Artificial Intelligence

Filipe Cabral Pinto

Data transformation

Connectivity and digital transformations are the two sides of the same coin

- Networks enable new cloud processes
- Services require high bandwidth to respond promptly to customer needs

Data is the differentiating asset of the business

- Data is the ingredient of knowledge
- Artificial Intelligence uses data to bring up innovative services

Data is a critical enabler of future innovations

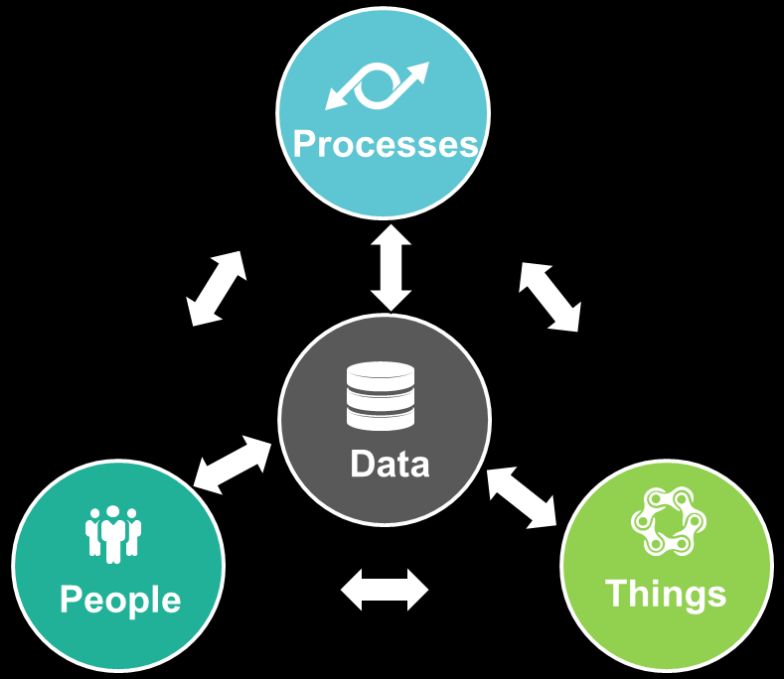
Data and Big Data

Data is a piece of memory

Big Data is all about volume, velocity and variety

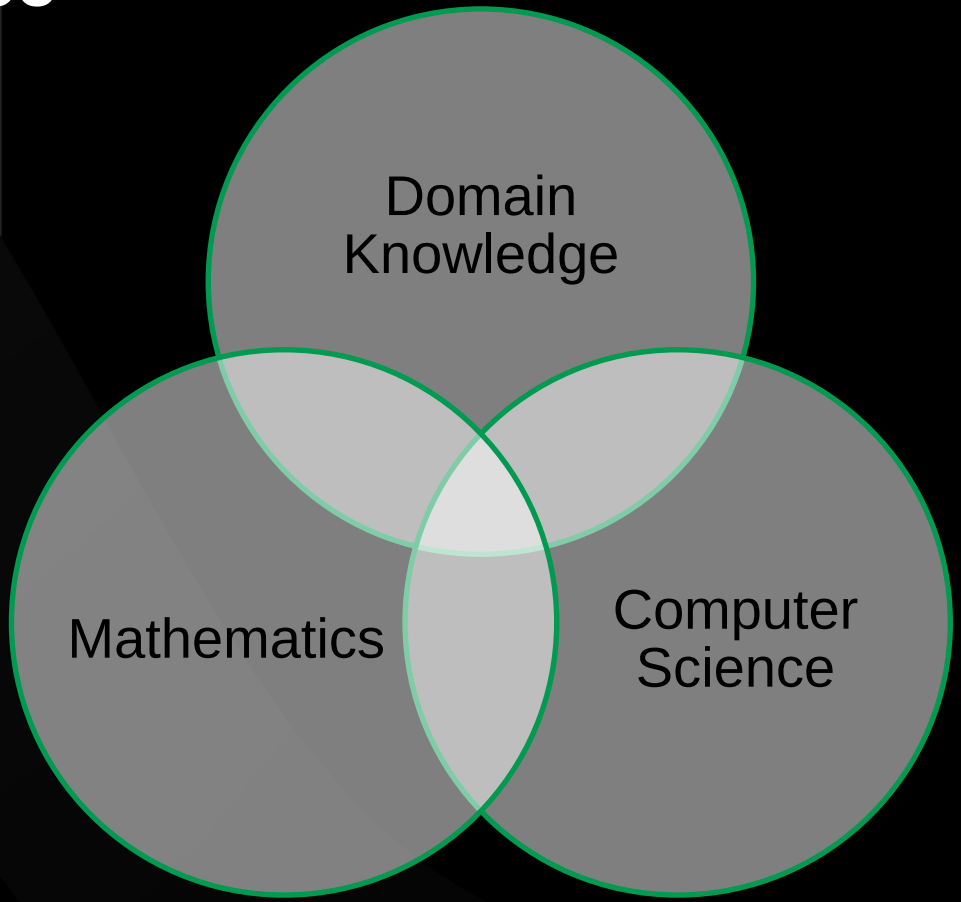
- It requires connectivity and storage for further processing

Analysing Big Data could reveal valuable insights

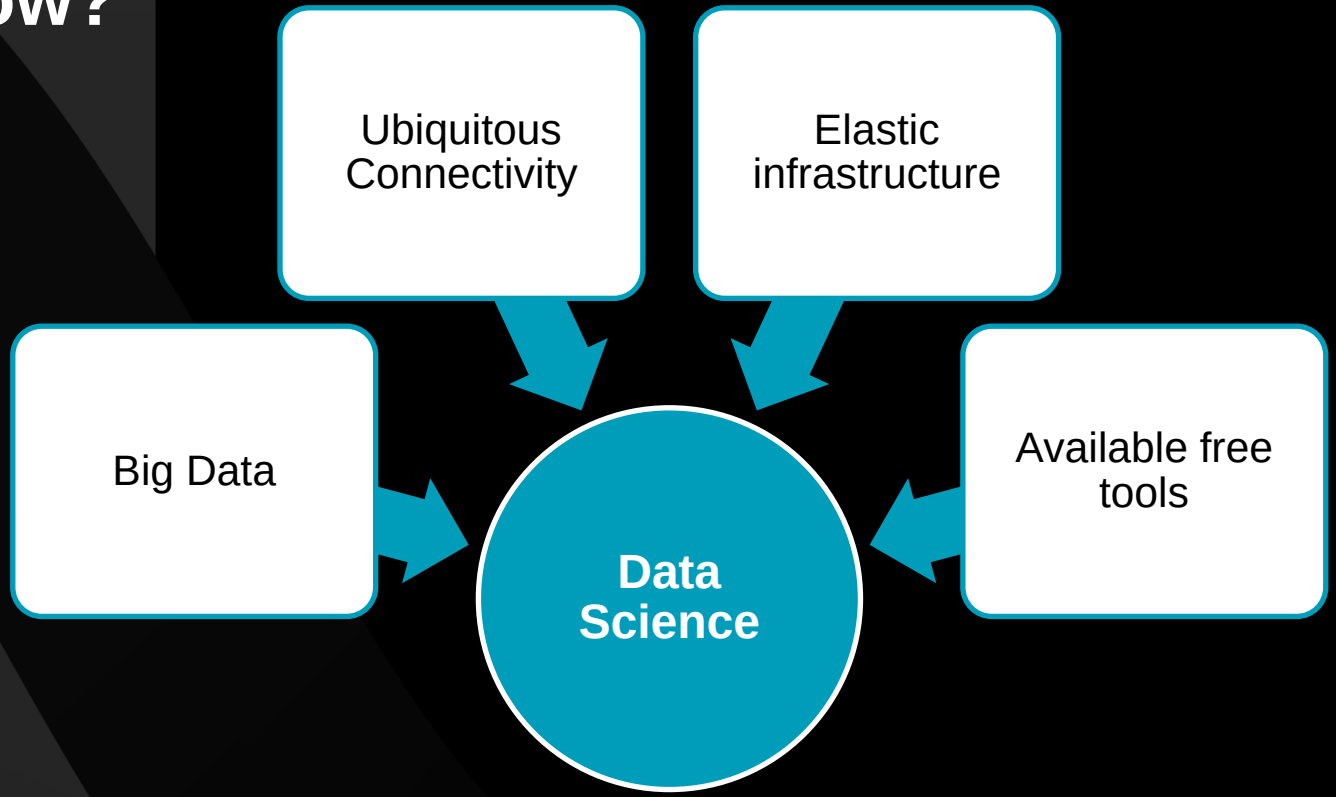


Data requires science to be understood

Data Science



Why now?


Ubiquitous Connectivity
Elastic infrastructure
Big Data
Available free tools
Data Science

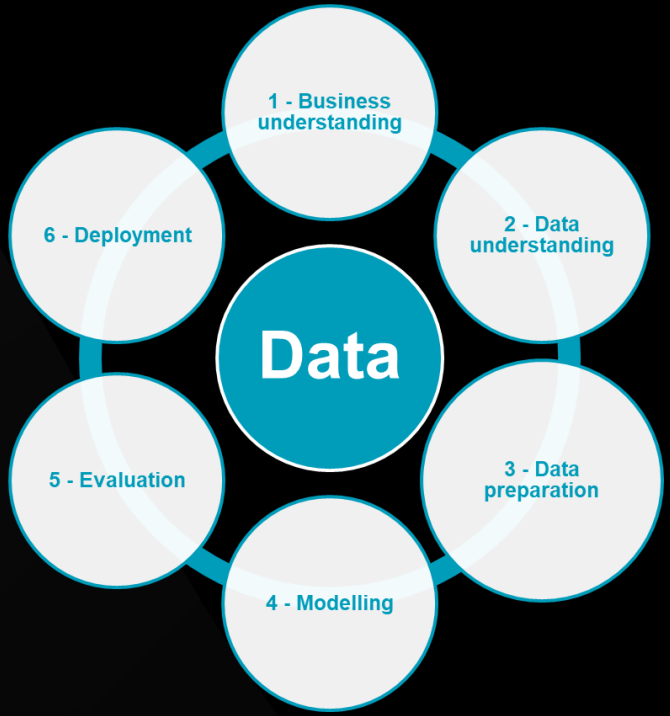
Shall we go out?

Occasion	Day of the week	Meeting type	Weather	TV Shows	Date
1	Working day	Dinner	Hot	Bad	No
2	Weekend	Disco	Cold	Bad	Yes
3	Weekend	Disco	Hot	Bad	Yes
4	Weekend	Disco	Cold	Good	No
Today	Weekend	Dinner	Hot	Good	?

Data Science helps in bui

Adapted from: Pedro Domingos, “The Master Algorithm: How the quest for the ultimate Learning Machine will remake our world”, Basic Books, 2018

Standard process for Data Science



Data Science helps in building the future

Business Understanding

Identification of business objectives

Understanding the project goals

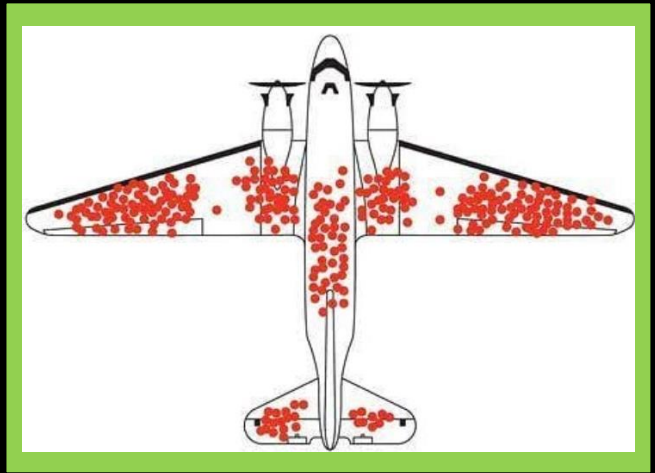
Definition of the analytical problem

Business objectives are the trigger for the analysis

Data Understanding and Preparation

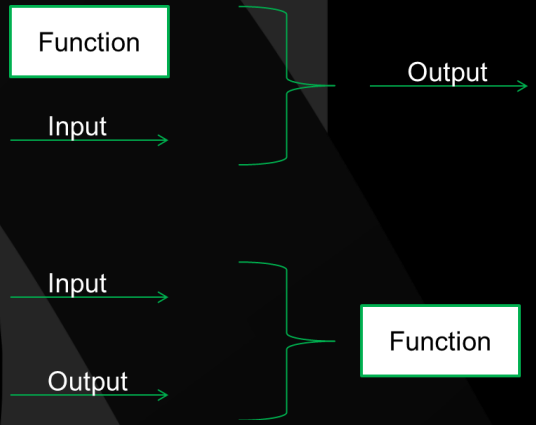
“The numbers have no way of speaking for themselves. We speak for them. We imbue them with meaning.”

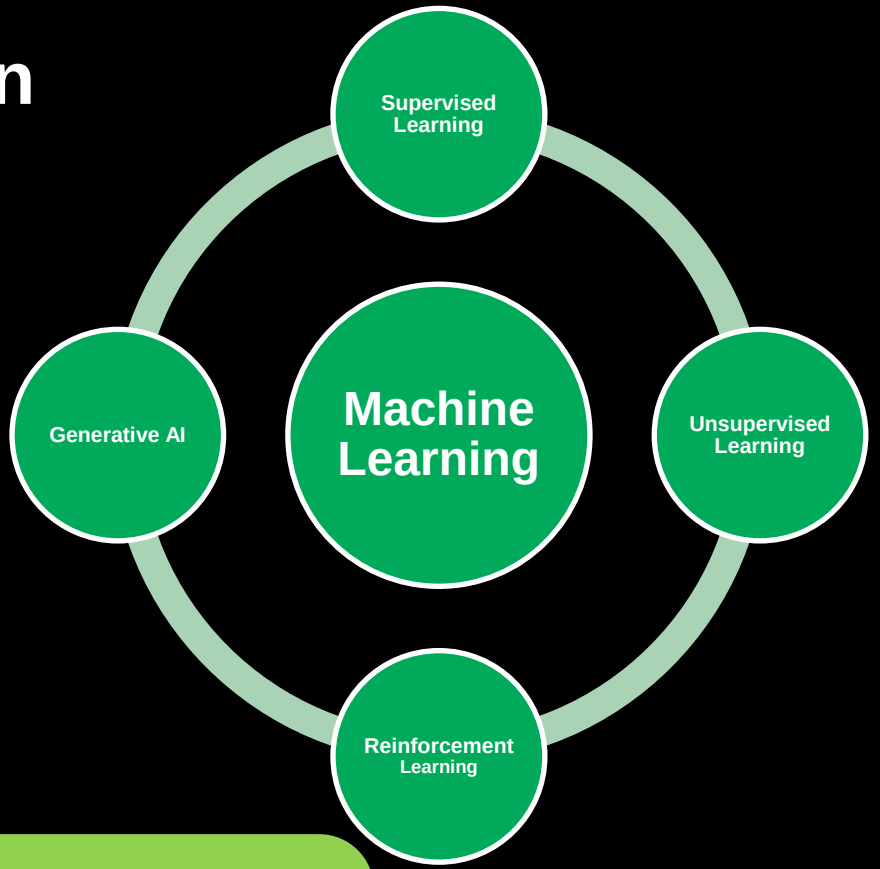
Nate Silver, The Signal and the Noise



It is necessary to analyse the data to get them talking

Modelling and Evaluation





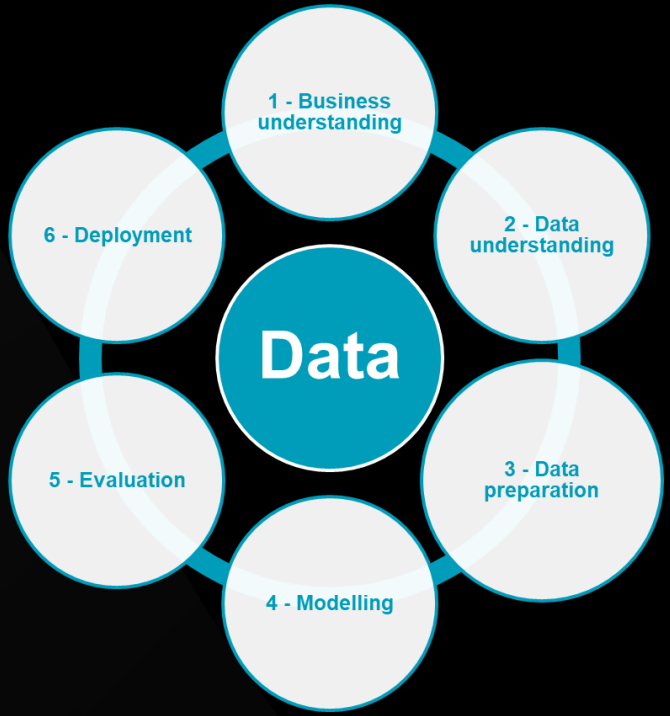
Modelling goes far beyond Machine Learning

AI modelling techniques toolbox

Mix of techniques and application areas

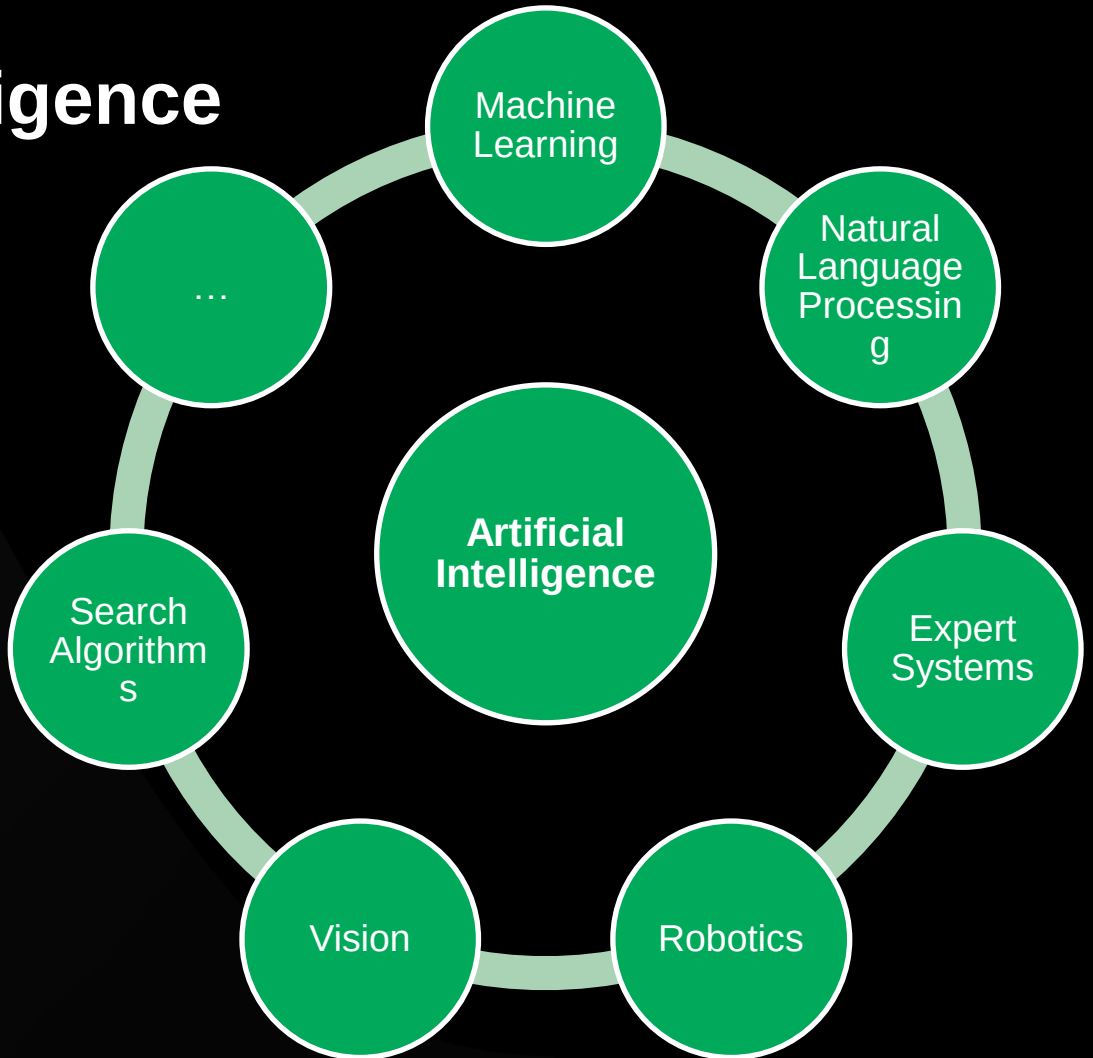
Summarization	Sentiment Analysis	Content Matching	Fake News Detection	Bots
Classification	Regression	Forecast	Clustering	Association
Reinforcement Learning	Recommendation Systems	Anomaly Detection		Preventive Maintenance
Object Detection	Object Recognition	Video Tracking		Event Detection
Enhanced Perception	Movement	Autonomous Navigation	Process Optimization	Intelligent Delivery
Text	Images	Music	Video	Data

Standard process for Data Science



Data Science adding value to a citizens life

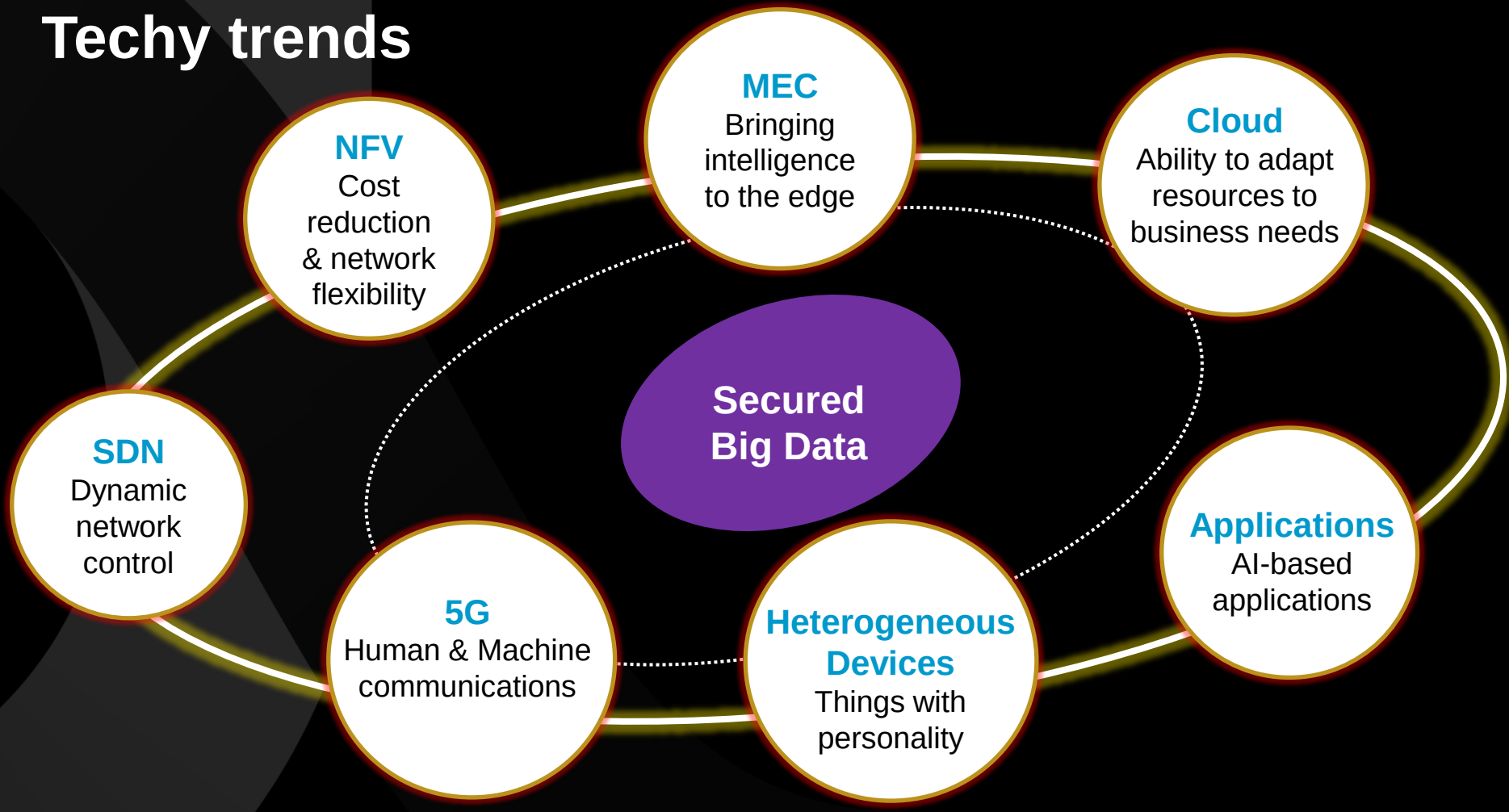
Artificial Intelligence



Data-based AI services

- Discovery of relevant topics in the press and social media
- Understand citizens' opinions on relevant subjects
- Mitigate impacts of misinformation
- Behaviour change detection
- Convergence of crowds in one location
- Detection of potentially dangerous objects
- To understand the geographic evolution of the pandemic
- Environmental anomaly detection
- Digital tags on livestock to monitor and predict the health of animals
- Pest control through satellite images
- Dynamic traffic signal control to reduce risks
- Energy profiling of buildings
- Critical infrastructure preventive maintenance
- Citizen service supported by bots
- Recommender systems for safer tourist activities

Techy trends



Techy trends

ChatGPT
DALL-E-2
Brain.fm
Experiments
Video Creation
This person does not exist
SORA

Thank You

Filipe Cabral Pinto
filipe-c-pinto@alticelabs.com