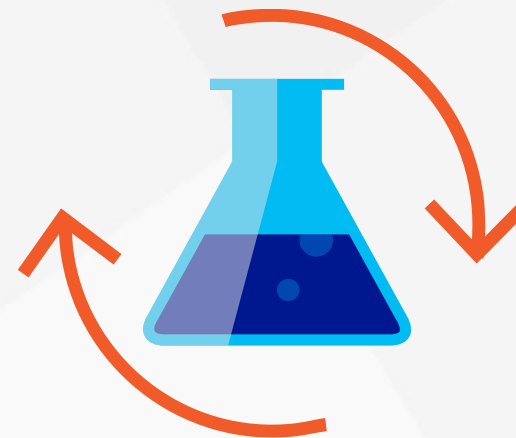
Cognitive Service可以快速賦予AI到軟體



Pre-Built AI
Azure Cognitive Services



Conversational AI
Azure Bot Service



Custom AI
Azure Machine Learning



Microsoft AI



Machine Learning & AI Portfolio

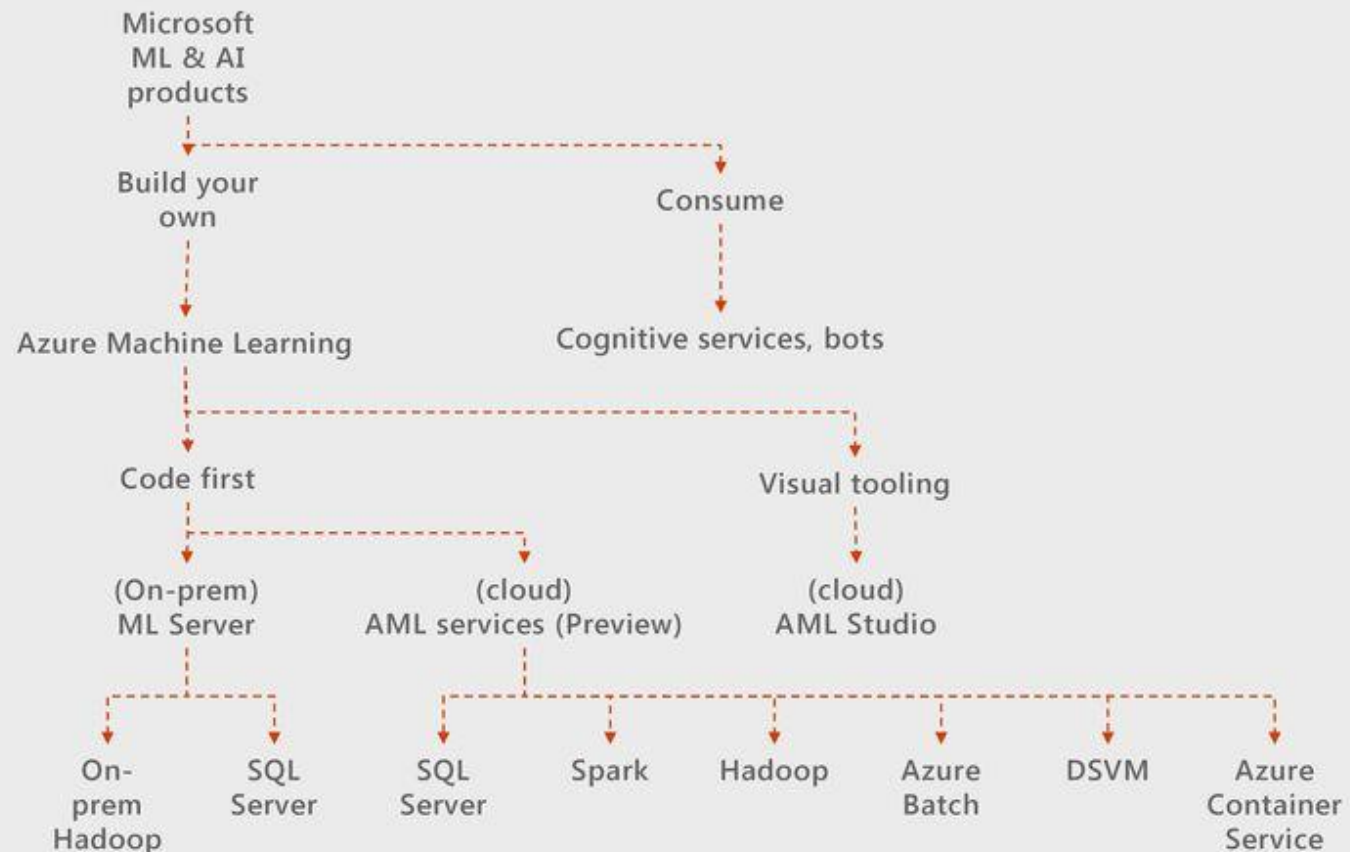
When to use what?

Build your own or consume pre-trained models?

Which experience do you want?

Deployment target

What engine(s) do you want to use?





接下來看幾個Cognitive Service的服務



Computer Vision

圖片辨識服務



Speech Service

語音轉文字



LUIS

文字語義識別服務



感謝用心聆聽



Q&A

感謝大家



透過行動條碼加入LINE好友

任何問題都可以在
contact@alantsai.net
[部落格-Alan Tsai 的學習筆記](#)
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