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# AI in Asset Management

Modern Asset Management Systems – Using AI to apply Predictive Maintenance & Asset Performance Management (APM) strategies

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# About the Speaker

**Gavin Barbier**

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Gavin is a Senior Business Development Executive, who started his career as an Artisan Fitter & Turner in 1989 and completed his National Diploma in Production Management in 1994. He worked as a production planner and coordinator on the Iscor Vanderbijlpark Twin Continues Caster construction project while working for Rotek Engineering.

In 1996 Gavin moved to the asset management arena, initially specializing on a locally developed product as implementer and later as Regional Services Manager.

He started his career on Maximo in 1999, as trainer and process consultant. He has played various roles as a Maximo Consultant, Lead Functional Consultant and Project Manager on implementation and upgrade projects, to Maximo Business Unit Manager for Africa and is now in the role as Senior Maximo Business Development Executive for Cohesive in South Africa and Africa.

Gavin has excellent analytical and design abilities and is extremely motivated and committed to delivering a project that is of the highest standard and that delivers bottom line business value to a client.

# What is an Asset Performance Management System vs an EAM System?:

- An **EAM solution** is a system-of-record, documenting and managing work-orders for each maintenance event across an asset's lifecycle.
- An **APM solution** is a system-of-decisions, providing continuous insights to optimize asset performance and reliability.

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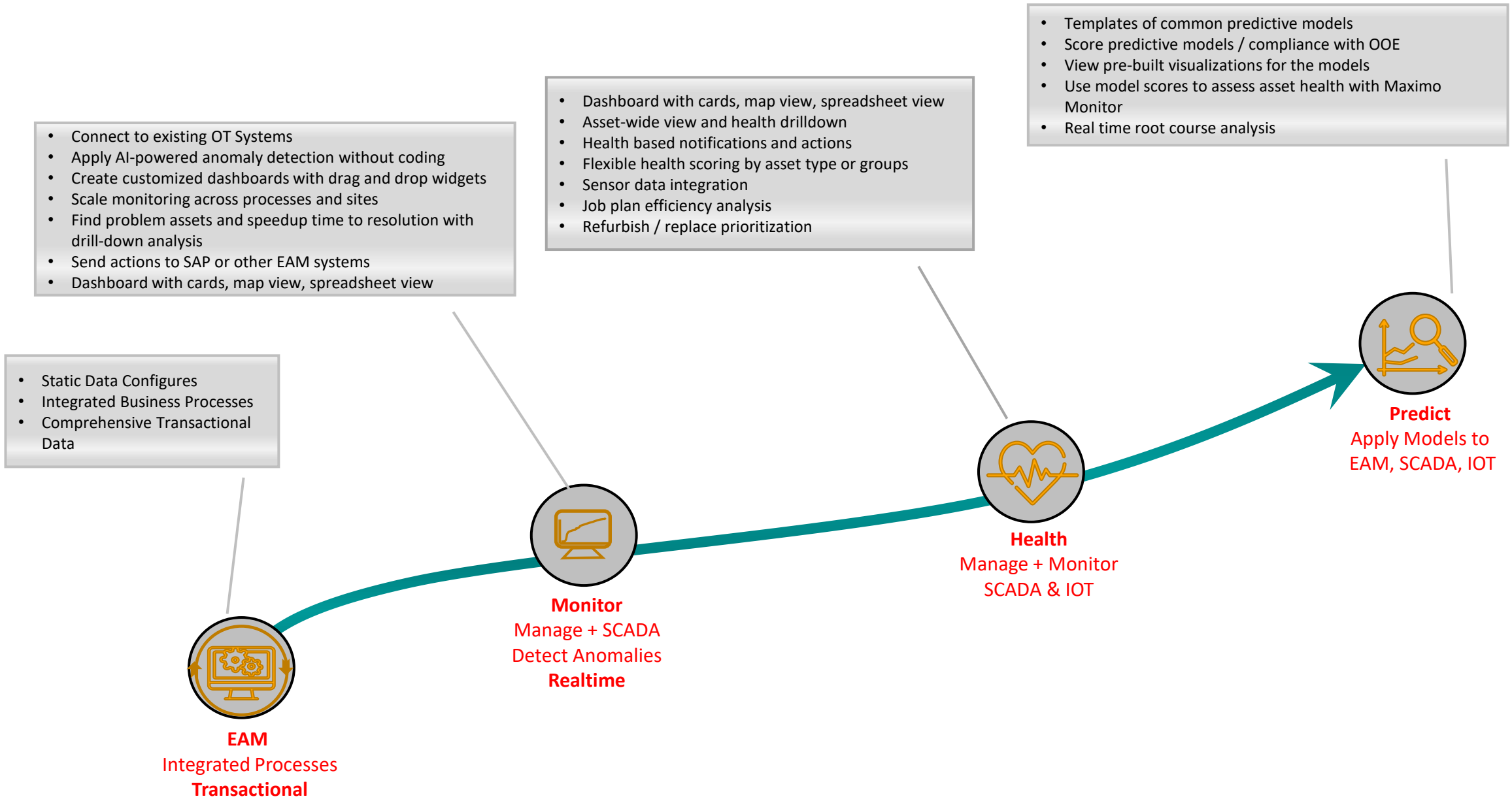
# Asset Performance Management Growth Path



# Introduction: AI in the EAM Industry

Artificial Intelligence (AI) is transforming asset-intensive industries by:

- Enabling Data-Driven Maintenance
- Optimizing Asset Performance
- Supporting Smarter Investment Decisions.

# AI Powered Predictive Maintenance

# AI-Powered Predictive Maintenance:

Predictive Maintenance uses:

- AI
- Machine Learning
- Real-time Analytics

to anticipate equipment failures and schedule maintenance precisely.

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# Key Differentiators of AI-Powered Predictive Maintenance:

- It is Condition-Based and not Calendar-Based
- Does Continuous Monitoring via IoT Sensors and Historical Data
- Reduces Unplanned Downtime
- Extends Asset Life
- Increases Operational Efficiency.

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# Business Impact of AI-Powered Predictive Maintenance:

- Reduces Maintenance Downtime by up to 50%
- Extends Machine Life by 20 – 40%
- Saves Costs and Boosts ROI.

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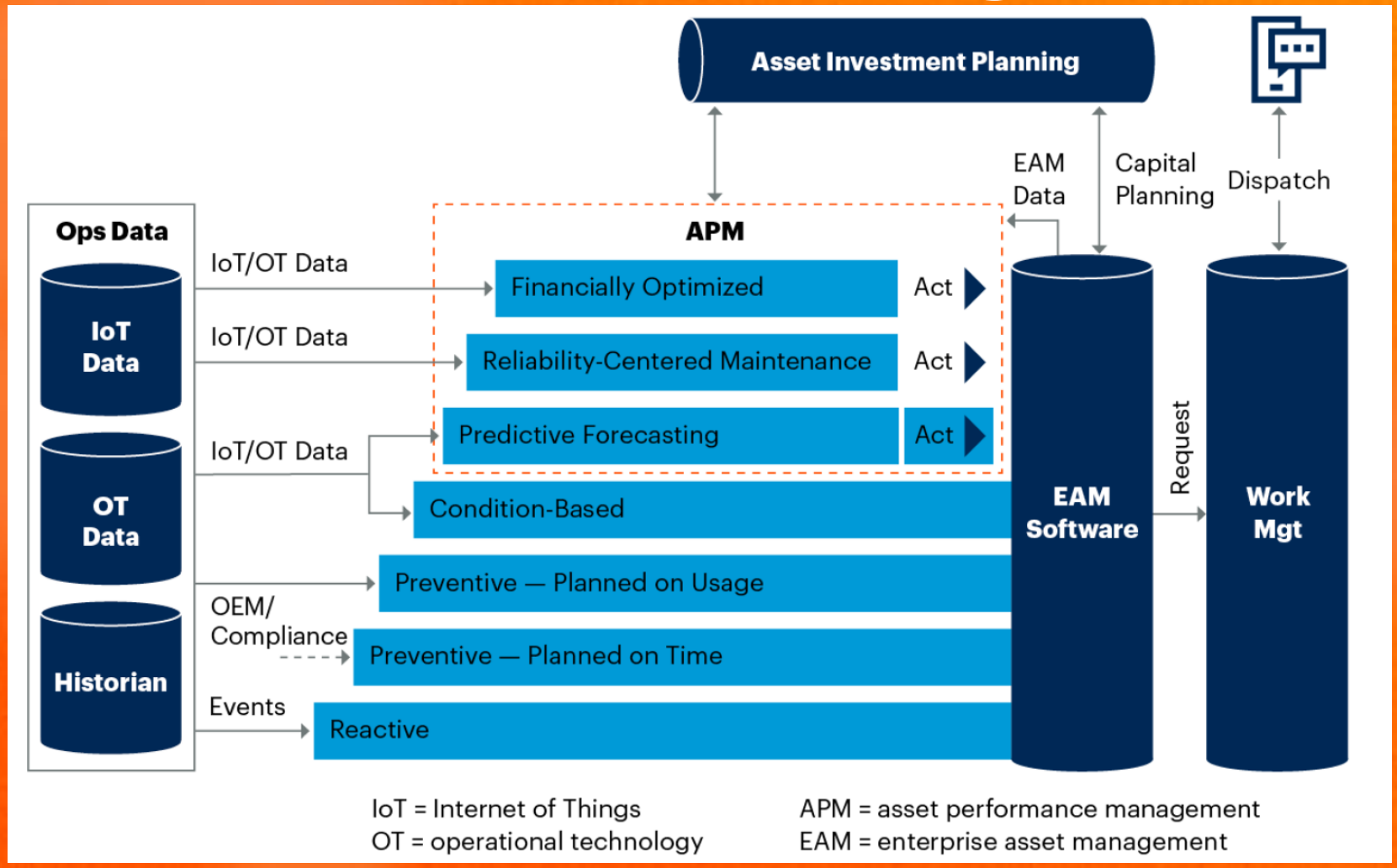
# Asset Performance Management with AI



# Asset Performance Management:

Enables:

- Real-Time Performance Tracking
- Automated Alerts
- Data-Driven Insights

for optimizing equipment utilization and reliability.

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# Asset Performance Management with AI:

Capabilities:

- Monitors critical KPI's such as:
  - Uptime
  - Failure Rates
  - Energy Consumption
- Uses intelligent Root-Cause Analysis for faster troubleshooting
- Supports Proactive Resource Allocation and Spare Part Management.

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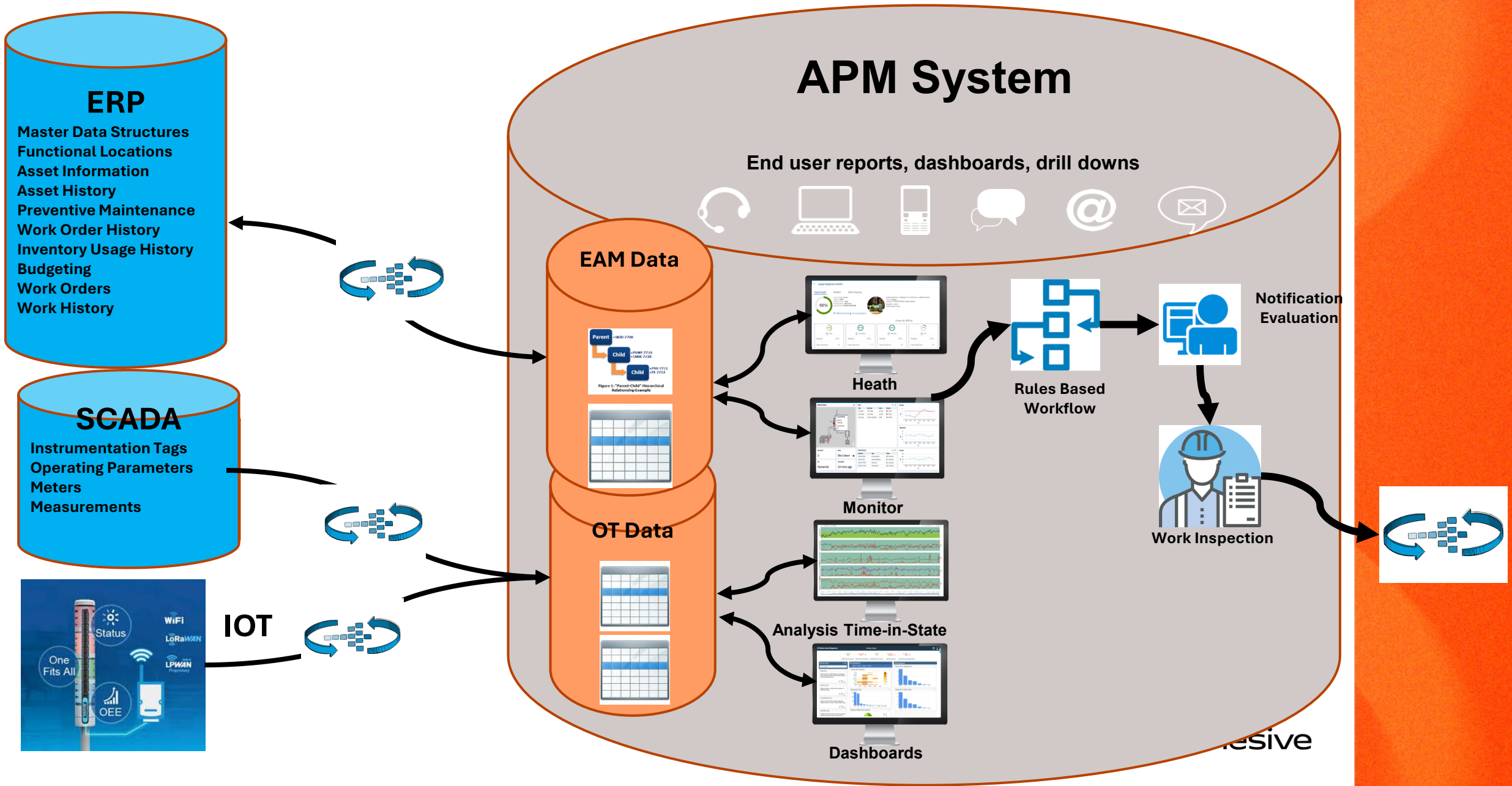
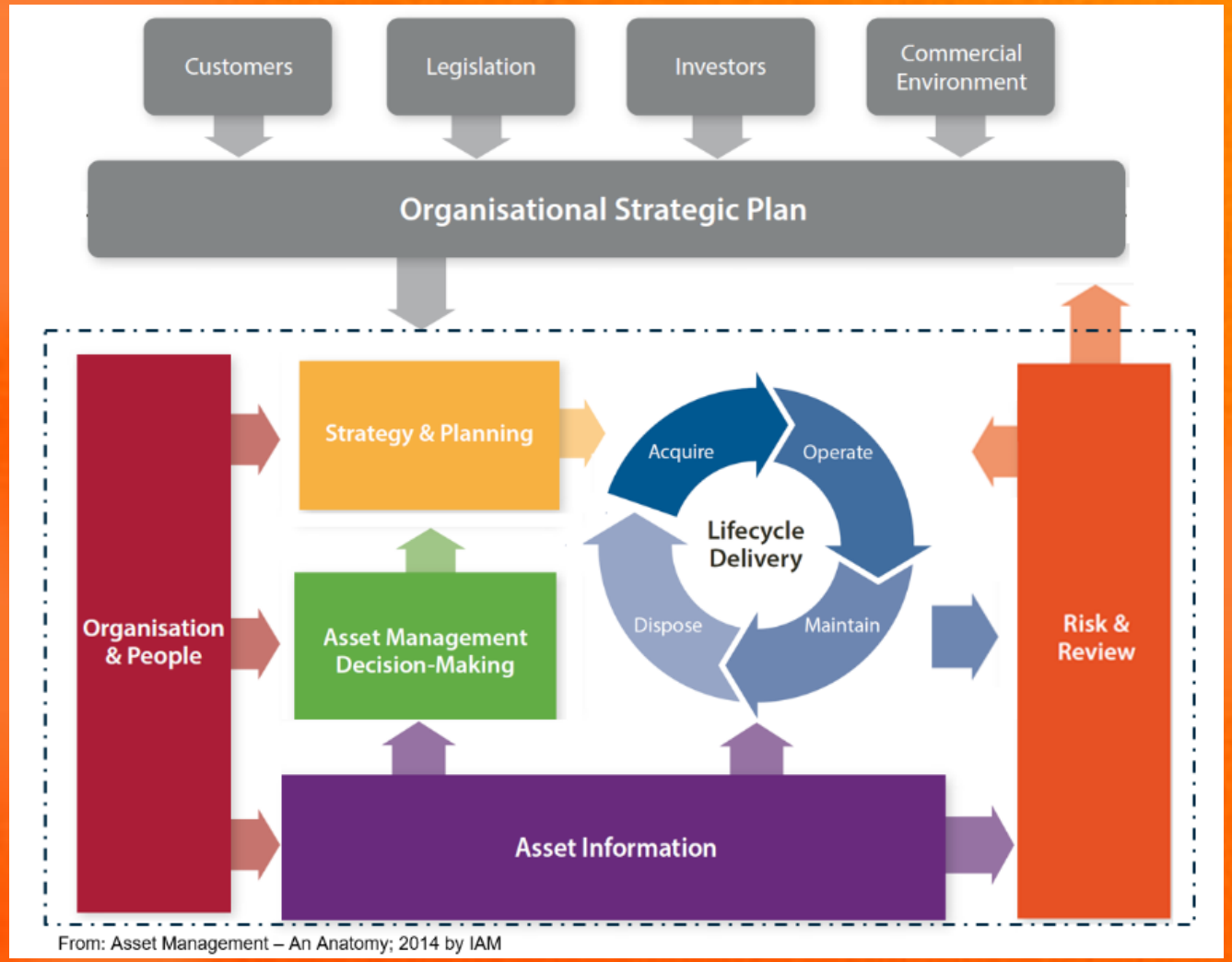
# Asset Performance Management Solution:



# Asset Investment Planning Strategies




From: Asset Management – An Anatomy; 2014 by IAM

# Asset Investment Strategies Enhanced with AI (1 of 2):

AI-driven analytics, therefore, supports long-term asset investment by:

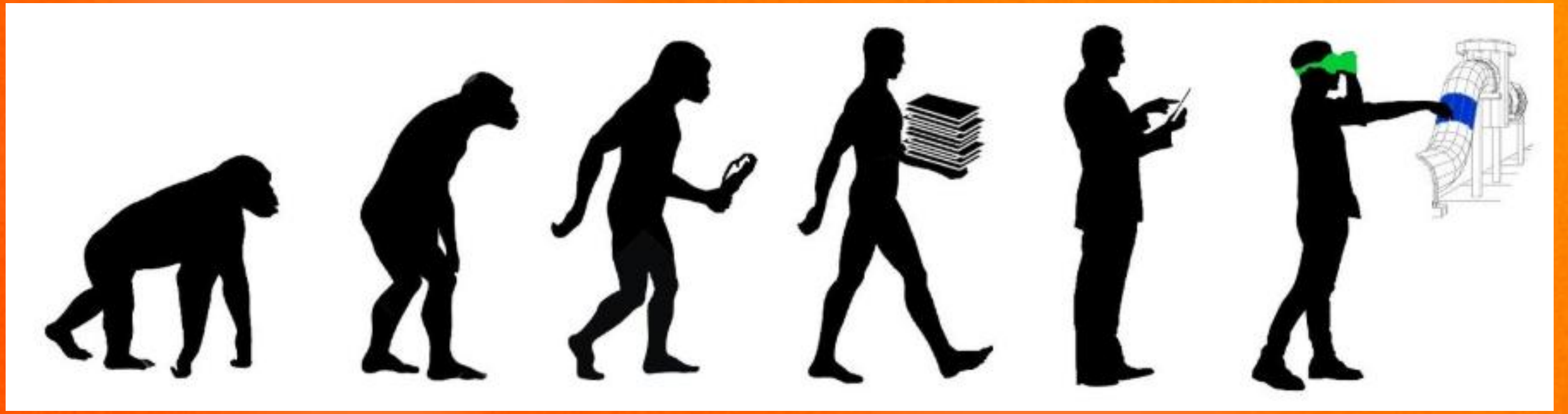
- Accurately Forecasting Remaining Useful Life
- Predicting Replacement Timing
- Identifying Budgeting Needs.

# Asset Investment Strategies Enhanced with AI (2 of 2):

Strategy is optimized by:

- Identifying High-Priority Assets for Capital Spending
- Balancing Risk and Reward, using Predictive Insights and Scenario Analysis
- Enabling Dynamic Asset Portfolio Management for Maximum Value.

# Implementation Approach



# Foundational Approach: Where do we start?

- Build Data Infrastructure by:
  - Installing IoT Sensors
  - Integrating Maintenance and Operational Data
- Develop Organization Readiness and Change Management
- Start with High-Value Pilot Assets, Validate AI Models and then scale enterprise-wide.

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# Apply Continuous Improvement by:

- Regularly retraining AI models with new data
- Integrating Emerging Sensor Technologies and expanding these to New Asset Types.

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KEY TAKEAWAYS

# Key Takeaways:

- AI enables Smarter, Proactive and Financially Optimized Asset Strategies across Maintenance, Performance and Investments
- Businesses adopting AI-driven Asset Management see significant reductions in Downtime, Cost Savings and improved Return on Asset Investments
- A structured implementation and ongoing optimization is crucial for Sustainable Value Creation.

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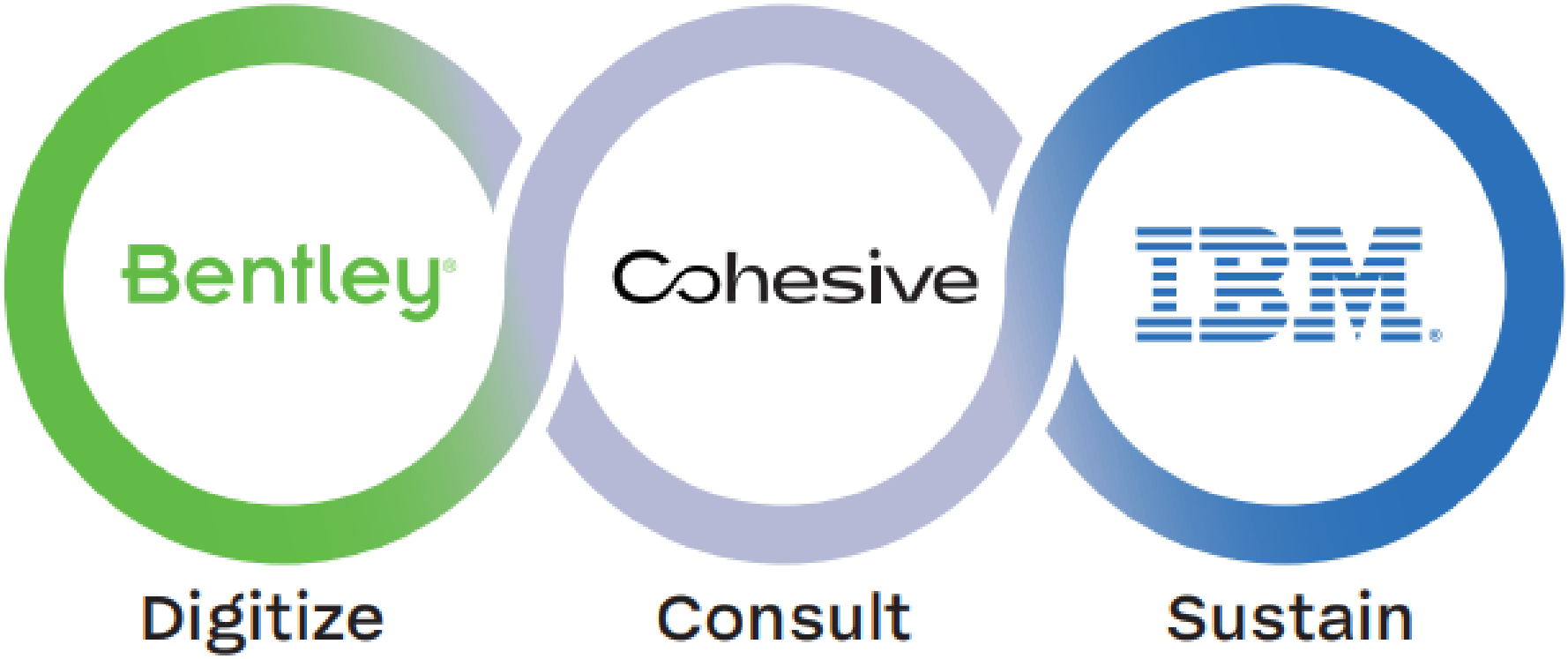
# Our Partner Network in Cohesion



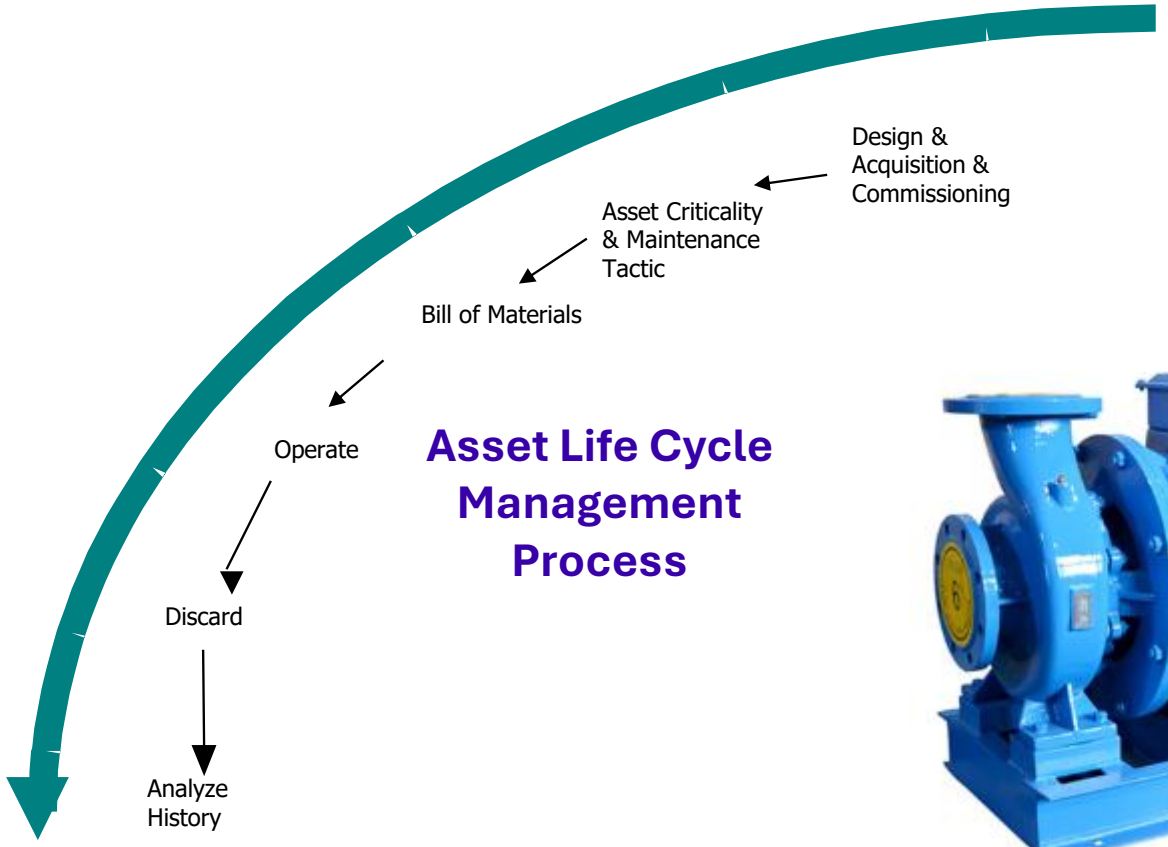
# What is a digital twin?:

A digital twin is a virtual representation of an object or system designed to reflect a physical object accurately.

It spans the object's lifecycle, is updated from real-time data and uses simulation, machine learning and reasoning to help make decisions

# Where does Artificial Intelligence (AI), Predictive Maintenance and Asset Performance Management (APM) fit in With Enterprise Asset Management

# The Asset Life Cycle:




**Asset Life Cycle Management Process**

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# The Work Management Process:

**Initiation resulting from Predictive Maintenance and Asset Performance Management**

**Work Initiation**

Actions Requiring Work

- Preventive
- Predictive
- Detective
- CBM
- Corrective
- Lubrication
- Repair

Initiate Work

**Work Management Process**

Identify Needs (Planning)

Schedule Maintenance Work

Issue Materials

Execute Maintenance Work

Document & Analyze Work

Design & Acquisition & Commissioning

Asset Criticality & Maintenance Tactic

Bill of Materials

Operate

Discard

Analyze History

**Asset Management Process**

**Labor Entries Payroll/HR**

# The Supply Chain Process:

**Event Initiation**

Actions Requiring Work

- Preventive
- Predictive
- Detective
- CBM
- Corrective
- Lubrication
- Repair

**Materials Management Process**

Order
Source
Store
Specify
Control
Use
Repairables
Materials Delivery
Analyze
Reports

**Work Management Process**

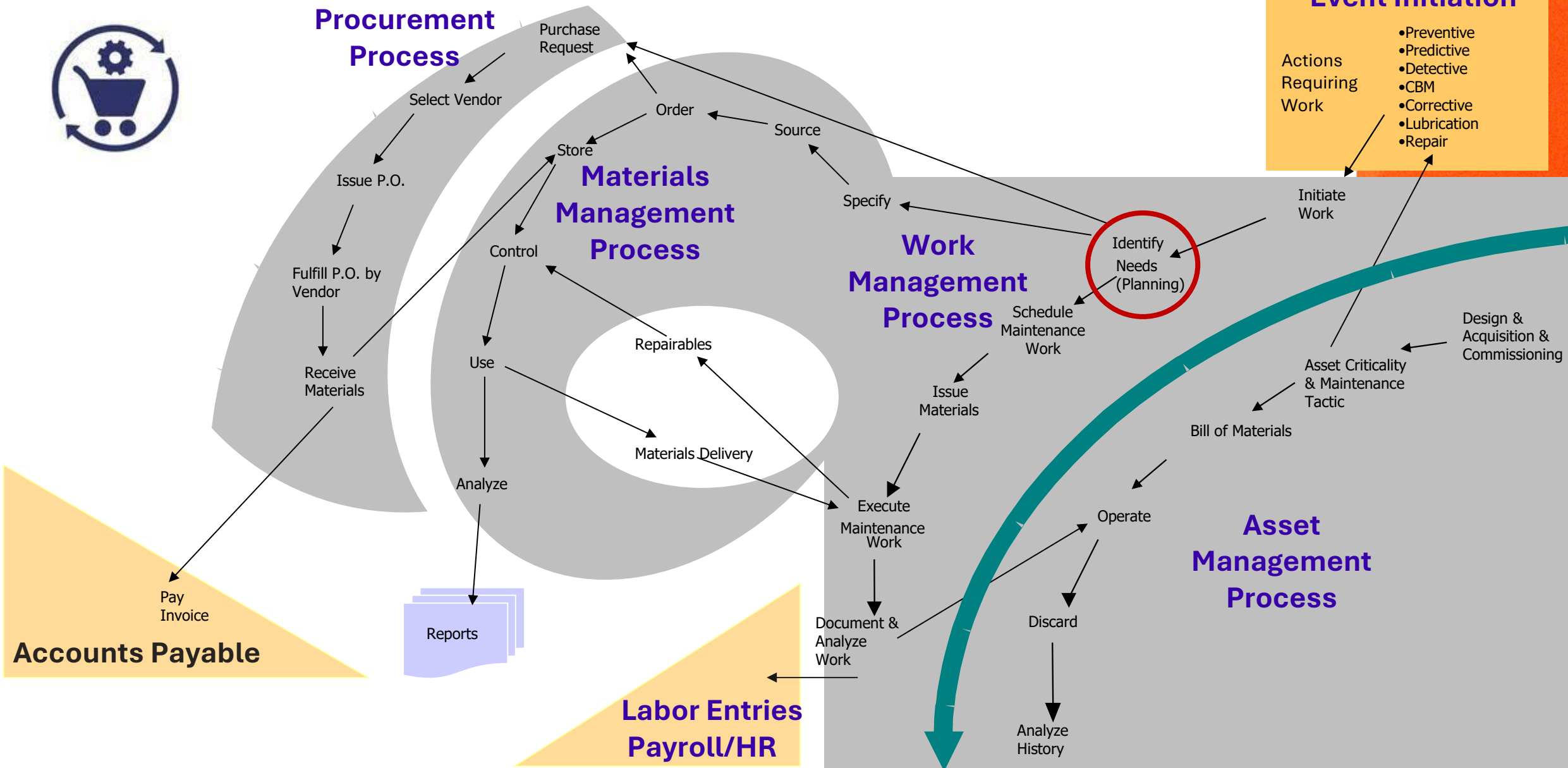
Initiate Work
Identify Needs (Planning)
Schedule Maintenance Work
Issue Materials
Execute Maintenance Work
Document & Analyze Work

**Asset Life Cycle Management Process**

Design & Acquisition & Commissioning
Asset Criticality & Maintenance Tactic
Bill of Materials
Operate
Discard
Analyze History

**Labor Entries Payroll/HR**

# The Replenishment Process (Procurement):



# Financial Control Process:

MRO Financial Management Process

Procurement Process

Materials Management Process

Work Management Process

Asset Management Process

Work Initiation

Actions Requiring Work

- Preventive
- Predictive
- Detective
- CBM
- Corrective
- Lubrication
- Repair

Cost Estimate

Budget Availability

Purchase Request

Committed Cost.

Select Vendor

Order

Source

Store

Actual Cost

Issue P.O.

Specify

Initiate Work

Identify Needs (Planning)

Control

Remaining Budget

Fulfill P.O. by Vendor

Schedule Maintenance Work

Repairables

Use

Receive Materials

Design & Acquisition & Commissioning

Asset Criticality & Maintenance Tactic

Issue Materials

Bill of Materials

Materials Delivery

Analyze

Execute Maintenance Work

Operate

Expenditure

Pay Invoice

Accounts Payable

Reports

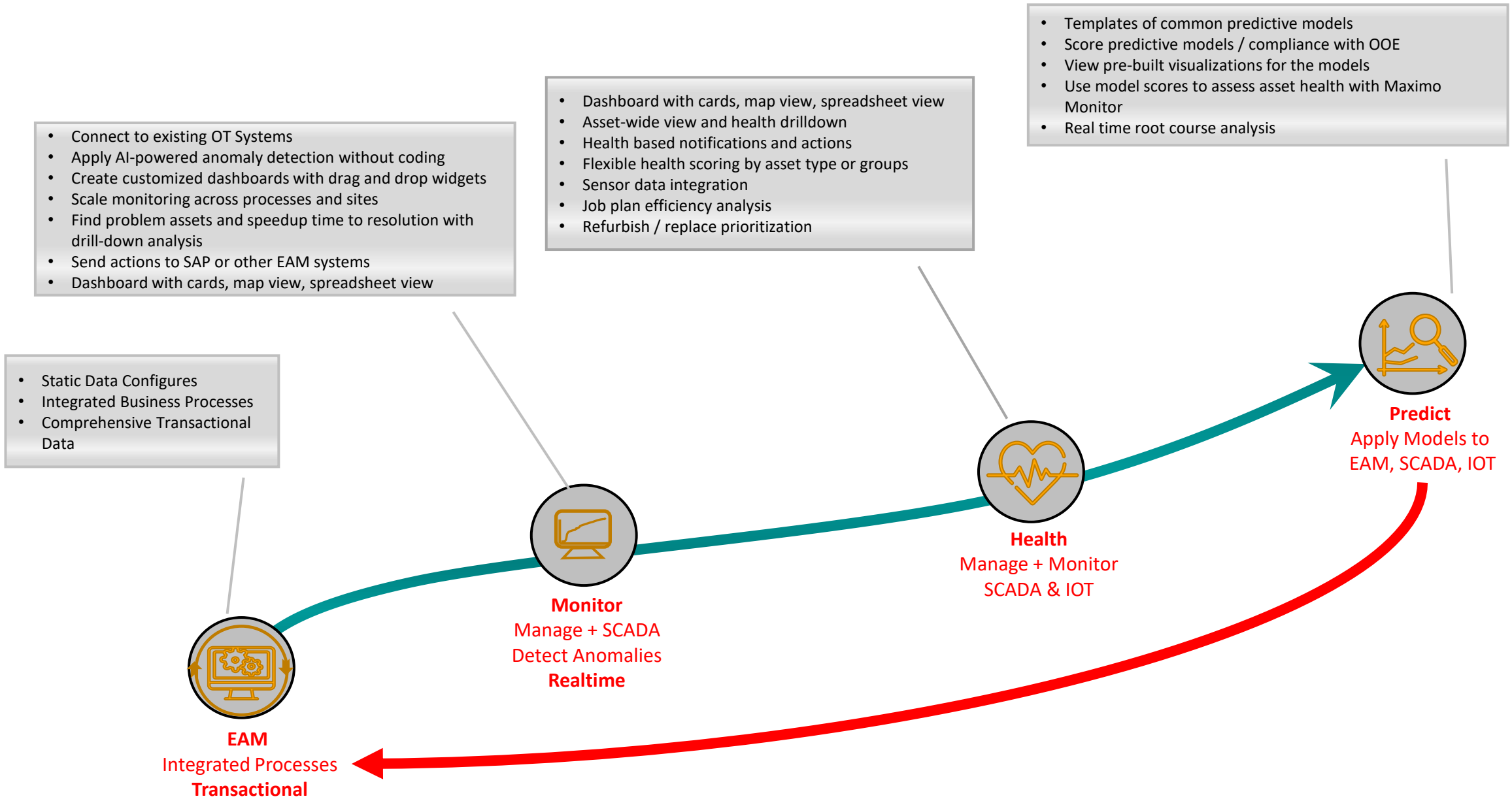
Document & Analyze Work

Discard

Labor Entries Payroll/HR

Analyze History

# Asset Performance Management Growth Path



Thank you