Asset Lifecycle Management for Utilities

How to make technology-informed decisions

Explore how technology supports your strategic, tactical, and operational decision-making

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Contents

Introduction

Technology never stands still.

And nowhere is this more accurate than within the utility sector. While the industry may not be the first that comes to mind relative to innovation, utilities are leveraging technology like never before.

Organizations face unparalleled challenges: ever-increasing energy demand, an evolving grid, legacy infrastructure, and unpredictable weather events that disrupt and damage the operation–all dependent upon a funding model over which the utility has little control.

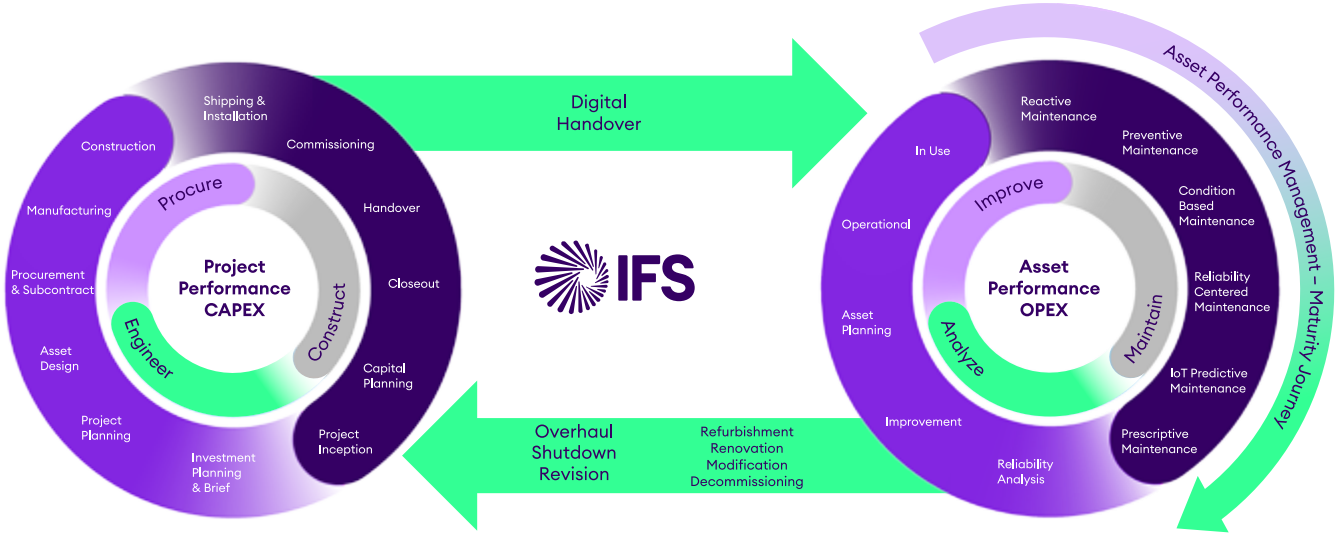
Working closely with industry innovators, utilities are catching up and, in many cases, leading the charge to a future state where technology enables the operation to work at scale while evolving to a new order. By embracing the cloud, Industrial AI, automation, smart devices, and many other advances, utilities are meeting the present–and the future–with technology.

In this ebook, we focus on the critical role of technology in managing the lifecycle of assets and infrastructure, enabling utilities to optimize capacity, efficiencies, and resilience on their path to modernization.

Strategic, Tactical, and Operational Decisions

Utilities make hundreds, if not thousands, of decisions about asset investment, implementation, and management daily. From the smallest part to the most complicated component, the evolution of a utility's asset infrastructure is infinite, from acquisition to end of life and back again.

Asset Life Cycle Management



With the advent of the cloud and smart devices, utilities are converting hardware into rich data stores that feed the growing demand for **Industrial AI**, machine learning, real-time analytics, agentic AI, and many other advances.

Data and the value it provides to help inform strategic, tactical, and operational decisions has become a mainstay. This foundational shift is driven not only by the C-suite but by the overall workforce, with increased demands for more technology and greater access to data so employees can make better decisions and succeed in their work.

Phase 1:
Invest Strategically

Technology & Services:

- Asset Investment Planning (AIP)
- The Cloud
- Industrial AI
- System Data

Decision Models:

- Strategic and tactical

Asset investment planning is the first step in building a resilient, long-term strategy for the utility's asset portfolio. **IFS AIP** enables strategic and tactical decision-making using advanced tools such as scenario analysis, resource optimization, and strategic planning.

The technology serves as a strong foundation for the entire lifecycle of an asset, providing a clear path forward to successfully deliver capital projects while optimizing the productivity and longevity of the overall investment.

AIP allows the utility to make decisions in a data-driven manner, examining constraints (capital, staffing, regulatory, etc.) and objectives to arrive at a short list of projects that provide the best return on investment while achieving the desired goals.

In 2024, IFS acquired Copperleaf Technologies, the most advanced AI-powered enterprise AIP software provider. Combined with IFS technology, the addition of Copperleaf capabilities enables utilities to benefit from the only **end-to-end asset lifecycle management** toolset.

The following checklist provides utilities with the necessary steps to build an effective asset investment planning strategy, including the role technology plays throughout the process.

AIP Checklist

Start with the data

Cast a wide net when collecting data for your investment planning strategy. Tap into business, financial, and operational data from adjacent software applications such as enterprise resource planning **(ERP)** and enterprise asset management **(EAM)**.

Depending upon the nature of your AIP initiative, consider other applications like grid monitoring systems, smart meters, customer service and billing data, and other data analysis applications

The intelligence you gather helps you set up your AIP framework, allowing you to make informed strategic decisions as you build your planning strategy.

Consider Capex and Opex

Though it's often overlooked, large capital projects with complex budgets and timelines also impact the utility's operational plan, affecting the budget (Opex), which is similarly challenging to manage. Disruptions on the operational side can also impact resource availability for capital work.

With AIP technology, utilities can accurately determine how a project will affect the existing infrastructure and, ultimately, Opex. For example, will the project require the replacement of existing assets? If so, on what timeline? What will you maintain versus replace in an upcoming project? And will the operation have adequate resources and materials to carry out the work?

AIP technology, underpinned by **Industrial AI** integrates these operational considerations into investment planning decisions to optimize Capex and Opex efficiencies.

Identify the stakeholders

Work diligently to identify all appropriate project contributors, not just the squeaky wheels. While some stakeholders may assign a sense of urgency to a particular project, the investment planning strategy must be objective, based on the facts and perspectives of all stakeholders.

For example, in the past, IT was often overlooked as a participant in strategic planning based on the assumption that the team only engages at the implementation point. However, IT provides an essential perspective with deep domain knowledge of the existing infrastructure and configuration requirements to support the implementation.

Be inclusive in the team you assemble.

Define ROI targets

Work with the larger team to determine how the new assets will benefit the utility, be it better productivity, sustainability, operational efficiencies, or other goals. These outcomes must be converted to measurable results, and the data inputted into the AIP system.

ROI metrics serve as a guardrail to measure the project's success. The numbers prove to regulators and investors that the promised results were delivered, which is especially helpful when applying for the next round of funding.

Future-proof the project plan

Test the plan's resiliency using what-if and historical scenarios within the AIP system. Determine how well the plan will accommodate unanticipated events such as extreme weather events, unplanned labor shortages, and other potential eventualities.

Use AIP data modeling to understand how these scenarios may impact the operation, including generating a revised strategy to accommodate the unexpected.

AIP also examines data from projects that are planned or already underway, providing a comprehensive view of available resources and inventories over time.

AIP Checklist

Pitch for funding

Whether the utility is public or private, its investment strategy must be presented to regulators or the board to determine if the operation will receive the funding. The ROI targets you defined earlier in the AIP process will serve you well, allowing you to present a technology-driven and fact-based business case with measurable results.

"We now have over 300 colleagues managing all their project information in one place. This is genuinely going to save us time, improve our decision-making, and give us a clear picture of each project's value."

nationalgrid

Fedor Petrenko
Principal Product Manager
IT and Digital

Download the Copperleaf case study

Phase 2:
Implement the Plan

Technology & Services:

- Enterprise Asset Management (EAM)
- Project Portfolio Management (PPM)
- Workforce Planning and Scheduling
- Mobile Workforce Management (MWM)
- The Cloud
- Industrial AI
- System Data
- Professional services

Decision Models:

- Operational and tactical

It's time to execute once the investment strategy plan is approved and funded. As with any plan, one of the most critical steps is coordinating all the requisite people, time, and resources to ensure the project is successfully executed.

Complex project management scheduling, resource allocation, interdependencies, and many moving pieces must all be managed and refined to optimize efficiencies.

While the existing workforce commands significant domain knowledge, some projects–especially those involving emerging technologies–may benefit from specialists with hands-on experience supporting similar initiatives within the industry.

For example, Accenture has worked closely with IFS on large infrastructure projects. The company provides **a range of services customized for utilities**, helping to deliver large-scale projects on time and within budget while also achieving investment and sustainability objectives.

Implementation Checklist

Quantify and supplement required resources

As with the asset investment planning phase, the implementation begins with a deep analysis of enterprise data from PPM, ERP, EAM, and other systems, leveraging **Industrial AI**, to determine if existing resources are adequate to support the project.

For example, the utility must have a clear line of sight in existing inventories (parts and tools) as well as the available workforce to construct an accurate scope of work.

PPM is an analytics tool within AIP. The system receives plans from AIP and works them into executable project plans, with integrated supply, workforce, and financial tools. PPM helps the utility convert its strategy into a viable plan once a project advances. Utilities benefit from a portfolio view that considers all projects underway, including integrated financial and supply chain data, to ensure available budgets and resources are aligned across the operation.

Insights are precise, defining where additional resources or plans may not be adequate, allowing the utility to take corrective action. PPM enables utilities to order supplies in an accurate and timely manner, buy/lease/rent equipment, and determine if the existing workforce is sufficient or if additional support is required.

Build the team

AI-optimized **workforce planning and scheduling** allows you to assess the entire workforce and identify those members with the appropriate qualifications and certifications. Determine available workers and hire contractors and service providers to fill any voids.

Mobile workforce management technology allows you to seamlessly integrate contractors and other third-party workers into your existing system for a centralized planning and scheduling model.

Coordinate acitivites

Once the project team is organized, the mammoth task of scheduling begins. With AIP, the utility monitors and is able to take corrective action throughout the project to stay on track and budget.

Along with workers, the utility must also manage equipment, parts, and all other components required for the project.

Workforce planning and scheduling technology ensures the right resources are available at the right time throughout the implementation. Work orders are sequenced efficiently and adjusted automatically to accommodate necessary and unexpected work stoppages.

The system supports smart digital workflows that guide workers in the field. Repairs made, parts used, and hours worked are captured in real time. This streamlined approach leverages automation and other efficiencies while immediately transferring information to the back office to ensure the project remains on track.

Workforce management technologies empower workers to make operational decisions in the field to expedite the work.

Implementation Checklist

Monitor results

Once the plan is implemented, take a step back and revisit the ROI targets established during the asset investment planning phase. For example, if the project is intended to support sustainability objectives, use EAM data to measure initial results once the project is active.

Ensure alignment with the original goals; if outliers exist, make the necessary adjustments to resolve and improve them. Ultimately, the success of the project is measured by these metrics.

"It's just not about your EAM; you need intelligence, AI, fitting with your budgeting software, other systems for field deployment. IFS' product clearly articulated that vision and that Exelon saw it taking shape in real-time."

exelon

Robert Biagotti
Vice President EAM
Exelon

Read the article

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Phase 3:

Maintain, Optimize, Decommission

Technology & Services:

- Enterprise Asset Management
- Planning and Scheduling Optimization (PSO)
- Mobile Workforce Management (MWM)
- What If Scenario Explorer (WISE)
- Industrial AI
- System Data

Decision Models:

- Operational and tactical

With the project implementation complete, the work transitions to a more predictable pace, from project performance (Capex) to asset performance (Opex).

IFS Cloud EAM technology is purpose-built for asset-intensive industries like utilities. Powered by Industrial AI, the system leverages operational data and analytics to predict future performance and respond proactively.

Coupled with workforce management and planning and scheduling tools, utilities proactively respond to demands in the field while increasing efficiencies and reducing overall costs.

Asset Management Checklist

Develop an asset performance baseline

As in prior phases, data analysis is the first step. EAM technology enables the utility to use business, operational, and OEM data to create and set asset performance benchmarks.

With baselines established, the EAM system collects and stores asset data in real time, comparing performance to the established benchmarks, and generating insights that help to identify potential risks.

When established parameters are not met, automated alerts are triggered, providing the utility with all the information it needs to respond appropriately.

Depending on the nature of the exception, the EAM system triggers automated workflows to diagnose and resolve potential disruptions before they occur.

Incorporate AIP ROI objectives

The AIP project was funded based on the utility's commitment to achieve specific ROI goals and objectives. With the new components in place and serving their intended purpose, the utility must also incorporate project KPIs into the EAM system to ensure the promised results are delivered.

Whether an ROI objective or an operational standard of performance, EAM technology collects, stores, and analyzes asset data to detect and prevent potential failures and unplanned downtime.

Manage the workforce transition

Most large capital projects rely on a mix of people, from full-time utility employees to contractors and professional services personnel. Once the implementation is complete, the utility must adjust its workforce to accommodate the outflow of non-permanent workers.

AI-powered EAM technology combined with workforce management and **what-if scenario explorer** tools, allows the utility to work proactively to identify where new headcount and skillsets are required. The existing workforce is examined, and employees with the appropriate experience, certification, and availability are identified.

If no employees meet the requirements, those workers who most closely match the criteria can be shortlisted for additional training. The utility has sufficient time to prepare since potential workforce deficits were determined during the asset investment planning phase.

Determine maintenance practices

Today, most utilities practice a variety of maintenance models, including reactive, preventive, condition-based, reliability-centered, predictive, and prescriptive.

Often, the importance of the asset and its impact on reliability will determine the maintenance model, including the frequency and speed of the service it receives. Assets critical to the operation are prioritized and managed with predictive and even prescriptive maintenance routines. If an asset is nearing its end of life and functions in a less critical capacity, it may be permitted to run to failure without any intervention.

EAM technology leverages AI algorithms, machine learning, and centralized asset information to ensure that the assigned maintenance model for every asset is applied.

Asset Management Checklist

Integrate new assets into the system

With all parameters in place, new assets are integrated within the EAM system. Previously established operational benchmarks may need to be adjusted to accommodate these changes, reflected in new KPI, ROI, and other performance metrics.

At this stage, the utility must revisit and examine asset performance data to validate that the new model delivers the expected results. Make adjustments and refine as needed.

Implement end-of-life measures

Asset performance metrics help the utility determine when an asset can no longer perform its intended function. At this stage, EAM system data supports operational decisions as to whether the asset will be refurbished, renovated, modified, or decommissioned and replaced.

While this stage represents the end of life for the asset in its present function, it is just the start of another asset lifecycle, triggering a new round of asset investment planning, design, procurement, manufacturing, etc. as the utility continues on its path to modernization.

"With IFS as partner to support our need for full transparency across all areas of our business, we have a future-proof solution that offers us the flexibility we need to support our innovation journey."

stockholm exergi

Jimmy Renström
CIO
Stockholm Exergi

Read the press release

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Next Steps

Data-driven technology is woven throughout the lifecycle of an asset, helping to inform strategic, operational, and tactical decisions that optimize efficiencies.

Utilities face a complicated path that requires the operation to maintain affordability and safety standards while also preparing for a new energy model. The industry faces many constraints, including antiquated infrastructure, inadequate funding, worker shortages, and devastating climate events.

IFS began working with utilities the year the company was founded in 1983. Since then, we've established active partnerships with utilities globally, working closely with our clients to deliver innovative technology that is optimized for asset-intensive industries.

Fundamental change often depends upon large capital projects. In these scenarios, some IFS clients choose to engage with professional services from companies such as **Accenture**. Together, IFS and Accenture help the utility strategically and technically strengthen its team and overall capabilities. Accenture provides over 25 years of industry experience to complement the deep domain experience of IFS, delivering exceptional value to the client.

Following the acquisition of Copperleaf in 2024, IFS clients have access to the only fully **end-to-end asset lifecycle management** solution on the market–supporting data-informed decision-making throughout the life of an asset, from the cradle to the grave and back again.

If your utility is contemplating an asset investment strategy or any other initiative involving how you manage infrastructure and assets, **visit our website**, explore the success stories of **IFS utility customers**, or **contact us** for more information.

Visit the website

Contact us

About IFS

IFS develops and delivers cloud enterprise software for companies around the world who manufacture and distribute goods, build and maintain assets, and manage service-focused operations. Within our single platform, our industry specific products are innately connected to a single data model and use embedded digital innovation so that our customers can be their best when it really matters to their customers–at the Moment of Service™. The industry expertise of our people and of our growing ecosystem, together with a commitment to deliver value at every single step, has made IFS a recognized leader and the most recommended supplier in our sector.

Our global team of over 6,000 employees every day live our values of agility, trustworthiness, and collaboration in how we support thousands of customers. Learn more about how our enterprise software solutions can help your business today.

About accenture

Accenture is a leading global professional services company that helps the world's leading businesses, governments and other organizations build their digital core, optimize their operations, accelerate revenue growth and enhance citizen services-creating tangible value at speed and scale.

We are a talent- and innovation-led company with approximately 799.000 people serving clients in more than 120 countries. Technology is at the core of change today, and we are one of the world's leaders in helping drive that change, with strong ecosystem relationships. We combine our strength in technology and leadership in cloud, data and AI with unmatched industry experience, functional expertise and global delivery capability. Our broad range of services, solutions and assets across Strategy & Consulting, Technology, Operations, Industry X and Song, together with our culture of shared success and commitment to creating 360° value, enable us to help our clients reinvent and build trusted, lasting relationships. We measure our success by the 360° value we create for our clients, each other, our shareholders, partners and communities.