# Asset Performance: A Digital Approach

Mark Brewer, Industry VP, IFS

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The Evolution of Electricity generation and supply

STAYING BIG OR GETTING SMALLER
Expected structural changes in the energy system made possible by the increased use of digital tools

yesterday — tomorrow

production
few large power plants — many small power producers

market
centralized, mostly national — decentralized, ignoring boundaries

transmission
based on large power lines and pipelines — including small-scale transmission and regional supply compensation

distribution
top to bottom — both directions

consumer
passive, only paying — active, participating in the system

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Industry Challenges

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Overcoming challenges
Owner / Operators

Transition to low carbon

Large scale infrastructure programs

Asset management excellence

Managing project resources and costs

Health, safety & environmental regulations

Diversification and alternative revenue streams

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Overcoming challenges
EPCI/service providers

Project cost control and contract profitability

Global competition intensifying

Need to transition to digital asset lifecycle model & process

Resource allocation and technician productivity

Customer complaints and regulator attention

Challenging SLAs and customer retention

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Industry Trends & Predictions

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Industry trends
Power Generation

Accelerating DX

According to IDC by 2024

80%

of electric, gas and water companies will have implemented sustainable business models to **accelerate digital transformation – diversifying to adjacent, multi-utility organizations.**

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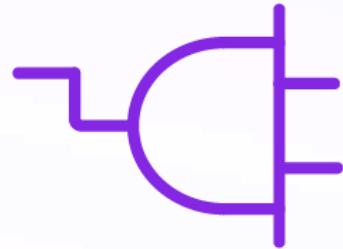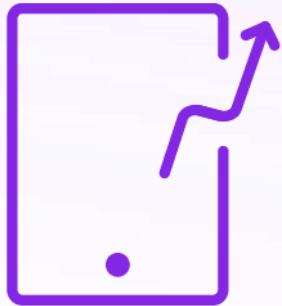
Industry trends

What it means for IFS

Accelerating DX: where does IFS deliver value?

- Setting up a new business or a new joint venture within the business application must agile and adaptable, IFS delivers that through **templated solutions and accelerators** that mean that opportunities are not missed. The platform must drive digital transformation.

- Container deployment through open-source platforms like **Kubernetes is a feature of IFS Cloud, this makes it easier to configure systems**, increases reliability, allows more rapid software deployment and makes more efficient use of compute resources.

15 MTH payback
Faster time to value
Improved ROI

80% customers
Say implementing IFS was easier than expected
Reduced operational costs

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Industry trends
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Automating with Intelligent asset management

It is expected that by 2025

50%

of utilities will increase spend in edge, **AI and ML technologies** thus doubling their investment in **a move to predictive/prescriptive** asset management.

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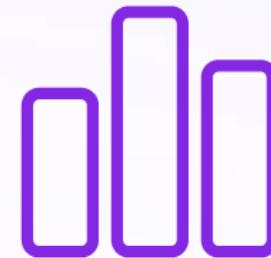
Industry trends

What it means for IFS

Automating asset maintenance: where IFS delivers value

- Supply chain planning — **extending the AI fueled capabilities** to include areas such as supply chain and **spare parts optimization** within asset maintenance.

- Combining IoT data, machine learning and stream analytics with other asset data to better **predict future spares and resource requirements.**

- **Scheduling**, using AI to help direct and contract employee **resource utilization** during shutdown and outage planning.

A 30% reduction
In inventory costs
Parts rationalization

A 28% improvement
In jobs completed per day
A reduction in opex costs

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Industry trends
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Renewables to further increase

Although the IEA reports **growth in renewables during** 2022 to have been

8%

Investment in additional facilities including small scale mini-nuclear, solar, wind, hydro and investigations into producing green hydrogen **continues**. These could all be alternative investment areas for Oil and Gas companies.

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Industry trends

What it means for IFS

Renewable investment grows – where IFS delivers value

- **Integrated Project and asset lifecycle capabilities** around design, manufacture, construction, handover to operations of new assets — as designed to as installed to as maintained are a foundation of the IFS through life story. One version of the truth during a major capital program of infrastructure renewal or replacement delivers multiple benefits.

- The collaborative capabilities of the IFS project solution ensure that even during the initial phases of work scope definition, estimation, managing the bidding and assigning the work to sub-contractors are all managed seamlessly in the one business solution.

A 22% improvement
In engineering team productivity
**Reduced project costs**

A 7% improvement
In project/asset infrastructure build
= Improved project margin

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IFS Solution & User Experience

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Integrated Project & Asset Lifecycle Management

Construct

Operate & Maintain
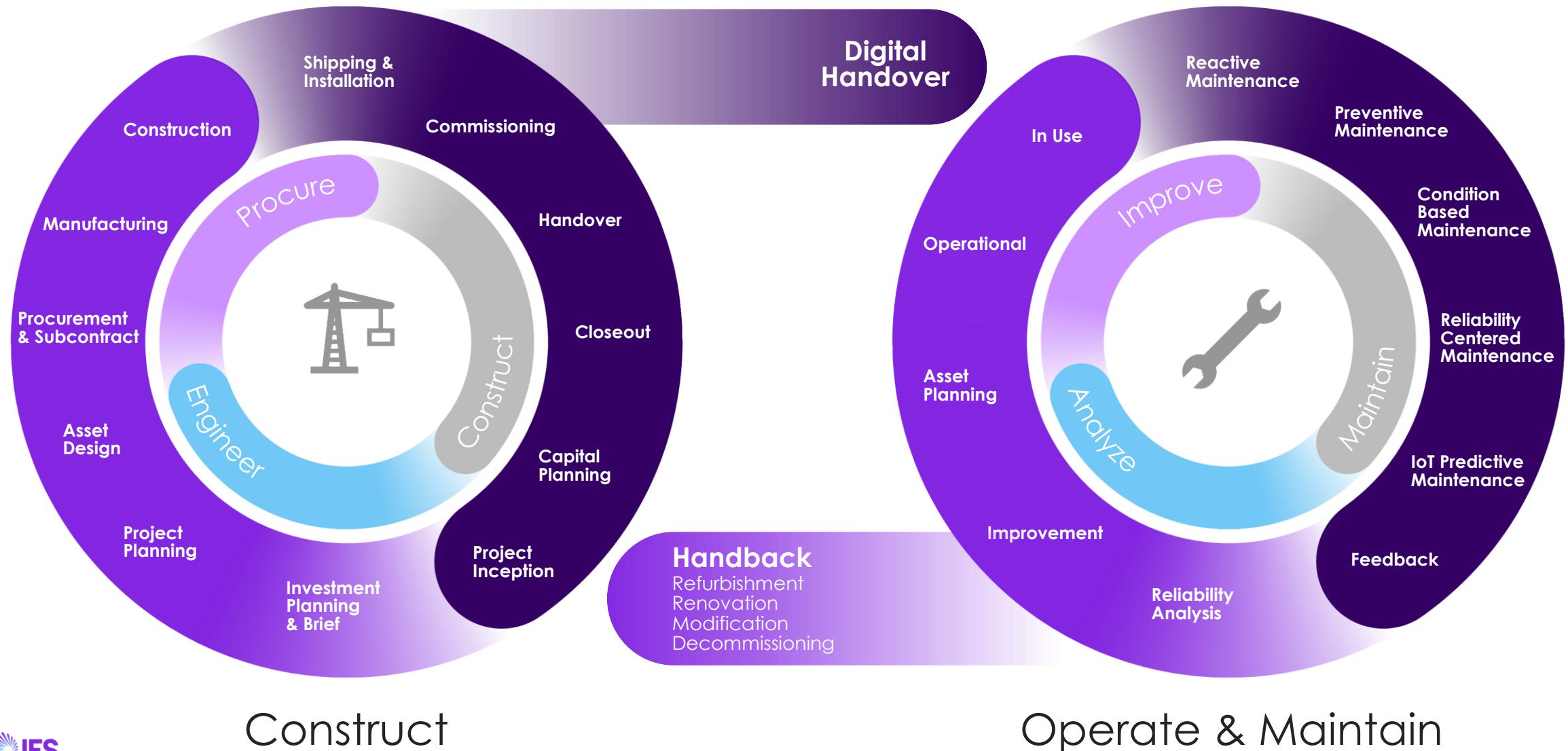
Customer Examples

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Customers
Generation

Our first solution back in 1983, **We've helped hundreds of energy companies** reduce costs, improve efficiencies and seize new opportunities for their business.

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Customer:
SDIC Qinzhou

Customer facts

Qinzhou Electric Power is the largest thermal power plant in Guangxi, with a large domestic thermal power base.

SDIC Qinzhou Power Co., Ltd. was established in 2004, by the State Development and Investment company and Guangxi Investment Group Co., Ltd.

In 2007, 2 × 600 MW supercritical coal fired units were put into operation and in 2016, 2 × 1000MW supercritical units were gridconnected, generating power

Location: Guangxi, China   **Industry:** Energy, Utilities & Resources

Realized Benefits

-15%
Reduced Maintenance & Repair Costs

+30%
Enhanced Inventory Turns

-10%
Reduced Workforce costs

> ❝
> IFS not only meets the needs of our business and management team, but has reduced supply chain, procurement, asset operation and maintenance costs by an average of 20%.
>
> **Zheng Xianjin,
> SDIC Qinzhou**

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Continued Innovation

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AI & automation for Asset improvement

Fault is reported via IoT/SCADA

- Intelligent knowledge base to support fault triage and initial decisions

- In alternative to reported fault, ML model predicts need of maintenance visit

Order creation is automatically triggered

- Probable root cause, suggested fix, resources and material required plus probability of multiple visits is communicated

An engineer is assigned the order

- All available resources examined by planning engine, competency, license, risks and permits defined. WO assigned and schedule optimized based on constraints and predictions

Follow up, root cause analysis and process evaluation

- Intelligent knowledge base is enriched with fault resolution and documents. ML monitors the process to recommend improvement

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Asset performance management: overview
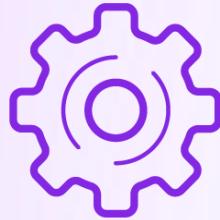
Equipment data is conditioned

- Sensor data is translated and conditioned for real-time monitoring and for automated observations
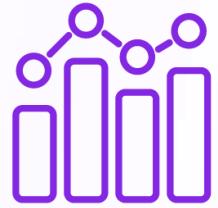
Data is ingested

- Data observations such as measurements, events, and alarms are ingested into IFS using the IoT Controller, fielded by one of several APM Models and stored in either the measurements or APM tables
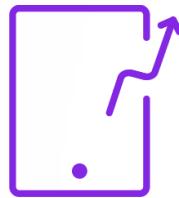
Measurement & alarm triggers

- Out of tolerance readings and alarms can generate warning messages and fault reports

Equipment monitoring visualization

- Asset Performance Lobby for Asset Managers containing My Assets and List of Physical Devices can be drilled down into individual asset performance details

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Equipment data collection
Asset performance details

Machine status

Measurements

Events

Equipment data collection
Asset performance details

Alarms

Auto reported faults

Thank You!