

Business Process Automation with VBA and Python

Mr. Eddie Chow / 7 February 2026



Table Of Contents

Introduction to business process automation

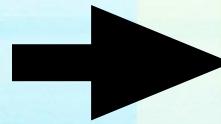
Business Process automation with VBA

Business process automation with Python

Introduction to project management for business process automation

Development and implementation of business process automation

Final Group Presentation





What is Process Automation, RPA, IPA?

Overview of the technological building blocks related to process automation

Contemporary tools for process automation

Challenges and opportunities of business process automation

Business implications of process automation

Benefits of Using Automation in Project Management

1. Establishing Risks to be Managed

- Real-Time Risk Monitoring: Automation allows for continuous monitoring of project parameters, enabling teams to identify potential risks as they arise rather than after the fact. This proactive approach enhances the ability to mitigate risks effectively before they escalate
- Data Analysis and Predictive Insights: Automated systems can analyze large volumes of data to identify trends and patterns that may indicate emerging risks. This predictive capability allows project managers to prepare for potential challenges and implement strategies accordingly

2. Establishing Costs and Durations

- Accurate Cost Estimation: Automation tools can analyze historical data and current project metrics to provide more accurate cost estimations. This helps in budgeting and financial planning by reducing guesswork and improving reliability
- Streamlined Reporting: Automated reporting features generate cost and duration reports quickly, providing stakeholders with timely insights into project status without manual compilation efforts. This enhances transparency and facilitates informed decision-making

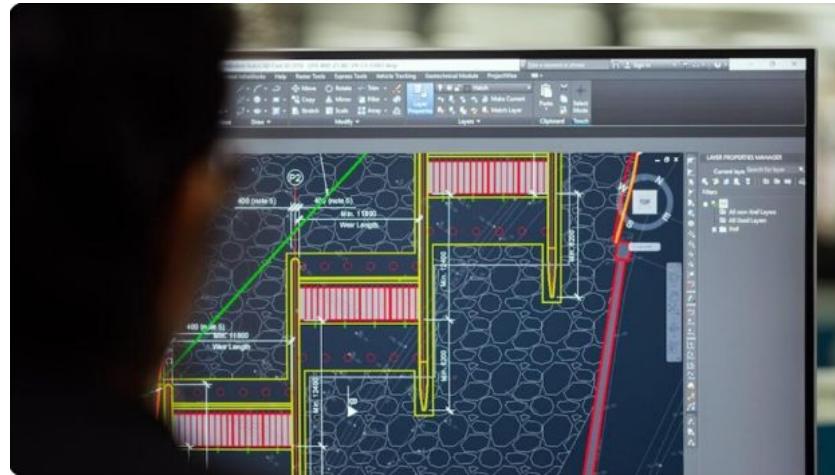
3. Establishing Resources Required

- Resource Optimization: Automation helps in tracking resource allocation and utilization across projects. By analyzing resource usage patterns, organizations can optimize their workforce and materials, ensuring that resources are used efficiently
- Scalability: Automated systems can easily scale to accommodate changes in resource requirements as projects grow or shrink. This adaptability ensures that organizations do not overcommit or underutilize their resources

Understanding Business Process Automation

Defining the Future of Efficiency

- Definition: Business process automation (BPA) refers to the use of technology to automate repetitive, manual tasks in business operations to increase efficiency and accuracy.
- Benefits: The advantages of BPA include reduced operational costs, increased speed and accuracy of processes, and the ability to reallocate human resources to more strategic tasks.
- Tools: Various tools such as workflow automation software, robotic process automation, and AI are instrumental in facilitating BPA by removing bottlenecks in business operations.
- Examples: Common applications include automating invoice processing, customer relationship management (CRM), and supply chain management, demonstrating BPA's versatility across industries.



Integration of Project Management and Business Process Automation

Creating Cohesion for Success

Scope	Description
Synergy	The integration of project management with BPA leads to improved planning, execution, and monitoring of initiatives, enhancing overall project success.
Process Mapping	Visualizing workflows and processes aids in identifying inefficiencies and opportunities for automation, aligning project management initiatives with business objectives.
Best Practices	Employing best practices such as stakeholder engagement, risk management, and iterative development can significantly improve project outcomes in automation.
Alignment	Ensuring that project management frameworks align with automation goals fosters a culture of continuous improvement and operational excellence within the organization.

Integration of Project Management and Business Process Automation

Understanding the Fundamentals

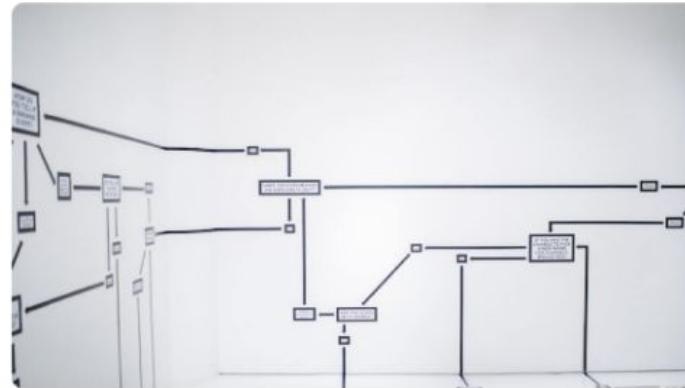
- Definition: Project management is the discipline of planning, organizing, and overseeing the successful execution of projects in the context of business process automation, which aims to optimize workflows and improve efficiency.
- Importance: The significance of project management in business process automation lies in its ability to streamline processes, enhance productivity, and ensure resources are effectively utilized to meet business objectives.
- Goals: The primary objectives encompass enhancing efficiency, reducing costs, improving quality and ensuring successful project delivery that meets stakeholder expectations.
- Overview: An effective project management approach integrates all phases of automation projects, from inception through to evaluation, thus providing a comprehensive roadmap for implementation.



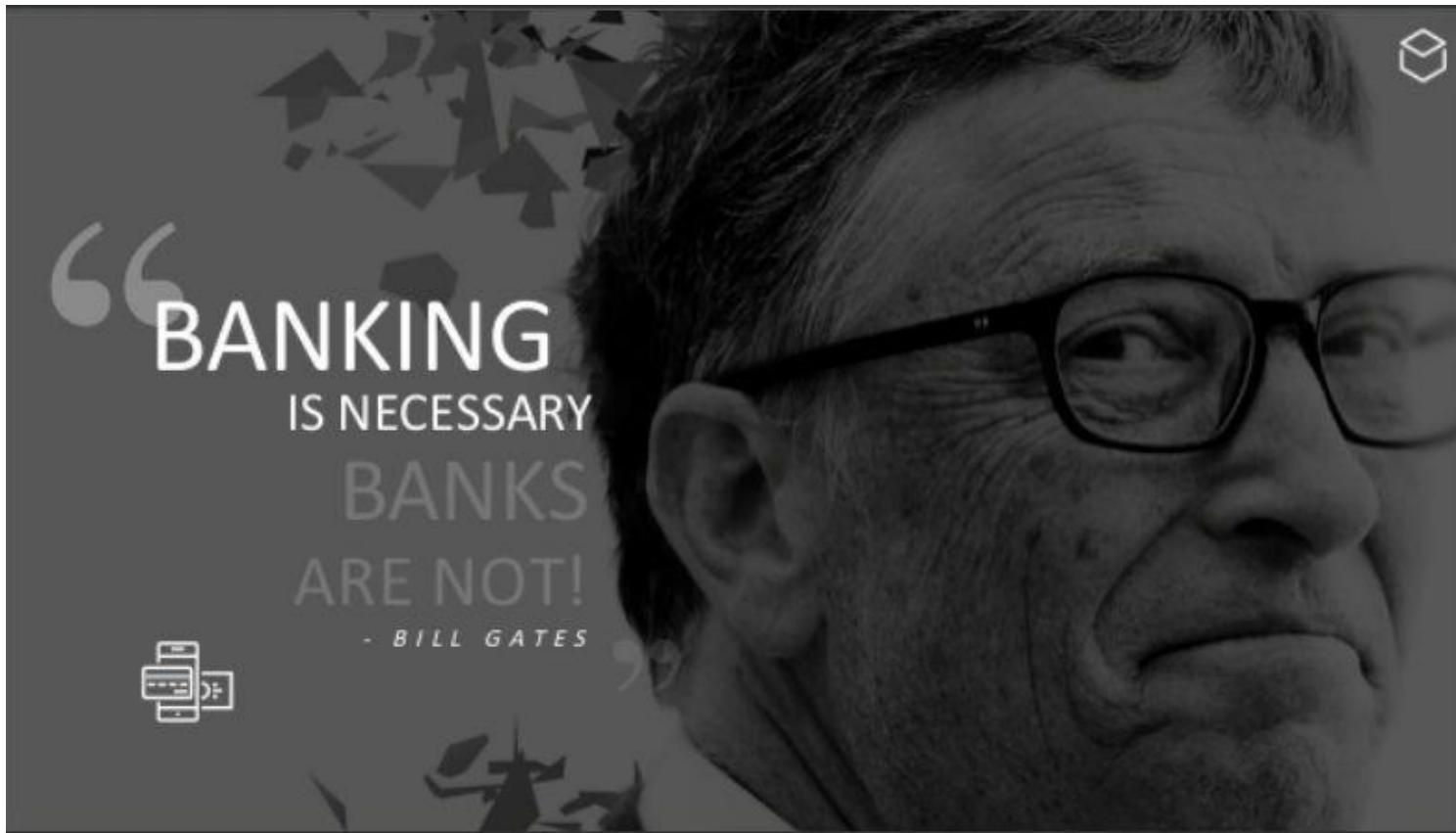
Key Steps in Project Management

The Phases of Project Execution

- Initiation: Defining the project scope, objectives, and stakeholders to establish a shared understanding of the project goals and outcomes.
- Planning: Creating a detailed project plan that outlines tasks, timelines, resources, and budget, ensuring a clear pathway toward project completion.
- Execution: Implementing the project plan, coordinating teams, and managing resources to deliver the project output effectively.
- Monitoring: Continuous oversight of project progress, ensuring alignment with goals, addressing any deviations, and making necessary adjustments to stay on track.
- Closing: Finalizing all project elements, conducting evaluations, and documenting lessons learned to inform future projects and ensure comprehensive closure.



Worldwide Open Banking Movement

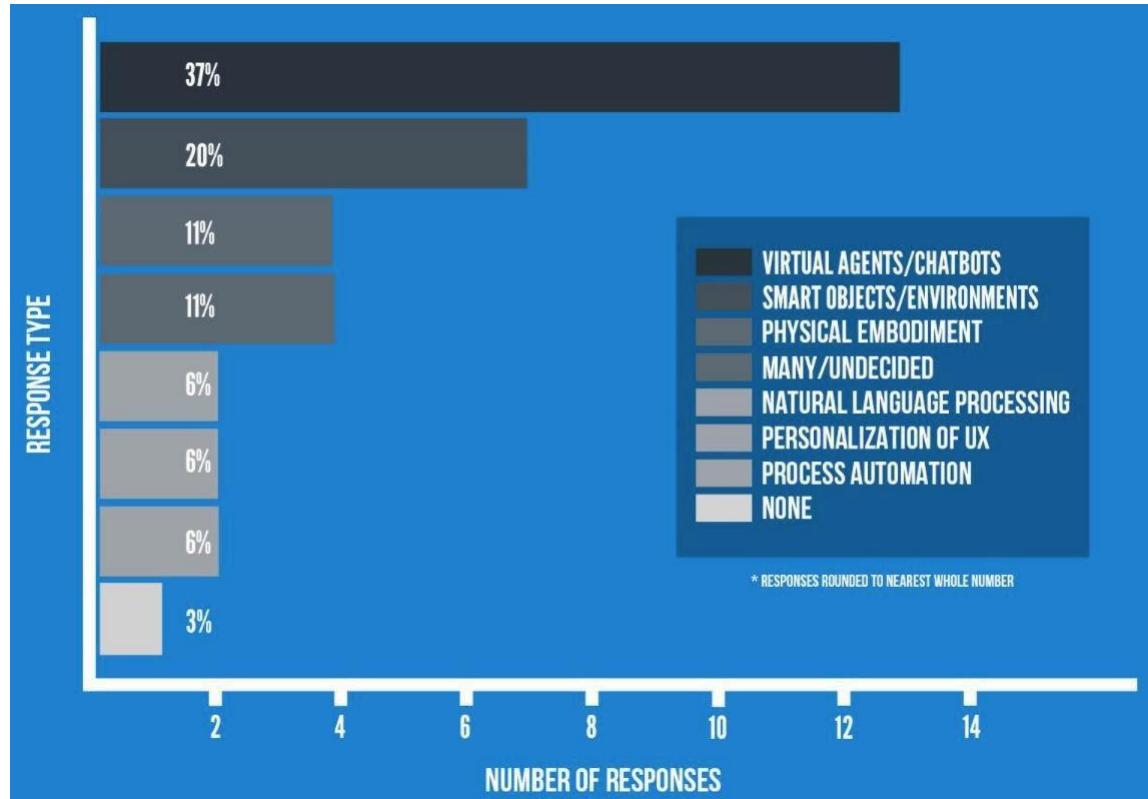


Worldwide Open Banking Movement



<https://www.slideshare.net/CAinc/case-study-open-banking-apis-and-digital-transformationthe-banco-original-story>

Application of AI In Banking: A Case Study



<https://www.techere.com/ai-in-banking-analysis/> October 24, 2017 by Kumba Sennaar

Application of AI In Banking: A Case Study JPMorgan Chase Bank



<https://www.techmgmt.com/ai-in-banking-analysis/> October 24, 2017 by Kumba Sennaar

Application of AI In Banking: A Case Study Wells Fargo Bank Startup Accelerator

WELLS
FARGO

Startup
Accelerator



Edquity offers the first-of-its-kind college financial planning app for high school and college students, supporting students as a "to-and-through" platform through each and every financial decision on the road to college graduation...

More +

Visit: www.edquity.co



Hurdlr is a rapidly growing startup whose API and mobile apps provide financial, tax, and performance insights for "The 1099 Economy," including consumers, freelancers, independent contractors, and self-employed small business owners.

More +

Visit:
www.hurdlr.com



Redrock Biometrics developed the first practical palm-print based authentication software, PalmID. Made possible through several patented algorithmic breakthroughs, PalmID is more accurate than fingerprint authentication, as palms are more unique.

More +

Visit:
redrockbiometrics.com

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HKUSPACE

Application of AI In Banking: A Case Study Wells Fargo Bank Startup Accelerator Alumni



Startup
Accelerator

1,100 applications
from over 50
countries since its
inception in 2014



<https://accelerator.wellsfargo.com/>

Application of AI In Banking: A Case Study



https://twitter.com/_/status/790943639933366274

Chatbot enabled mobile banking has seen steady growth from 12 million customers in 2012 to nearly 22 million in 2016

The screenshot shows a mobile banking application interface for the Erica AI chatbot. At the top, it says "erica". Below that, a message states: "Based on your typical monthly spending, you have an additional \$150 you could be putting toward your Cash Rewards Visa. This could save you up to \$300 per year." Underneath, there's a section titled "Additional Payment" with a slider. The slider scale goes from "\$0" to "\$1540" with a midpoint at "\$150/mn". Below the slider, "Payment Details" are listed: Current \$250, New \$400, and Annual Savings \$300. At the bottom, it says "Next Scheduled Payment: Nov 17" followed by a calendar icon.

Erica - Chatbot is designed to be accessible to clients 24/7 and perform “day-to-day transactions” in addition to anticipating the unique financial needs of each customer and helping them reach their financial goals by providing smart recommendations

<https://www.cnbc.com/2016/10/24/bank-of-america-launches-ai-chatbot-erica--heres-what-it-does.html>

<https://www.bofaml.com/en-us/conference-technology-innovation-summit-2017.html>

Application of AI In Banking: A Case Study

Bank of New York Mellon Bank: Software Automation Using Robots



Helped build/deploy 220 software robots to handle repetitive tasks, such as “data requests from external auditors” and “funds transfer bots” which help “correct formatting and data mistakes in requests for dollar funds transfers.



- 100 percent accuracy in account-closure validations across five systems
- 88 percent improvement in processing time
- 66 percent improvement in trade entry turnaround time
- ¼-second robotic reconciliation of a failed trade vs. 5-10 minutes by a human

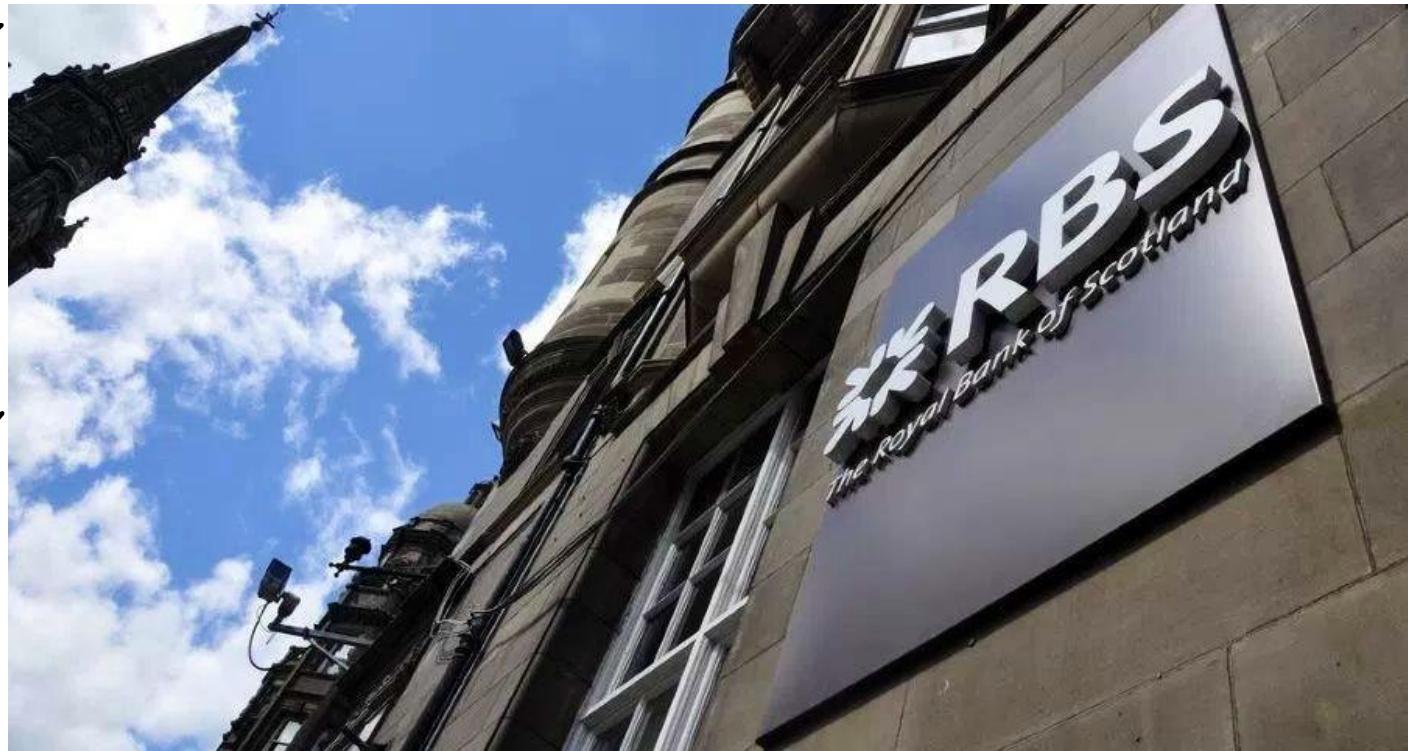
“funds transfer bots” alone is responsible for \$300,000 in annual savings

<https://www.blueprism.com/news/automation/bny-mellon-became-pioneer-software-robots>

Application of AI In Banking: A Case Study Royal Bank of Scotland: Chatbots

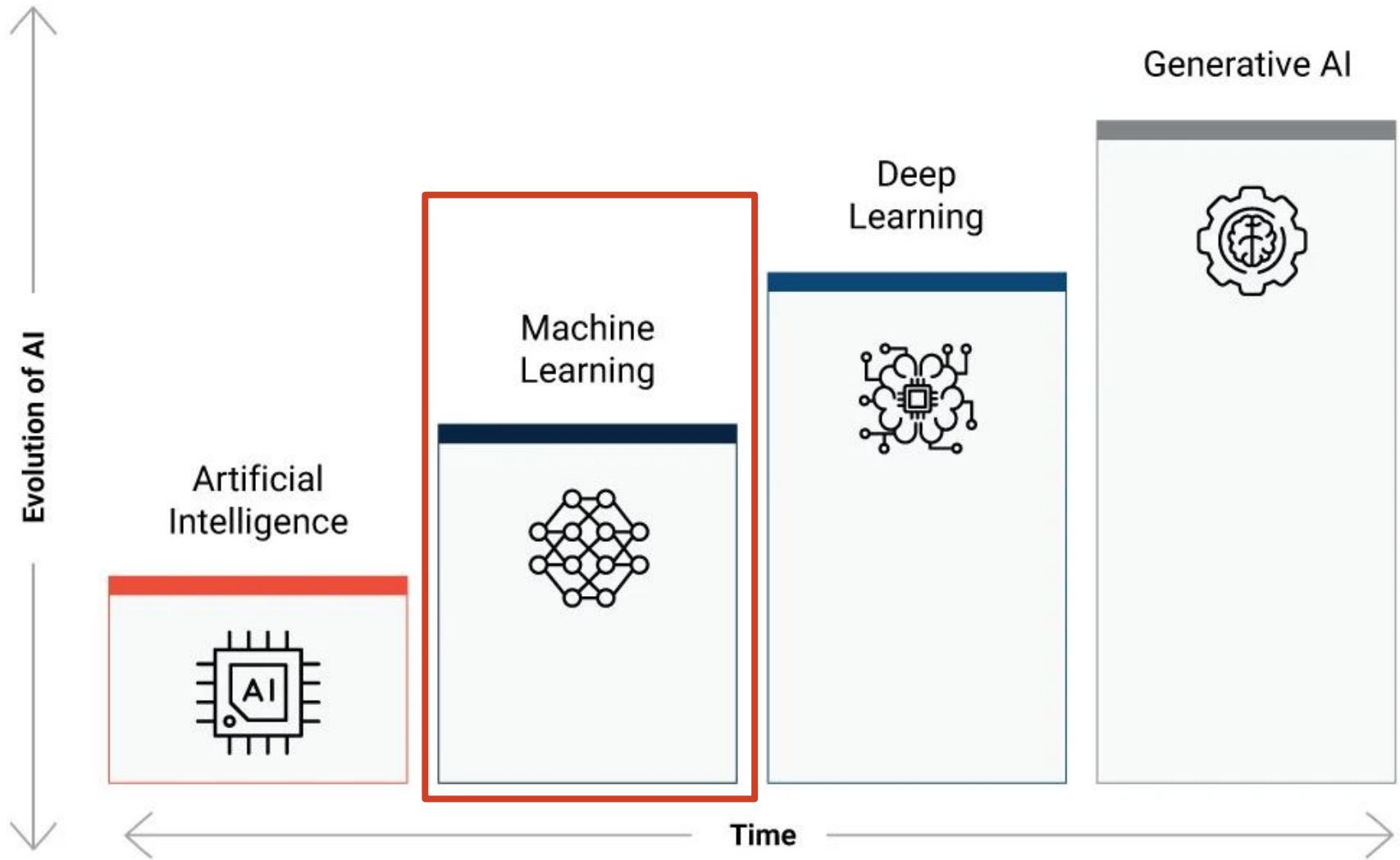
Luvo chatbot pilot is accessible to 50,000 Bank of Scotland iOS mobile customers

answer common queries, such as unknown account transactions, how to make payments and what to do about lost or stolen cards

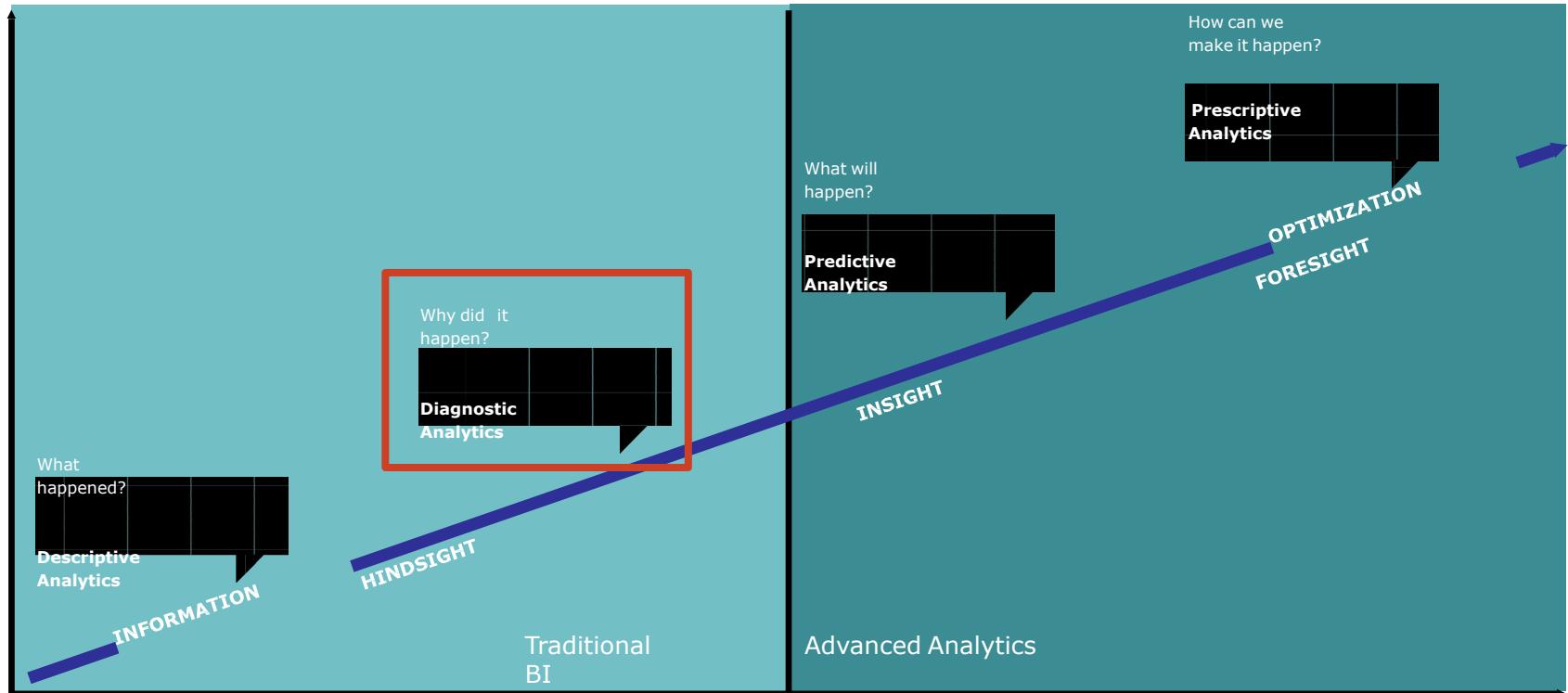


[https://www.rbs.com/rbs/news/2016/03/rbs-installs-advanced-human-ai-to-help-staff-answer-customer- que.html](https://www.rbs.com/rbs/news/2016/03/rbs-installs-advanced-human-ai-to-help-staff-answer-customer-que.html)

Overall Artificial Intelligence Journey



Financial Forecasting with Machine Learning using Python



Data Processing & Analysis - What Is Machine Learning?

Supervised Learning

Used as an advanced form of *predictive modeling*

Each observation must be labeled with a "correct answer"

Only then can you build a predictive model because you must tell the algorithm what's "correct" while training it (hence, "supervising" it)

Regression is the task for modeling continuous target variables

Classification is the task for modeling categorical (a.k.a. "class") target variables



Unsupervised Learning

Used either as a form of automated data analysis or automated signal extraction

Unlabeled data has no predetermined "correct answer"

You'll allow the algorithm to directly learn patterns from the data (without "supervision")

Clustering is the most common unsupervised learning task, and it's for *finding groups within your data*



Data Processing & Analysis

Supervised Learning: Classification For Debit Card Fraud

If it Walks/Swims/Quacks Like a Duck . . . Then It Must Be a Duck

... with pre-determined features of fraud

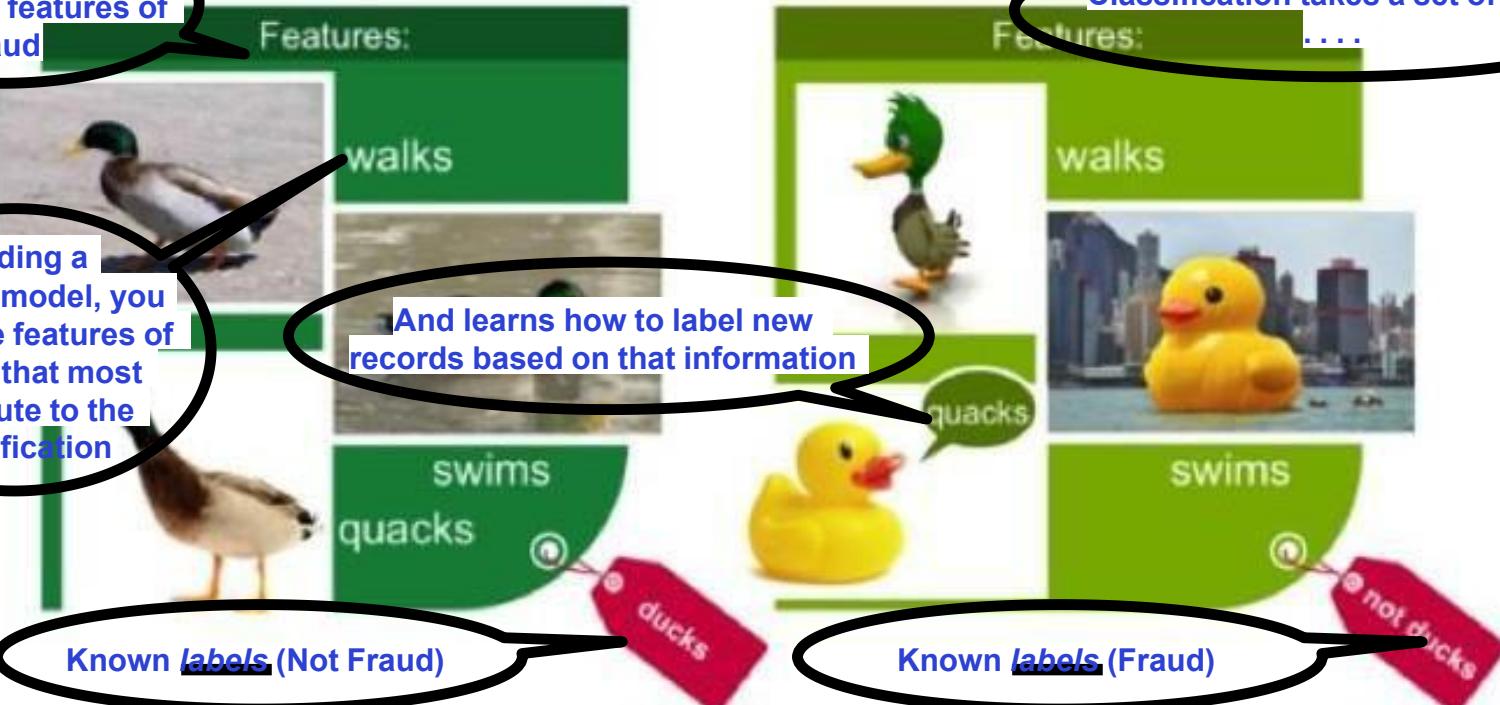
Classification takes a set of data

Building a classifier model, you extract the features of interest that most contribute to the classification

And learns how to label new records based on that information

Known labels (Not Fraud)

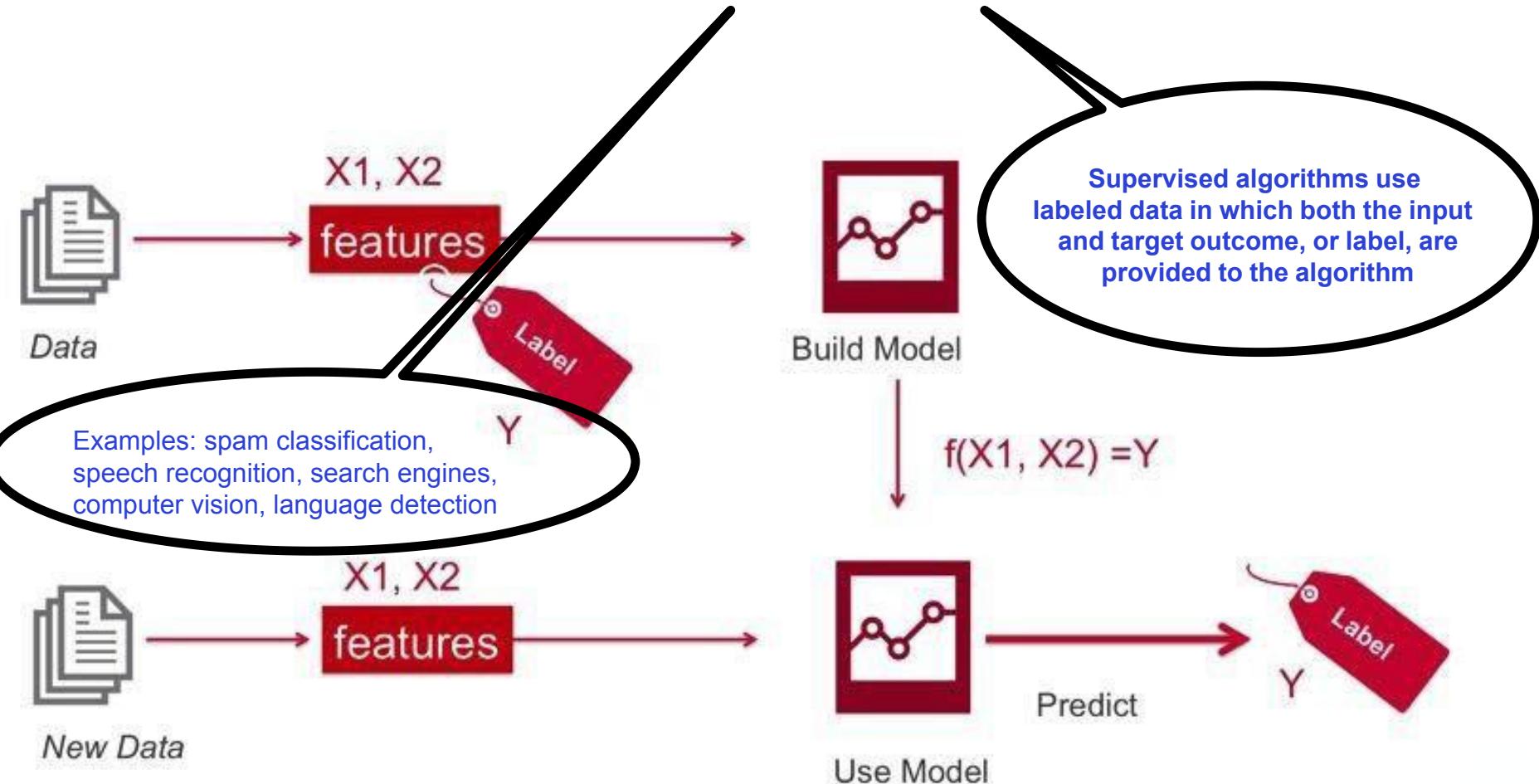
Known labels (Fraud)



Source:
<https://dzone.com/articles/demystifying-ai-machine-learning-and-deep-learning>

Data Processing & Analysis

Machine Learning: Supervised Learning



Source:
<https://dzone.com/articles/demystifying-ai-machine-learning-and-deep-learning>

Data Processing & Analysis

Machine Learning: Decision Trees

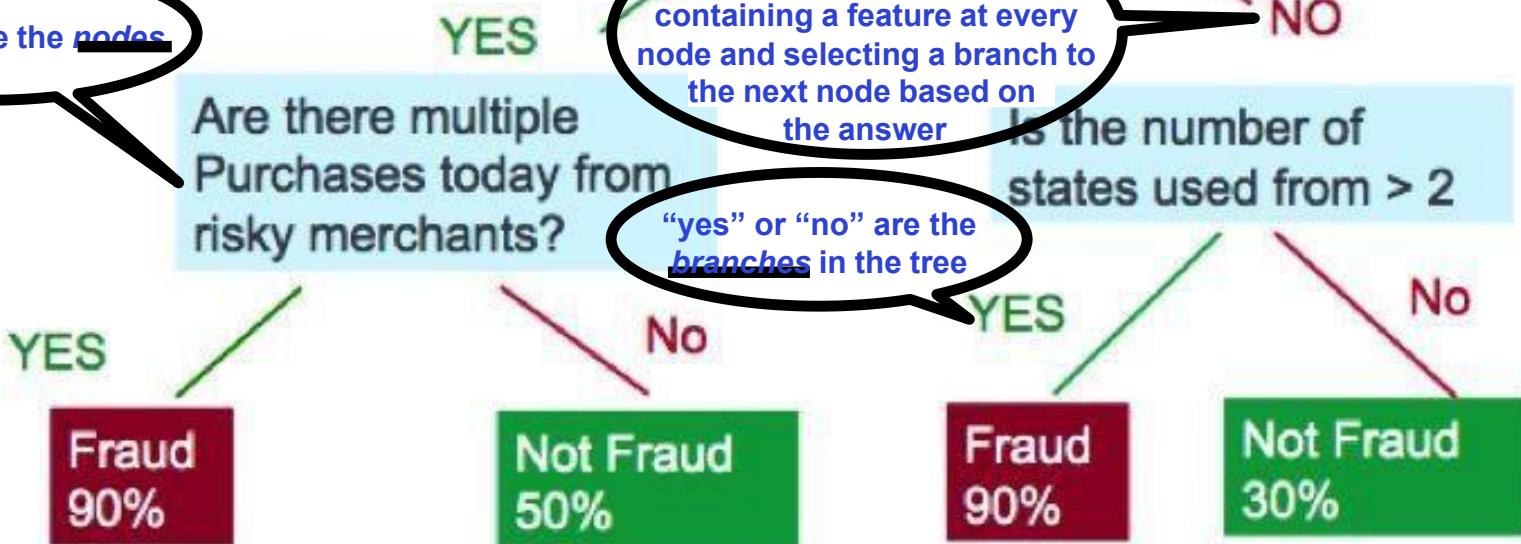
decision tree for predicting debit card fraud

Decision trees create a model that predicts the class or label based on several input features

questions are the nodes

Is the amount spent in 24 hours > average

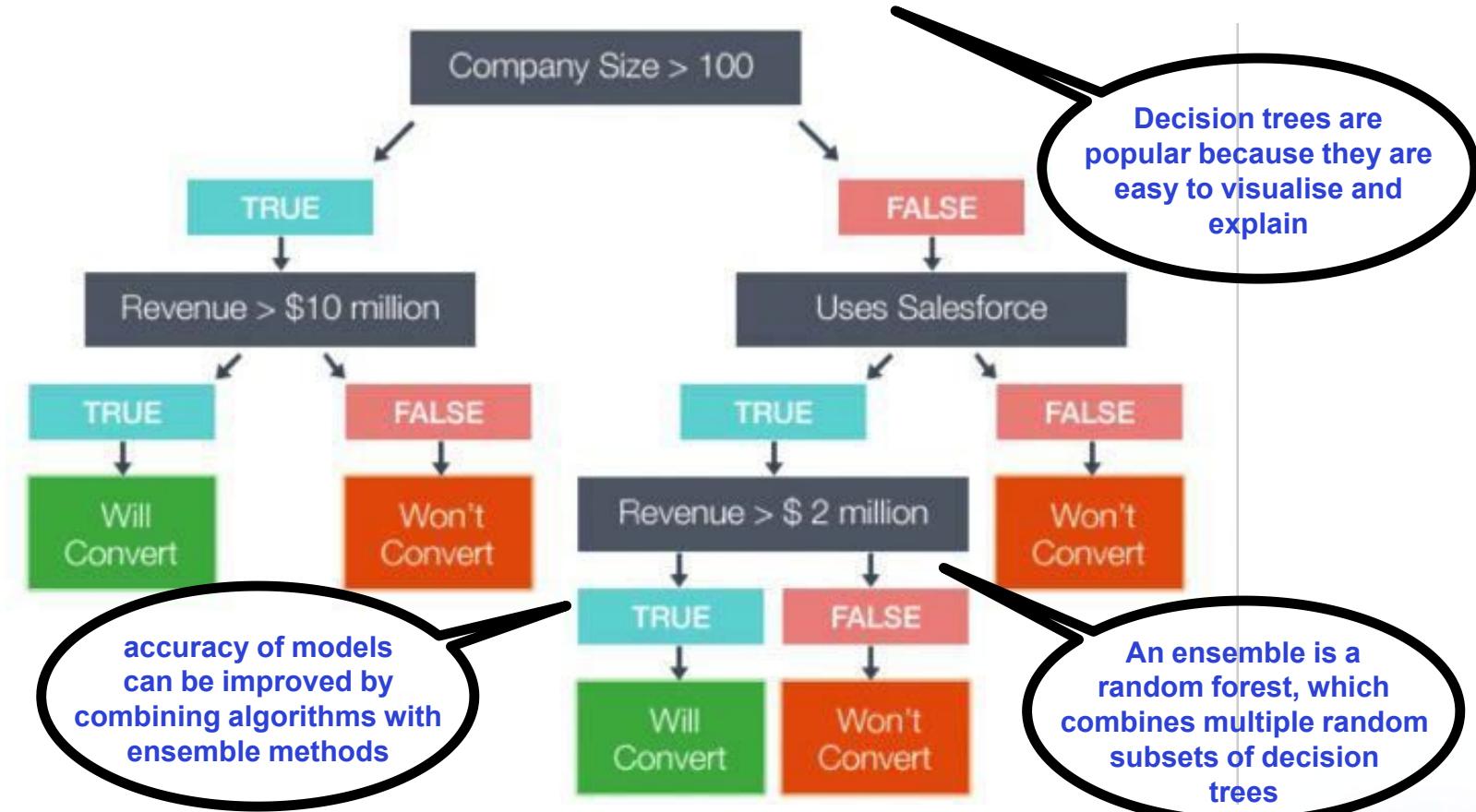
work by evaluating a question containing a feature at every node and selecting a branch to the next node based on the answer



"yes" or "no" are the branches in the tree

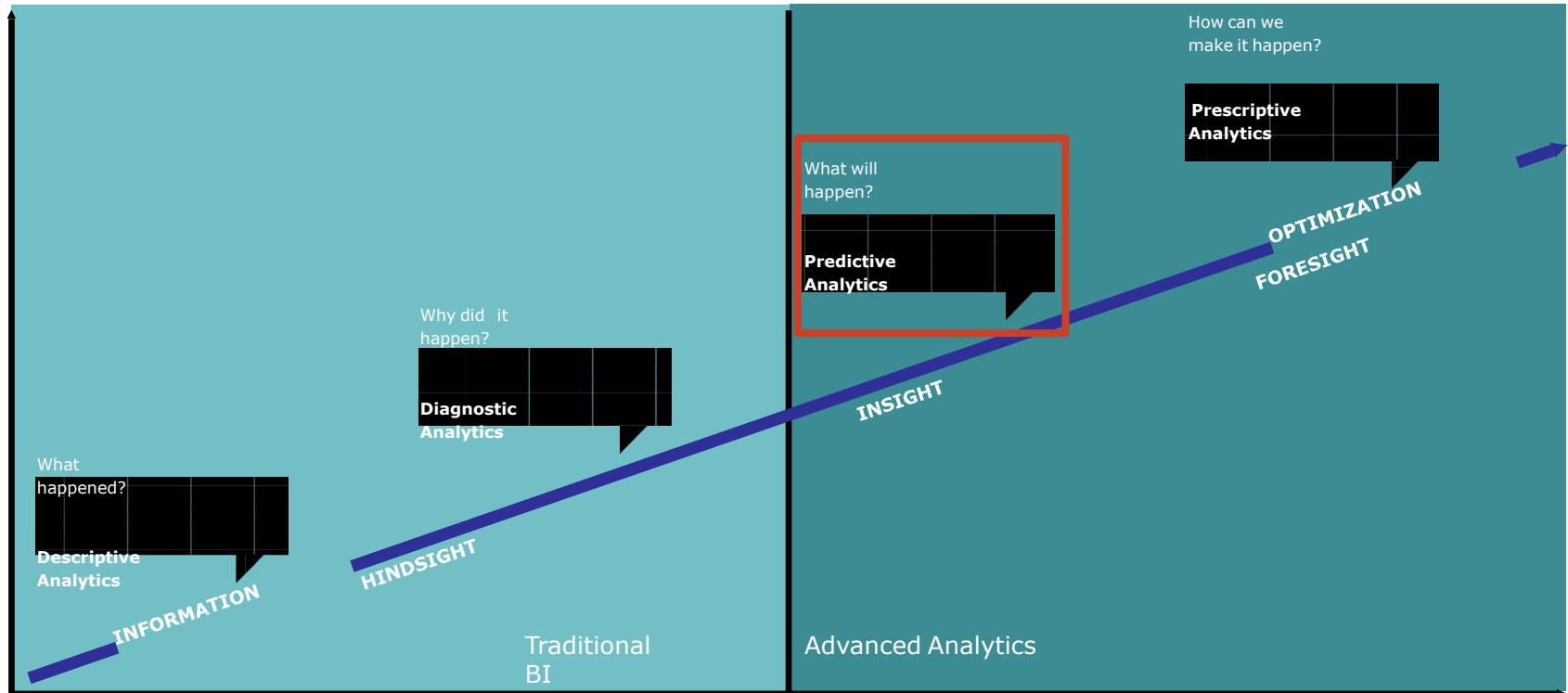
Data Processing & Analysis

Decision Trees: Ensemble Random Forests

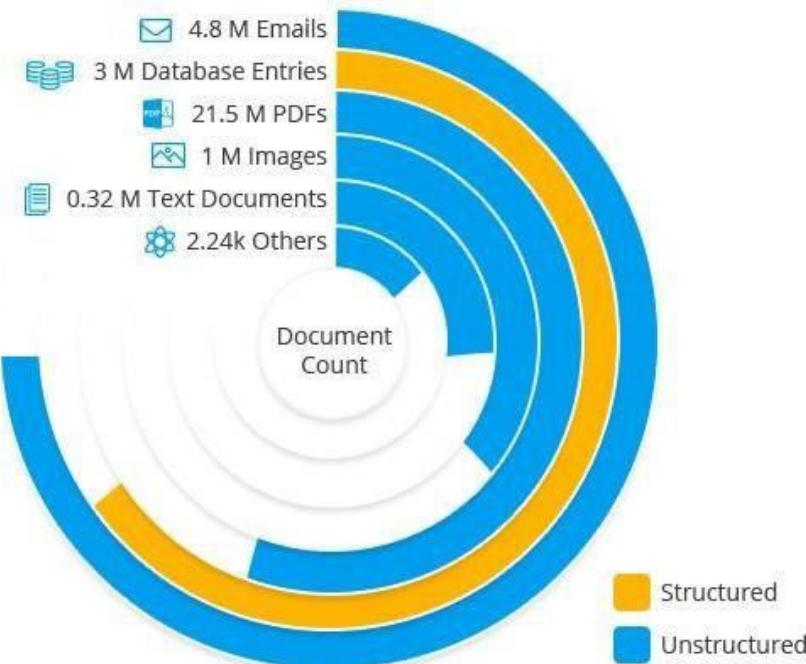


Source: <http://dataeconomy.com/2015/05/predictive-machine-learning-behind-the-scenes-at-flipkart-and-predictions-for-the-future-of-martech/>

Financial Forecasting with Machine Learning using Python



Predictive Analytics Case Study: Mossack Fonseca ‘Panama Papers’ Leak



Hackers stole 40 years worth of client information and gave it to a German newspaper who then shared it with the ICIJ.

Sit with your group mates and research The Panama Papers Leak using the URLs given below;

<https://www.sparrho.com/p/hiding-billions-in-massive-datasets/295324/>
<http://bit.ly/2ydCENP>

Answer the following questions

- What data science tools were used to create the complex relationships?

Source: <http://www.softwebsolutions.com/resources/the-panama-papers-its-all-about-the-data.html>

Hottest Application of Predictive Analytics: Vehicle Insurance Fraud Detection



<https://www.youtube.com/watch?v=fELBBWgd6NA>

Watch a youtube video -

CANATICS – Vehicle
Insurance Fraud Detection
through Data Analytics

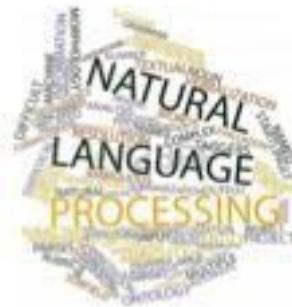
Discuss in your group

- What are the limitations of the Canatics Approach?
- How would a smarter criminal defeat Canatics approach?

Hottest Application of Predictive Analytics?



Fraud/Spam Detection



NLP



Speech Recognition

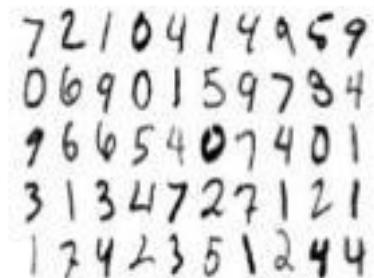
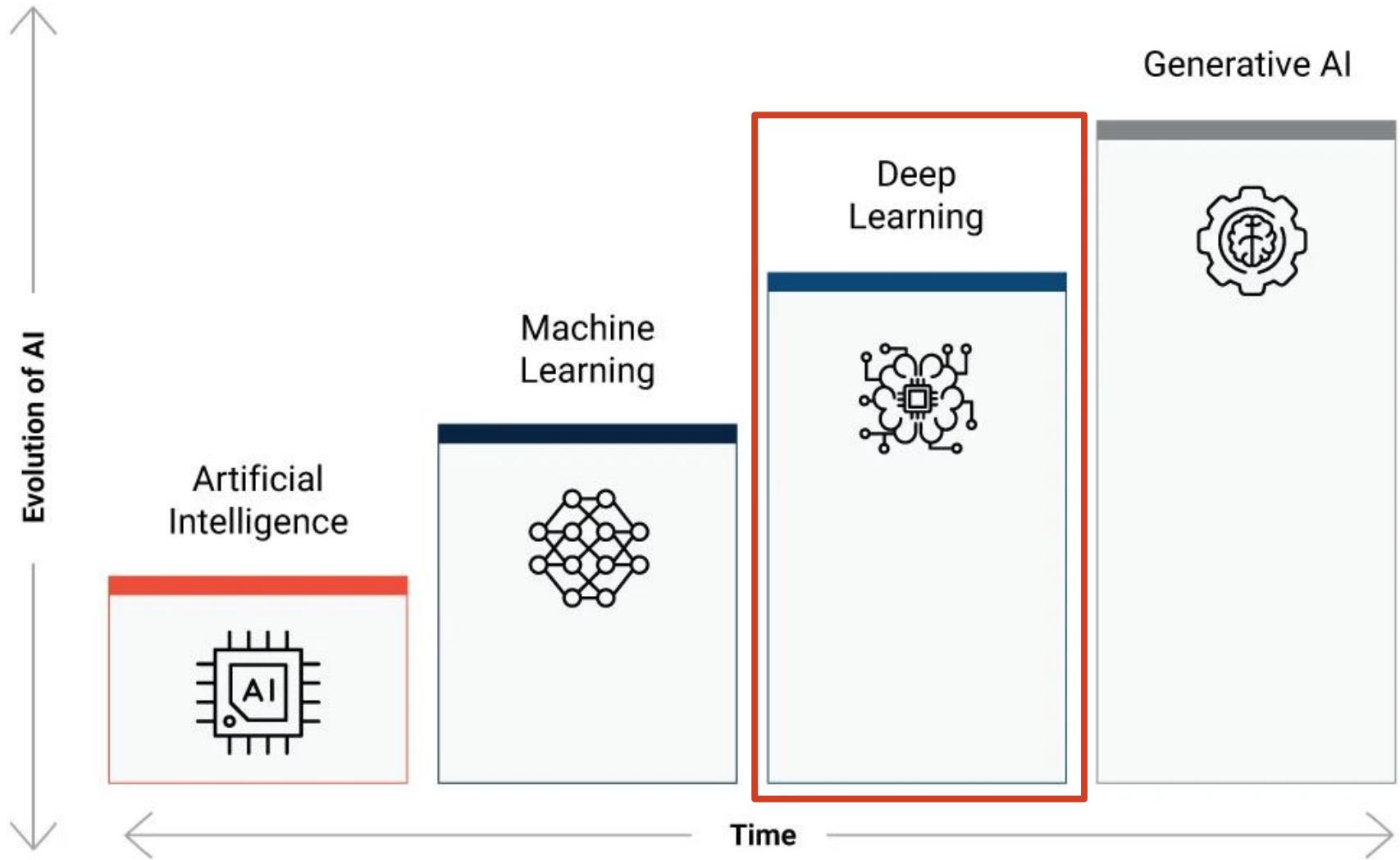


Image Recognition

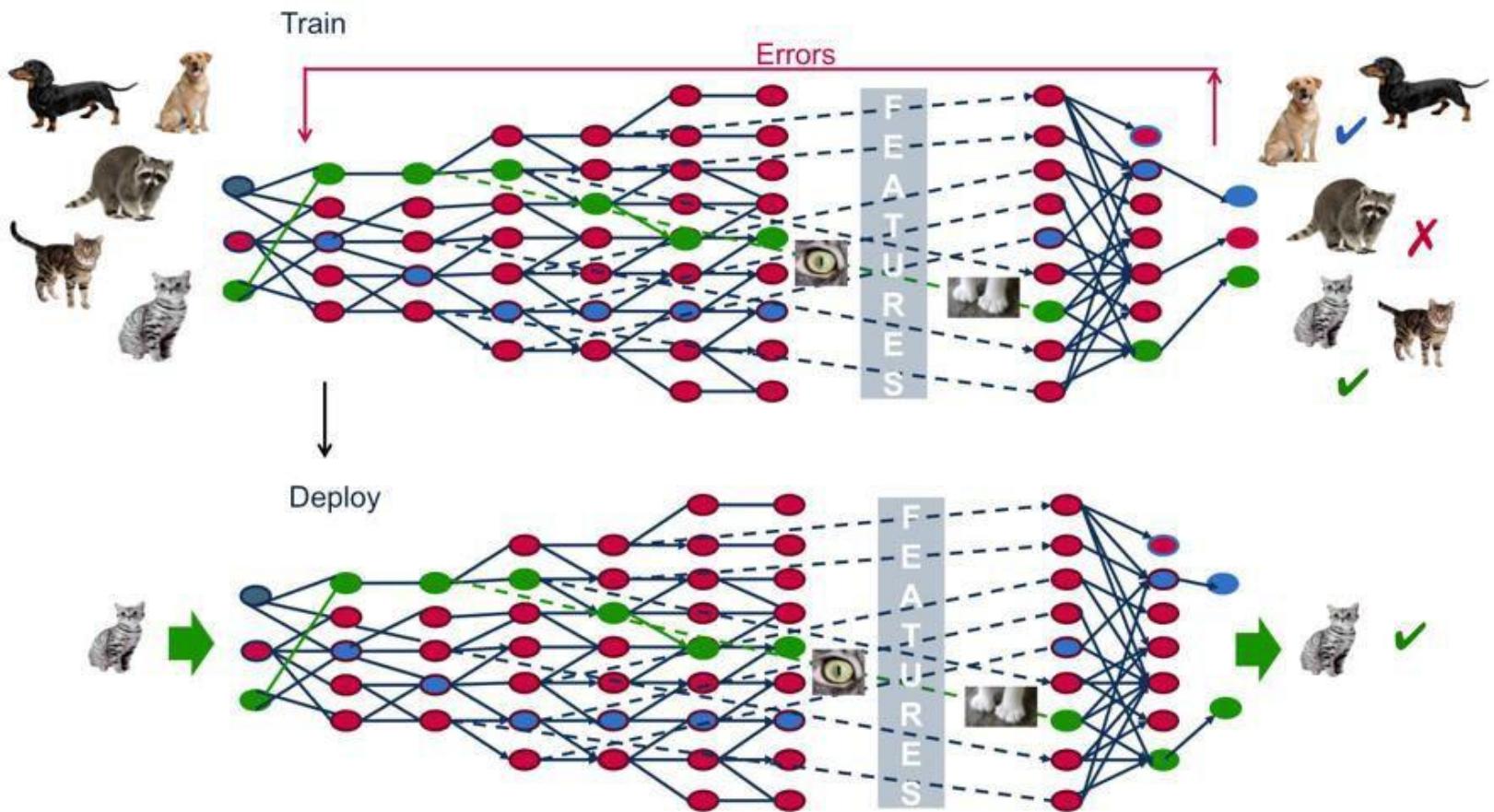
Business Applications of
Predictive Modeling at Scale -
KDD 2016 Tutorial

Overall Artificial Intelligence Journey



Data Protection & Information Governance

Deep Learning (multilayered neural networks)

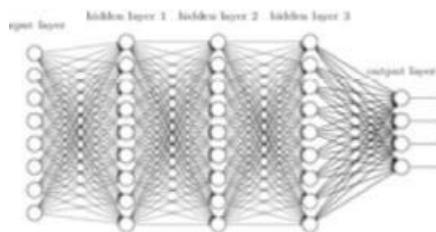


Data Protection & Information Governance

Deep Learning Algorithms

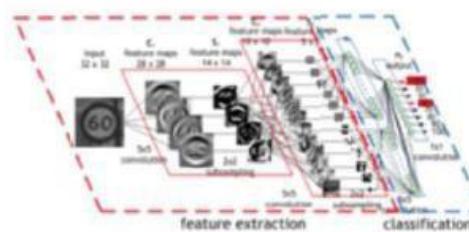
providing lift for classification and forecasting models

Deep Neural Networks



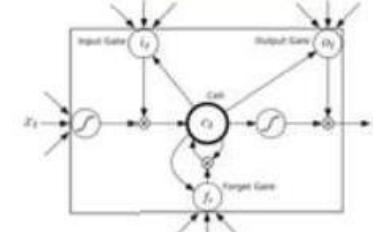
feature extraction and classification of images

Convolutional Neural Networks



for sequence of events, language models, time series, etc.

Recurrent Neural Networks



Data Protection & Information Governance

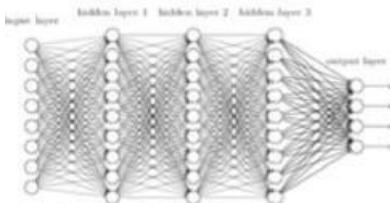
Deep Learning Algorithms

providing lift for
classification and
forecasting models

Deep Neural Networks

Deep neural networks for improved traditional algorithms.

- **Finance:** Enhanced fraud detection through identification of more complex patterns.
- **Manufacturing:** Enhanced identification of defects based on deeper anomaly detection.

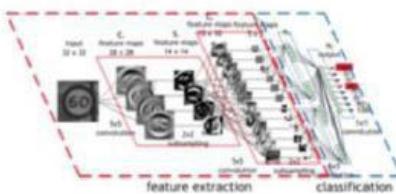


Data Protection & Information Governance

Deep Learning Algorithms

feature extraction
and classification of
images

Convolutional Neural Networks



Convolutional neural networks for images.

- **Retail:** In-store activity analysis of video to measure traffic.
- **Satellite images:** Labeling terrain and classifying objects.
- **Automotive:** Recognition of roadways and obstacles.
- **Healthcare:** Diagnostic opportunities from x-rays, scans, etc.
- **Insurance:** Estimating claim severity based on photographs.

Big Data Tools and Algorithm Exploration

The Problem Space

Machines are '*unable*' to classify images by recognising patterns, generalise from prior knowledge, nor adapt to different image environments



What We See

Humans recognise these dogs naturally, we've instinctively done this since we were a baby

Image classification is the task of taking an input image and outputting a class or a probability of classes that best describes the image (a cat, dog)

08 02 22 97 38 15 00 40 00 75 04 05 07 78 52 12 50 77 91 08
49 49 99 40 17 81 18 57 60 87 17 40 98 43 69 48 04 56 62 00
81 49 31 73 55 79 14 29 93 71 40 67 53 88 30 03 49 13 36 65
52 70 95 23 04 60 11 42 69 24 68 56 01 32 56 71 37 02 36 91
22 31 16 71 51 67 63 89 41 92 36 54 22 40 40 28 66 33 13 80
24 47 32 60 99 03 45 02 44 75 33 53 78 36 84 20 35 17 12 50
32 98 81 28 64 23 67 10 26 38 40 67 59 54 70 66 18 38 64 70
67 26 20 68 02 62 12 20 95 63 94 39 63 08 40 91 66 49 94 21
24 55 58 05 66 73 99 26 97 17 78 78 96 83 14 88 34 89 63 72
21 36 23 09 75 00 76 44 20 45 35 14 00 61 33 97 34 31 33 95
78 17 53 28 22 75 31 67 15 94 03 80 04 62 16 14 09 53 56 92
16 39 05 42 96 35 31 47 55 58 88 24 00 17 54 24 36 29 85 57
86 56 00 48 35 71 89 07 05 44 44 37 44 60 21 58 51 54 17 58
19 60 61 68 05 94 47 69 26 73 92 13 86 52 17 77 04 89 55 40
04 52 08 83 97 35 99 16 07 97 57 32 16 26 26 79 33 27 98 66
88 36 65 87 57 62 20 72 03 46 33 67 46 55 12 32 63 93 53 69
04 42 16 73 38 25 39 11 24 94 72 18 08 46 29 32 40 62 76 36
20 69 36 41 72 30 23 88 34 62 99 69 82 67 59 85 74 04 36 16
20 73 35 29 78 31 90 01 74 31 49 71 40 86 81 16 23 57 05 54
01 70 54 71 83 51 54 69 16 92 33 48 61 43 52 01 89 19 67 48

What Computers See

source /J. Seng GPU Teaching Kit is licensed by NVIDIA and New York University

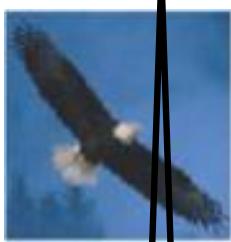
Big Data Tools and Algorithm Exploration

Confusion Matrix: Measuring Success for Classification

Prediction:



Image:



True
Positive

True
Negative

False
Negative

False
Positive

True
Negative

True
Positive

- **True Positive:** Correctly identified as relevant
- **True Negative:** Correctly identified as not relevant
- **False Positive:** Incorrectly labeled as relevant
- **False Negative:** Incorrectly labeled as not relevant

+ 'plus' sign is an image that is predicted to be a cat

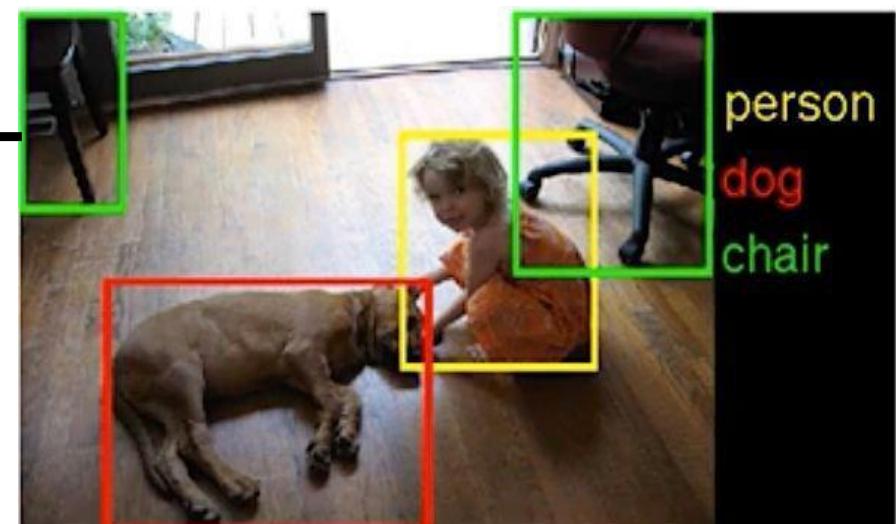
– 'negative' sign is an image that is predicted to be NOT a cat

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Big Data Tools and Algorithm Exploration

Convolutional Neural Nets

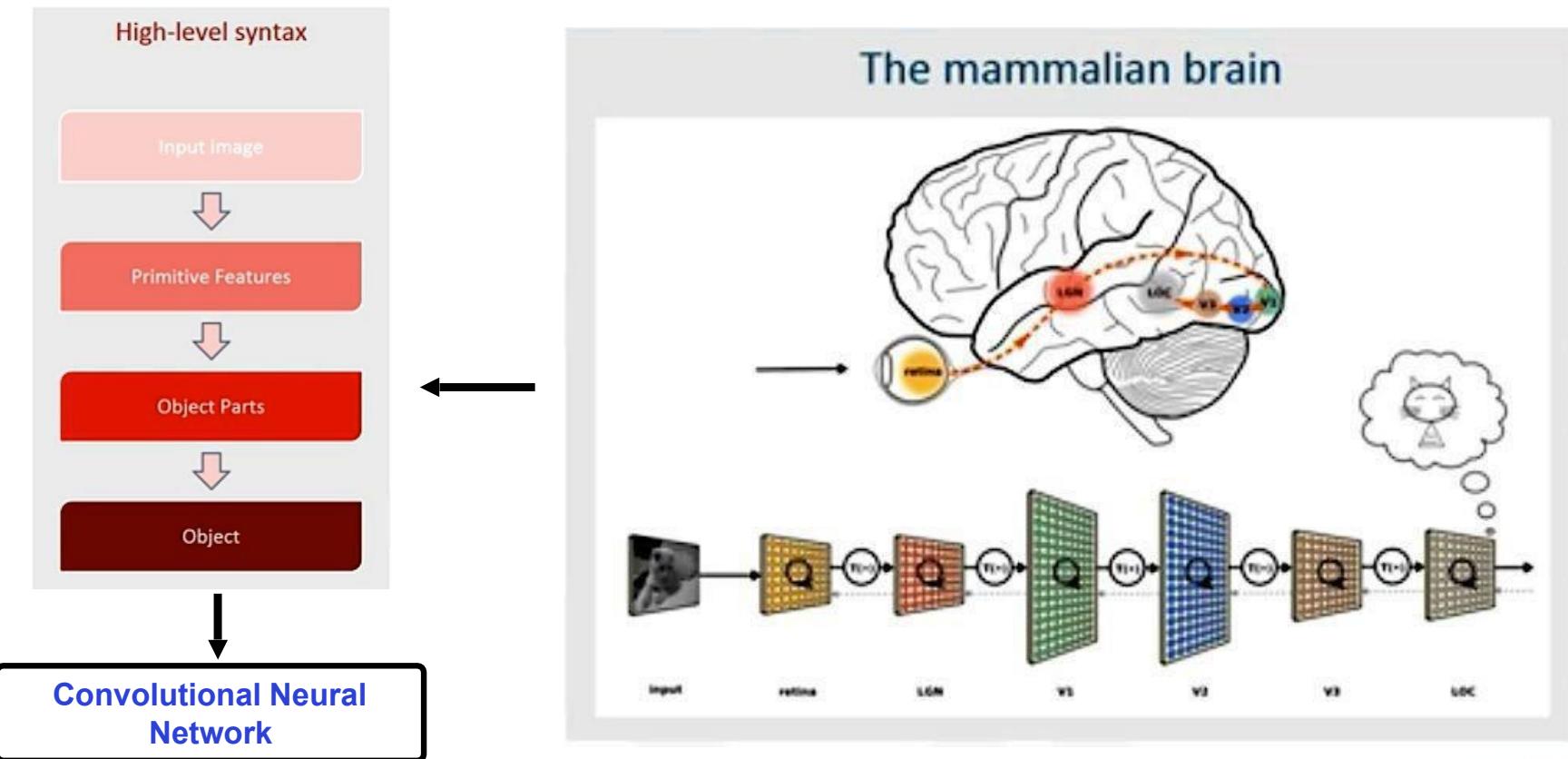
- Signal and image processing
- Handwritten text/digits recognition
- Natural object classification (photos and videos)
- Segmentation
- Face detection
- Recommender systems
- Speech recognition
- Natural Language Processing



Computes the error derivative with respect to a weight for the output layer

Big Data Tools and Algorithm Exploration

Convolutional Neural Nets

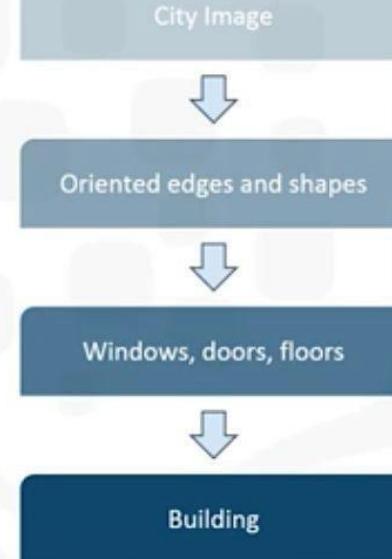


Big Data Tools and Algorithm Exploration

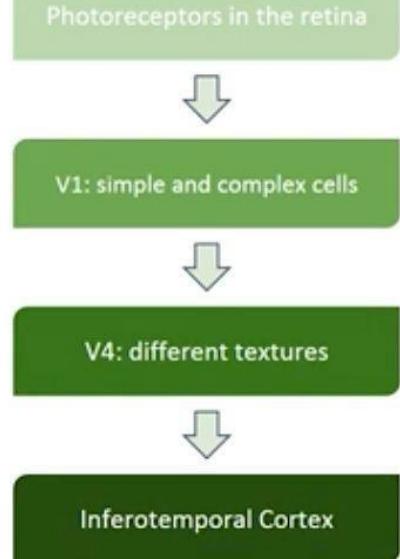
Convolutional Neural Nets



How the scene is organized

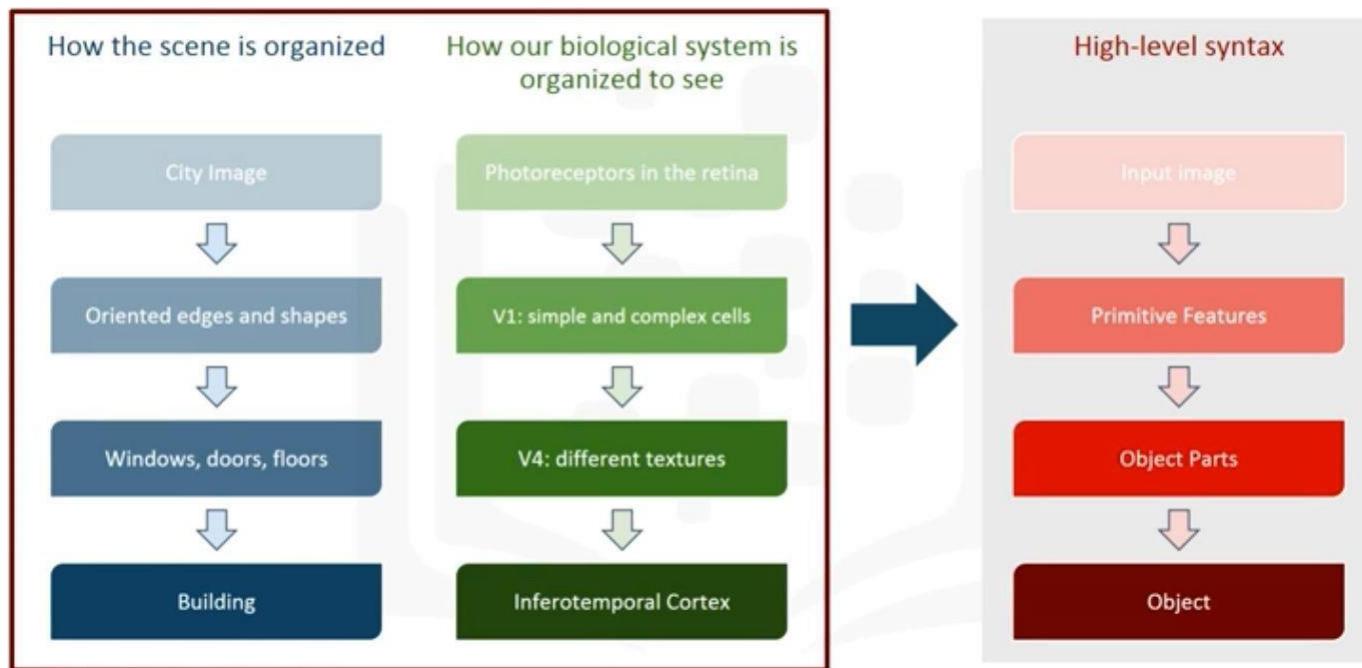


How our biological system is organized to see



Big Data Tools and Algorithm Exploration

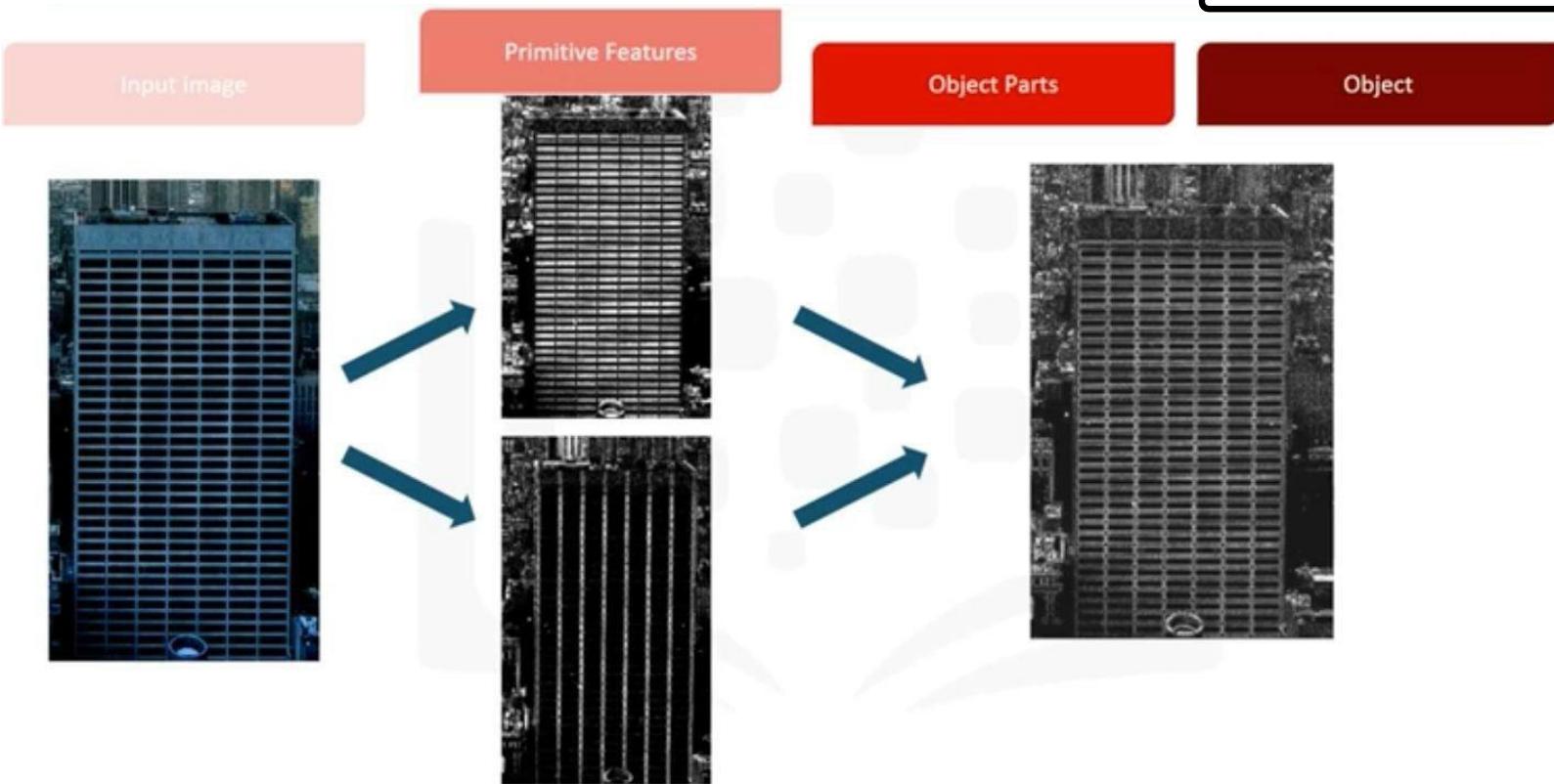
Convolutional Neural Nets



Big Data Tools and Algorithm Exploration

Convolutional Neural Nets

A Visual Explanation



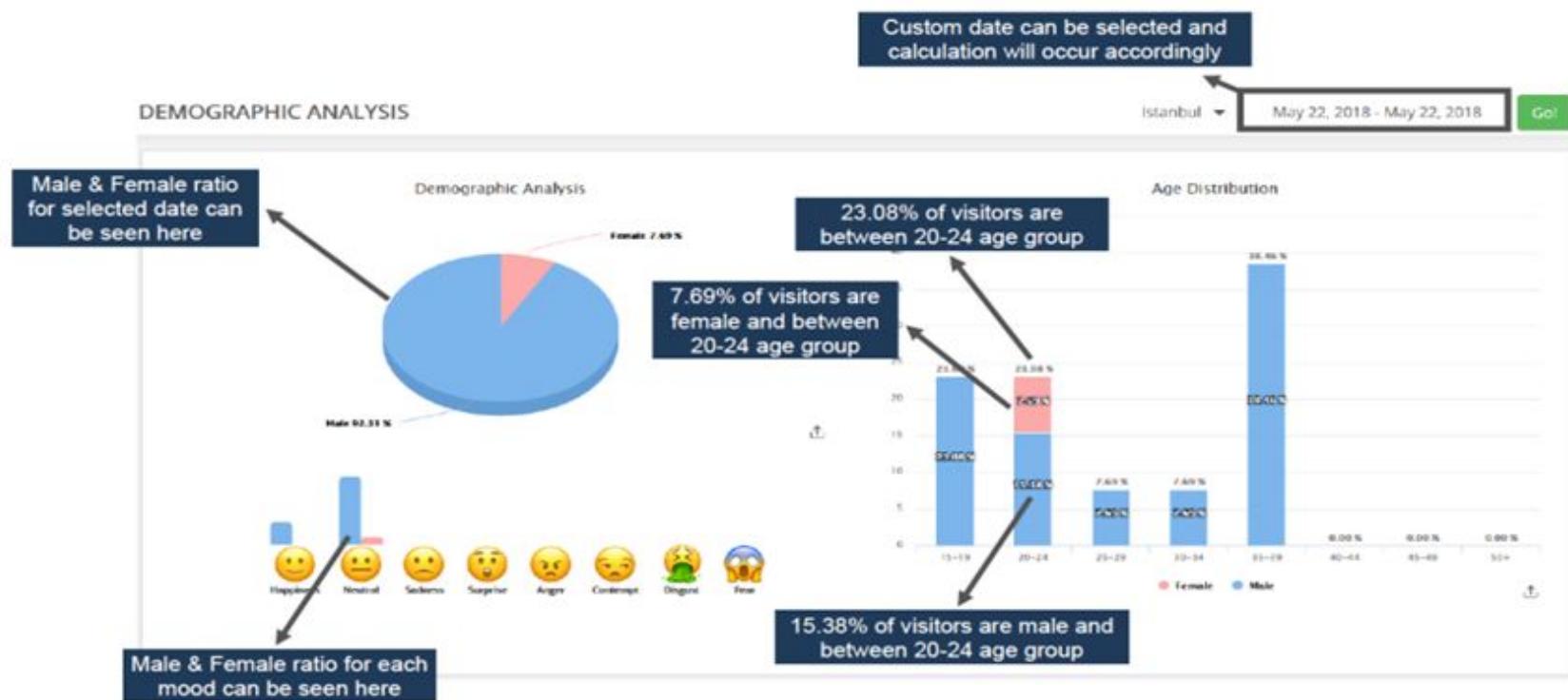
Deep Learning Case Study - Object Detection

- Identify which set of people like which see different item in the shop
- Identify which item do the customer mostly like



Deep Learning Case Study - Demographic Dashboard

Make use of facial recognition to detect Age Group, Gender, Emotion that demonstrate in dashboard



Location Tracking

- Customer locations can now be displayed on an shop floor plan in real time.
- Digital wayfinding with turn-by-turn navigation for your app, interactive kiosks and website.
- Conduct Data Analysis on how your customers are using your space.



Data Scientist Jobs



FIREBLAZE AI SCHOOL

Data Scientist

Also known as Data Manager,
Statistician

• Tools that need to be mastered •



Python



R Programming



SQL

• Skills that need to be mastered •



Programming



Statistics



Machine Learning



Data Visualization



FIREBLAZE AI SCHOOL

Data Engineers

Also known as Data Architects

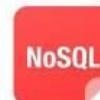
• Tools that need to be mastered •



Python



hadoop



NoSQL

• Skills that need to be mastered •



Programming



Data Mining

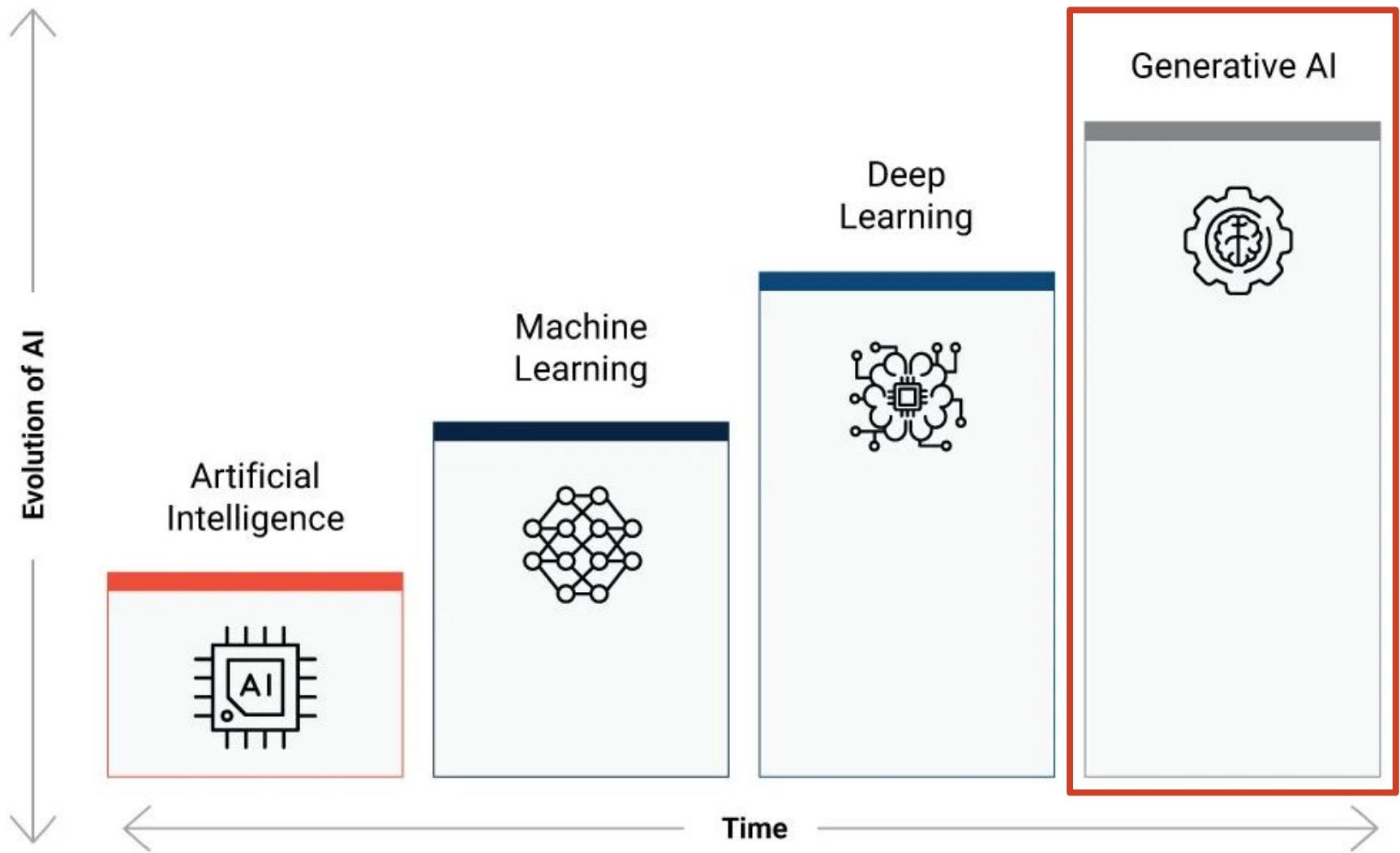


Database
architecture



Statistical modeling &
regression analysis

Overall Artificial Intelligence Journey



Generative AI

Generative AI refers to models that can create new text, code, images, audio, or video based on patterns learned from large datasets

Common underlying models are large language models (LLMs) for text/code, and diffusion or transformer-based models for images and video.

Major types of generative AI tools:

- Text & chat: ChatGPT, Claude, Gemini, Microsoft Copilot
- Coding assistants: GitHub Copilot
- Image & video: DALL·E, Midjourney, Synthesia for generating images, graphics
-

Generative AI using Python – GPT2

Open Colab Link at

https://colab.research.google.com/drive/1E6Hdzvp0lgUI1cG_Ddd0FCYQ9-FG7OJ2

```
prompt : write a 10 words with 9 letters
```

The attention mask and the pad token id were not set. As a consequence, you may observe unexpected behavior. Please pass your input's `attention_mask` to obtain reliable results.

Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.

Introduction to Business Process Automation

AI Applications – Tome

- Input → Presentation topic
- Output → Slides with outlines and artworks
- <https://tome.app/>

Unlocking the Potential of Process Automation

Introduction
Cost Savings
Improved Customer Experience
Increased Efficiency
Data Collection and Analysis
Conclusion

The slide has a dark background with a sidebar on the left containing small thumbnail images of other slides. The main content area features a heading 'Cost Savings' and a paragraph of text. To the right is a large image of a silver humanoid figure standing on a stack of coins.

Cost Savings

Process automation can lead to significant cost savings. Automating manual tasks eliminates the need for manual labor, reducing labor costs and allowing companies to focus their resources on more important tasks. Process automation also reduces the amount of time spent on mundane tasks, allowing employees to focus on higher-level tasks and increasing productivity.

PPT AI Generator – SlideGPT

1. Open Browser and enter <https://slidesgpt.com>
2. Enter Prompt "I want to create a deck that includes Business ESG"

The screenshot shows a web browser displaying a generated PPT slide from SlidesGPT. The slide has a dark blue header with the SlidesGPT logo and navigation links for Pricing, Enterprise plan, Suggest a feature, Contact, and Follow @SlidesGPT. The main content area is titled 'Agenda' and contains a bulleted list of 15 items related to Business ESG. At the bottom, there are download and share buttons.

Agenda

- Introduction: What is Business ESG?
- Environmental Considerations
- Social Considerations
- Governance Considerations
- Key Metrics: ESG Reporting
- ESG Integration: Benefits and Challenges
- ESG Investing: Trends and Opportunities
- Regulations and Standards
- ESG Performance: Case Studies
- ESG Communication and Transparency
- Driving Change: Role of Leadership
- Conclusion: Embracing ESG for Future Success

[Download](#) <https://slidesgpt.com/l/YeBS> [Share](#)

<https://slidesgpt.com/l/YeBS>

PPT AI Generator – SlideGPT

What is Business ESG?

ESG, Environmental, Social, Governance, Definition

- **ESG Framework:** ESG refers to Environmental, Social, and Governance factors that measure the sustainability and ethical impact of an investment in a business or industry.
- **Environmental Considerations:** The environmental aspect of ESG encompasses the impact of a company's operations on the environment, including resource usage, emissions, and waste management.
- **Social Considerations:** The social aspect of ESG evaluates a company's relationships with its employees, stakeholders, and the communities in which it operates, focusing on diversity, labor practices, and human rights.
- **Governance Considerations:** The governance aspect of ESG assesses the internal systems and controls of a company, including leadership, executive pay, shareholder rights, and ethical business practices.



Photo by Omar Quezzi on Unsplash

Environmental Considerations

Environmental Impact, Climate Change, Carbon Footprint, Renewable Energy

- **Environmental Impact:** Assessing and mitigating the impacts of business activities on the natural environment, ecosystems, and resource depletion.
- **Climate Change:** Understanding and addressing the contribution of business activities to climate change through the reduction of greenhouse gas emissions and adaptation strategies.
- **Carbon Footprint:** Measuring and managing the total amount of greenhouse gases emitted directly or indirectly by a company, including Scope 1, 2, and 3 emissions.
- **Renewable Energy:** Exploring and investing in sustainable and renewable energy sources to reduce reliance on non-renewable resources and minimize environmental impact.



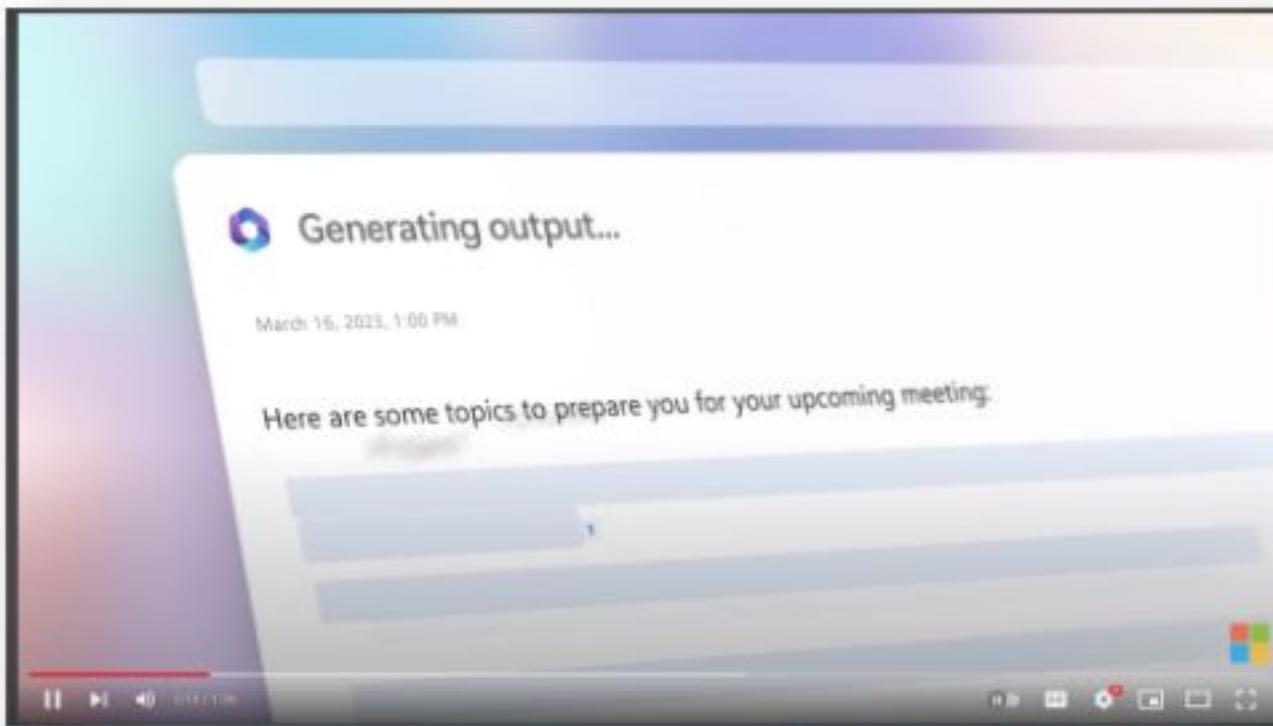
Photo by Tomasz Bazydłowski on Unsplash

<https://slidesgpt.com/l/YeBS>

Introduction to Business Process Automation

AI Applications – Microsoft 365 Copilot

- Virtual Assistant
 - Word / Excel / PowerPoint / Outlook / Teams
- Ad: <https://youtu.be/S7xTBa93TX8>

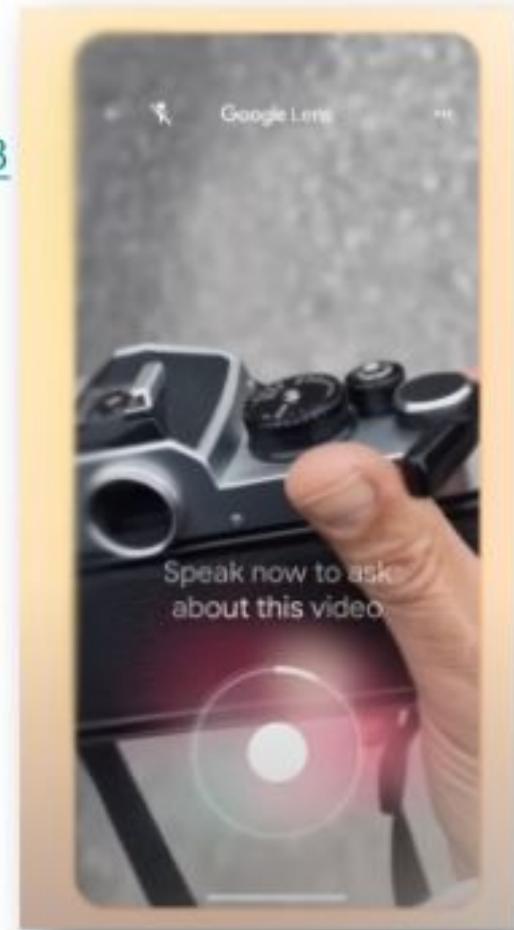
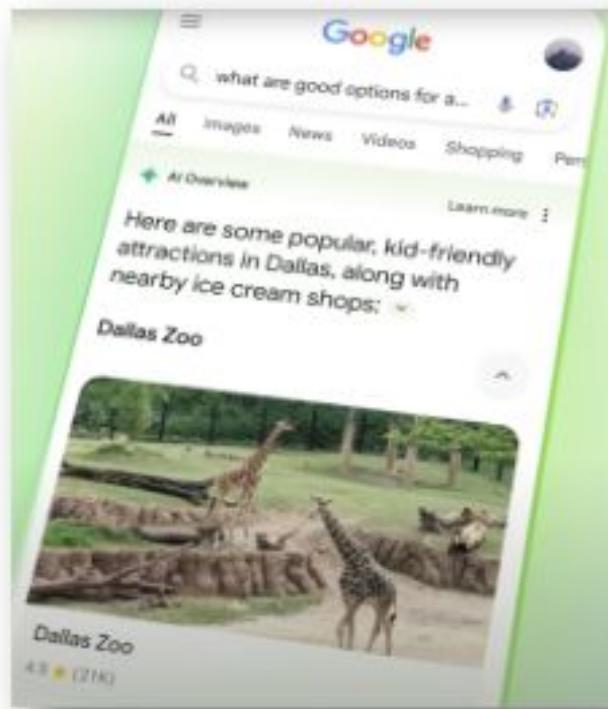


Introduction to Business Process Automation

AI Applications – Gemini

- Geolocation + Image/Video as Inputs
- Ad:

<https://youtu.be/s4InWsd-J6g?si=rwCwgMyHwUb40GAY&t=58>



Partners choose Microsoft for Data & AI

Accelerate time to value
with best in class platform & services



Pretrained AI
Services



Global Data
Services



Comprehensive
Platform

Innovate with AI everywhere –
in the cloud, at edge and on-premises



Cloud



Edge



On-premises

Use any language, any development
tool and any framework



python™



PYTORCH



ONNX



R



TensorFlow™



Spark

Benefit from industry-leading security, privacy,
compliance, transparency, and AI ethics standards

>90% of Fortune 500 companies
use Microsoft Cloud

AI “Accelerators” – Cognitive Services

AI “Accelerators”

Solution specific
AI services
and patterns

Azure Bot Service
[Cognitive Services](#)

Vision	Speech	Language	Knowledge								
What is in the image or video? Intelligent Image insights A photograph of four people in business attire sitting around a table, engaged in a discussion. <table border="1"><tr><td>Category</td><td>People; 5 faces</td></tr><tr><td>Adult/Racy?</td><td>False/False</td></tr><tr><td>Dominant colors</td><td>□ ■ ■ ■</td></tr><tr><td>Accent color</td><td></td></tr></table> Computer Vision	Category	People; 5 faces	Adult/Racy?	False/False	Dominant colors	□ ■ ■ ■	Accent color		Give me directions to the nearest local branch Speech to text Convert spoken audio to text Convert text to spoken audio Extract intent of user	Play today's customer call recording Natural Language Processing <div style="border: 1px solid gray; padding: 5px;">Intent: PlayCall Content: Customer# DateTime.date: today</div> Now Playing 11/29/2016 Customer Call	QnA Pair of this site? Automatic extraction of questions and answers What are your hours today? Today we are open from 7:00 AM to 10:00 PM. Do you have vegetarian options? Yes, we have vegetarian options available.
Category	People; 5 faces										
Adult/Racy?	False/False										
Dominant colors	□ ■ ■ ■										
Accent color											
		Language Understanding	QnA Maker								

AI “Accelerators” – Cognitive Services



Example: Industry leading neural text to speech

Azure AI is built with a focus on customer centricity. We don't pretend to beat champions at games or design toys to attract attention. We build technology to help customers leverage AI to create life-changing experiences. If you've paid proper attention to this talk, you know how to leverage Azure AI to drive more ACR. But wait, there's more to come.



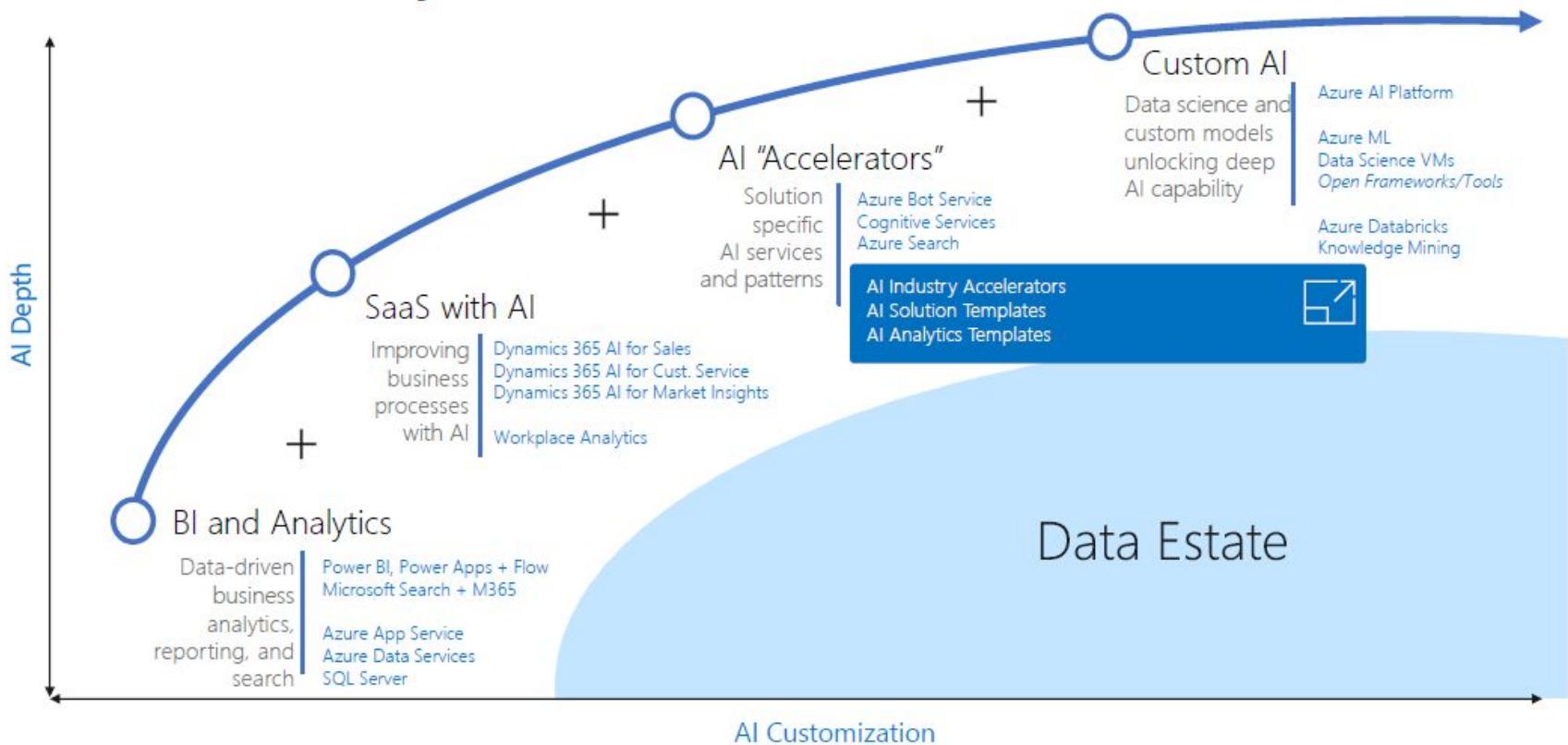
Sample 1



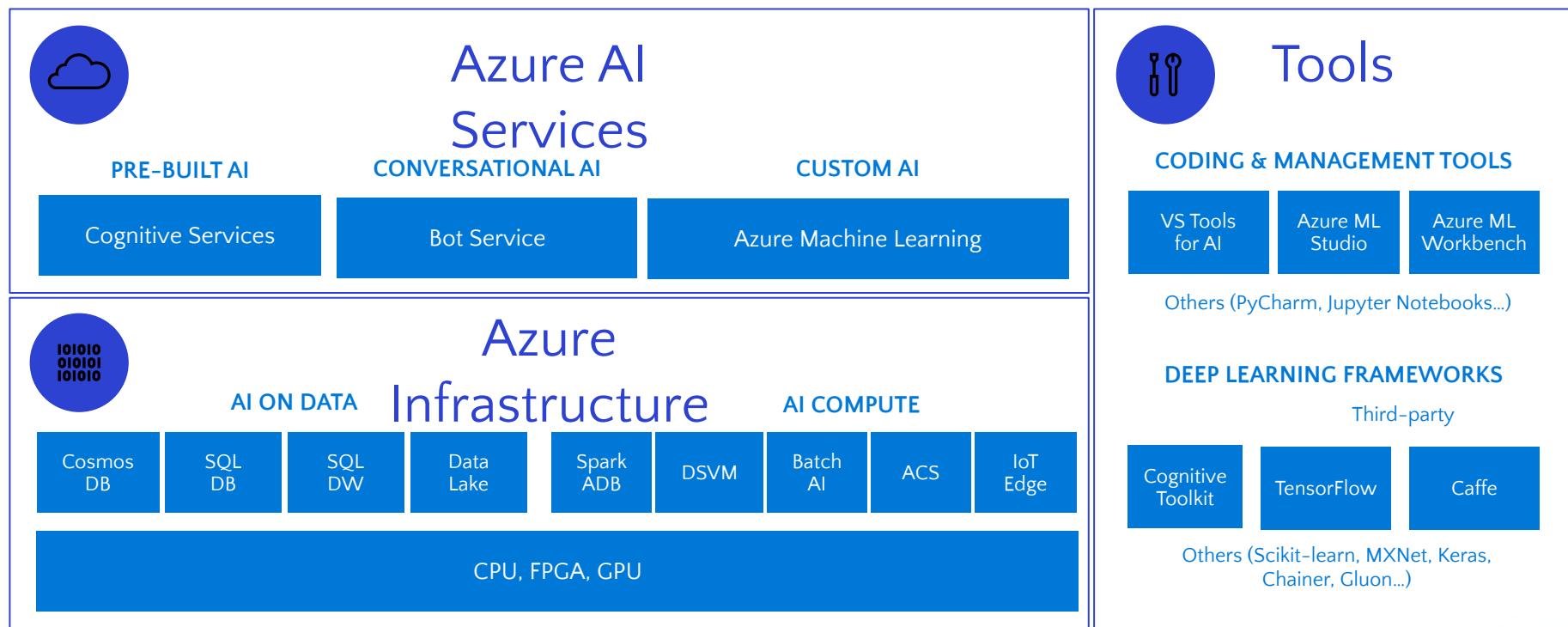
Sample 2

› Get started today: <http://aka.ms/NeuralTTSPreview>

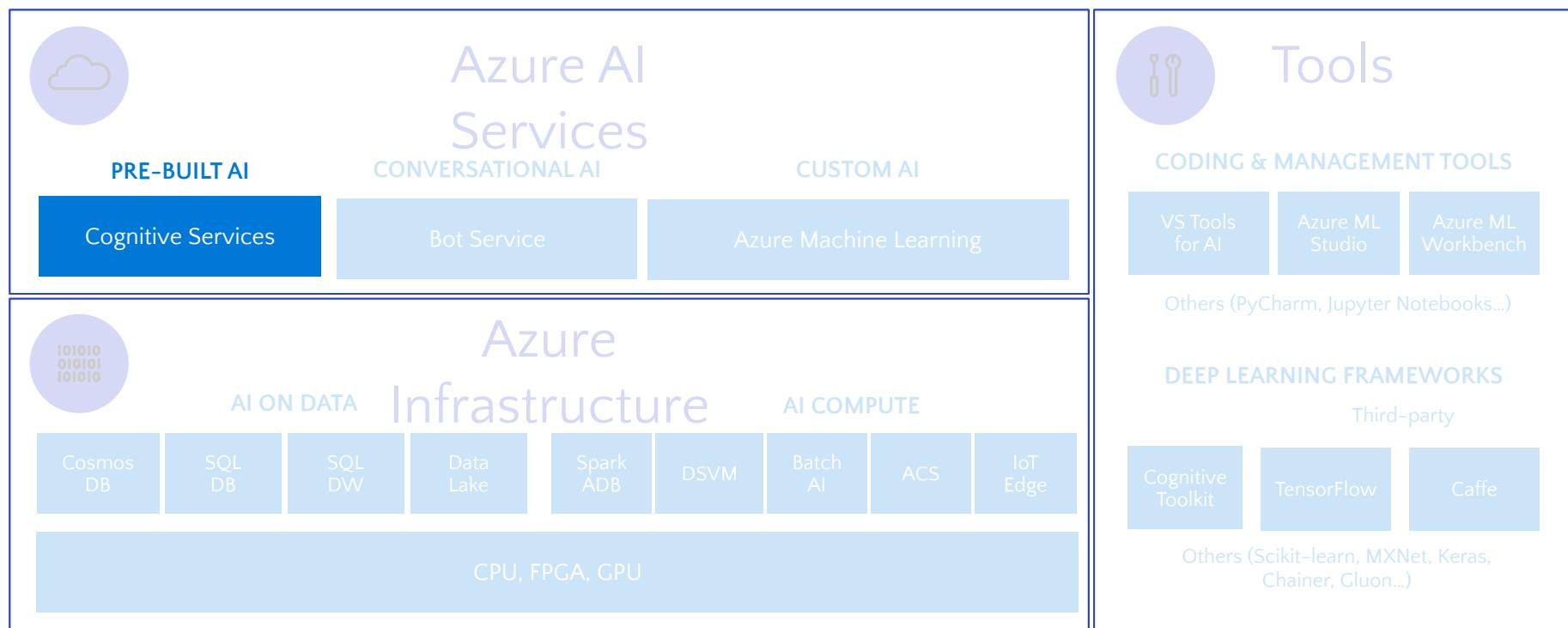
The AI Journey – Where to Start



Microsoft AI Platform



Microsoft AI Platform

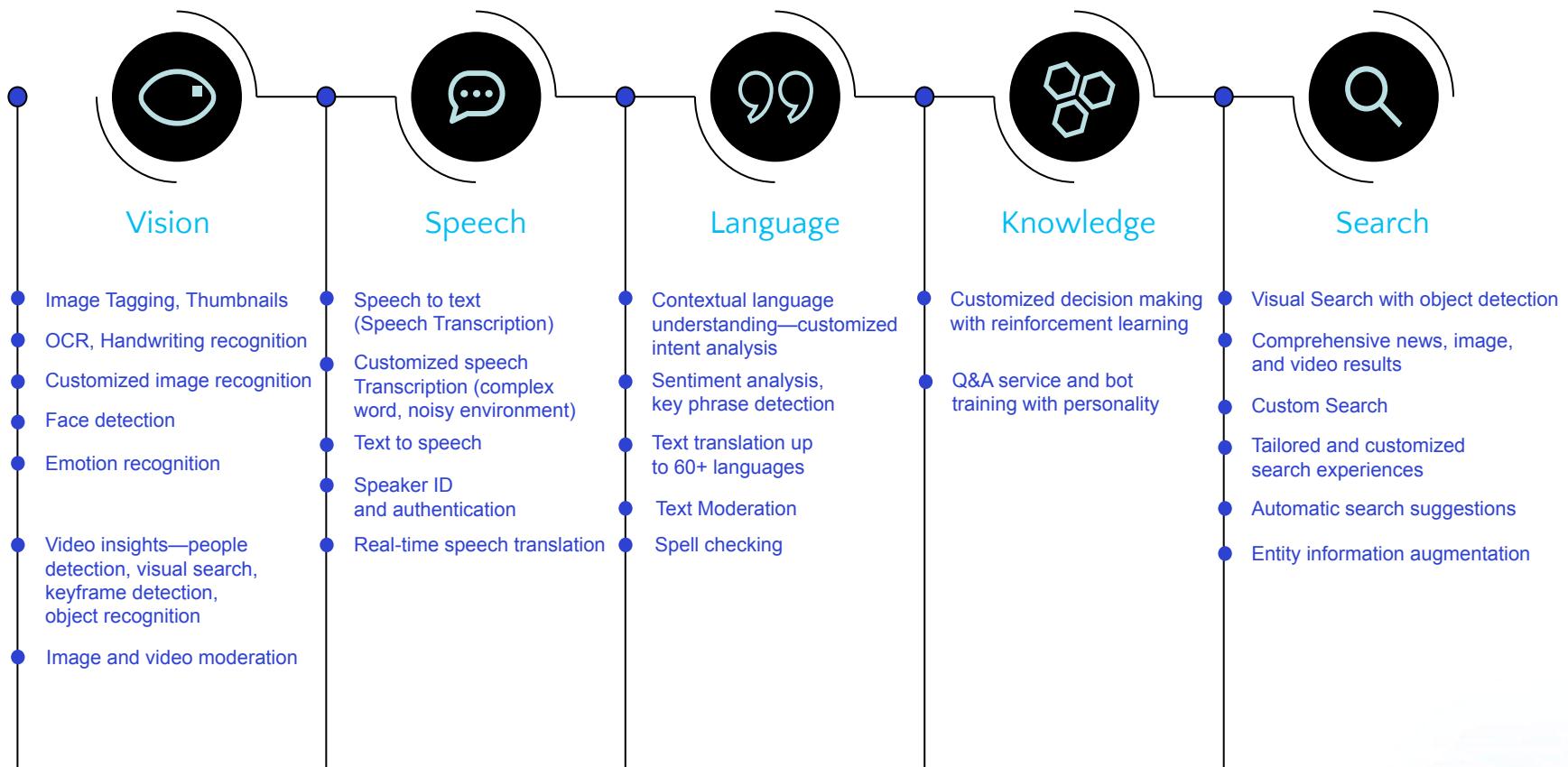


Azure Cognitive Services

A set of **simple APIs** that harness **Machine Learning**
so you can add AI (without needing a deep understanding of AI)



Azure Cognitive Services



Computer Vision



FEATURE	VALUE
NAME:	
Description	{ "tags": ["indoor", "table", "sitting", "black", "pair", "laying", "white", "remote", "sink"], "captions": [{ "text": "a pair of black headphones on a table", "confidence": 0.307312727 }] }
Tags	[{ "name": "indoor", "confidence": 0.9374284 }, { "name": "tool", "confidence": 0.9374284 }, { "name": "brush", "confidence": 0.4960692 }, { "name": "design", "confidence": 0.4172834 }, { "name": "key", "confidence": 0.29472214 }, { "name": "artisan", "confidence": 0.136394173 }, { "name": "knife", "confidence": 0.1352209 }]

Custom AI – Knowledge Mining

Custom AI

Data science and
custom models
unlocking deep
AI capability

[Azure AI Platform](#)

Azure ML

[Knowledge Mining](#)

Domain specific pretrained models

To simplify solution development



Familiar Data Science tools

To simplify model development



Popular frameworks

To build advanced deep learning solutions



Productive services

To empower data science and development teams



Powerful infrastructure

To accelerate deep learning



From the Intelligent Cloud to the Intelligent Edge

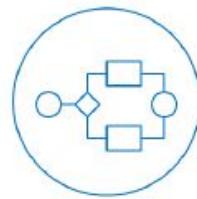


Custom AI – Azure ML

Custom AI
Data science and
custom models
unlocking deep
AI capability

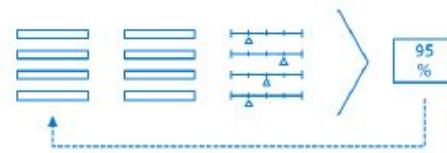
Azure AI Platform
[Azure ML](#)
Knowledge Mining

Machine learning DevOps



Azure DevOps integration for CI/CD

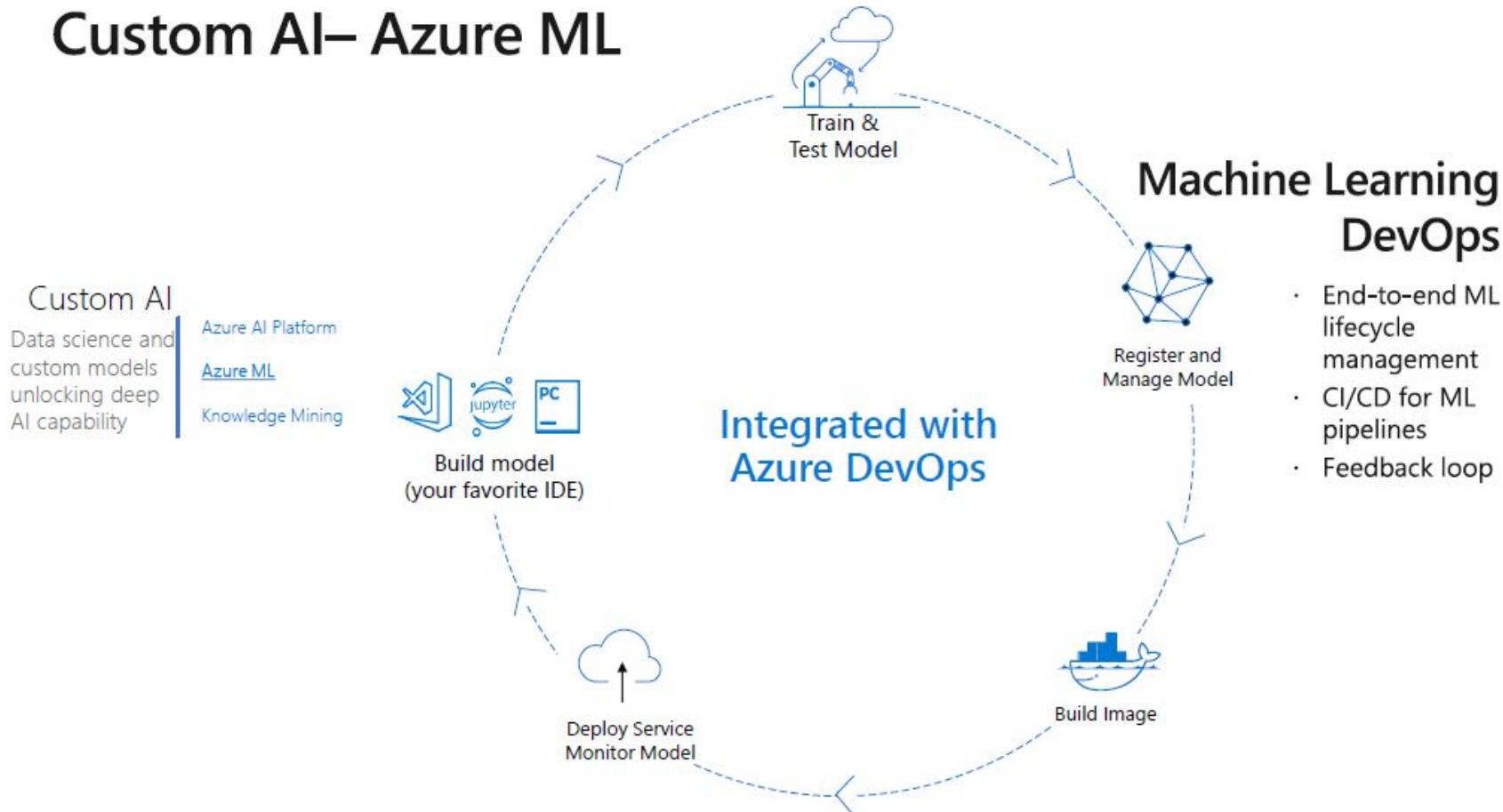
Automated machine learning



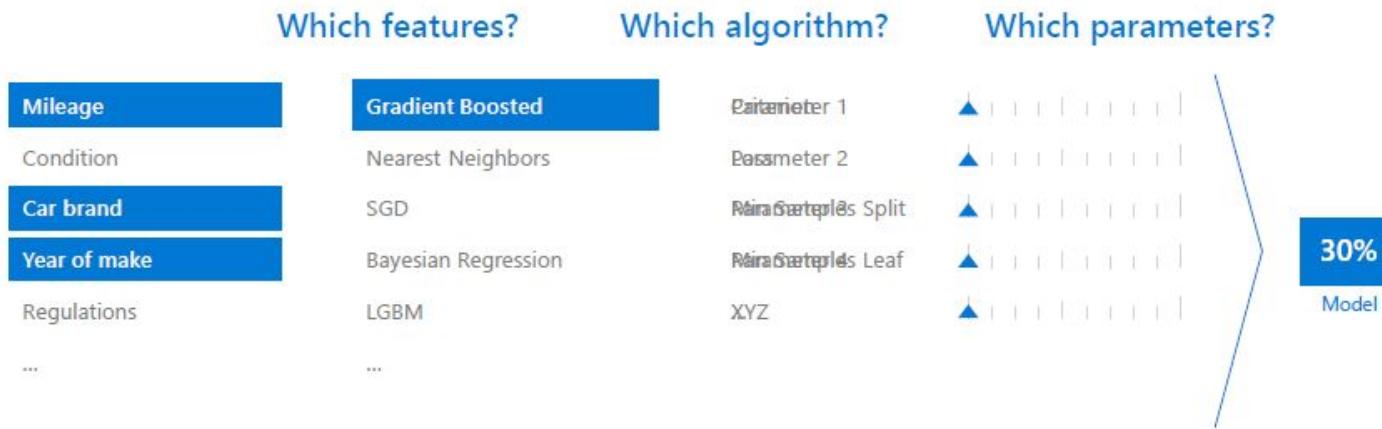
Accelerated model building

Custom AI – Azure ML

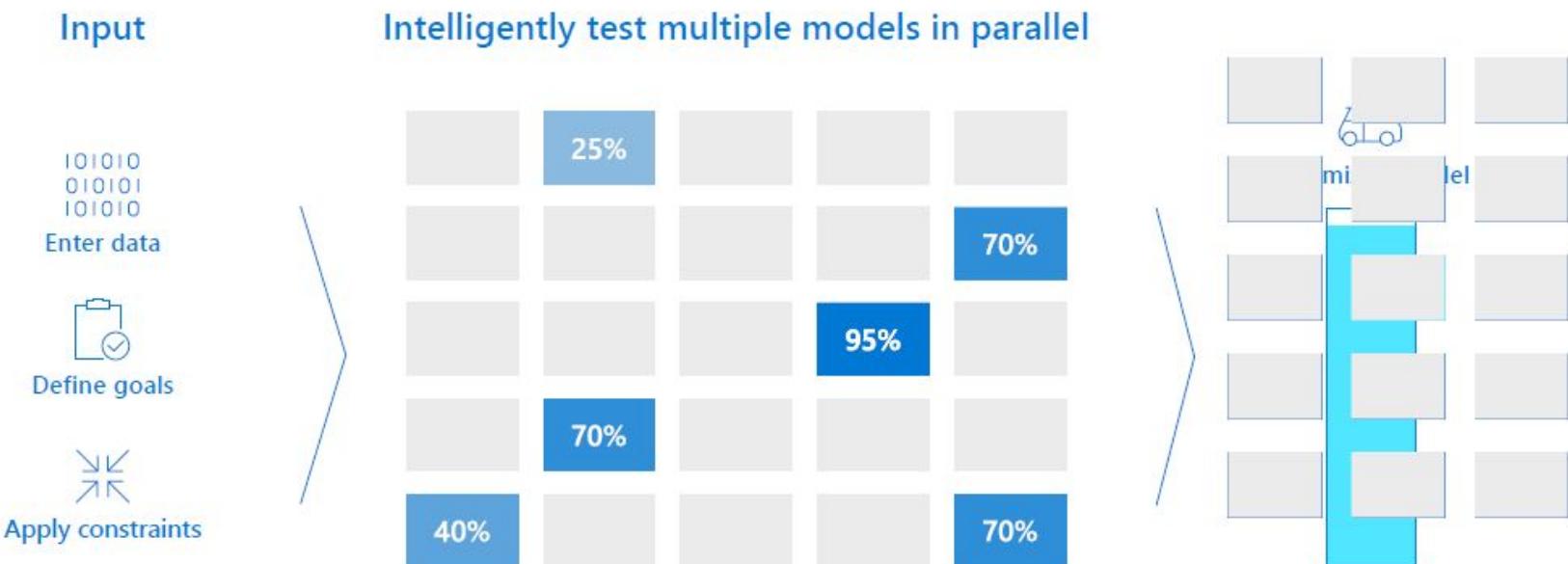
Custom AI– Azure ML



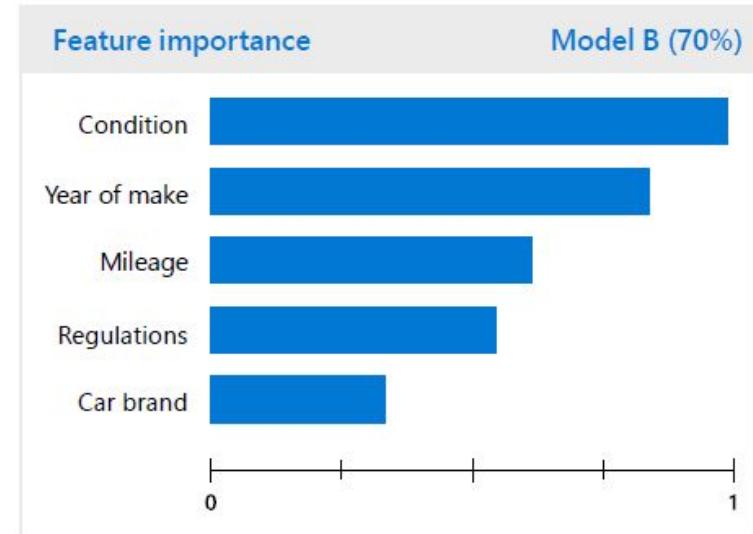
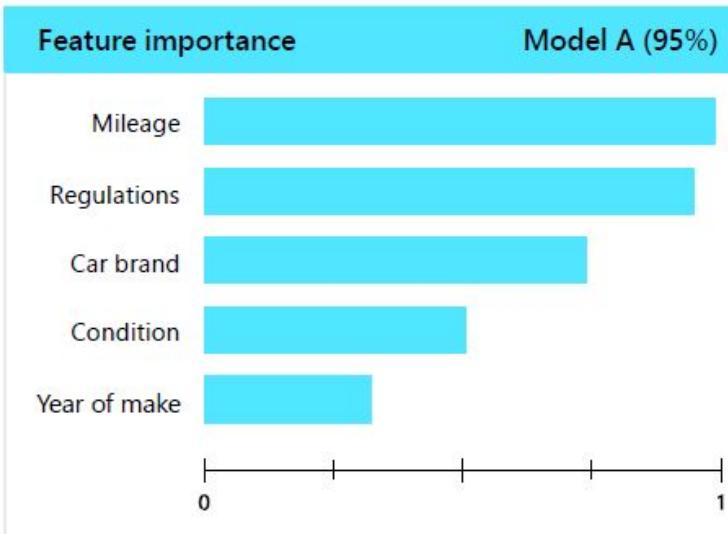
Model Creation is typically a time consuming process



Azure Machine Learning accelerates model development with automated machine learning



Azure Machine Learning accelerates model section with model explainability



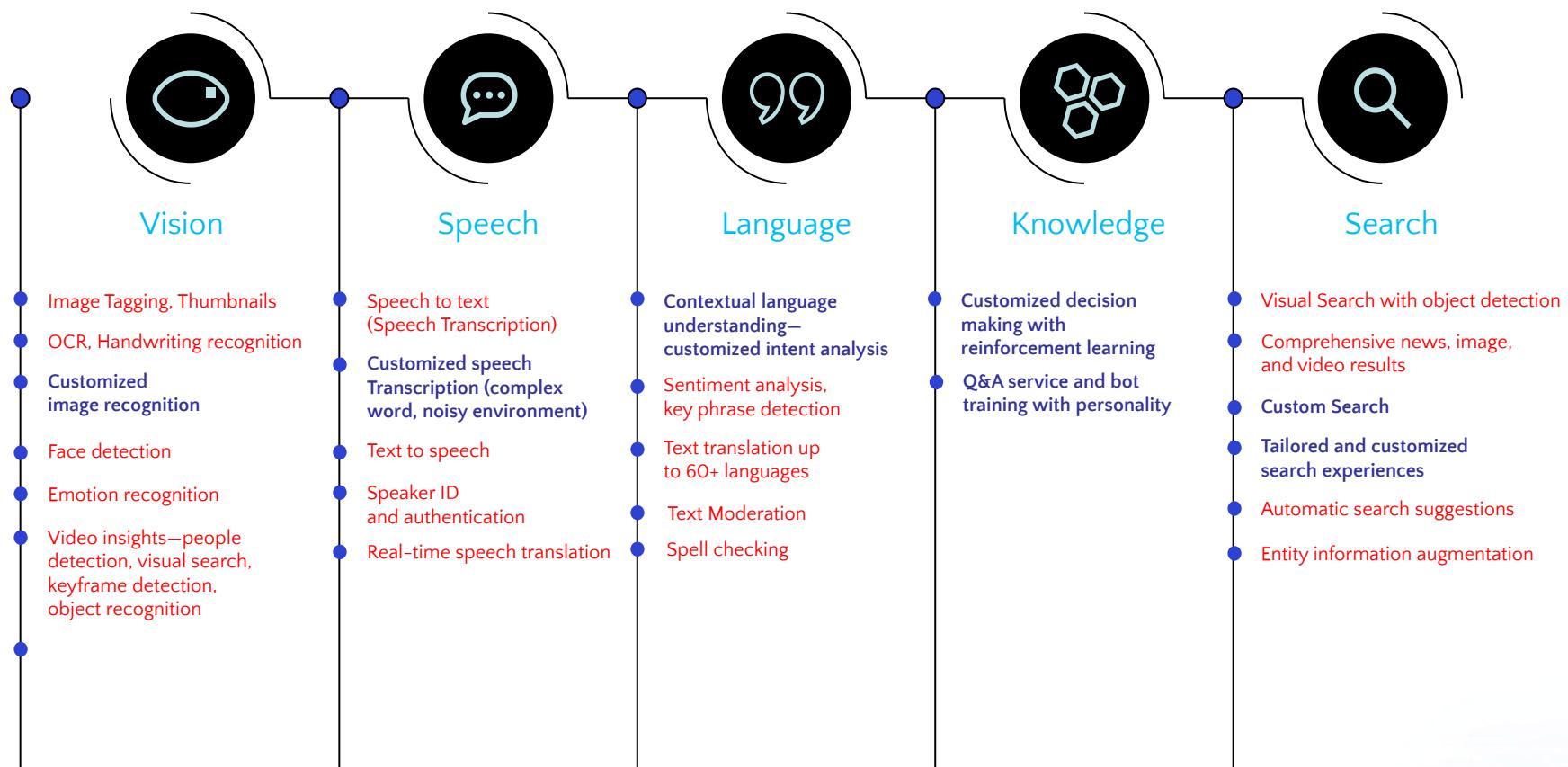
Bots Case Story – 1000+ Companies Engaging us

Scenario	Retail	Finance	Insurance	Telecoms	Government	Automotive	Manufacturing	Healthcare	Media	Events
Customer service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Customer retail	✓	✓	✓	✓				✓	✓	
Audio/speech analysis	✓	✓	✓	✓	✓				✓	
Translation		✓	✓							
Surveillance		✓			✓					
Knowledge extraction	✓	✓	✓				✓			
Video/photo analysis		✓			✓				✓	
Product identification	✓						✓	✓	✓	
Digital assistant						✓				
Footfall analysis	✓						✓			✓
HD maps and object detection							✓			

Bot Highlights – Improvements Everywhere



Azure Cognitive Services



Microsoft Learning - AI

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

Conversational AI

Add intelligent chat to your apps and channels with AI-powered bots that incorporate features like natural language processing, intent recognition, and more.



Create bots with Azure Bot Service

Bots allow customers to interact with applications in a conversational way using text, graphics, or speech. From a simple question and answer dialog, to sophisticated pattern matching and state tracking, learn how to build a chat bot with QnA Maker and LUIS.

[Start the course >](#)

Create interactive conversational bots for Microsoft Teams

Learn how to create bots for custom Microsoft Teams apps, allowing users to interact with your web service through text, interactive cards, and task modules. Bots can be a few simple commands, or complex virtual assistants powered by AI and natural language.

[Start the course >](#)

Building bots with REST

Most Bot Framework bots are built using the Bot Framework SDK, which organizes your bot and handles all conversations for you. An alternative to the SDK is to send messages directly to the bot using a REST API. You can send and receive messages with users on any channel.

[Learn about building bots >](#)

Azure Cognitive Services

<https://docs.microsoft.com/en-us/learn/certifications/roles/ai-engineer>

AI Engineer certification path

The ai engineer certification path is organized into 3 levels: Fundamentals, Associate and Expert.

View by:

Azure AI Engineer ▾

An optional start for those new to Azure



FUNDAMENTALS CERTIFICATION

[Microsoft Certified: Azure Fundamentals](#)

Complete an associate certification



ASSOCIATE CERTIFICATION

[Microsoft Certified: Azure AI Engineer Associate](#)

AI Engineer certifications

Explore ai engineer certifications most sought after by employers



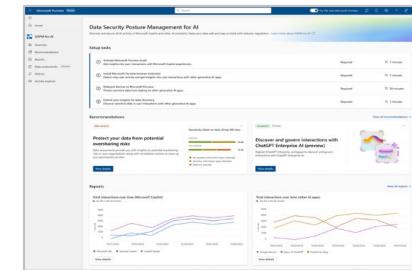
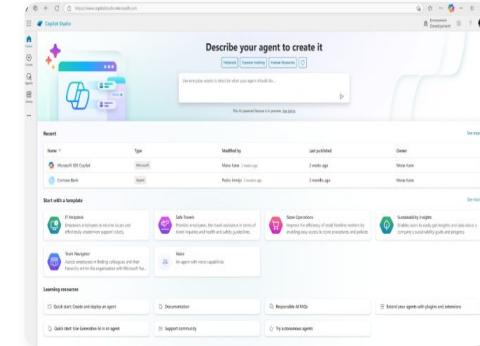
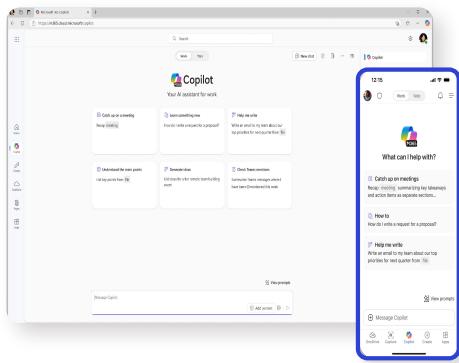
[Microsoft Certified: Azure AI Engineer Associate](#)

Microsoft 365 Copilot Chat

Microsoft 365 Copilot Chat is at the center of Microsoft 365 Copilot.

Advantage:

- Powerful : Create content and catch up quickly.
- Insightful : Ask questions to help you gather information.
- Goes where you go : Use Copilot Chat on the web, from the Copilot desktop app, Outlook, Microsoft Teams, PowerPoint, Word, Excel, OneNote, or on your mobile device.



Chat

Free AI chat -- powered by GPT 4o and grounded in the web

+

Agents

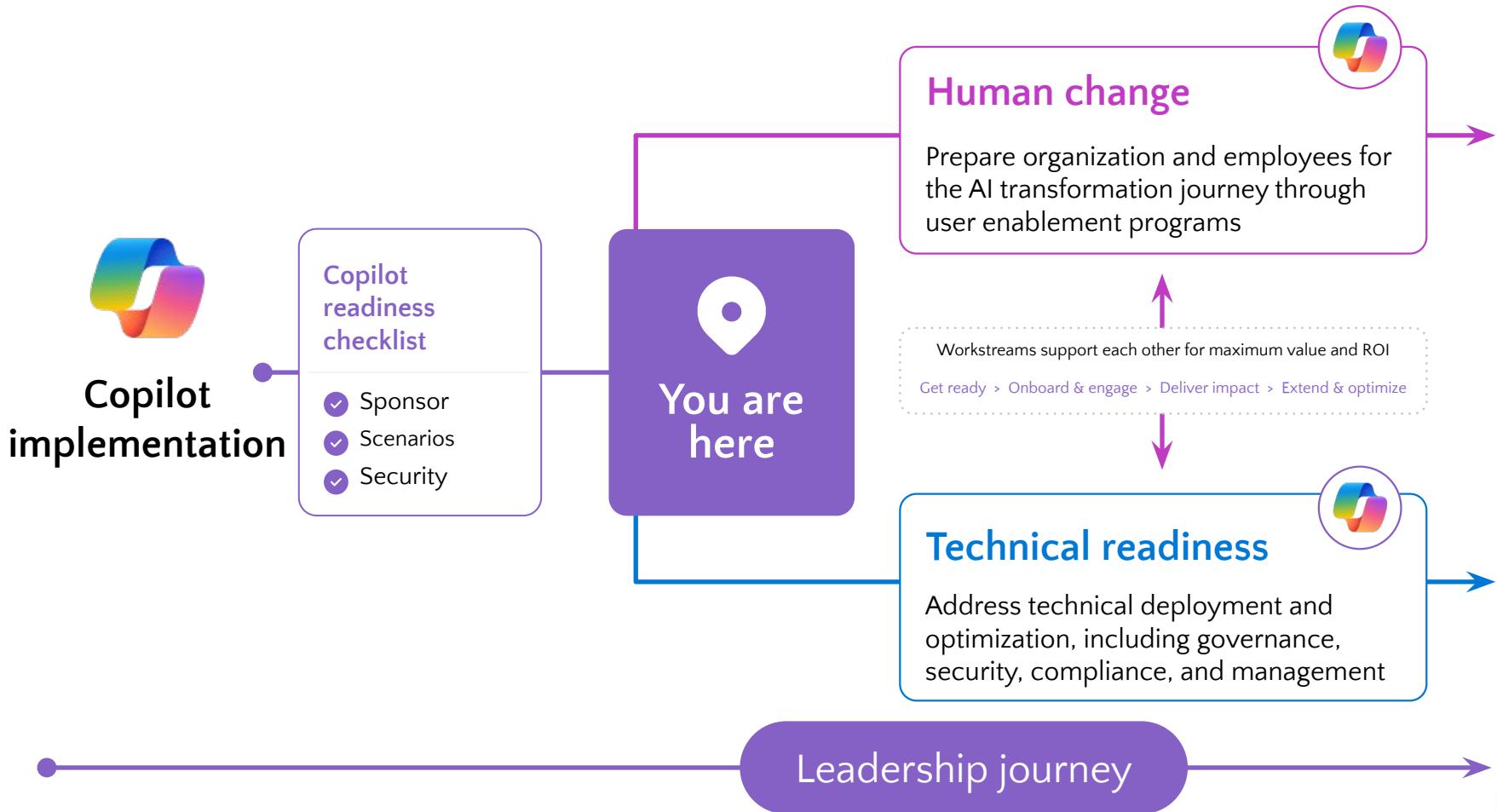
Integrated into the chat experience and paid for on a consumption basis

+

IT Controls

Enterprise Data Protection and management

Microsoft 365 Copilot Implementation



Accelerate your AI workforce transformation

Communications

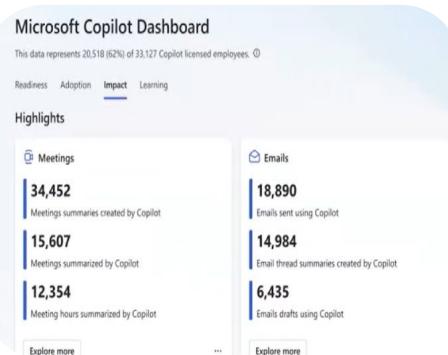


This screenshot shows the 'Copilot Early Adopters' community page. It features a large Microsoft Copilot logo at the top. Below it, there's a section titled 'Copilot Early Adopters' with a sub-section 'This is a space for everyone to learn from one another and gather tips and tricks on how to use Copilot in your organization.' At the bottom, there are tabs for 'Conversations' (which is selected), 'About', 'Files', and 'Events'.

Copilot Communities to facilitate user enablement

- Share best practices
- Access company announcements
- Seek support from peers and IT

Measurement



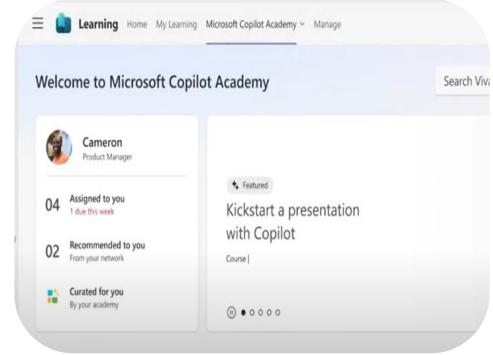
This screenshot shows the Microsoft Copilot Dashboard. It has a header with tabs for 'Readiness', 'Adoption', 'Impact' (which is selected), and 'Learning'. Below the header, there's a 'Highlights' section with two columns of data:

Category	Value
Meetings	34,452
Meetings summarized by Copilot	15,607
Meeting hours summarized by Copilot	12,354
Emails	18,890
Emails sent using Copilot	14,984
Emails drafts using Copilot	6,435

Copilot Analytics for ROI and impact assessment

- Copilot Dashboard for leaders
- Viva Insights for customizable analysis
- Copilot business impact reports

Skilling



This screenshot shows the Microsoft Copilot Academy interface. It has a header with tabs for 'Learning', 'Home', 'My Learning', 'Microsoft Copilot Academy', and 'Manage'. Below the header, there's a 'Welcome to Microsoft Copilot Academy' message. On the left, there's a profile card for 'Cameron Product Manager' with a '4' assigned to him. On the right, there are sections for 'Featured' (with a 'Kickstart a presentation with Copilot' card) and 'Curated for you' (with a 'By your academy' card).

Copilot Academy for user skill development

- Curated learning paths
- Hands-on prompt guidance
- Content created by Microsoft experts

aka.ms/CopilotAnalytics
aka.ms/CopilotDashboard

Microsoft Copilot Studio

Build your own agents

Create and publish a custom agent for your organization using the intuitive building experience enhanced with large language models and generative AI

Customize Microsoft Copilot

Extend and customize 1st party agents with your own enterprise scenarios. Copilot Studio will be included with the Microsoft 365 Copilot SKU.

Connected platform

Integrates and exposes various Microsoft's conversational AI technology stacks – integrated with Azure AI Studio, Azure Cognitive Services, Azure Bot Framework, Power Platforms AI models, and more

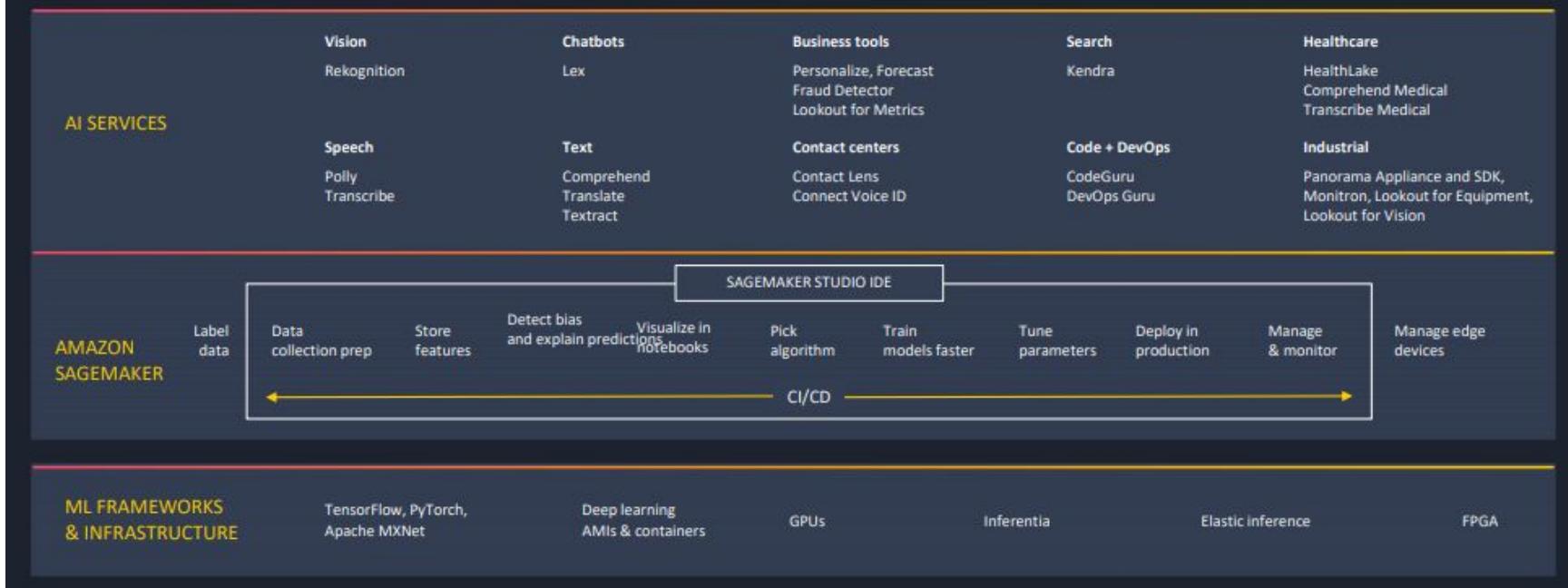
Manage experiences

Governance and control features to monitor usage with full visibility of customizations, standalone agents as well as who is building and customizing them.

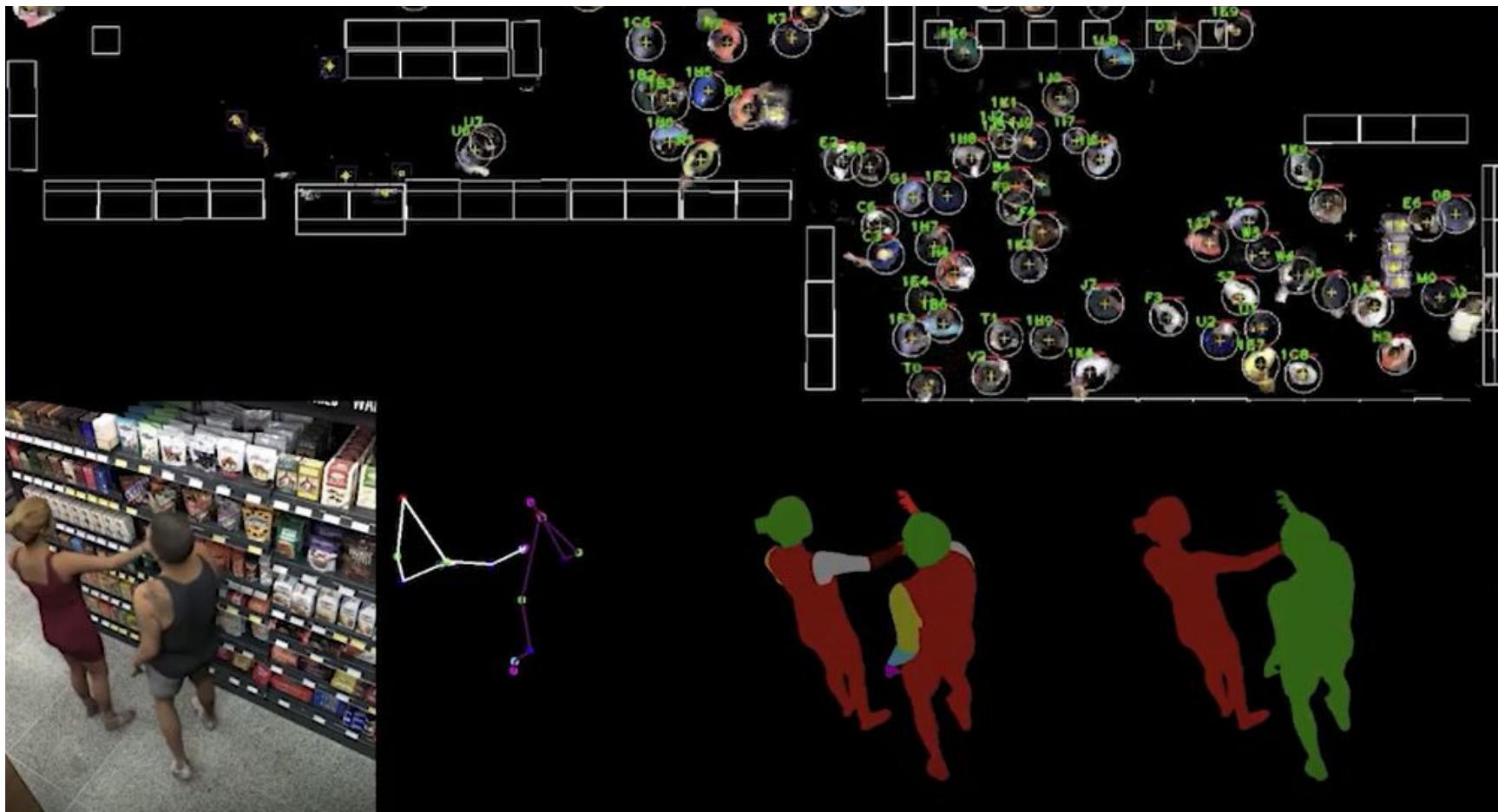
The screenshot shows the Microsoft Copilot Studio interface. The left sidebar includes sections for Home, Building blocks (GPTs, Topics, Plugin actions, Prompts), Copilots, Create a copilot, Extend Microsoft Copilot (Publish, Analytics), Settings, AI integration tools, Channels, and Test your copilot. The main content area is titled "Northwind Trader" and shows a preview of the "Boost your conversations" feature, which allows users to answer unanticipated questions in real time based on chosen content. It includes a "Use generative answers" button and "Advanced options". Below this are sections for "Extend a Microsoft Copilot" (with a "Go to plugins" button), "Add plugins for dynamic chaining" (with a "Go to plugins" button), and "Meet people where they are" (with a "Go to publish" button).

The AWS ML Stack

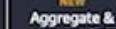
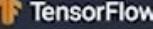
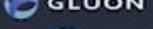
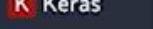
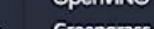
Broadest and most complete set of machine learning capabilities



AWS AI and ML Cases Study



AWS AI and ML Services

AI SERVICES		HEALTH AI		INDUSTRIAL AI				ANOMALY DETECTION		CODE AND DEVOPS									
 NEW	Amazon HealthLake	 Amazon Transcribe Medical	 Amazon Comprehend Medical	 NEW	AWS Panorama + Appliance	 NEW	Amazon Monitron	 NEW	Amazon Lookout for Equipment	 NEW	Amazon Lookout for Vision								
 VISION	 SPEECH	 NEW	 TEXT	 NEW	 SEARCH	 CHATBOTS	 PERSONALIZATION	 FORECASTING	 FRAUD	 CONTACT CENTERS									
 Amazon Rekognition	 Amazon Polly	 Amazon Transcribe Medical	 Amazon Comprehend Medical	 Amazon Translate	 Amazon Textract	 Amazon Kendra	 Amazon Lex	 Amazon Personalize	 Amazon Forecast	 Amazon Fraud Detector	 Contact Lens								
 Voice ID For Amazon Connect																			
ML SERVICES																			
 Label data	 NEW	Aggregate & prepare data	 NEW	Store & share features	Auto ML	Spark/R	 NEW	Detect bias	 Visualize in notebooks	 Pick algorithm	 Train models	 Tune parameters	 NEW	Debug & profile	 Deploy in production	 Manage & monitor	 NEW	CI/CD	Human review
SAGEMAKER STUDIO IDE																			
 TensorFlow	 mxnet	 PyTorch	 Intel RL Coach	 GLUON	 Keras	 DeepLearningLibrary	 Deep Learning AMIs & Containers	 GPUs & CPUs	 Elastic Inference	 Trainium	 Inferentia	 OpenVINO Greengrass							

AWS AI and ML Cases Study

Sales Services ▾ Search for services, features, marketplace products, and docs [Option+S] Isengard/Administrator/olivierk-isengard@olivierk N. Virginia Support ▾

Amazon Rekognition

Custom Labels New

Use Custom Labels

Demos

Object and scene detection

Image moderation

Facial analysis

Celebrity recognition

Face comparison

Text in image

PPE detection New

Video Demos

Video analysis

Metrics

Metrics

Additional Resources

Getting started guide

Download SDKs

Developer resources

Pricing

Read feature documentation to learn more

Issues or questions? Use feedback button on bottom-left.

Summarization results

Persons with required equipment (ids): []

Persons without required equipment (ids): []

Persons indeterminate (ids): [0]

Per-person results

Person ID: 0/D

Person detected 99.9 %

Face detected 99.9 %

Face cover detected 99.9 %

Face cover on nose : false 50.2 %

Head detected 100 %

Summarization inputs

Provide the following Required PPE and Required minimum confidence threshold inputs to get an identifier summary of persons with required PPE, without required PPE, and indeterminate.

Required PPE: Face cover Hand cover Head cover

Required minimum confidence: 80%

Choose a sample image

Use your own image

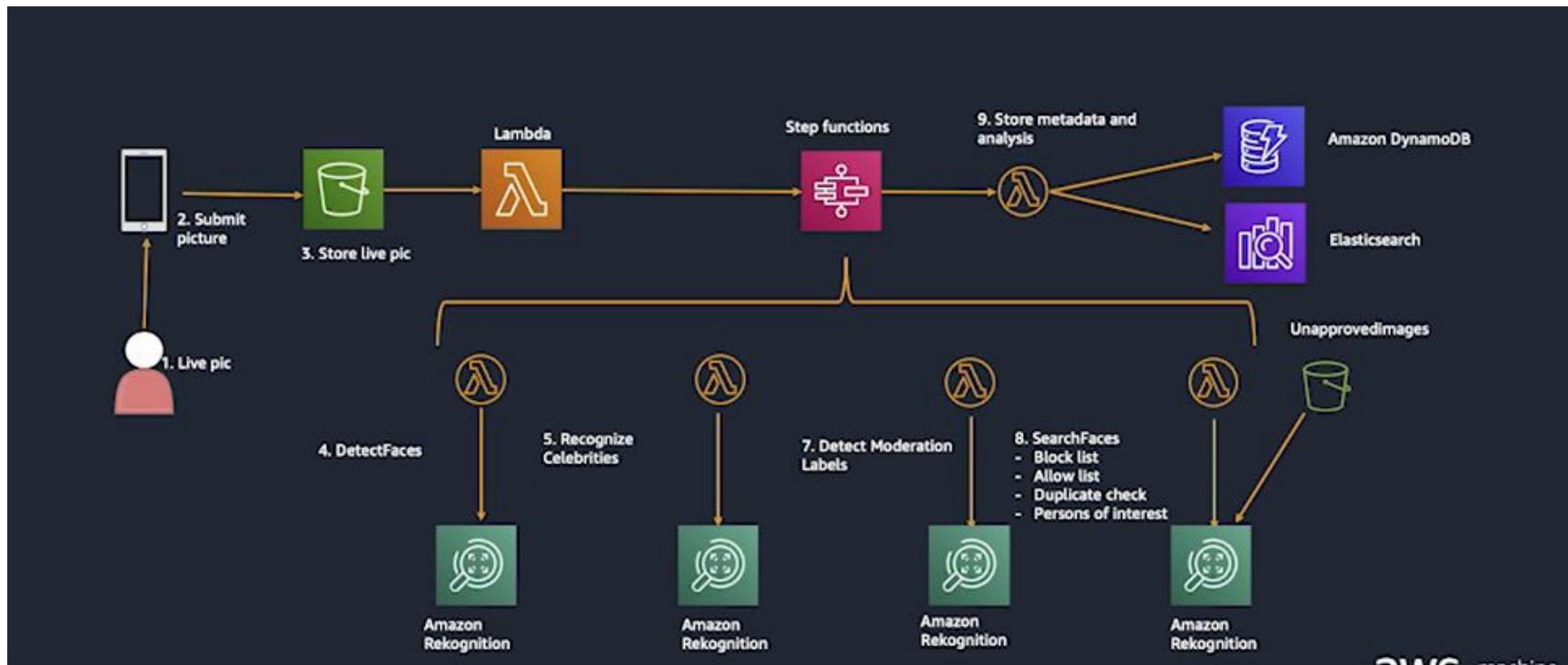
Image must be jpg or png format and no larger than 1MB. Your image will be deleted.

Upload or drag and drop

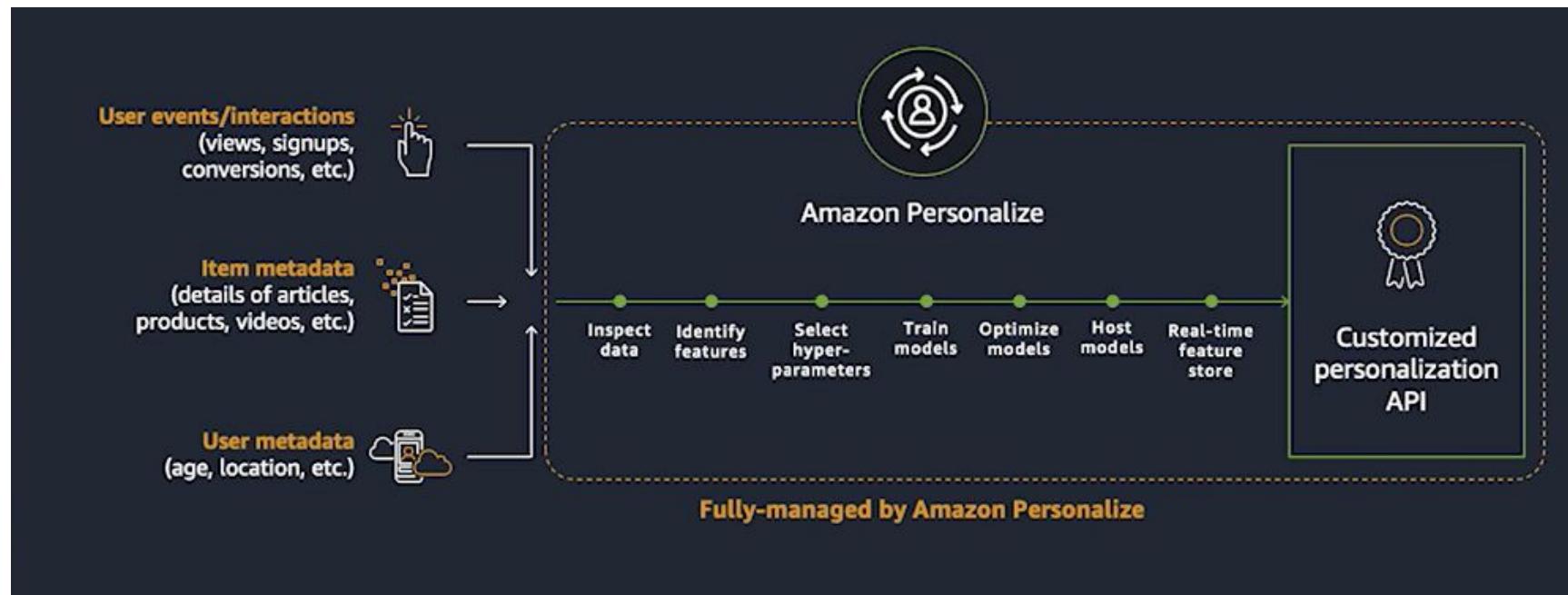
Use image URL

Go

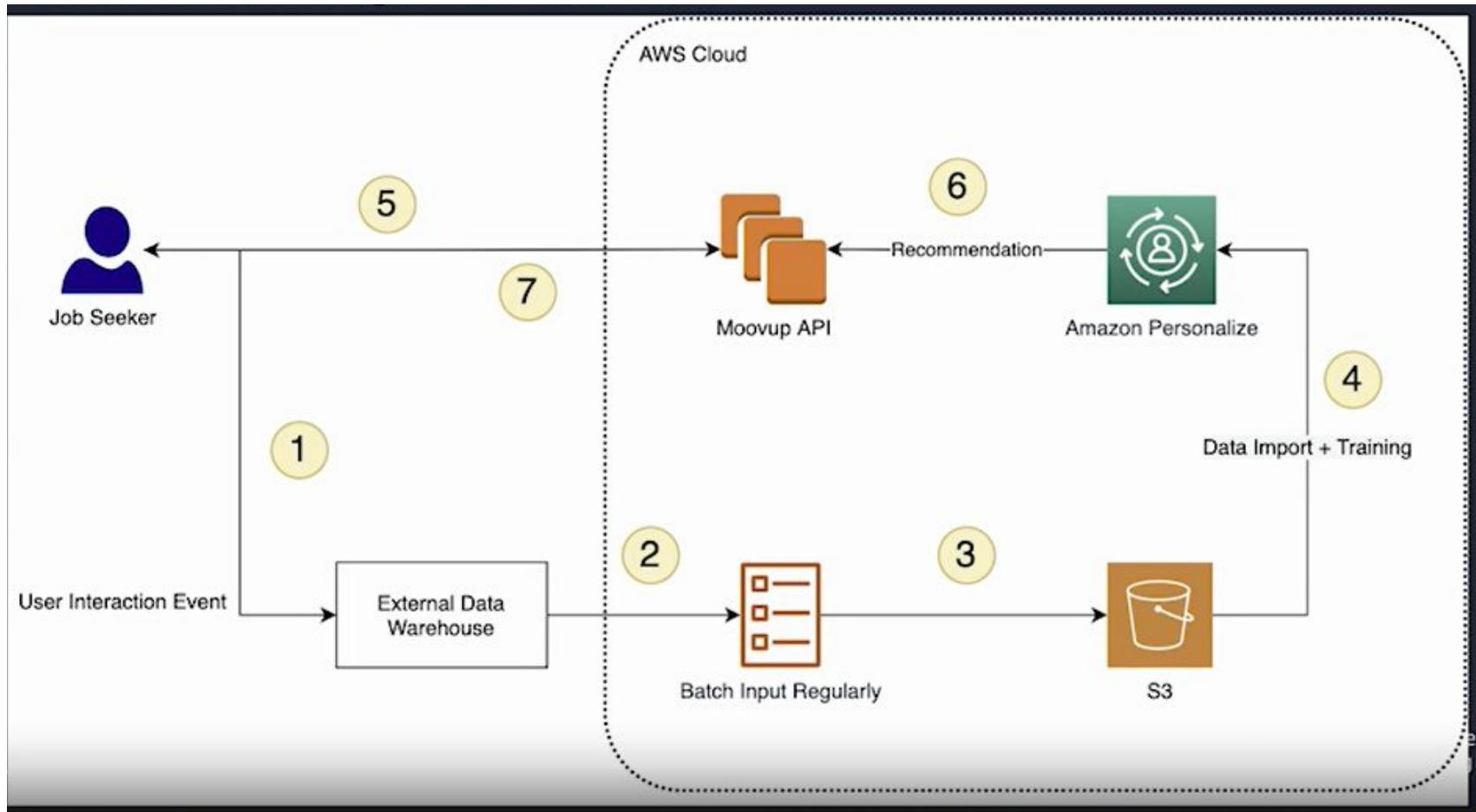
AWS Solution



HOW IT Works – Amazon Personalise



Recommendation System Architecture



Amazon Learning - AI

<https://aws.amazon.com/events/events-content/?awsf.filter-language=language%23english&awsf.filter-topic=event-topic%23ai-ml>

EMB037  [NEW LAUNCH] Understand ML model predictions... Machine learning (ML) models may generate predictions that are not fair, whether because of biased data, a model that contains bias, or bias that emerges over time as real-world conditions change. Likewise, closed-box ML models are opaque, making it	LEVEL 200  [NEW LAUNCH] MLOps for edge devices with ... In this session, learn about Amazon SageMaker Edge Manager, a new capability of SageMaker that helps developers operate machine learning (ML) models on a fleet of edge devices, helping solve challenges with constraints and maintenance of ML	LEVEL 200  [NEW LAUNCH!] Accelerate data preparation with... Preparing training data can be tedious. Amazon SageMaker Data Wrangler provides a faster, visual way to aggregate and prepare data for machine learning. In this session, learn how to use SageMaker Data Wrangler to connect to data sources and use
re:Invent 20-Dec	re:Invent 20-Dec	re:Invent 20-Dec

Case Study

Opening Keynote - Building a smarter and more effective business using AIML on AWS (English Session)

<https://hktw-resources.awscloud.com/ai-machine-learning-web-day/opening-keynote-building-a-smarter-and-more-effective-business-using-aiml-on-aws>

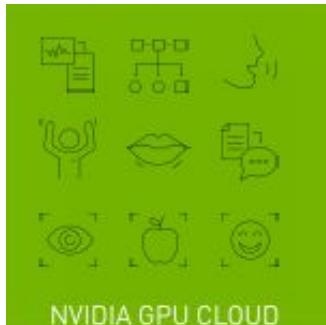
Improving the customer experience of your applications with AWS AI Services (Cantonese session)

<https://hktw-resources.awscloud.com/ai-machine-learning-web-day/improving-the-customer-experience-of-your-applications-with-aws-ai-services>

NVIDIA JARVIS – MULTIMODAL CONVERSATIONAL AI SERVICES FRAMEWORK

NVIDIA JARVIS

Pre-trained Model



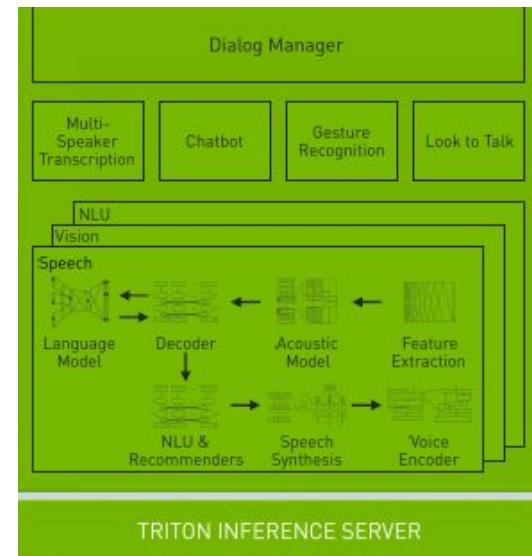
Re-Train



JESSICA: What will you have ready for Wednesday?

DOUGLAS: I expect to have early designs of the packaging.

JESSICA: Great.



CONVERSATIONAL AI IS TRANSFORMING INDUSTRIES



VIDEOCONFERENCE
CC, TRANSLATION, TRANSCRIPTION
200M Meetings per Day



CALL CENTER
500M Calls per Day



SMART SPEAKERS
150M Sold per Year



RETAIL ASSISTANTS
12M Retail Stores

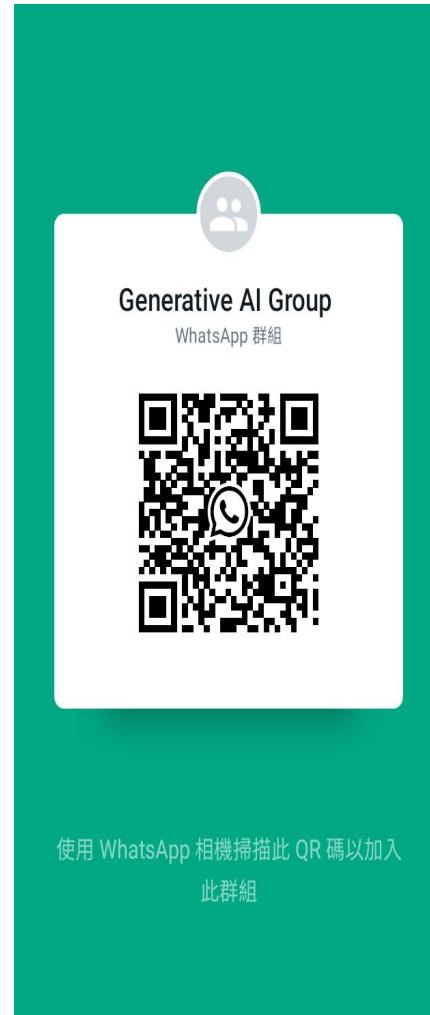


IN-CAR ASSISTANTS
75M New Cars per Year

My Generative AI Group

Please Join My Generative AI Group!

I will update more latest information to all
of you.





HKUSPACE
香港大學專業進修學院
HKU School of Professional and Continuing Education

THANK YOU

