

## CONSTRUCTION

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#### About Navigant

Navigant Consulting, Inc. (NYSE: NCI) is a specialized, global professional services firm that helps clients take control of their future. Navigant's professionals apply deep industry knowledge, substantive technical expertise, and an enterprising approach to help clients build, manage and/or protect their business interests. With a focus on markets and clients facing transformational change and significant regulatory or legal pressures, the Firm primarily serves clients in the healthcare, energy and financial services industries. Across a range of advisory, consulting, outsourcing, and technology/analytics services, Navigant's practitioners bring sharp insight that pinpoints opportunities and delivers powerful results. More information about Navigant can be found at [navigant.com](http://navigant.com).

# RISK MANAGEMENT - IS YOUR CAPITAL PROJECT READY TO DELIVER BUSINESS VALUE?

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## OVERVIEW

Companies in the global Oil & Gas sector make significant capital investments every year to achieve business plan goals for increased revenue, profitability, and growth to deliver value to the Enterprise. Many individual capital projects ranging from \$100 million to \$20 billion are initiated each year. Recently, overall capital spending has been reduced in the short-term due to the global oil market; however, these projects are often years in the making and are managed with a long-term view for business viability. While it is important to manage the 'creation' of new or upgraded assets, it is also important to assure the organization is 'ready to operate' these assets.

Operational Readiness is intended to avoid post-construction impacts such as:

- Environmental incidents,
- Safety incidents,
- Delays in meeting production goals,
- Excessive production costs,
- Poor product quality,
- Poor customer service, and
- High risk to the business.

The following are often contributors to these impacts:

- Inadequate equipment performance,
- Avoidable equipment failures,

- Extended equipment downtime,
- Information system problems (hardware, software, network),
- Poor data,
- Inadequately trained personnel,
- Flawed business processes,
- Lack of spare parts, tools, and special equipment, and
- Lack of specialty services.

This article focuses on the potential causes for a lack of ‘Operational Readiness’ in a capital project that may be attributed to the above items. In addition, functional dysfunction can make a capital project fail, such as inadequate operational input into asset design as well as inadequate operational readiness of the production, maintenance, planning, supply chain, material management, and logistics organizations. The article also discusses some of the ways to address these causes.

## OPERATIONAL READINESS DEFINITION

Operational Readiness is the process of preparing the owner/operator of the assets under construction so they are fully ready to assume ownership of the assets at handover. And further, to operate the assets during commissioning and startup and into normal operation to meet the business plan objectives in a safe and environmentally acceptable manner with their normal operating staff. This includes all of the Enterprise functions contributing this effort.

## CAPITAL PROJECT PRIORITIES

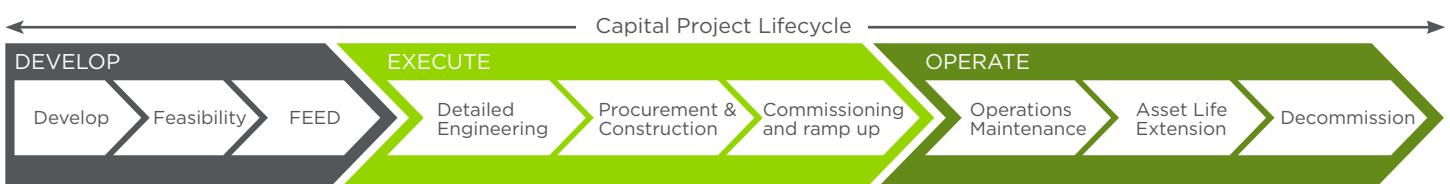
Much attention is placed on the up front design/build/handover aspects of capital projects to achieve the desired scope within cost and schedule constraints. A Capital Project Management Office (“CPMO”) governs the develop/execute phases of the capital project lifecycle (Figure 1) and is generally lead by the Engineering department through capital project engineers. The difficulty in meeting the planned scope, cost, and schedule performance of capital projects is well documented, very often cost and schedule overruns, delayed startups, change orders late in the project, and rework occur in many capital projects.

Thus, Operational Readiness promotes the importance of owner/operator participation in the develop/execute phase to:

- Properly frame the opportunity,
- Provide input to the operational requirements of the assets to be built,
- Define the operational requirements of the business processes and systems
- Economic evaluation of alternatives,
- Participate in design reviews,
- Participate in reliability, availability, maintainability, and operability (“RAMO”) reviews, and
- Participate in safety reviews.

However, the owner/operator resources are so focused on the creation of the assets during the develop/execute phases they often neglect their responsibility to prepare to operate them.

**Figure 1 - Capital Project Lifecycle**



## ENTERPRISE OPERATIONAL READINESS PRIORITIES

The Operational Readiness responsibilities are usually vested in the owner/operator through an Enterprise Project Management Office (“EPMO”), led by the intended operation function. These efforts focus on the readiness of the people, processes, and technology to operate the assets rather than creating the assets.

Some of the owner/operator topics that are the focus of Enterprise Operational Readiness include developing strategies, programs, processes, organizations, and systems at three levels (Figure 2).

### Level 3-Market

- Demand Management
- Sales & Operation Planning
- Trade Compliance
- Regulatory Compliance
- Community Relations
- Customer Service

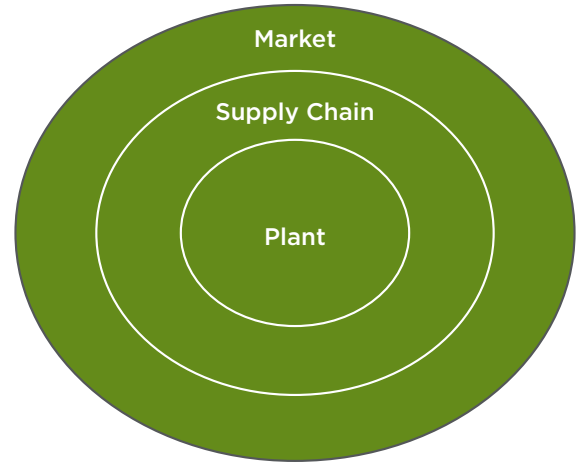
### Level 2-Supply Chain

- Contracting/Procurement
- Material Management
- Logistics
- Information Technology
- Human Resources
- Finance

### Level 1-Plant

- Operations Management
- Asset Management
- Stores Management
- Safety, Health, Environmental, Security
- Quality Management

Figure 2: The 3 Levels of the Operating Model



## COMPARING PERSPECTIVES

It is important to recognize that both the Capital Project team and the Enterprise are committed to meeting the business plan used to justify the capital investment; they just come at the situation from different perspectives (Table 1).

Table 1: Differing Perspectives

CAPITAL PROJECT PERSPECTIVE	ENTERPRISE PERSPECTIVE
Asset Design/Build/Handover	Business Value Delivery
Asset Creation	Operational Readiness
Focus on organizational silos	Collaboration/Integration
World Class expectations	Economy budget
Capital Cost	Lifecycle cost
Capital PMO	Enterprise PMO
Technology installation	Organizational capability
Capital Project schedule	Operational Readiness schedule
Business process/technology installation	Organizational capability
Systems installation	Systems implementation
Systems ‘training’	User ‘capability’
Lack of early owner/operator involvement	Excessive change orders and delays
Asset completion schedule	Production operational schedule

## OPERATIONAL READINESS FOR CAPITAL PROJECTS (“ORCap<sup>SM</sup>”) METHODOLOGY

Navigant’s approach for conducting Operational Readiness for capital projects services follows. The Navigant methodology, known as ORCap<sup>SM</sup>, is depicted in Figure 3.

The first phase of ORCap<sup>SM</sup> consists of establishing the readiness assessment methodology. This includes:

- Understanding the client’s operating model (functions),
- Refining the assessment elements related to people, processes, and technology (how the assessment will be structured), and
- Aligning the assessment stages (when assessments will occur).

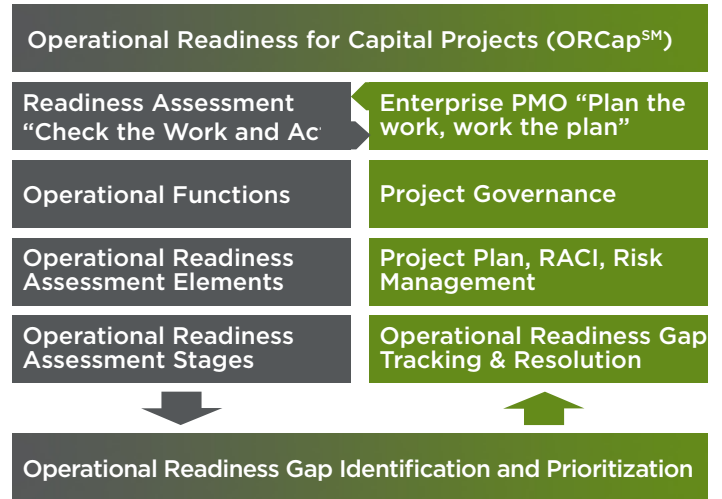
The second phase of ORCap<sup>SM</sup> consists of conducting the assessments at a particular stage. This includes:

- Collecting preliminary operational assessment information through interviews and data analysis,
- Evaluating this data to identify potential issues and gaps,
- Conducting validation interviews and workshops to confirm understanding and build consensus, and
- Identifying and prioritizing operational readiness gaps based upon risk analysis

The third phase of ORCap<sup>SM</sup> consists of organizing the Enterprise PMO to manage closure of the operational readiness gaps. This includes:

- Establishing operational readiness project governance and reporting,
- Managing the operational readiness activities plan, RACI, and risk management, and
- Tracking gap closure.

Figure 3: The Navigant ORCap<sup>SM</sup> methodology



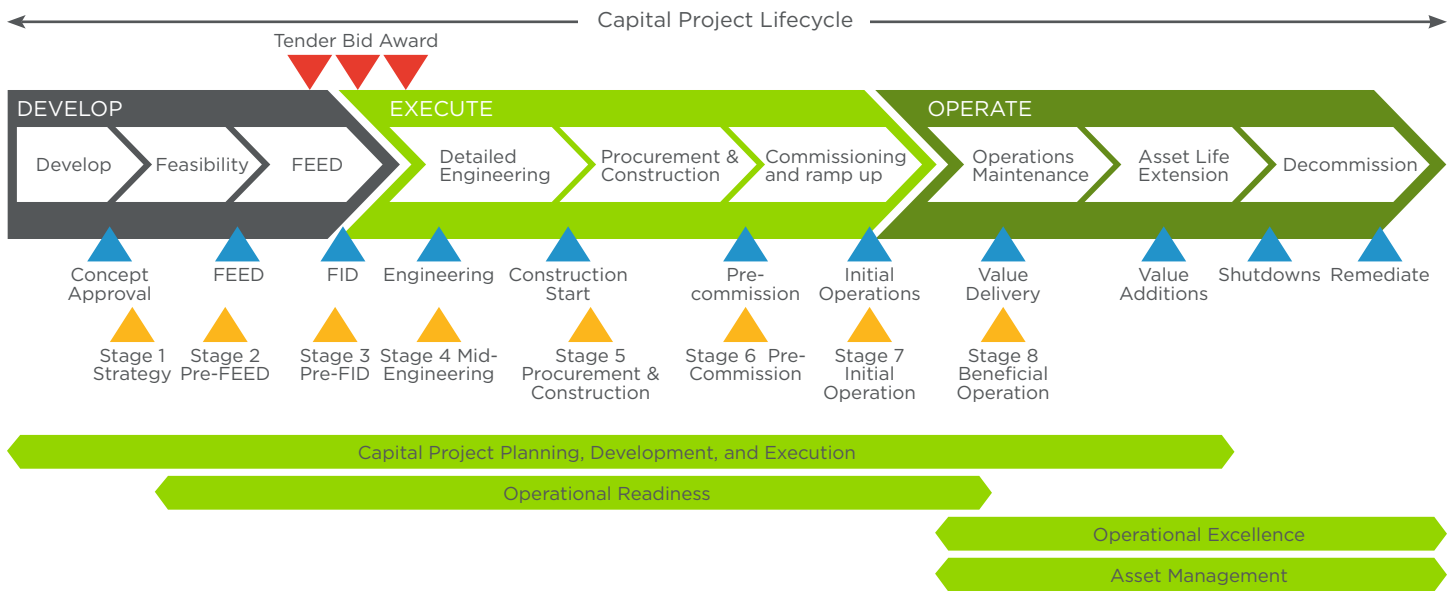
## INTEGRATING ORCap<sup>SM</sup> INTO THE CAPITAL PROJECT LIFECYCLE

It is critical to integrate the Operational Readiness program with the capital project program to ensure proper governance, alignment, and collaboration for the benefit of the capital project and the Enterprise. To this end and as shown in Figure 4, the Operational Readiness schedule must align with the capital project in several ways:

- Operational Readiness assessment stages (yellow triangles) must align with the capital project phase gates (green triangles),
- Operational Readiness input activities must support the capital project develop and execute phases and sub-phases as appropriate, progressing in breadth and detail as the capital project progresses,
- Operational Readiness assessment activities must cover the 3 levels of the operating model (market, supply chain, and plant), and
- Operational Readiness assessment activities must cover the various elements related to people, process, and technology.

The Operational Readiness program is conducted during the development and execution phases of the capital project and extends into the early stages the operate phase. Not only is Operational Readiness intended to get the Enterprise ready to operate, it is laying the foundation for operational excellence and asset management activities throughout the balance of the operate phase.

**Figure 4: The Operational Readiness schedule**



## SUMMARY

Operational Readiness for Capital Projects is intended to complement and support traditional capital project management. It provides a structured methodology, framework, and tools to assure the operational inputs are provided early in the capital project to avoid the high cost, risks and disruptions to the project schedule that is so often encountered due to changes during the detailed design, procurement, construction, commissioning, and periods. Lastly, Operational Readiness is intended to avoid the financial, business, and reputational impacts associated with operational shortcomings during ramp up and normal operations by assuring the people, process, and technology are fully capable.

## ABOUT THE AUTHORS

**David Jahnig** - Director with the Navigant Oil & Gas practice based in Atlanta, GA. David has 40 years of industrial and consulting experience in heavy process industries with a global presence. One of his most recent projects was providing operational readiness services during the \$20 Billion construction of the world's largest petrochemical plant built in a single phase. David leads the Global Operational Readiness segment for the Navigant Energy practice.

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