



# Asset Lifecycle Management Practice

**SERVICES OVERVIEW**



**EXPERTS WITH IMPACT™**



# Our Asset Lifecycle Management Practice

Organizations across industries rely on their investments in capital assets to deliver value to shareholders and usually represent the largest items on a company's balance sheet. Optimization and proper management of these resources over time can have a huge impact on the organization's overall success.

Managing the related risk, time, quality, cost, safety, maintenance, and reliability of projects, portfolios, and physical assets is a delicate balancing act for all parties involved. FTI's Asset Lifecycle Management (ALM) was established to partner with our clients in maximizing the capital efficiency of these assets.

Our global network of multidisciplinary professionals supports every business aspect and function to reduce risk, improve project delivery, optimize operations and maintenance, and maximize profitability.

FTI Consulting's ALM practice streamlines the construction, maintenance, operation, and retirement of assets, helping to deliver optimal lifecycle return on investment. Our seasoned professionals, well-proven processes, and state-of-the-art tools and technology optimize performance, reduce risk, and improve collaboration among stakeholders across countless industries. We advise owner/operators, equity partners, and Engineering, Procurement, and Construction (EPC) firms on the diverse challenges faced throughout the ALM process.

**340+**

construction solutions  
advisory employees globally,  
including the ALM practice

**ALM Intelligence**

Recognized as a Vanguard  
Leader by ALM Intelligence  
in the Capital Projects &  
Infrastructure Consulting  
report (2020)

## — ASSET MANAGEMENT



Selecting the right projects



Optimizing the investment portfolio



Getting the plan right and executing to schedule, quality goals, and budget



Incorporating Total Cost of Ownership and robust Asset Management processes from ideation to operations



Integrating data from different disciplines and stakeholders



Managing complex contracts with robust controls and oversight

## Why FTI Consulting ALM?

FTI Consulting's ALM team offers an unparalleled breadth of services focused on improving the lifecycle value for critical capital assets. In addition to partnering with our clients to transform their approach to ALM, we regularly fulfill project and operations management roles for clients around the world, leveraging the strength of FTI Consulting's best practices and technology.

Our services and tools improve every aspect of the asset management lifecycle – shortening time to value and increasing capital efficiency.

## Benefits of Working with FTI Consulting's Asset Lifecycle Management Practice

- Embedded key learnings and leading practices in processes and procedures
- Pre-configured tools and hosted solutions to expedite implementation
- End-to-end integrated view across company functions
- Independent third party, providing assurance and transparent information flow between owner and contractor(s)
- Scalable resources capacity
- Improved capital efficiency and rate of return
- Data intelligence and predictive analytics to improve decision confidence
- One team with expertise to support the full asset lifecycle





# Asset Lifecycle Management Solutions

We maintain a focus on our client’s business goals throughout the entire asset lifecycle.

FTI Consulting uses state-of-the-art **Enterprise Project Portfolio Management (EPPM)**, **Enhanced Project Delivery (EPD)**, **Enterprise Asset Management (EAM)**, and **Asset Management Services (AMS)** solutions capable of addressing the diverse challenges of the largest and most complex portfolios, projects, and assets.

## We Transform How You Work

### Enterprise Portfolio & Project Management

Provide insights and leading practices for the implementation of project delivery processes powered by leading technologies to enable the efficient and predictable delivery of construction project portfolios.

### Enterprise Asset Management

Partner with clients to implement solutions to enable predictive maintenance, asset integrity management, and workforce productivity by integrating asset management and work order management into everyday processes, tools, and execution strategies.



### Asset Management Services

Provide required corporate and regulatory services to project developers and Joint Ventures to optimize operational asset performance, set key cost-reduction strategies, and manage the overall asset lifecycle to reduce risk exposure.

### Enhanced Project Delivery

Using our multi-disciplined industry experts, we deliver robust processes and pre-configured solutions to assure oversight of complex projects and programs.

## We Perform the Work for You

## WHAT WE DO

## HOW WE DO IT

### Enterprise Portfolio & Project Management

Provide insights and leading practices for the implementation of project delivery processes powered by leading technologies to enable the efficient and predictable delivery of construction project portfolios.

- Business process and organizational consulting
- Project/Portfolio management systems and architecture (enterprise cost-control systems, enterprise planning & scheduling, enterprise estimating, workflow, and process automation)
- Engineering and construction analytics
- Engineering and project data management

### Enterprise Asset Management

Partner with clients to implement solutions to enable predictive maintenance, asset integrity management, and workforce productivity by integrating asset management and work order management into everyday processes, tools, and execution strategies.

- Asset management systems and tools
- Business process and organizational consulting
- Manage asset risk by understanding the asset's risk profile
- Define continuous planning approach to maintain asset's highest performance

### Enhanced Project Delivery

Using our multi-disciplined industry experts, we deliver robust processes and pre-configured solutions to assure oversight of complex projects and programs.

- Estimating, cost controls and project scheduling
- Program and/or Project Management Office design and implementation
- Packaged and hosted business process and IT industry solutions
- Construction and risk management
- Communications management
- Business intelligence and data insights

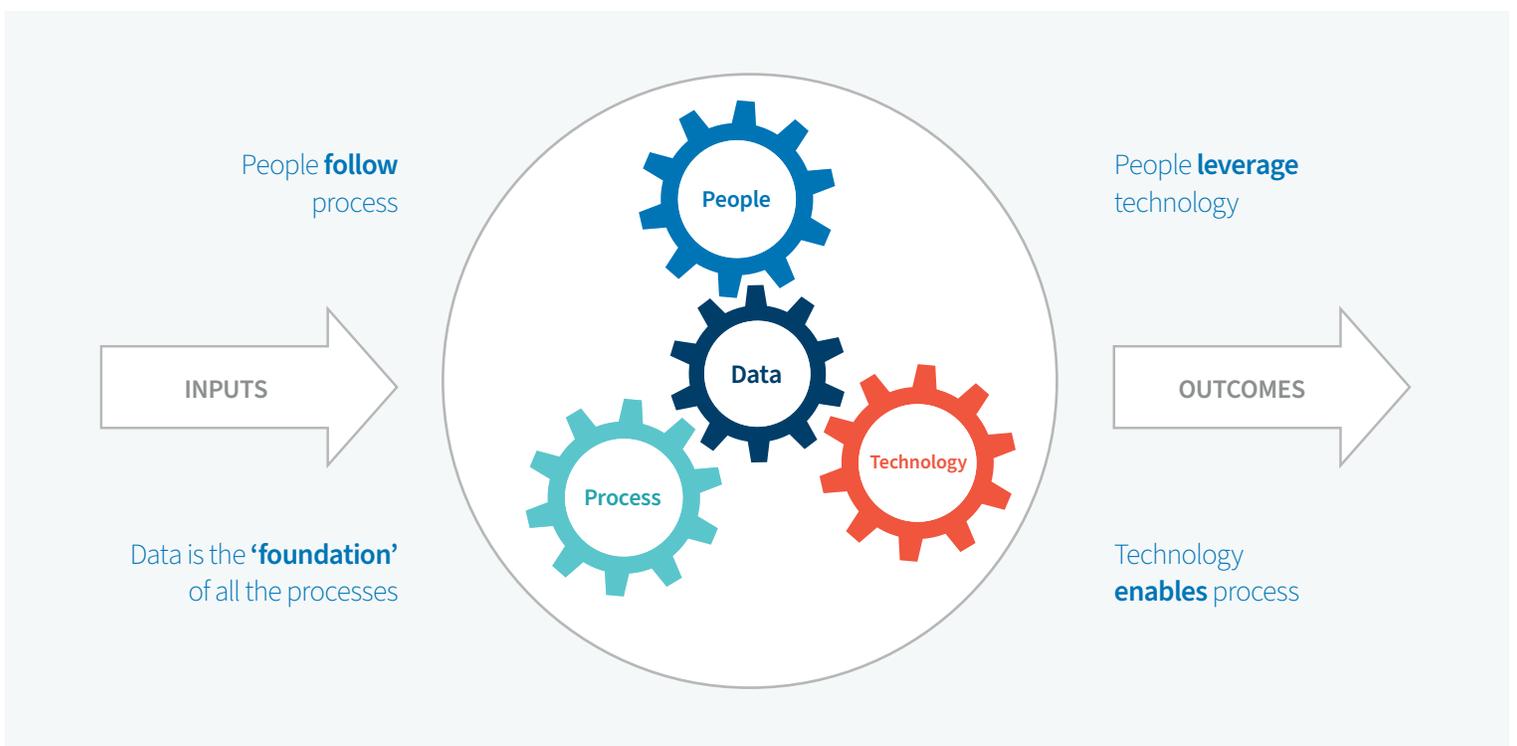
### Asset Management Services

Provide required corporate and regulatory services to project developers and Joint Ventures to optimize operational asset performance, set key cost-reduction strategies, and manage the overall asset lifecycle to reduce risk exposure.

- Predictive asset analytics for long-term sustainment
- Advanced asset performance management
- Asset development to proactively manage risk
- Investment portfolio optimization
- Regulatory filing and management

# Enabling Transformation

Our approach to business transformation puts the business at the forefront of digital transformation through consideration of four key elements: people, process, technology, and data. This transformation disrupts the areas of the business that drive significant value and deliver meaningful results against critical Key Performance Indicators (KPIs).



## People

We assemble a multidisciplinary team that includes executives, engineers, data scientists, project technologists, and construction and project managers with the requisite skills and experience to support and enable your people during transformation.

## Process

We've developed a suite of processes that are based upon industry best practices and FTI Consulting's years of experience with hundreds of projects in numerous industries. That broad experience allows us to bring solutions to your challenges on day one.

## Technology

Technology is viewed as an enabler and a tool for your teams to leverage as part of a successful operating model for managing assets. In support of this vision, FTI Consulting has established strategic partnerships with market-leading technology vendors and has turned our experience into digital tools that communicate information in a way that enables rapid decision-making.

## Data

Data is at the core of a digital business lifecycle, providing transparency and a critical foundation for better decision-making. Our analytical tools leverage data you already have to provide new insights, develop predictive models, and build KPI pyramids with leading indicators.



## CASE STUDY

# Enterprise Business Transformation

### SITUATION

As part of an enterprise business transformation, FTI Consulting was engaged with a Fortune 500 multinational petroleum and natural gas exploration and production company to support the optimization and execution efforts in delivering their Drilling and Completion, and Facilities and Construction projects.

### OUR ROLE

FTI Consulting assessed the Client's current operations to identify areas of opportunity and delivered future-state recommendations and an implementation roadmap to guide the Client on the path to achieve their vision. The Client leveraged FTI Consulting's expertise to review, analyze, and optimize business processes and guidelines across multiple disciplines including Project Management & Controls, Field Cost and Progress Tracking, and Demand Management.

### OUR IMPACT

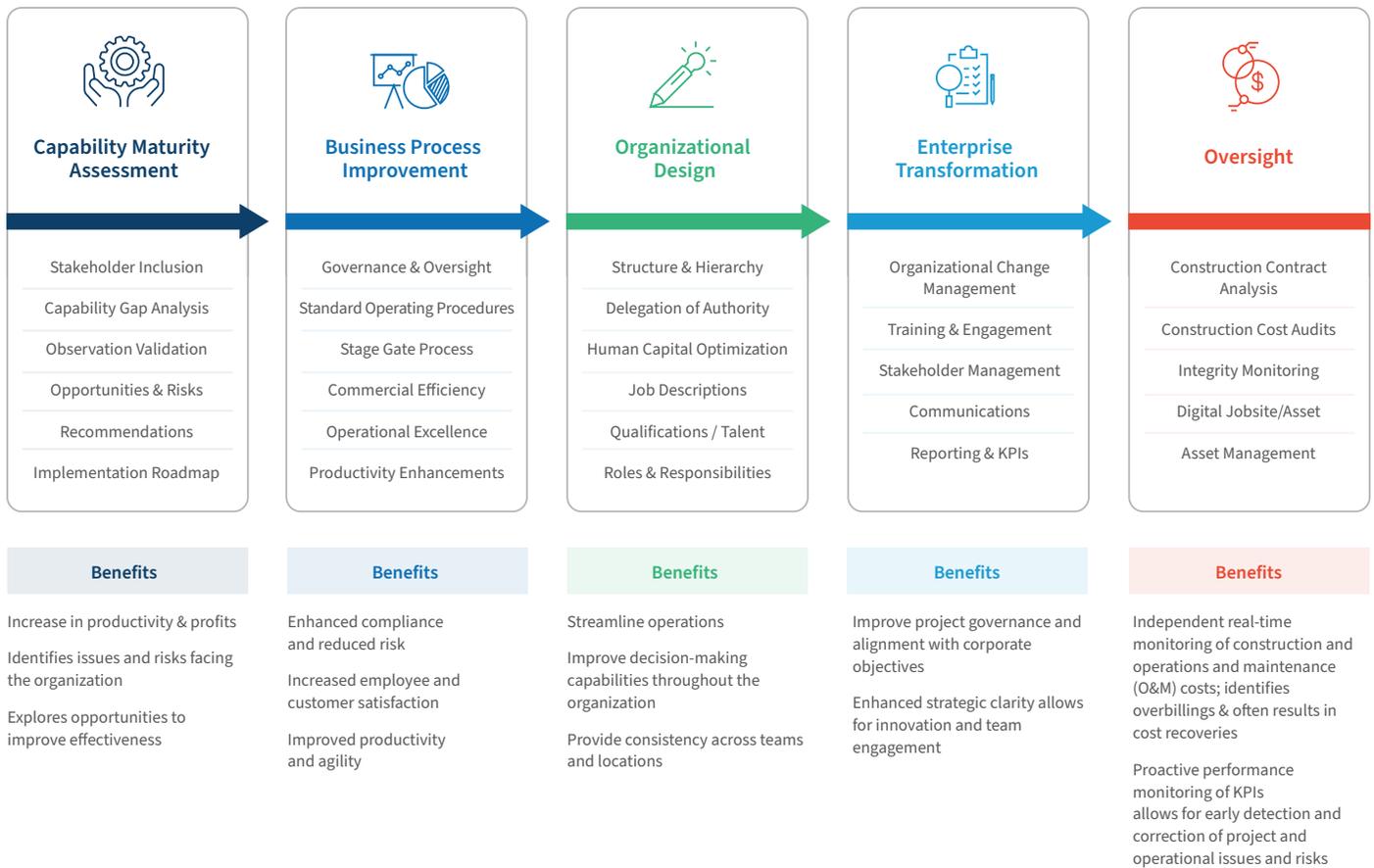
The optimization efforts set the foundation for the design, configuration, and deployment of a standardized project management solution. In addition to upscaling existing practices and tools, FTI Consulting is providing additional benefit by transitioning the Client from manual reporting practices to automated self-serve reporting and building the digital platform for advanced analytics capabilities.

# Strategy and Management Consulting

FTI’s ALM Strategy and Management Consulting services focus on helping our clients improve their business processes, develop strategies and governance structure, execute essential projects, and efficiently manage assets.

Our services are designed to enhance value, reduce costs, and help organizations respond to ever-evolving business challenges by identifying key opportunities to prioritize focus. We work alongside our clients to design process improvements, drive enterprise transformation, and provide oversight to proactively identify opportunity areas.

Our multidisciplinary team offers numerous value-added solutions, allowing you to focus on your business while we help improve operations and mitigate risks from the back office to the field.





## CASE STUDY

### Capability and Maturity Assessment Model Application

#### SITUATION

An American multinational EPC has spent multiple years on Process Kaizens, none of which have had sustainable benefit. The organization does not operate consistently across its three business models and therefore has defined a three-year strategic goal of operational excellence focused on:

- Sales growth through improved service and delivery
- Gross margin improvement
- Overhead efficiency and profitable growth
- Improve cash flow

#### OUR ROLE

FTI Consulting was engaged to utilize our proven Capability and Maturity Assessment Model to measure the organization's As-Is state, define the To-Be state, and develop an Implementation Roadmap to achieve the desired state for the defined business functions/ capabilities.

#### OUR IMPACT

FTI Consulting brought visibility to issues affecting the organization's Profit and Loss Statement (P&L) while making prioritized recommendations to improve areas of opportunity and demonstrating what high performance looks like. The following phase of work included implementation of the opportunities identified on the roadmap to close gaps addressing key challenges.





# Enhanced Project Delivery

Global capital project and infrastructure spending is expected to grow to more than \$9 trillion annually by 2025, up from \$4 trillion in 2012. Capital projects are increasing in both size and complexity, the characteristics of which create new challenges to typical delivery models.

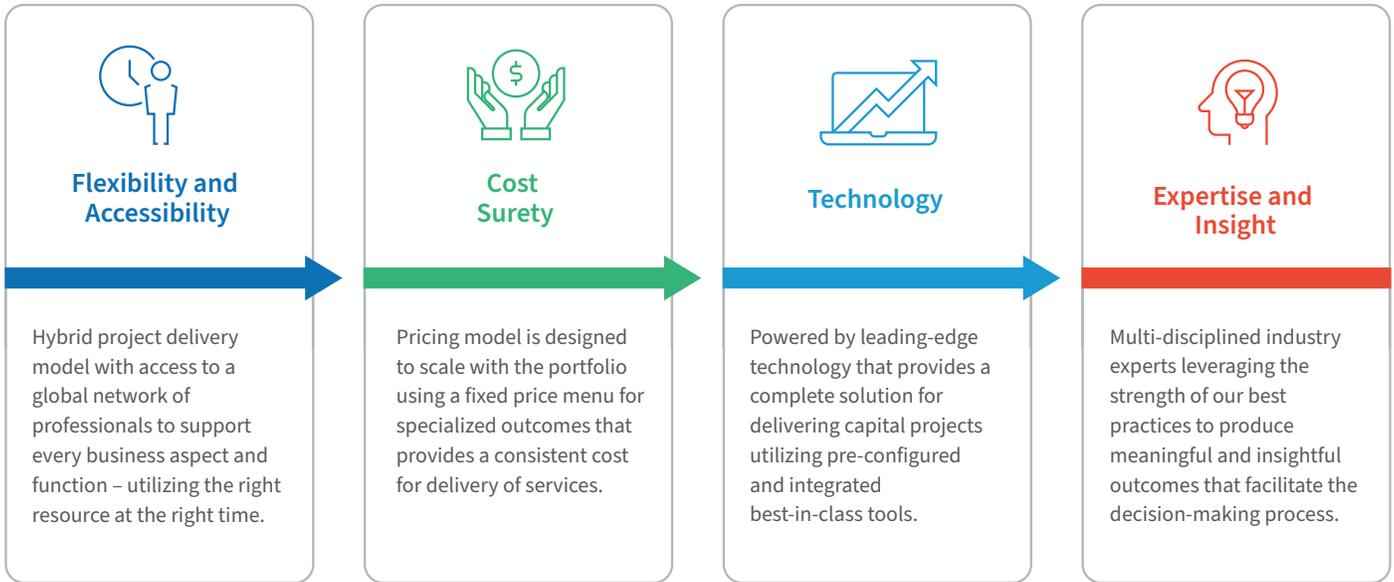
Most organizations are not consistently meeting their own capital projects delivery targets, producing unwanted outcomes such as cost overruns of greater than 30%, schedule slippages of 28% as well as the proliferation of business unit silos with increasing communication complexity and disconnect. These difficulties are usually traced back to gaps in project delivery capabilities.

FTI's ALM practice provides **Enhanced Project Delivery** services which create business value by providing access to project service experts in an as-a-service approach, allowing us to exceed performance targets, meet project schedules, and reduce project delivery costs. We help our clients achieve this through our innovative hybrid project delivery model that provides the benefits of on-site expert project leadership paired with a scalable delivery center of high-value resources that leverages leading-edge technology.

**— KEY SERVICES**

	Project Controls Requirements		Contract Management
	Schedule Health		Predictive Analytics
	Schedule Analysis		Estimating Services
	Cost & Schedule Integration		Risk Management
	Project Structure Alignment		Scope & Change Management
	Cost & Schedule Management		Progress Reporting & Dashboard

## Key Differentiators



### Benefits

- Significant reduction in operational costs
- Eliminates risk of co-employment, onboarding, and HR hassles
- On-site expert project leadership
- Scalable remote Capability Center

### Benefits

- Pay for what you need
- No overtime hours or paying for idle time
- Minimal indirect costs from remote workers
- Tailored pricing based on your needs

### Benefits

- Timely solutions
- No required investment in technology
- Quick alignment to best practice process
- Maximizes productivity

### Benefits

- Exceed performance targets
- Increased assurance and transparent information
- Achieve project delivery excellence
- Improved outcomes and integrated reporting



# Enterprise Asset Management

FTI Consulting’s Asset Lifecycle Management practice provides Enterprise Asset Management solutions to assist owners, developers and contractors in developing standards and best practices, leveraging data in decision making, providing guidance in governance, mitigating risk, and enabling the ability to track, measure, and report on performance throughout the lifecycle of an asset.

We understand the regulatory, governance, compliance, operational, and maintenance complexities spread across different footprints that companies face while managing a breadth of assets that require individual tailored attention. Therefore, we’ve developed a robust **Asset Management Methodology (AMM)** that is aligned with the Institute of Asset Management’s framework. Our AMM can be implemented to enable live tracking of assets, which allows companies to leverage active data to fully understand the status, operability, and performance of an asset to make real-time decisions. This improves customer value, asset utilization efficiency, budgeting, compliance, minimizes corrective maintenance, and maximizes asset book value.



## Asset Management Methodology (AMM)

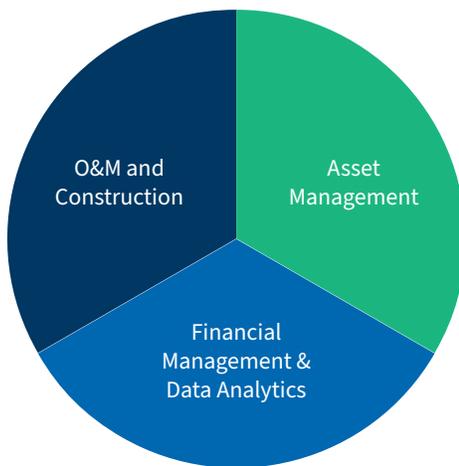
COE Framework	Capability Assessment	Governance Evaluation	Improvement Roadmap
Establishing a Center of Excellence (COE) framework that enables organizational goal and expectation alignment and helps define the organizational roles and responsibilities.	Conducting an organizational assessment to validate current state through a Key Findings Register and an updated Asset Register.	Quantifying the existing gaps and identifying areas of opportunity through the definition of KPI’s and the Future State objectives and processes.	Developing a fit-for-purpose Asset Management Solution blueprint and data collection tool to enable swift and efficient decision-making.

# Asset Management Services

FTI's Asset Lifecycle Management practice provides Asset Management Services to address deficiencies in three primary areas - Operations and Maintenance (O&M) and Construction, Asset Management, and Financial Management & Data Analytics.

We understand the complexities faced by owners, developers, and contractors in managing complex assets that require individual tailored attention. Our turnkey Asset Management Services framework is designed to give clients a tailored solution based on three primary areas: 1) "Boots on the ground" deployed from our diverse pool of experienced resources to address O&M complexities, 2) Everyday Asset Management to help our clients address deficiencies and maximize performance, and 3) Financial Management and Data Analytics to help our clients generate insights and identify interventions to improve the bottom line.

## FRAMEWORK



### O&M and Construction

- Create a PMO to facilitate remediation, rectification, and performance improvement
- Engage with strategic 3rd party technical advisor, scope technical advisor's work, and lead development and delivery of root cause analysis
- Drive implementation of technical advisor's recommendations
- Manage O&M contractor, develop KPIs, train and transition leadership
- Lead outage planning and O&M optimization
- Enforce contractual provisions of contracts and assess damages
- Develop owner's engineering team and lead commissioning and warranty work identification
- Manage on-site vendor work budgeting, contracting, scheduling, and performance

### Asset Management

- Prepare all regulatory and administrative filings
- Coordinate all performance analysis and reporting
- Interface with all regulatory agencies and permitting bodies
- Oversee controllership and accounting
- Responsible for all risk management functions
- Oversee and coordinate all legal work and act as dispute advisor
- Serve as contract administrator
- Manage tax preparation, audit preparation, and project administration
- Manage overhead & vendors

### Financial Management & Data Analytics

- Prepare operating budget, capital cost budget, post-provisional acceptance construction budget, operating plan, financial plan, maintenance plan, and base case projections in compliance with management, oversight and all funding agreements
- Perform cash flow forecasting and assess funding requirements, and manage payments including obtaining approvals
- Support the management of the Treasury function and make improvement recommendations
- Coordinate all compliance and reporting activities, debt management, and commercial arrangements. Serve as the contract administrator, fiduciary, and chief negotiator
- Provide a scalable solution for data and analytics to support optimization of asset-related decisions



## CASE STUDY

### Billion-dollar Turnaround

#### SITUATION

FTI Consulting was hired to perform a turnaround on a troubled \$1.1 billion Concentrated Solar Power Plant. FTI Consulting took over the owner management roles and started with an in-depth review of the current project status from an EPC and O&M contracts, cost, scope, and schedule perspective.

#### OUR ROLE

FTI Consulting took an active on-site role in leadership and performed various actions as follows:

- Established clear communications and governance
- Set up segregation of duties
- Established a Project Management Office (PMO)
- Set up a clear path towards completion of outstanding items
- Developed processes and procedures for the O&M phase

#### OUR IMPACT

FTI Consulting's involvement produced results very quickly and plant performance went from zero (0) to within 70%-75% of maximum Direct Normal Irradiance (DNI)-based performance within 6 months and holding strong while tracking towards meeting Power Purchase Agreement (PPA) requirements.

Morale has drastically increased, and all parties are working together in a very positive manner. This enabled the company to successfully integrate the past acquisitions it has made, generating cost savings opportunities.



# Data Intelligence

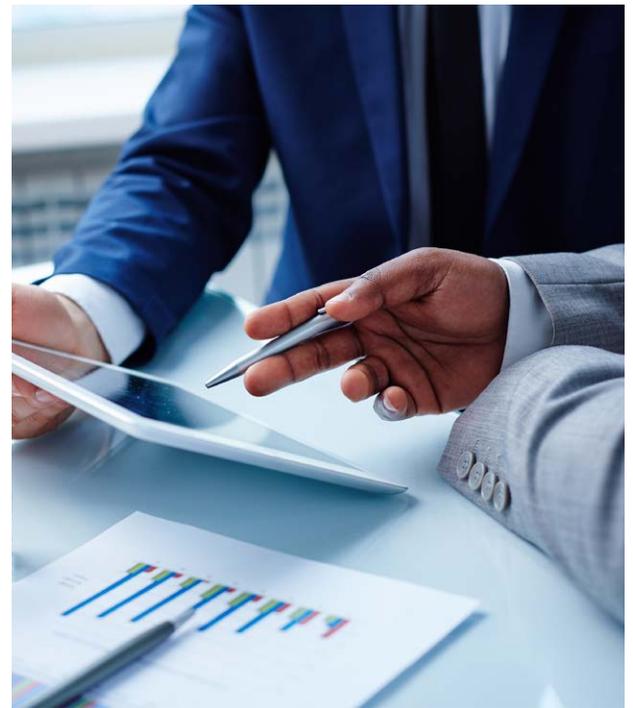
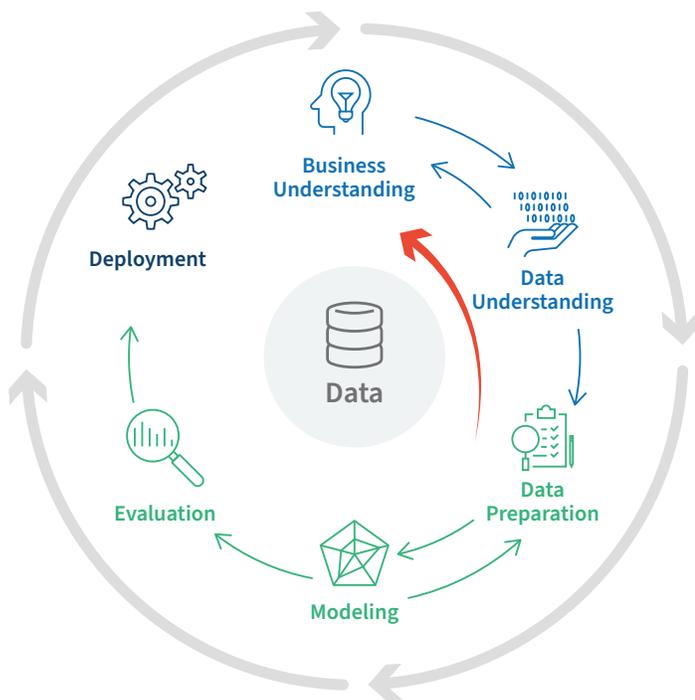
Physical Asset Management and Capital Projects typically require a significant level of data to be generated, transformed, stored, analyzed, and reported to meet internal and external requirements.

Studies have found that 83% of Engineering and Construction industry executives feel that by 2025 organizations will be data-driven, including routine use of data analytics and predictive modeling for project planning. Unfortunately, much of the industry is far behind this aspiration, with nearly two-thirds of Construction project management professionals tracking and reporting performance via manual processes or spreadsheets.

FTI Consulting's ALM practice offers innovative **Data Intelligence** solutions which leverage automation, machine learning and artificial intelligence to transform the Physical Asset and Capital Project Management data ecosystem - creating opportunities to enhance multiple capabilities. These solutions can identify and quantify what truly matters for performance, making people better informed, processes leaner, and technology more targeted.

	Services	Value
Data & Analytics Maturity Assessment	Conduct data quality analysis, maturity review and gap assessment of existing data infrastructure	Move ahead of the curve with improved data management, business intelligence, and analytics capabilities
Master Data Management (MDM)	Assess existing capabilities in order to develop or update governance policies, management processes, and data solutions to meet an organization's MDM goals	Transform inefficient and inconsistent business processes with integrated digital solutions
Business Intelligence	Design scalable interactive dashboards and data visualizations to optimize information consumption and visual analytic capabilities	Reduce reporting time to value with automated dashboards with increased insights and minimized manual inputs
Statistical Analytics	Design and develop diagnostic, descriptive, or predictive solutions using machine learning to answer those critical business questions	Produce timely, accurate, transparent, and actionable information to promote accelerated decision making

We can help organizations embark on their advanced analytics journey using our proven approach, and in return, begin distinguishing themselves from competitors that are falling behind. Analytics-driven organizations can make faster, better-informed, and more trusted decisions throughout the Asset and Project Lifecycle (e.g., repair vs. replace, self-perform vs. contract, field erect vs. prefabricate), leading to improved capital efficiencies and/or reduced O&M total cost of ownership.





# Technology Enablement

Many organizations recognize the importance of adopting robust technology-enabled project delivery and asset management capabilities to compete in today's economy. However, organizations have been slow to embark on the digital transformation journey due to a lack of expertise, matrixed organizational structures, unclear vision shared throughout the business, and reluctance to act, amongst others.

FTI Consulting's ALM **Technology Enablement** services focus on successfully planning and delivering digital transformation engagements, moving our clients' strategy forward around people, processes, technology, and data.

Our capabilities extend beyond deployment to help our clients plan, select, implement, integrate, and successfully adopt cutting-edge **Enterprise Portfolio Project Management (EPPM)** and **Enterprise Asset Management (EAM)** technology solutions for organizations aiming to maximize their capital efficiency. Our seasoned professionals partner with our clients to deliver solutions that meet their specific business needs with an emphasis on quality outcomes, expedited adoption, and timely delivery.

We maintain strong partnerships with leading technology providers and invest in maintaining expertise in existing and emerging technologies. This depth allows us to bring not only a comprehensive understanding and subject matter expertise of available solutions in the market, but also enables us to serve as a trusted advisor to our clients. We bring an objective viewpoint across available technology products and work with clients to select, implement, and embrace the right tools based on their business needs.

## Key Technology Enablement Services

	<b>System Selection</b>	In-depth knowledge on market-leading technology
	<b>Process Improvement</b>	Focus on helping our clients improve their business processes to maximize capital efficiency
	<b>Business Requirements</b>	Elicit and document business requirements leveraging proven techniques that ensure successful outcomes
	<b>System Architecture</b>	Broad experience defining the system architecture for enabling digital transformation across projects and asset management
	<b>Design</b>	Design approach focused on delivering robust functionality with optimal performance
	<b>Configuration</b>	In-depth experience configuring EPPM and EAM Technologies
	<b>Integration</b>	Years of experience designing and developing interfaces across multiple systems
	<b>Training &amp; Post Go-Live Support</b>	Training capabilities and post go-live support to ensure a successful transformation

## Key Differentiators

Digital Transformation Enabler	Our People, Our Assets	Leading Practices	Our Commitment to the Success of Our Clients
Our comprehensive People, Process, Technology, and Data approach to Digital Transformation ensures a successful transition and adoption of new processes and tools.	Our professionals have decades of relevant digital transformation experience bringing deep technology and industry knowledge.	Our delivery teams are assembled to leverage our subject matter expertise allowing us to help our clients enhance their overall project delivery and asset management practices.	The foundation of our client partnerships is built on our dedication, assertiveness, business ethics, and high-quality delivery.



## CASE STUDY

### Enterprise Cost Management Solution

#### SITUATION

An international Fortune 100 company selected a Cost Management Solution (CMS) for all their downstream projects. This company built its presence in different regions through a strategy of acquiring smaller firms. Unfortunately, this led to inconsistent processes, systems, and cultures making it challenging to consolidate processes, terminology, and systems to develop a common way of operating.

#### OUR ROLE

Upon engagement, our team provided a host of recommendations, strategies, and deliverables by leveraging our expertise in multiple disciplines, including Project Management & Controls, Refining, System Integration, and the CMS technology to help the different sites align on their processes and a common solution design.

#### OUR IMPACT

FTI Consulting successfully leveraged our expertise in partnership with our Client's integrated team to complete the design and configuration of the common, enterprise Cost Management Solution. To foster adoption across the first two sites and to prepare for rollouts to future sites, FTI Consulting was also engaged to develop robust training content including a training program, test scripts, user guides, quick reference guides, and video tutorials.



# Construction Audit Services

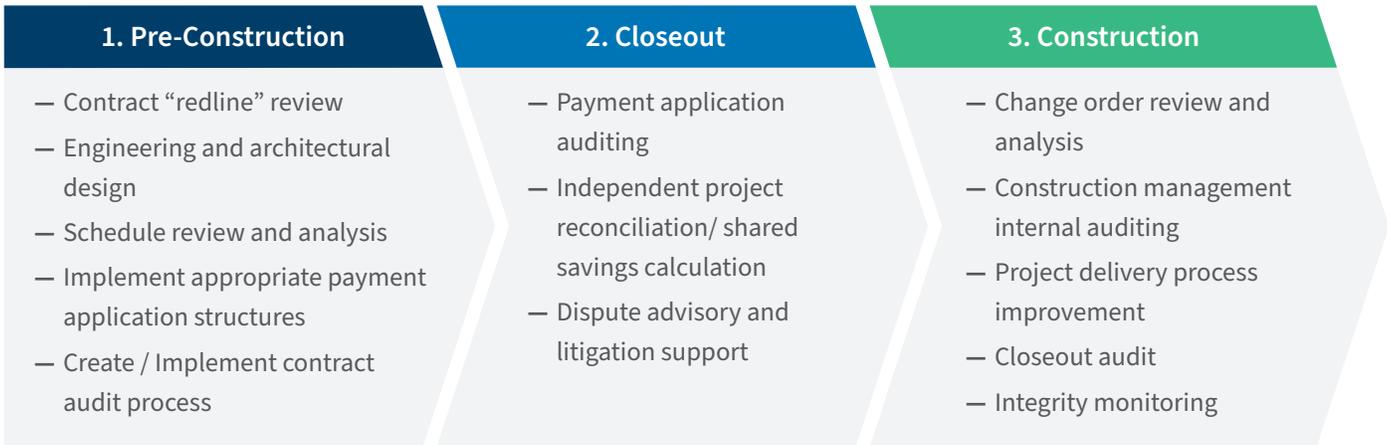
FTI Consulting's Asset Lifecycle Management practice provides Construction Audit Services to assist owners, developers, and contractors in preventing, mitigating and resolving risks; including identification of over billings on construction projects.

Our multidisciplinary team, consisting of construction auditors, architects, engineers, CPAs, and project managers, understand what it takes to deliver construction projects while reducing risks along the way. Costs for construction projects continue to increase along with sensitive timelines, further emphasizing the importance of auditing costs and tracking compliance. FTI Consulting's approach is to trust, but independently verify. Our construction audit solution helps clients address issues directly and typically realizes benefits of saving between 1-5% of invoiced costs, increasing transparency of costs and decision making, as well as increased visibility into project data and decisions made.

FTI Consulting is independent from your project team; while working collaboratively, we are able to advocate for your best interests. Construction audit and advisory services provide benefits before, during and after construction to prevent scope creep, budget overruns and unnecessary/costly change orders. These benefits can be seen across the construction lifecycle, for instance before construction we work to identify and minimize elevated levels of risk, during construction we monitor spend/contract compliance and after construction we help expedite the closeout process/financial reconciliation.

## — PROCESS AREAS COMMONLY REVIEWED

- Feasibility and design
- Budgeting and estimating
- Procurement and bid letting
- Contracting
- Cost accounting and invoicing
- Change management
- Financial reporting
- Compliance reporting
- Dispute resolution
- Project closeout



### Key Differentiators

Expertise and Insight	Flexible & Accessible	Technology
<p>Multi-disciplined industry experts leveraging the strength of our best practices to produce meaningful and insightful outcomes that facilitate the decision-making process.</p>	<p>Hybrid project delivery model with access to a global network of professionals to support every business aspect and function – utilizing the right resource at the right time.</p>	<p>Powered by leading-edge technology that provides a complete solution for delivering and auditing capital projects utilizing pre-configured and integrated best-in-class tools.</p>



# Industry Expertise

Our team has supported construction projects and asset management of varying scale and complexity. Our broad industry-specific experience is supplemented by colleagues from across FTI Consulting.



Airports



Healthcare



Mechanical & Electrical Installations



Commercial & Buildings



Hotels & Casinos



Mining & Metals



Environmental



Industrial



Oil & Gas



Government & Institutional



Infrastructure



Pipelines



Ports & Harbors



Power & Utilities



Railway & Metro



Water Treatment



# About FTI Consulting

FTI Consulting has four decades of experience in making an impact on some of the world’s largest and most complex challenges, many of which have dominated global business, financial, and public policy discourse. Every year, FTI Consulting helps more than 6,100 organizations globally transform the way they anticipate and respond to events, both at critical moments and for the long haul.

**29**

Countries

**1982**

Year Founded

**6,400+**

Employees

**NYSE:FCN**

Publicly traded

**8/10**

Advisor to 8 of the world’s Top 10 bank holding companies

**96/100**

Advisor to 96 of the world’s top 100 law firms

**\$4.9B**

Equity Market Capitalization\*

**55**

55 of Fortune Global 100 corporations are clients

\*Number of total shares outstanding as of July 22, 2021, times the closing share price as of July 29, 2021.

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**EXPERTS WITH IMPACT™**

**FTI Consulting** is an independent global business advisory firm dedicated to helping organizations manage change, mitigate risk and resolve disputes: financial, legal, operational, political & regulatory, reputational and transactional. FTI Consulting professionals, located in all major business centers throughout the world, work closely with clients to anticipate, illuminate and overcome complex business challenges and opportunities.

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