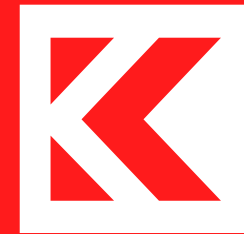


INTRO DECK

AUGUST 2024

Cloud Beating On-Premise AI Infrastructure

BUILT FOR DOWNSTREAM



KASHMIR
INTELLIGENCE

Private & Confidential

callum@kashmirintelligence.com

Introducing Kashmir Intelligence

Core industries like energy, manufacturing, and pharma need access to high-performing machine intelligence to succeed.

Solutions built on the cloud aren't designed for the demands of modern heavy industry. High operating costs, security vulnerabilities and talent requirements render them impractical.

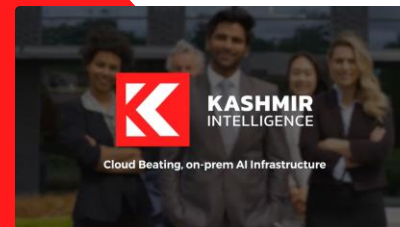
Kashmir Intelligence brings frontier AI directly to the edge.

Integrating this technology promises increased production, safer operations, and true sustainability.

" That's why Kashmir Intelligence exists — to deliver high-performing AI to the industries that need it most "



Samyakh Tukra, PhD
CAIO, Kashmiri Pandit



Watch The Launch Video

Discover Orbital by Kashmir Intelligence. Edge AI infrastructure for the energy industry.



Founded by two industry veterans to transform downstream performance



Callum Adamson
CEO

- 20 years in technology leadership servicing Enterprise Infrastructure - customers such as British Petroleum, British Telecom, Capita, Google, SSE Energy and Scottish Power
- Expert in Residence, Imperial College London (AI PhD)



Samyakh Tukra, PhD
CAIO


- Founded **Third Eye Intelligence**
- Lead **development of AI at Shell**
- Led AI at **Hitachi Energy** and **Tractable**




Backed by Tier 1 Global Funds




Supported by Industry leaders




Bill Kelleher
Former CEO & Chairman IBM UK & Ireland



Dr. Anil Bharath
Academic Director, Imperial College



Greg Gabel
Director of Operations, Chevron



Dr. Divakar Kamath
Former Director at Microsoft, Google Cloud & IBM

DOWNSTREAM OPTIMISATION



EII Root Cause Analysis Engine

Target \$2M Savings in Year 1



Real Time Advanced Process Control

5% Margin Increase Year 1



Carbon Intensity Mapping

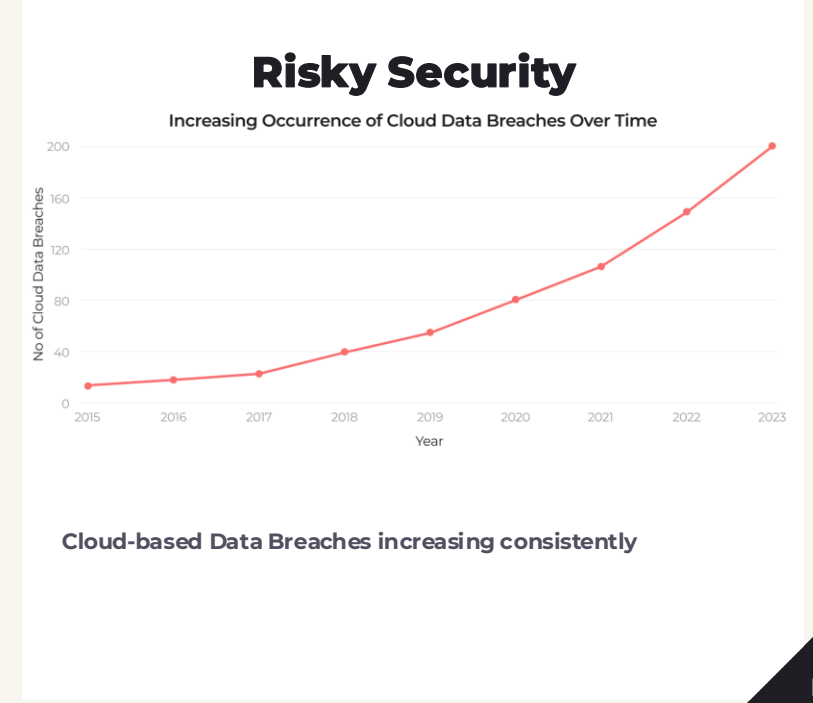
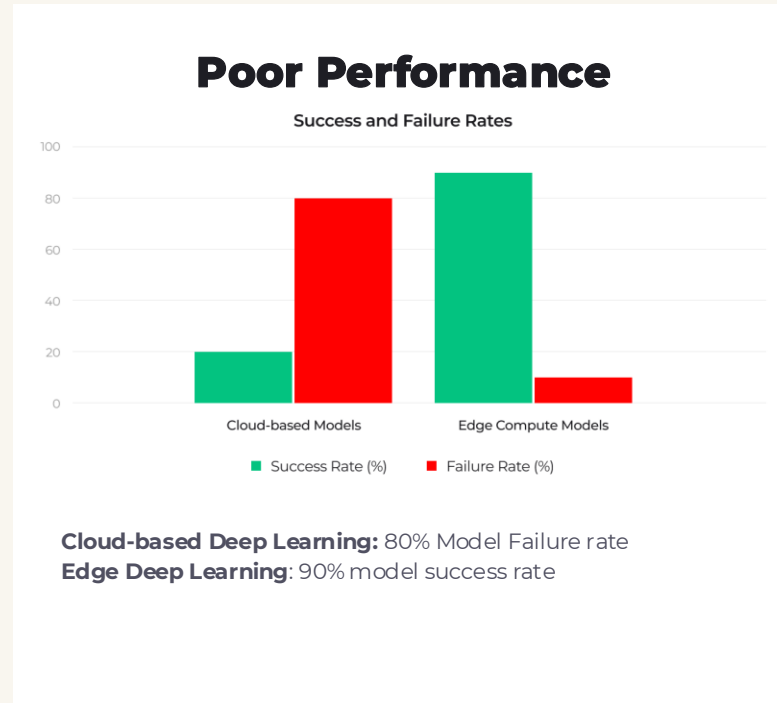
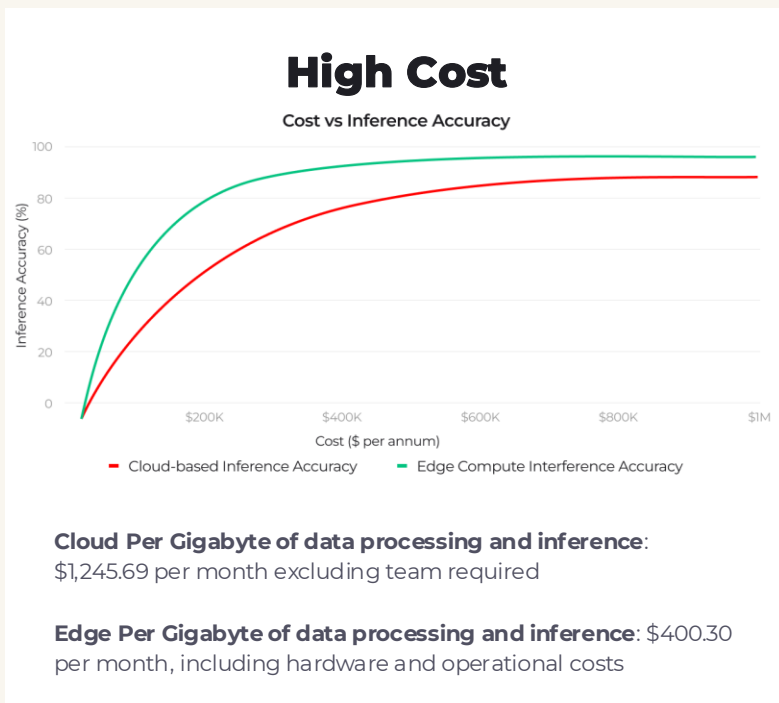
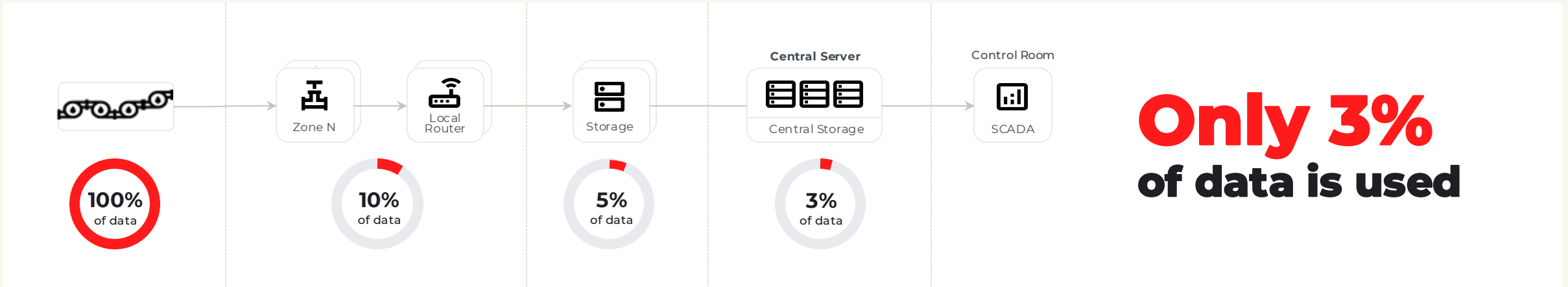
12% Carbon Reduction Year 1



Failure Prediction

400% Improvement Year 1

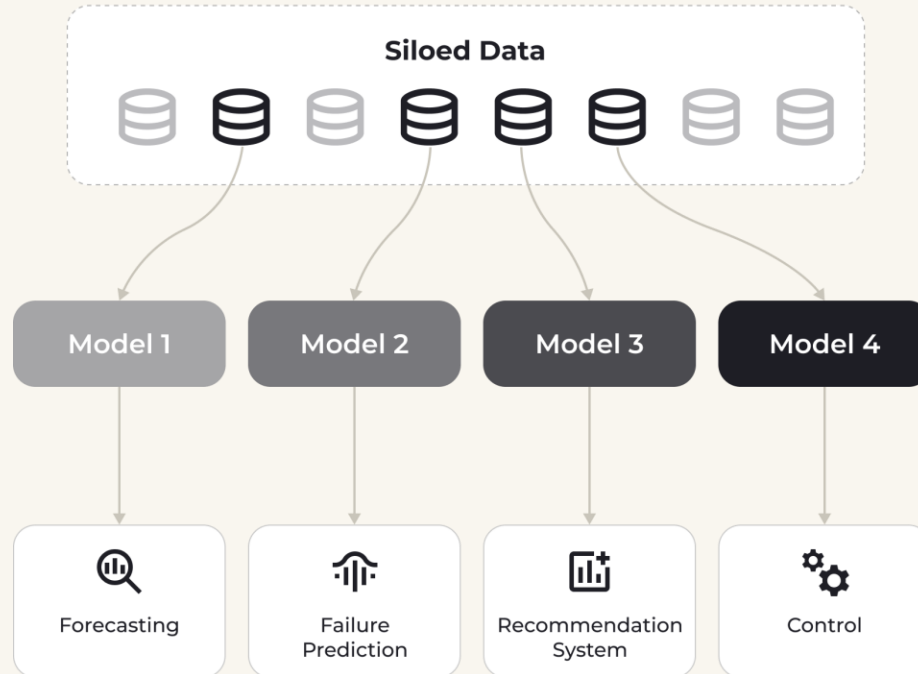
Cloud is a poor approach for big industrial data



Edge AI means All Data can be Used in Models

Traditional Methods

3-10% of Data

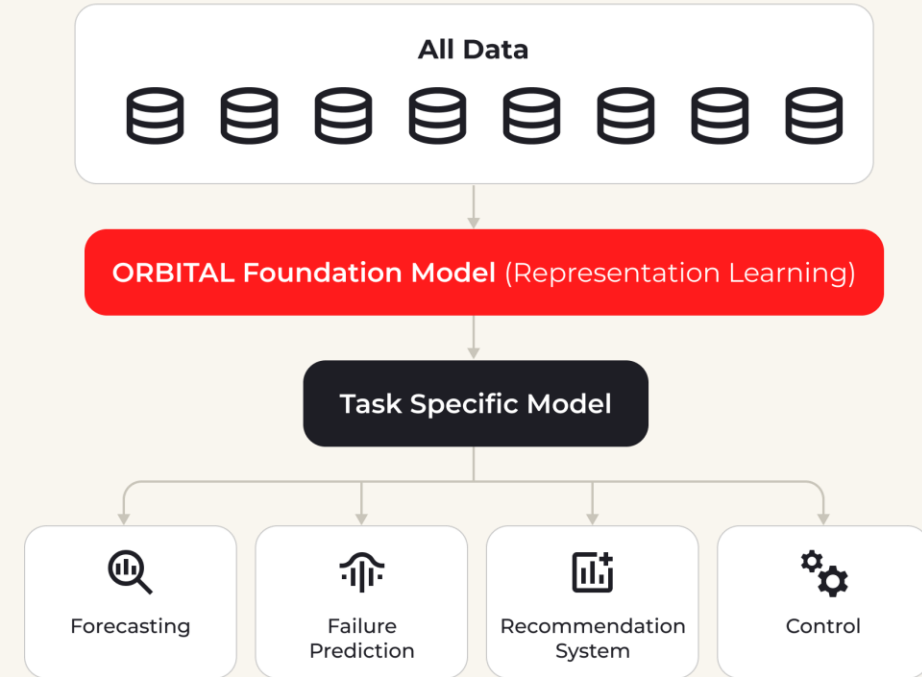


- Utilizes a limited subset of pre-selected data that underrepresents the problem.
- Models operate independently rather than as a coordinated unit optimizing each other.
- Engineers must frequently conduct manual experiments to select the desired hyperparameters.

78 – 89% Benchmark Accuracy

ORBITAL

100% of Data



- Model processes all data and identifies the underlying relationships.
- Single foundational model that can multitask, facilitating knowledge sharing and optimization.
- Unsupervised self-optimization using reinforcement learning

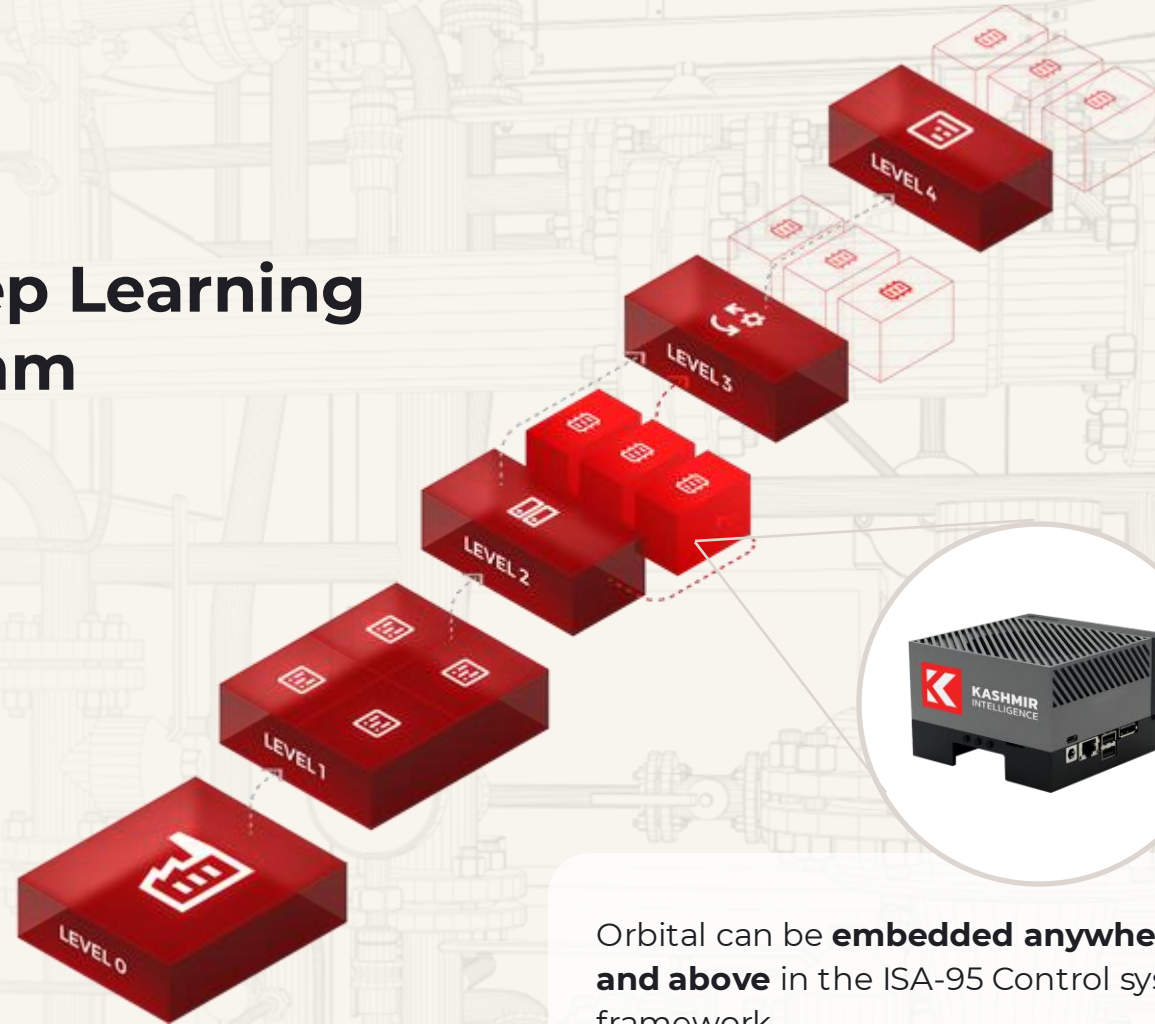
97%+ Benchmark Accuracy



ORBITAL

Patented Cloud-beating Deep Learning Infrastructure for Downstream

- ✓ On-premise
- ✓ Dynamic (self-updating)
- ✓ 100% secure local data storage
- ✓ 25% the cost of cloud
- ✓ 9 weeks to value



Orbital can be **embedded anywhere Level 2 and above** in the ISA-95 Control systems framework

Compliant with popular protocols & Rest APIs



Rest API



Imperial College

CVPR

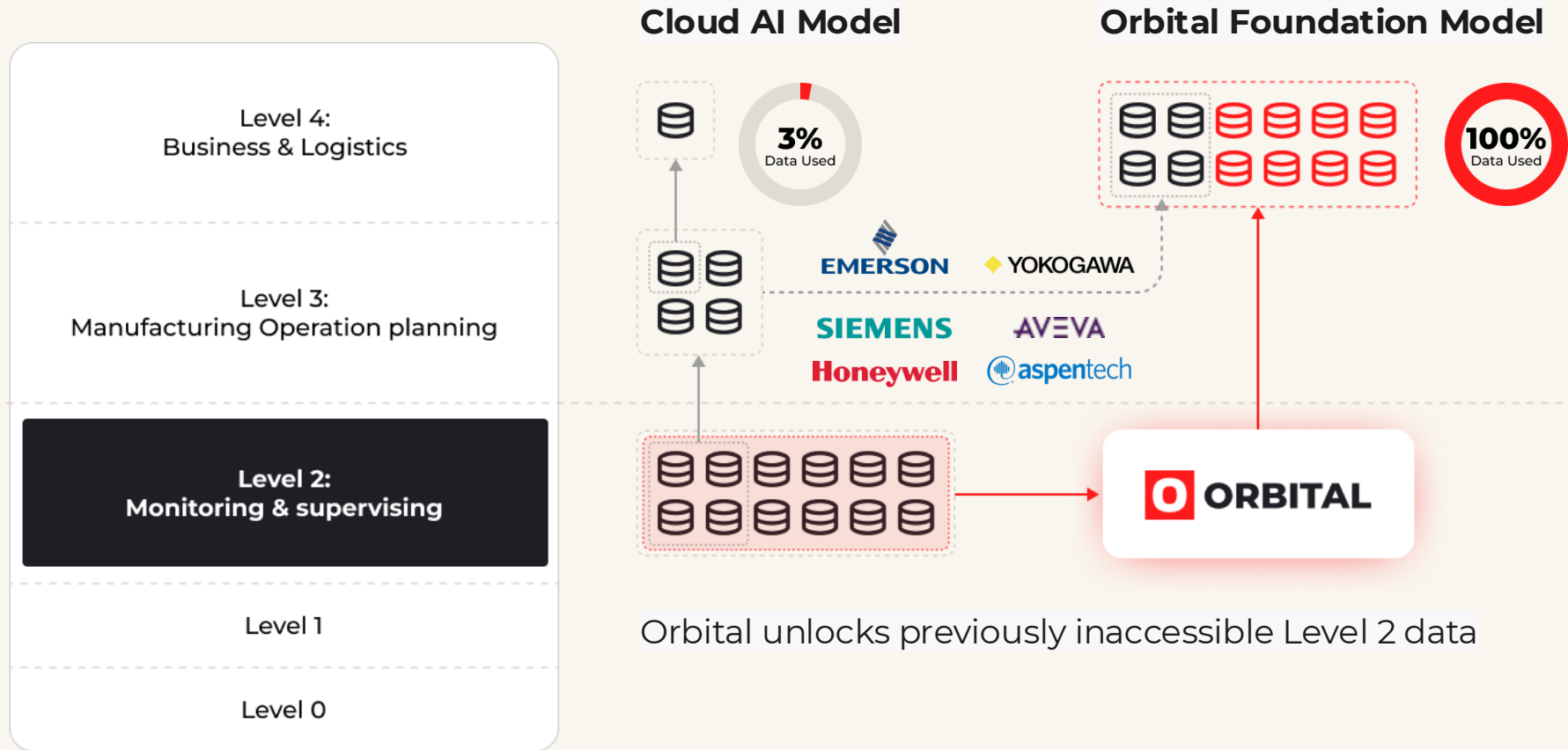


Shell

HITACHI



Built to supercharge your existing tech stack



Orbital is already creating value for customers



DIGITAL TWIN

Orbital model was trained for pipeline failure prediction in DWSIM simulation.

RESULTS

- Failure predicted up to **4 days** in advance incident
- **95.7%** accuracy beating the benchmark model of 64.5%
- **66.9%** decrease in false positive alarms



400% Improvement Year 1



ABB Carbon Capture Lab

Collaboration with the Imperial College London. Deep learning model was developed for estimating the CO2 concentration profile in the carbon capture absorber

RESULTS

- **92.4%** prediction model accuracy achieved beating the benchmark model of **73.2%**



12% Carbon Reduction Year 1



Treccate Refinery

In collaboration with Gruppo api. A dynamic model was developed to predict Energy Intensity Index (EII) on historic data

RESULTS
















































- Dynamic model created that can identify top 5 variables impacting EII (in real time) | Peer reviewed validation
- Recommendation engine developed for asset optimisation in real time



\$2M Savings in Year 1 Est.

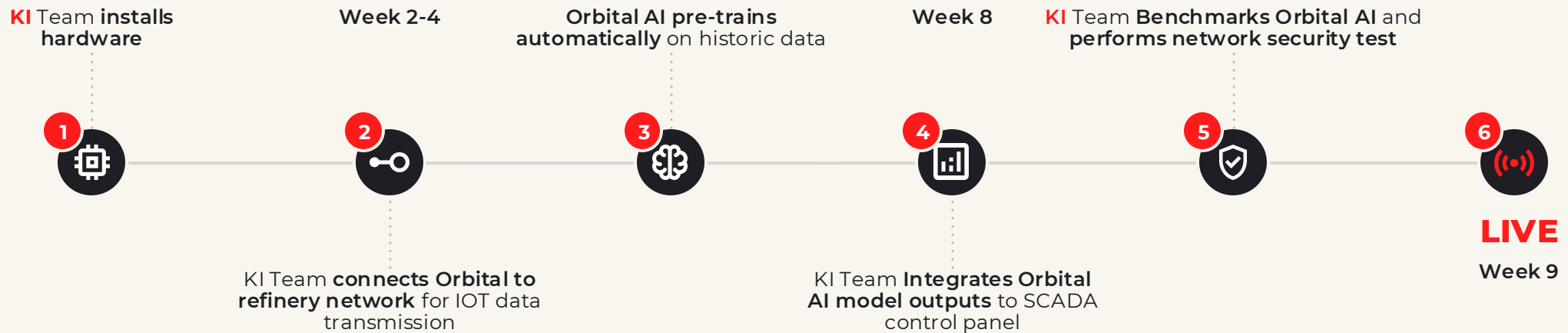


Fills the technology gaps to enhance performance

	 <u>Orbital</u>	 <u>Algo8</u>	 <u>Seeq</u>	 <u>C3</u>	 <u>Uptime</u>
 Cost	 Low (on-prem)	 High (cloud based)	 Medium (primary cloud)	 High (cloud based)	 High (cloud based)
 Time to value	 9 Weeks	 7-12 Months	 3-6 Months	 7-12 Months	 7-12 Months
 Data Security	 On-prem	 3 rd Party Storage	 Primary 3 rd Party Storage	 3 rd Party Storage	 3 rd Party Storage
 Model Performance	 Deep Learning	 Outdated ML	 Outdated LP	 Deep Learning	 Deep Learning
 Recommendation Engine	 	 	 	 	
 Root Cause Analysis	 	 	 	 	
 Model Hub	 	 	 	 	

Fast time to ROI

ORBITAL 9 Weeks



ORBITAL has been designed to integrate into existing refinery infrastructure meaning just **9 weeks** from contract approval to **LIVE** system



Recommended Next Steps - **Orbital Pilot**

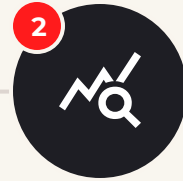


Identify Core Issues

Choose 1-3 key issues your site aims to address.

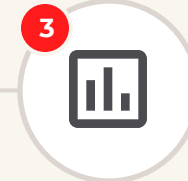
Common Choices:

- Energy intensity and root cause analysis
- Carbon intensity mapping
- Asset failure prediction
- Yield optimisation



Technical Deep Dive

Follow-up call with our technical team to explore the identified problems and determine where Orbital can have the greatest impact.



Pre-Pilot Model Validation

Optional

Create a use case based on existing data to predict pilot effectiveness before full deployment.

- Utilise legacy data to train Orbital models as a pre-pilot test to validate our solution's efficacy.



Go Live with Pilot

The efficacy of our solution



ORBITAL

ORBITAL PILOT projects typically take 9-24 weeks from start to finish and will be Funded by Kashmir Intelligence on conversion to a live Orbital subscription



Next Step

- TEAMS MEET TO DEFINE PILOT
- AI WORKSHOP WITH OUR RESEARCH TEAM

Leapfrog expensive and poor performing cloud infrastructure, go straight to **refinery edge AI**



Callum Adamson

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