siveco China

Are we smart enough for Smart plants?

Experience from 15 years on the field

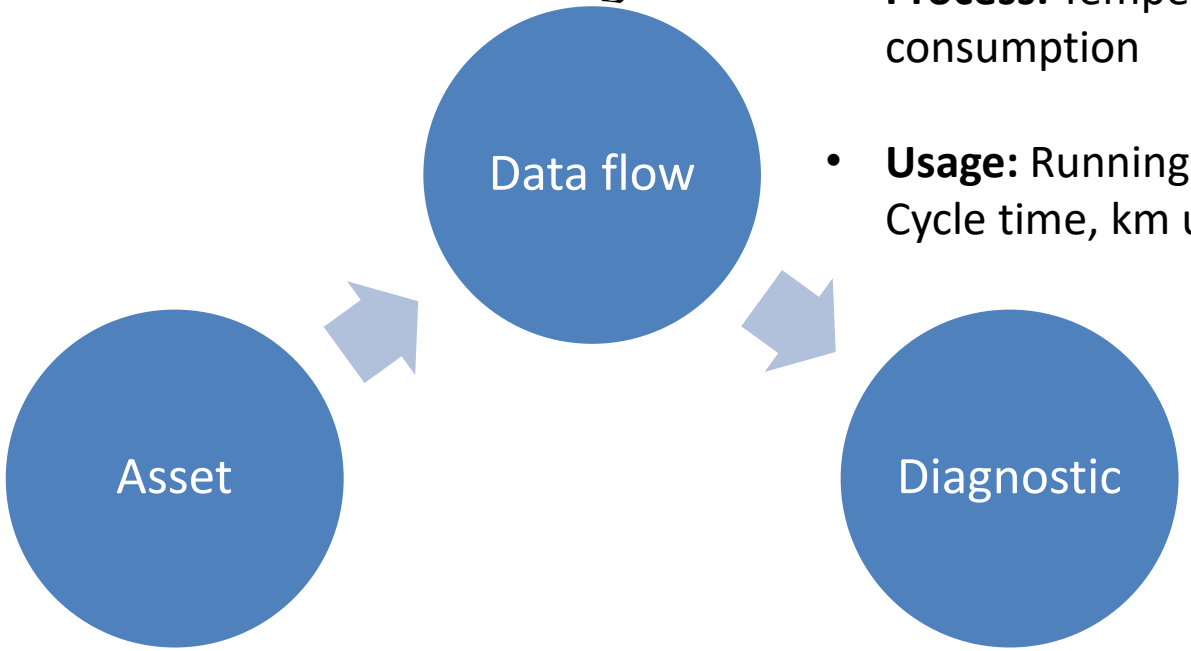
Predictive AI – the end of maintenance?

- 850+ customer sites in Asia

The consultant dream: From the asset to the digital twin

Connection – Requires:

- Ad-hoc Sensors
- Source of Power
- Connectivity, *esp. if subsequent diagnostic is performed in Cloud*



- **Process:** Temperature, Pressure, Energy consumption
- **Usage:** Running time, quantity produced, Cycle time, km used,…

- **Rule-based:** >, <, IF, AND, ….
- **Data-driven:**
  - Patterns associated with issues
  - Drift from a reference pattern

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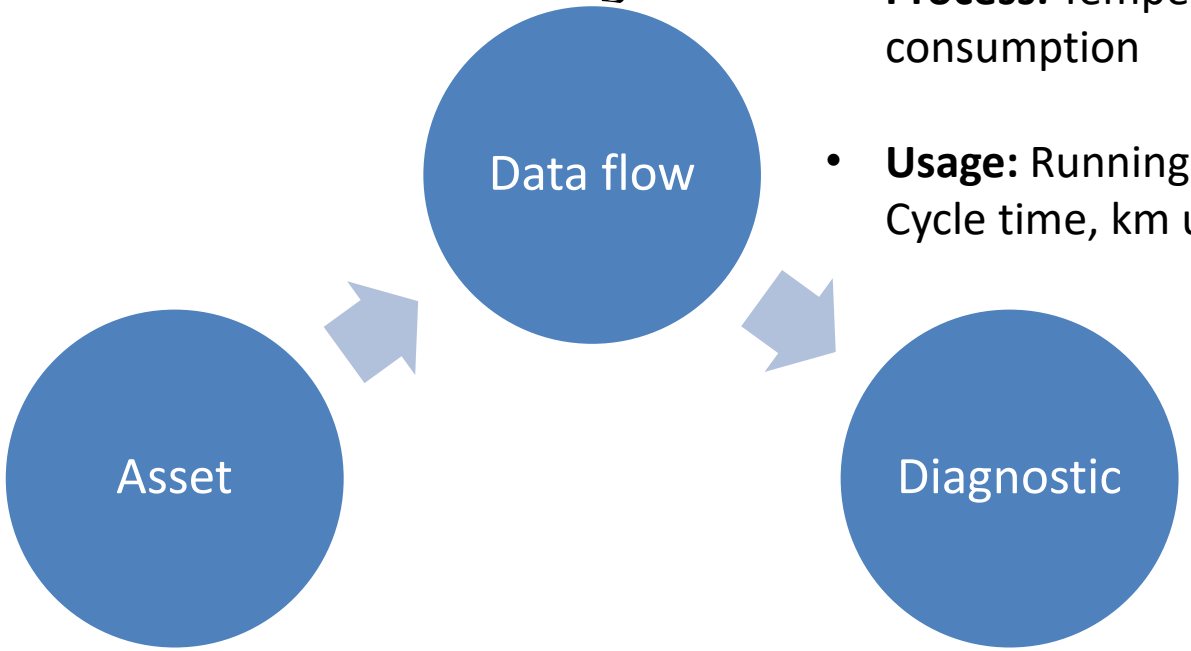

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Concerns raised by this model
- **Diagnostic running on site or on-premises?**
- **Ownership of the algorithm?**

→ **Implications in case of a critical asset?**
Think about the supplier – client balance of power, liabilities, etc..

- **Rule-based:** >, <, IF, AND, ….
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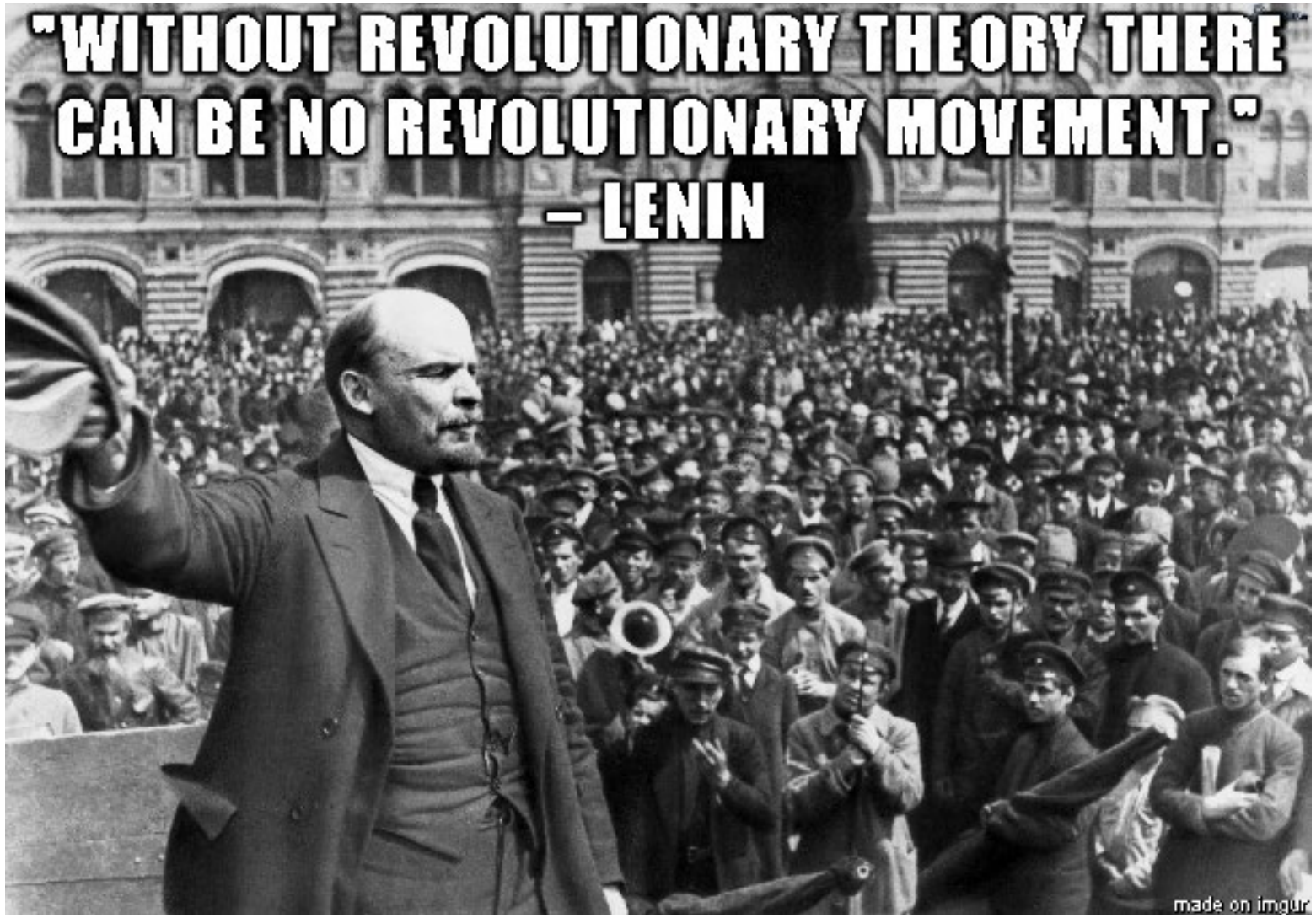
Consultant’s dream turned nightmare – the ‘Cassandra effect’

So, you predicted a failure.

Now, do your organization knows what to do?

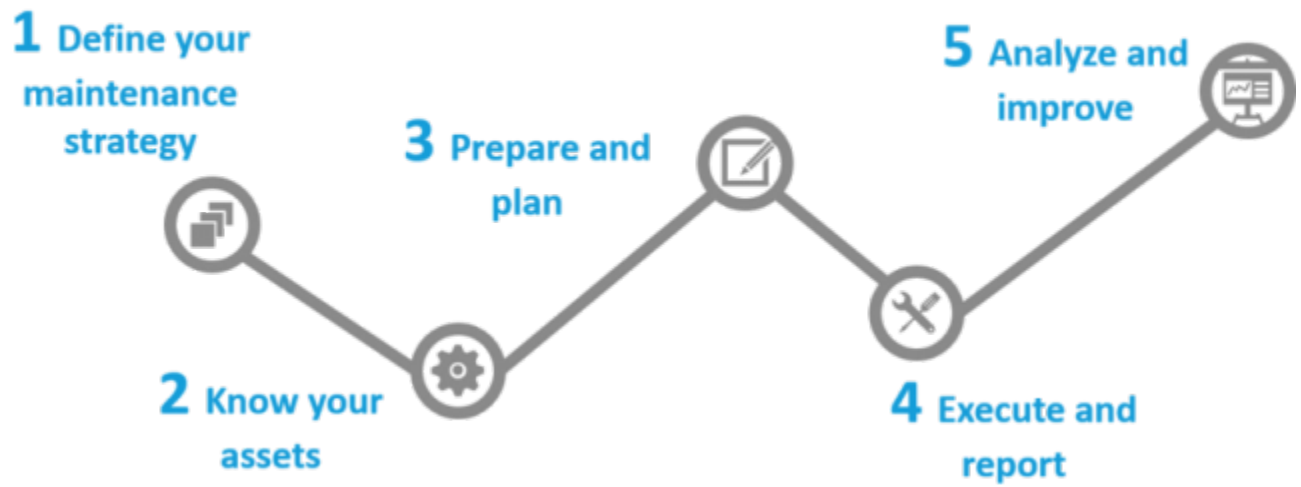
Consultant’s dream turned nightmare – ‘Information Overload

How to navigate the 4th industrial revolution?

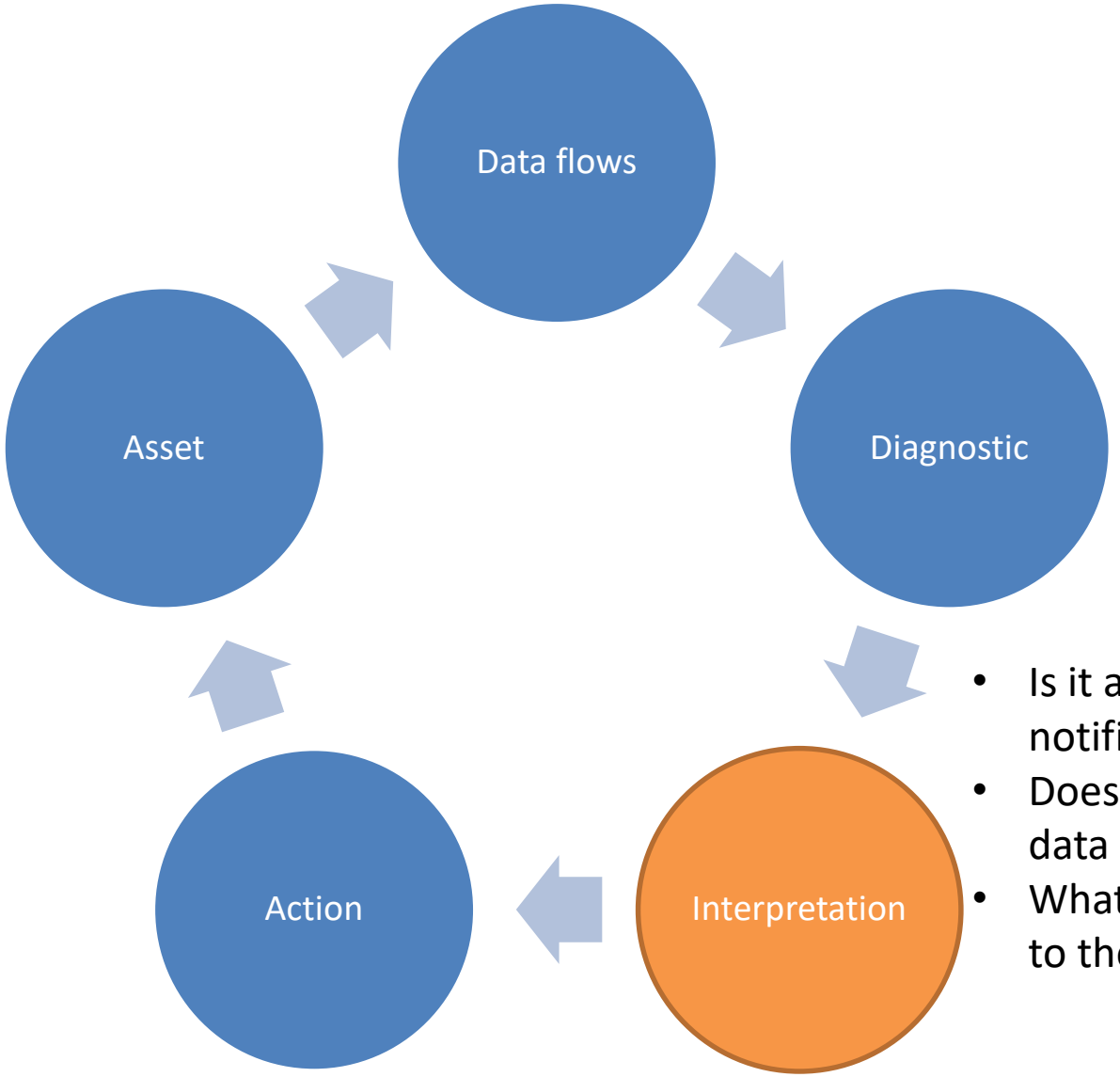


5 steps for a sustainable implementation

An ISO 55000-compliant Core Model, to align the “smart” projects with business needs

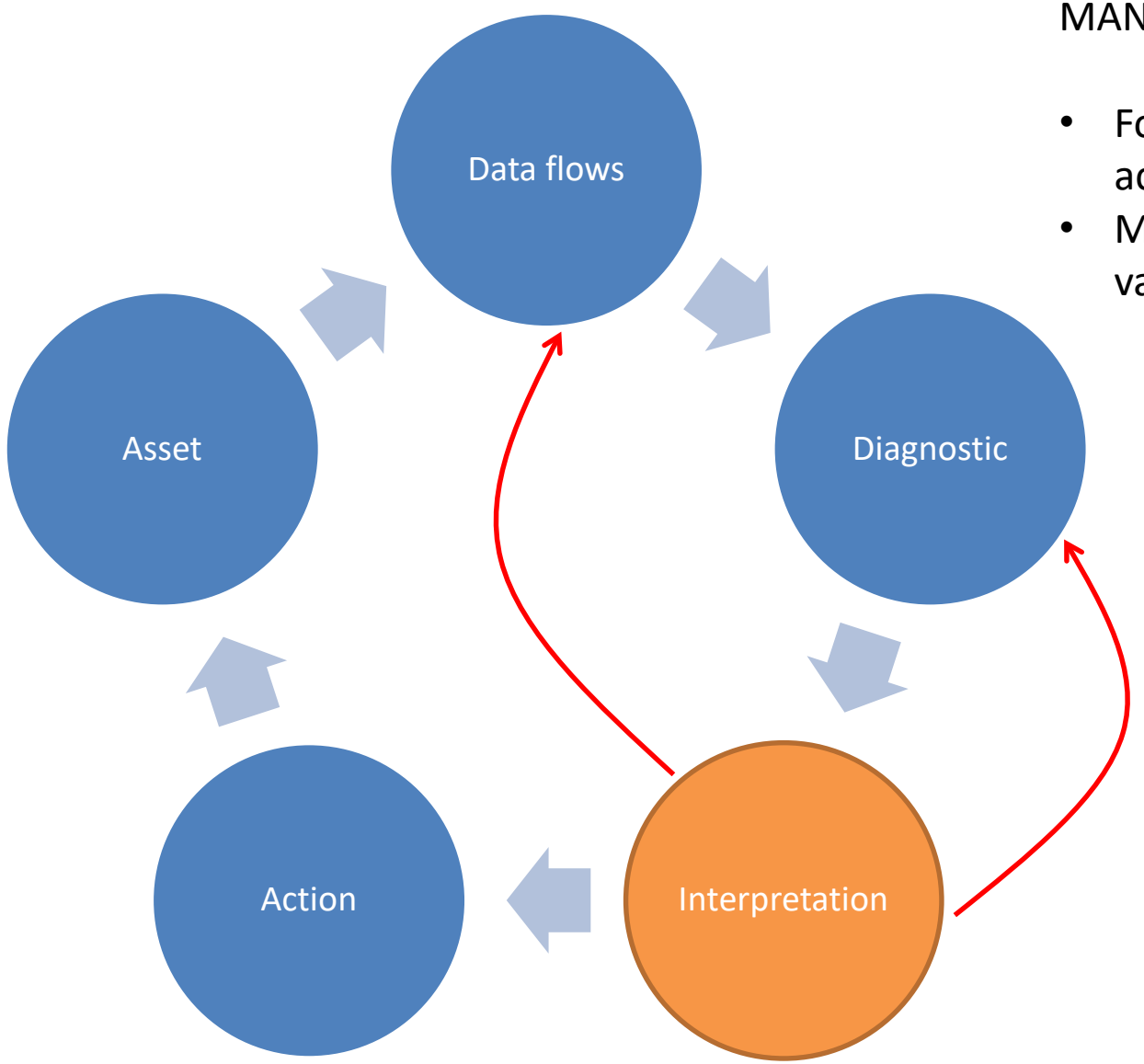


The Physical – Digital – Physical loop



- Is it a breakdown? (Or can I ignore this notification?)
- Does my maintenance plan needs this data ?
- What is the best response, according to the maintenance plan?

Data-driven Machine Learning needs context and feedback



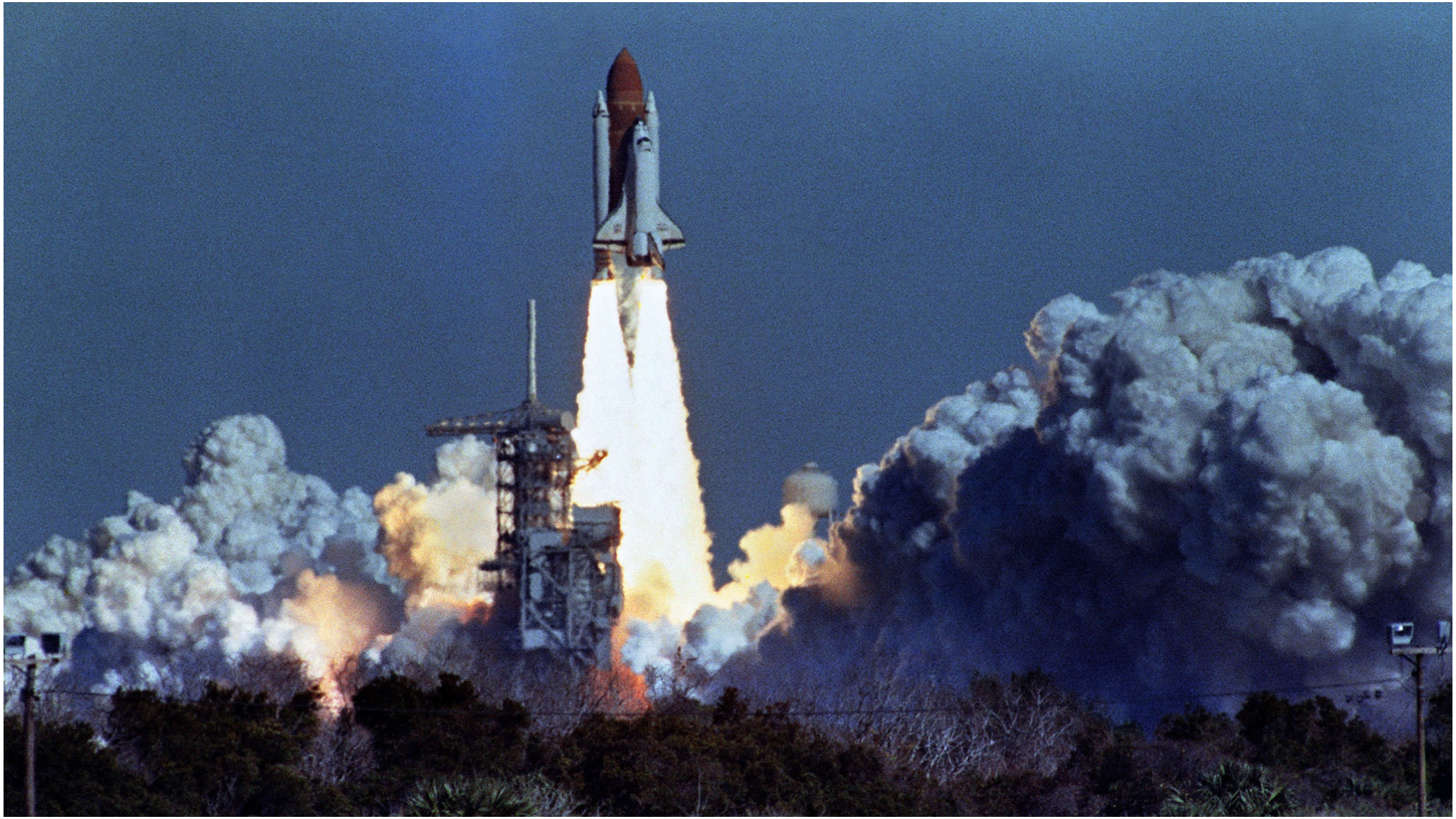
CONTEXT – in the form of (STRATEGIC) ASSET MANAGEMENT PLAN

- Focuses the data acquisition process
- Makes algorithm truly valuable

FEEDBACK

- Improves the algorithm
- Automate/facilitate decision making

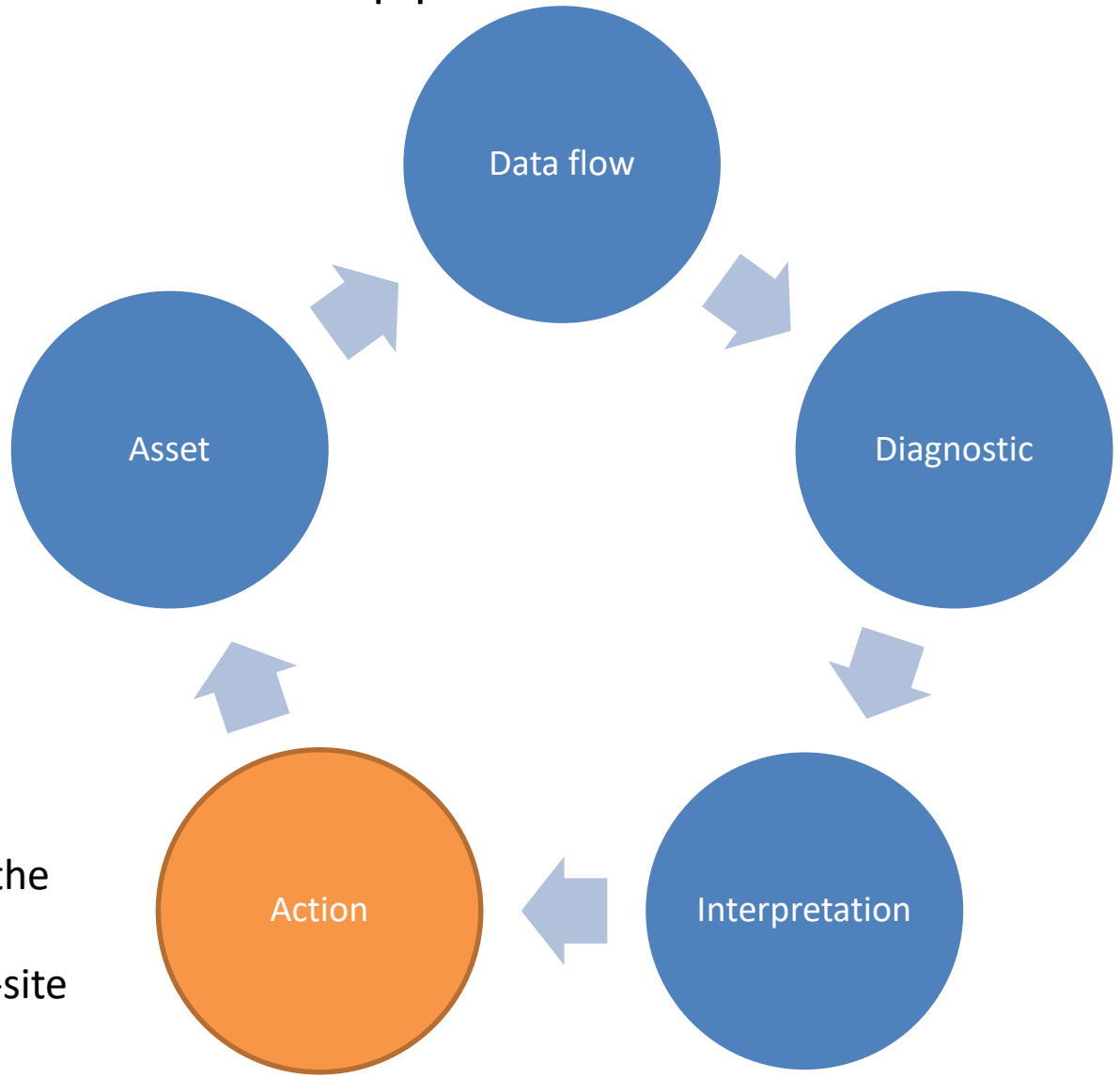
The weakest link…



The weakest link… is your biggest asset

A reliance on machines makes human job more important, not less.

Starting from the critical Execution step prevents the Cassandra effect



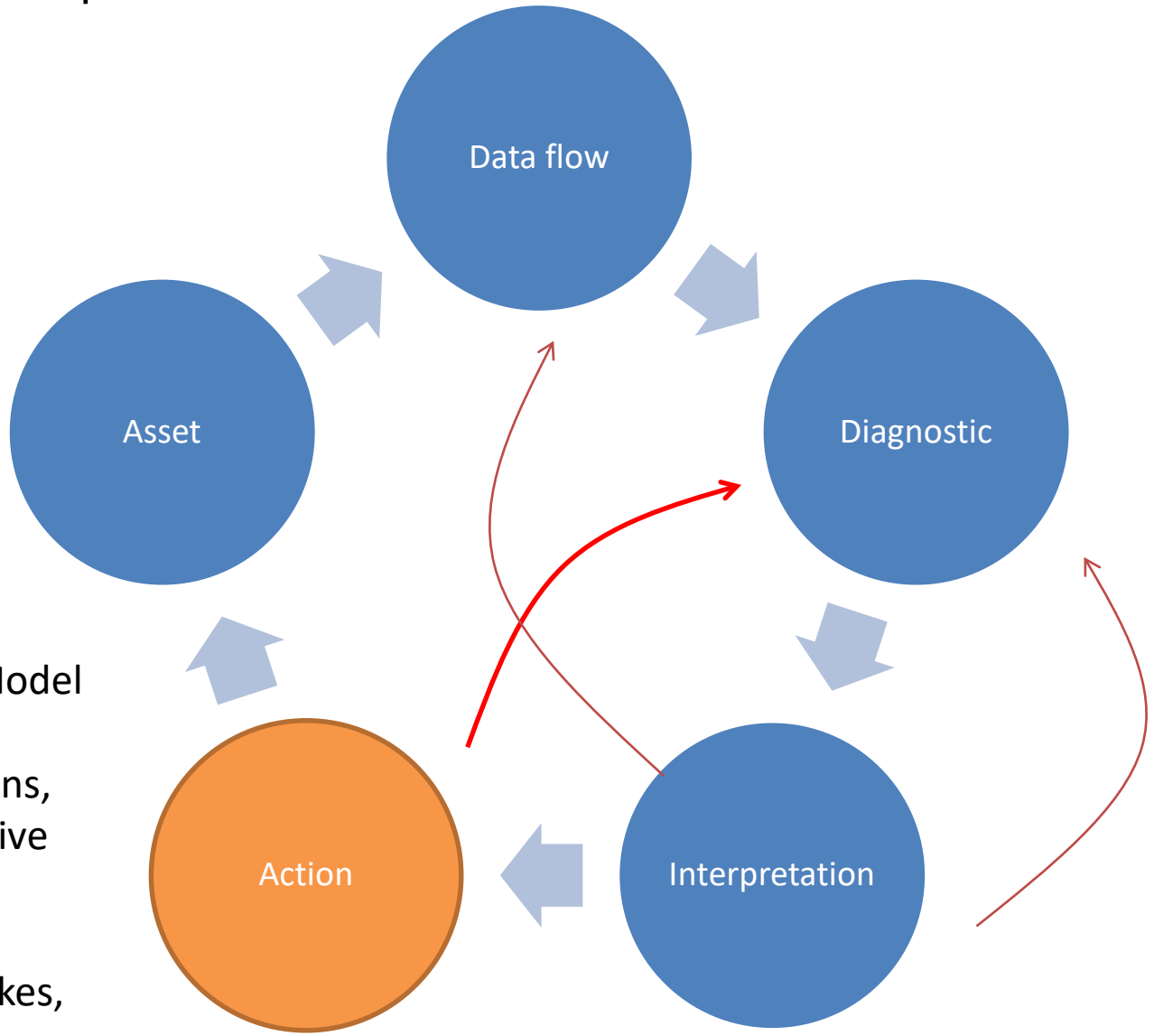
- Allocate to the right resource
- Monitor and Ensure the work gets done
- Provide guideline on-site through mobiles

Close the Asset performance loop

Direct creation and access to know-how by field technicians

- Assets identification by scanning
- Access to technical data
- Work execution
- Maintenance inspections
- Operators rounds
- Meter readings & measurements
- Incident reporting (safety)
- Access to analytics & reports

Critically, it improves the predictive model further

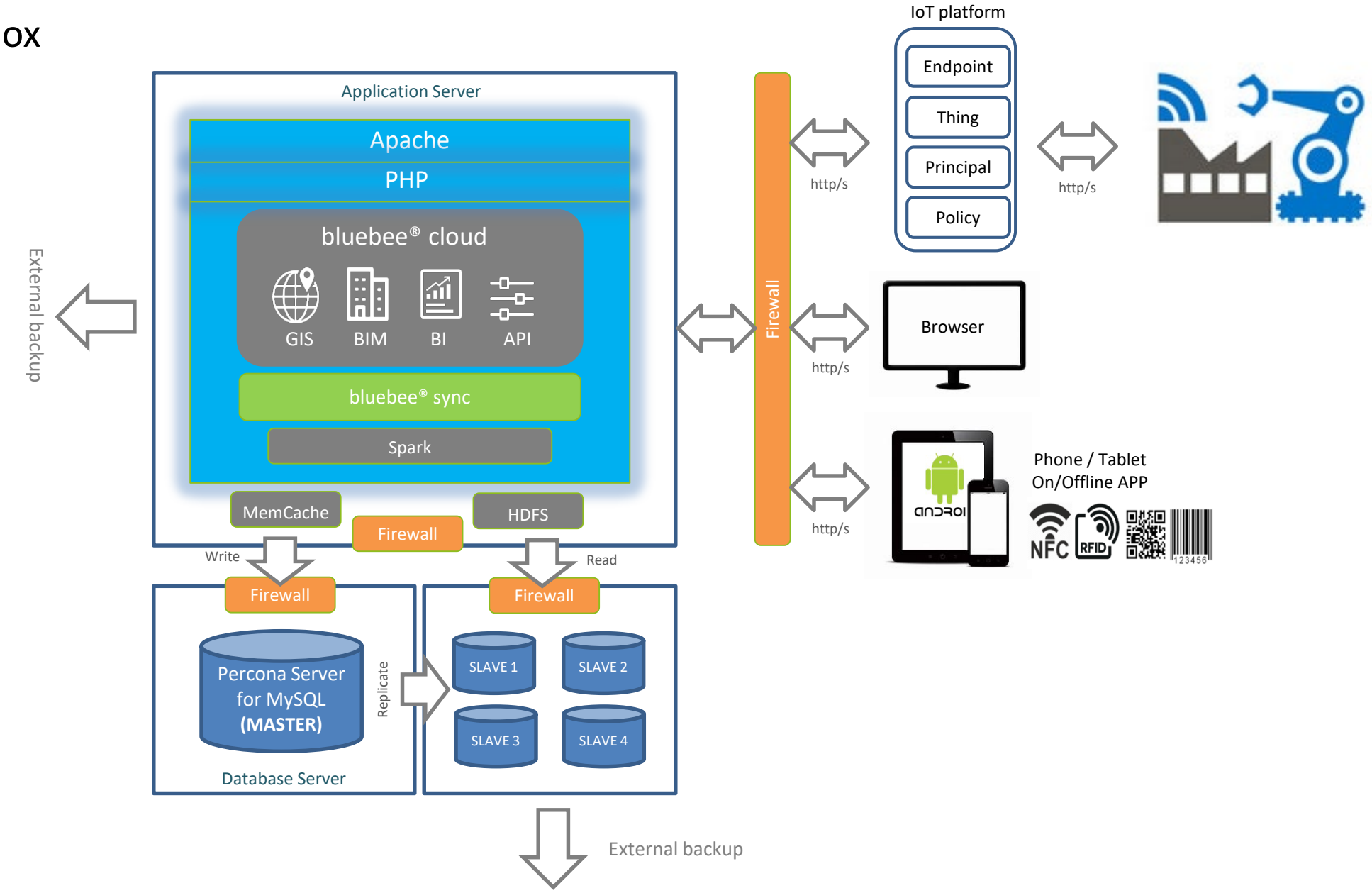


Adds the following inputs

- **Descriptive:** Age, Brand & Model
- **Historical:** Recent breakdowns, Delay or absence of Preventive maintenance
- **Situational:** operators mistakes, wrong input, etc…

Finally – make sure results will be visual

Inside the box



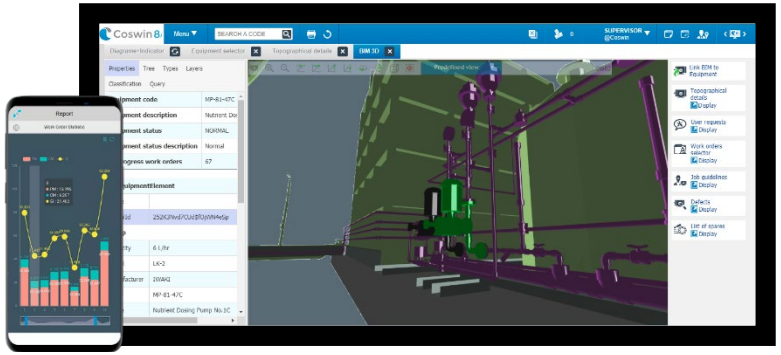
Some Siveco China references

環境保護署
Environmental Protection Department

suez NWS

Hong Kong's Organic Resources Recovery Center
Preventive activities based on asset condition

Zhongshan Water
Dynamic allocation of workforce



Hong Kong's Sanwai Sewage Treatment Works

Condition-based Maintenance

Drainage Services Department
The Government of the Hong Kong Special Administrative Region

French National Railways (SNCF)
Aggregation of multi-sources collected data under Asset Performance

Conclusion

A revolution is a return from the fictitious to the real.

Guillaume Gimonet, Operations Director
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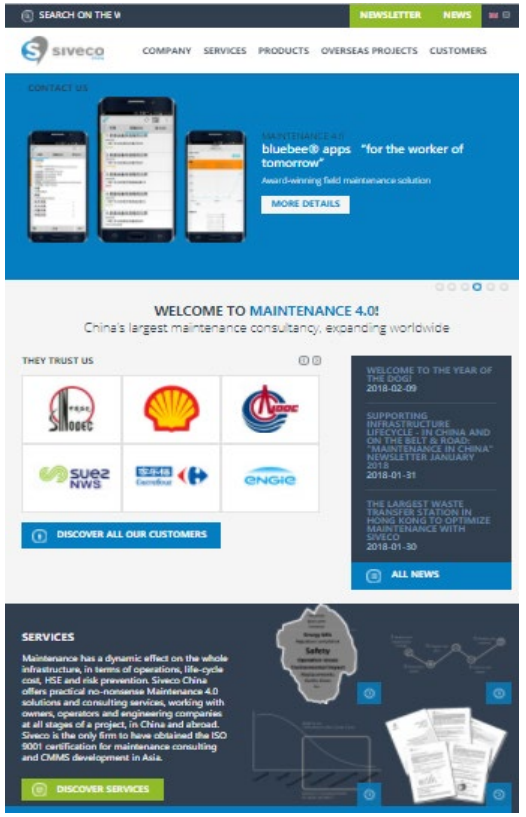

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