How Data and AI are Shaping the Future of Air Travel

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16 May 2024

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TODAY'S AGENDA

AI at Air New Zealand

Generative AI

Maximising benefit from AI

Managing risks of AI

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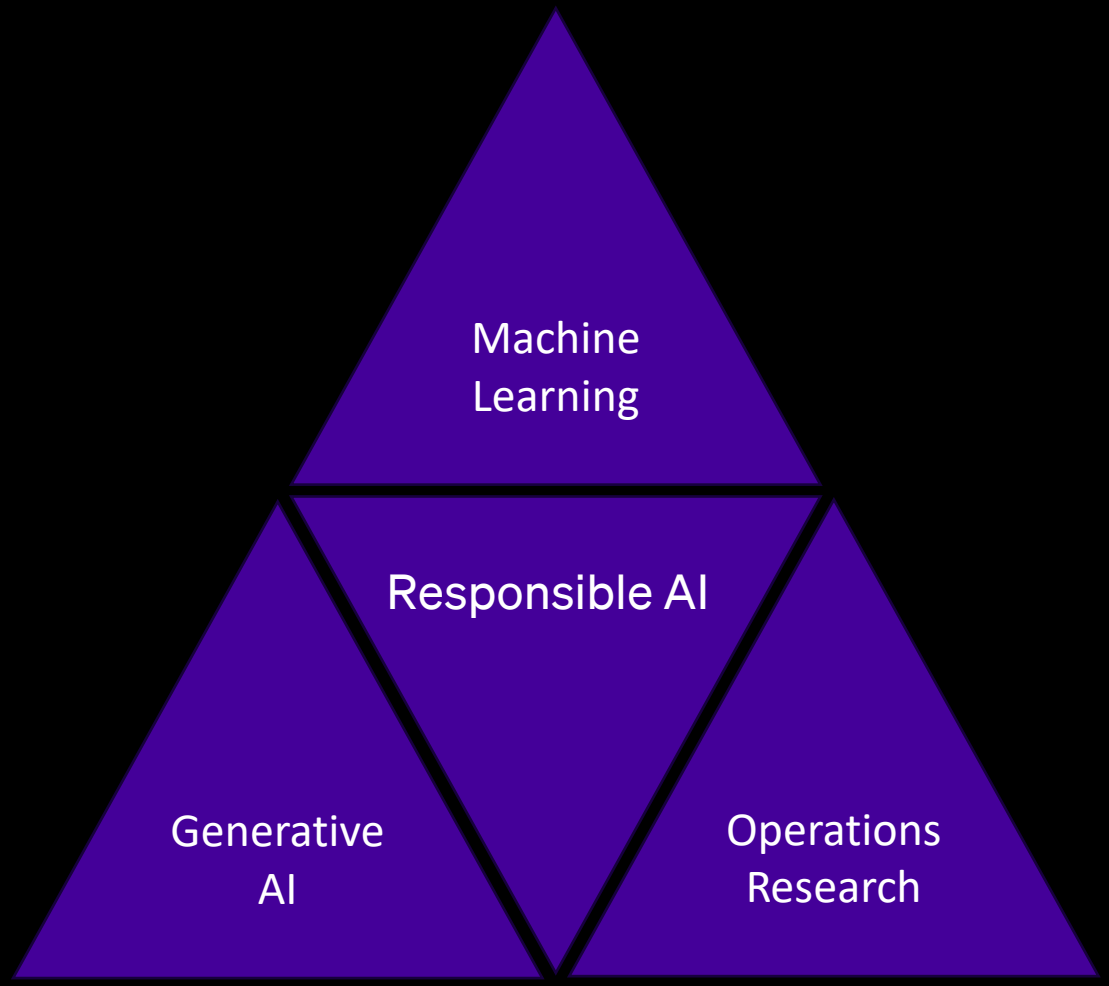
AIRNZ AI



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MACHINE LEARNING

- Making predictions based on patterns observed in historical data
- Example – Predictive Maintenance

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OPERATIONS RESEARCH

- Applying analytical methods to decision making
- Example – allocating flights to planes

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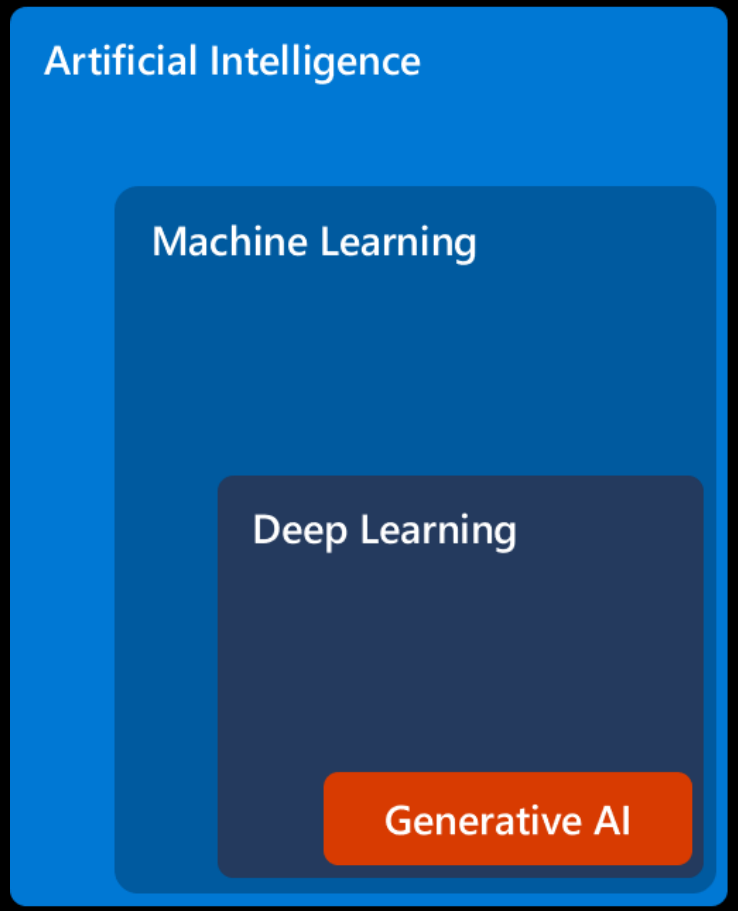
WHAT IS GENERATIVE AI?

Generative AI allows computers to answer questions, produce content, or perform some tasks at a human-like level.
It is particularly good at:

Content creation:
Creating new content such as images, text, or speech that is similar to examples from a given dataset.

Data analysis:
Learn the underlying probability distribution of a given dataset and use this knowledge to generate and identify patterns, make predictions, or generate insights from data.

Automation:
Automate tasks that would otherwise require human input, such as generating reports or responding to customer inquiries to save time or reduce the need for manual labour.



1956 **Artificial Intelligence**
the field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence

1997 **Machine Learning**
subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions

2017 **Deep Learning**
a machine learning technique in which layers of neural networks are used to process data and make decisions

2021 **Generative AI**
Create new written, visual, and auditory content given prompts or existing data.

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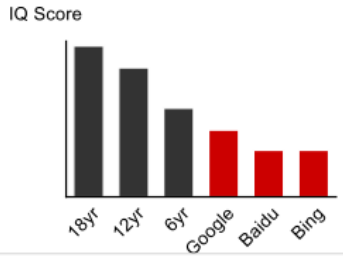
GEN AI REPRESENTS A BIG STEP CHANGE

Generative AI and the explosion of Large Language Models (LLMs) will disrupt the way we work, creating new opportunities.

Today's models attain performance once deemed 20-40 years away

	Element of intelligence: PERCEIVE AND UNDERSTAND	COMMUNICATE AND CREATE	REASON AND PLAN	ACT AND USE TOOLS
Illustrative use:	Image captioning	Facial Synthesis	Digital assistants IQ	Code generation test
6yrs ago… Costly, hand-tuned, proprietary models lagged far behind humans	*"A group of people standing on top of a beach"*			*% Accurate*
Today… General purpose, open access, customizable models rival humans	*"Cross pipe could be a vent, to equalize air pressure, or a waste arm."* ***GPT 4***	***DALL-E 2***	*NY Bar exam score* ***GPT 4***	*% Accurate* ***GPT 4***

Note: Digital Assistant IQ data is from 2017; *Card2Code code generation % correct, is form 2017*

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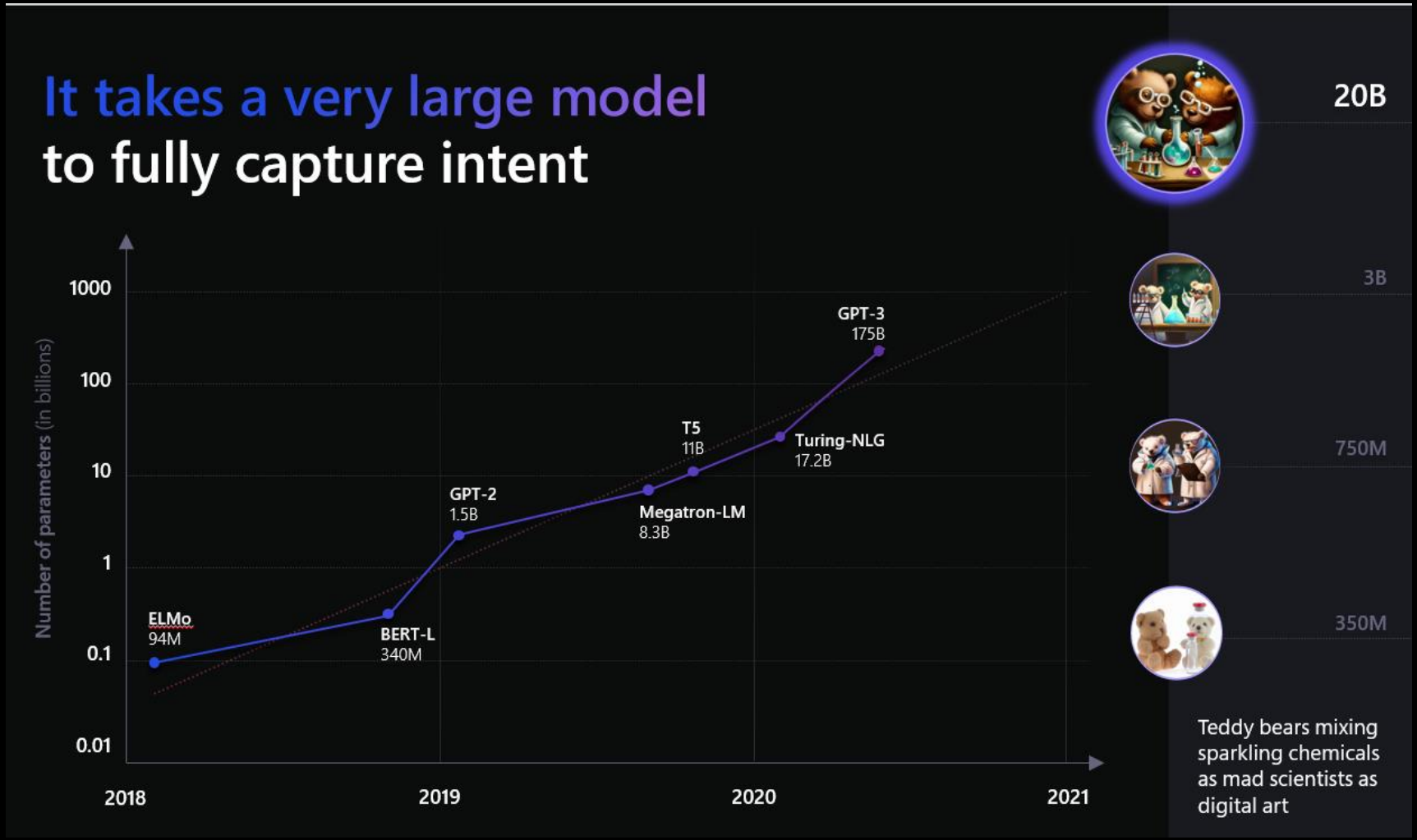
STANDING ON THE SHOULDERS OF GIANTS

Creating a good LLM takes a tremendous amount of data and processing power.

It is not our intent to create our own LLM or any other Foundational model to deal with voice or visual inputs.

Instead, we will use the LLMs that other companies create and then ‘ground’ them in Air NZ data to allow them to give good Air NZ answers, within a secure environment where we don’t contribute our data to the LLM and retain our privacy.



HOW IS THIS LIKELY TO AFFECT YOU?

Do what you do, but faster – and do what you can't do, better

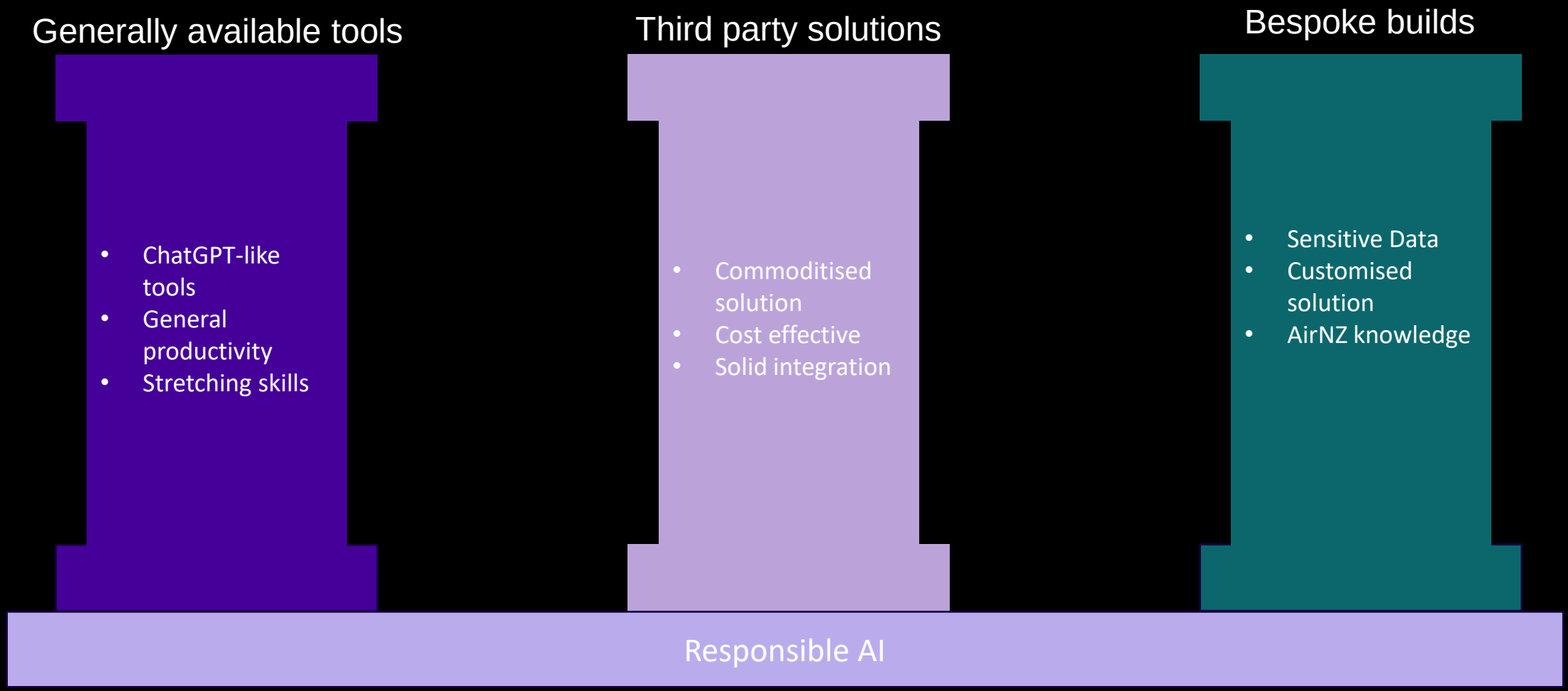
ChatGPT

Here's the underwater-themed birthday invitation for a 5th birthday party, featuring mermaids and pirates in a modern animated style. This vibrant and colorful design captures the magical essence of an ↓erwater adventure, making it perfect for celebrating a special day.

ChatGPT

I've created the image you requested, depicting an airplane flying through a giant toasted marshmallow, with the gooey center dramatically spraying everywhere.

GENERATIVE AI AT AIR NZ



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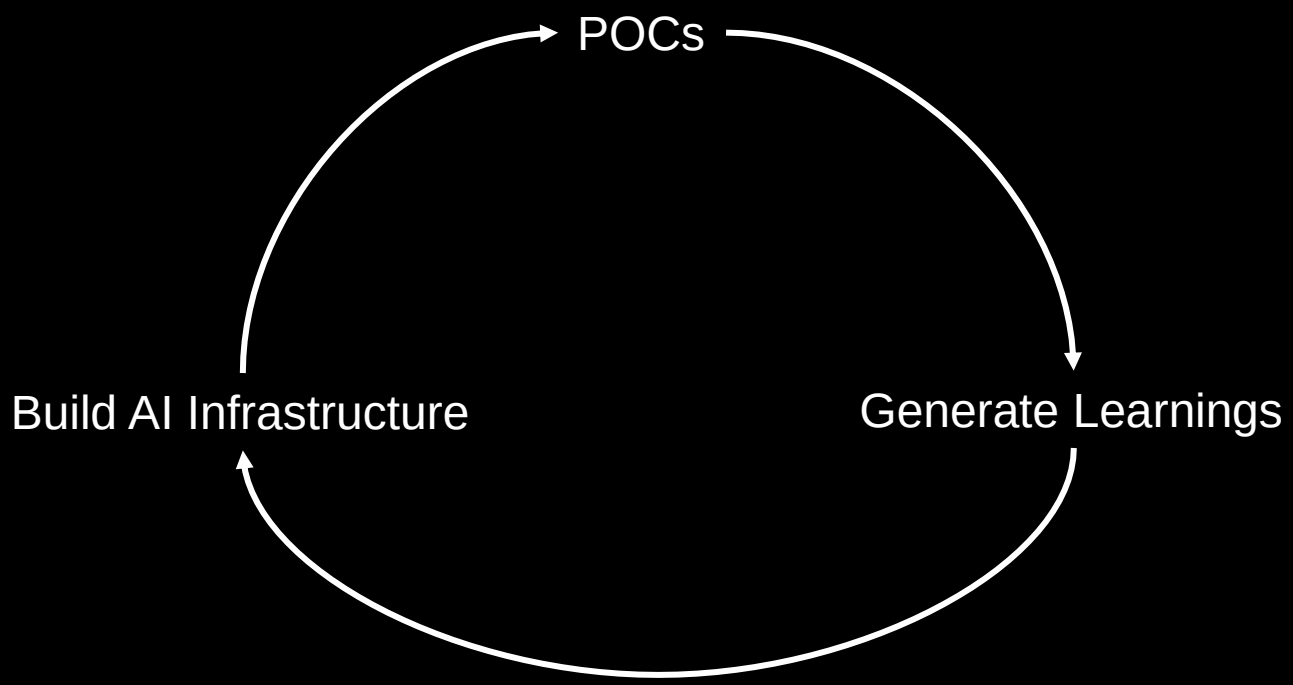
GENERATIVE AI AT AIR NZ



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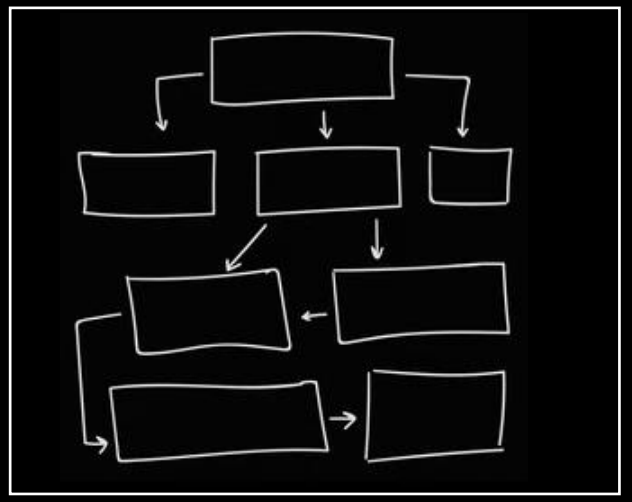
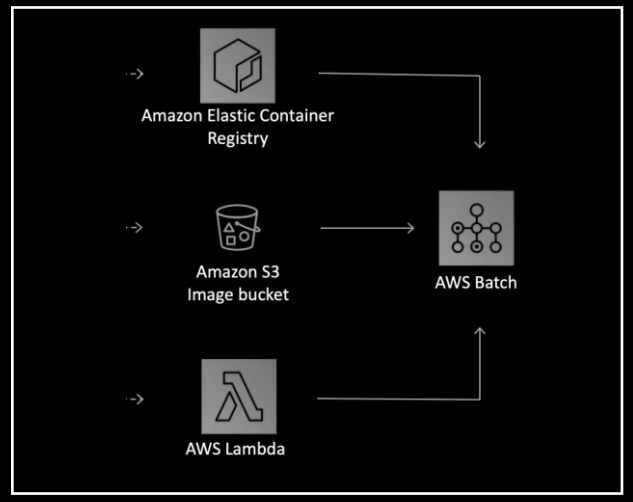
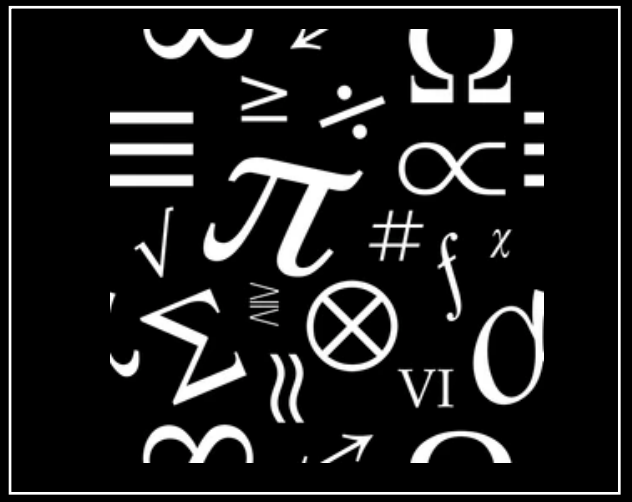
MAXIMISING VALUE FROM AI



Business process

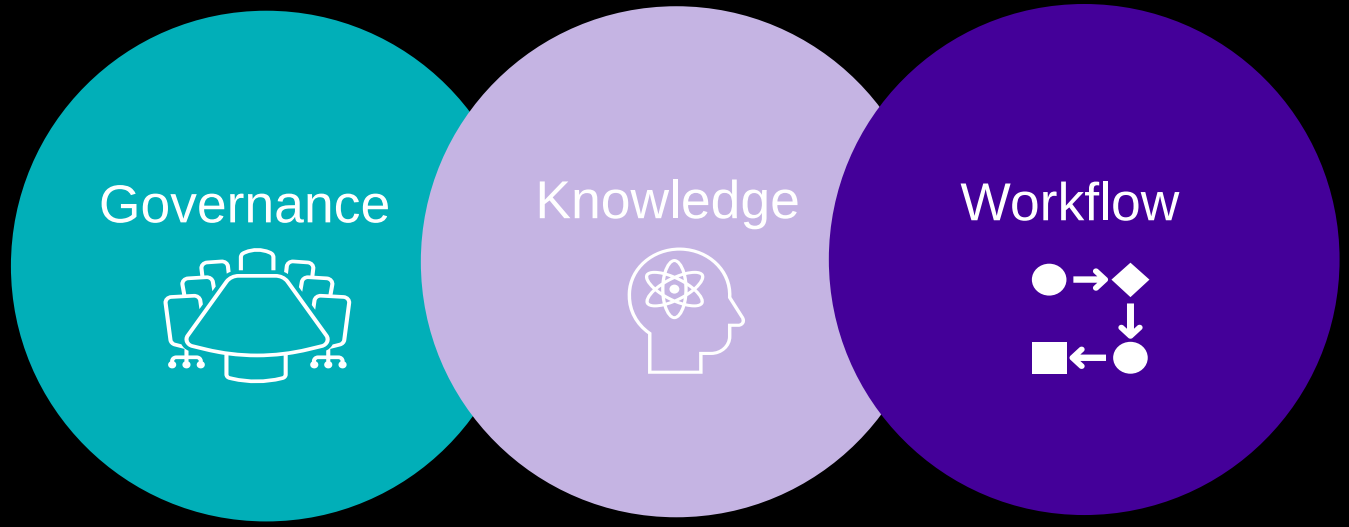


Architecture



Mathematics

MANAGING AI RISK



AIR NEW ZEALAND

Questions?

A STAR ALLIANCE MEMBER