Operator Perspective

Reviewed & Presented By:
Steve Johnson

Author:
Don Wells

Agenda

- Operator Context
- Project Process
- Conclusion
- Questions

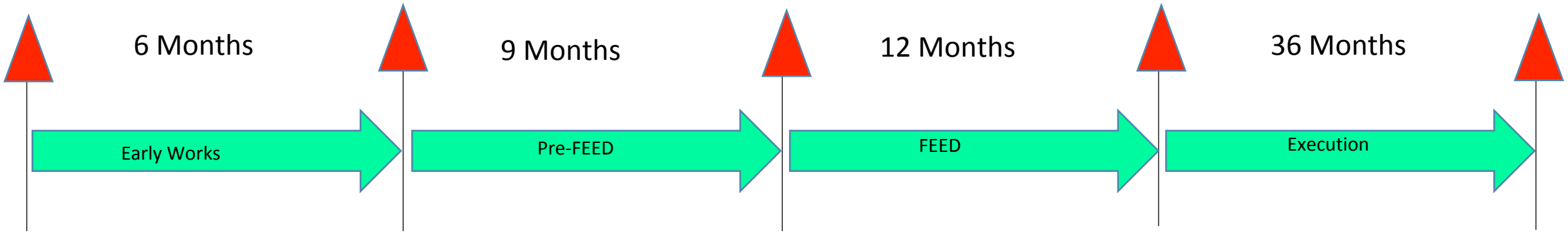
Context

- What we buy or sell……
- Types of Operators
- What makes us Unique?
- What do we have in Common?

Operators Organization

- **Upstream**
  - Exploration
  - Projects
  - Operations
- **Downstream**
  - Refining
  - Specialty Products
  - Retail

Typical Project Timeline

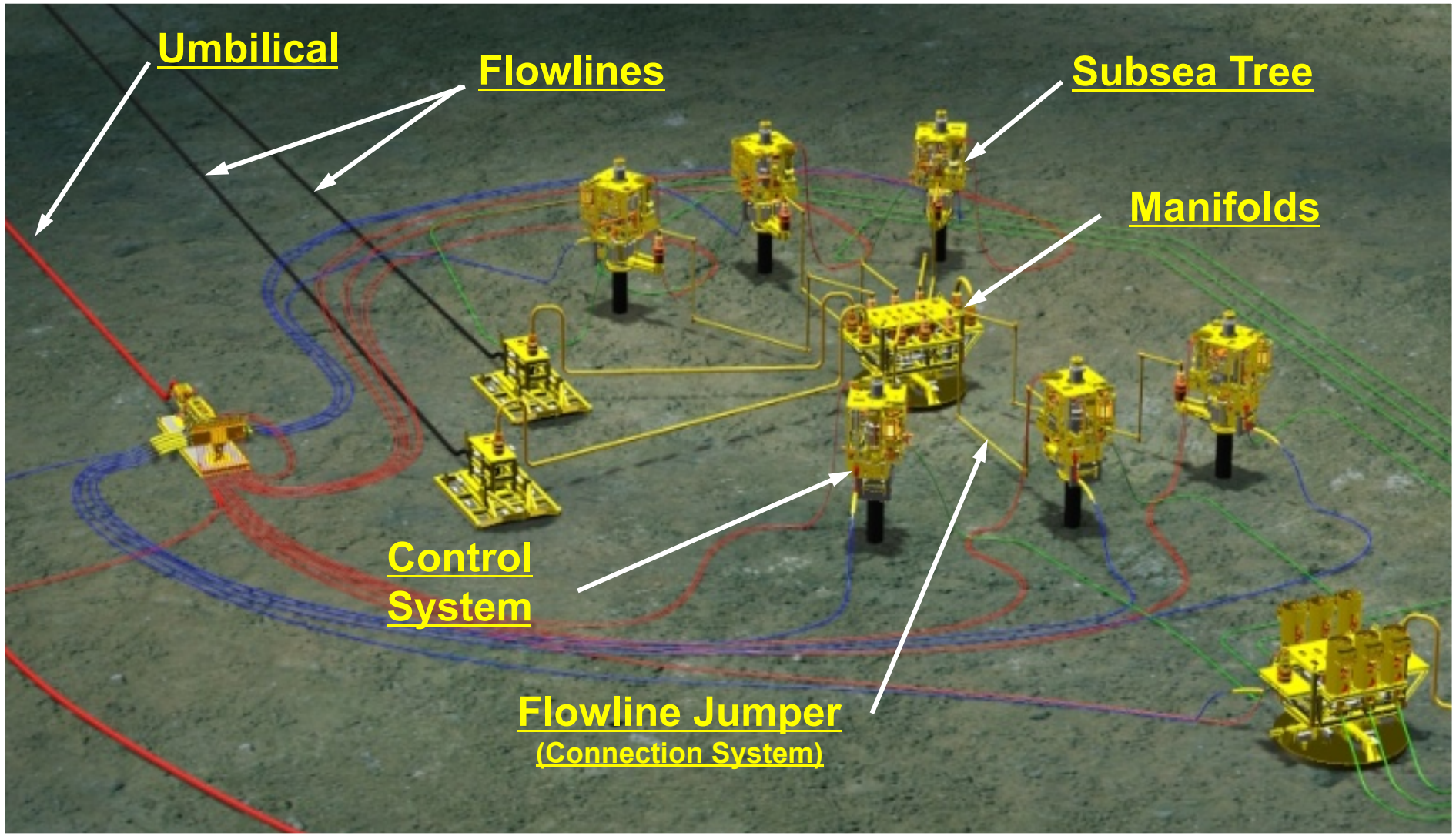


A great deal of time, resources and expertise are required to bring a project to 1st oil

Handover to “Projects”

- Understanding the Resource is a Challenge
- We have Limited Data
- All we have for Economics
- Remaining Data Available during Development
- Lots of Risk, Lots of Flexibility
- Potential for Technical Success and Economic Failure

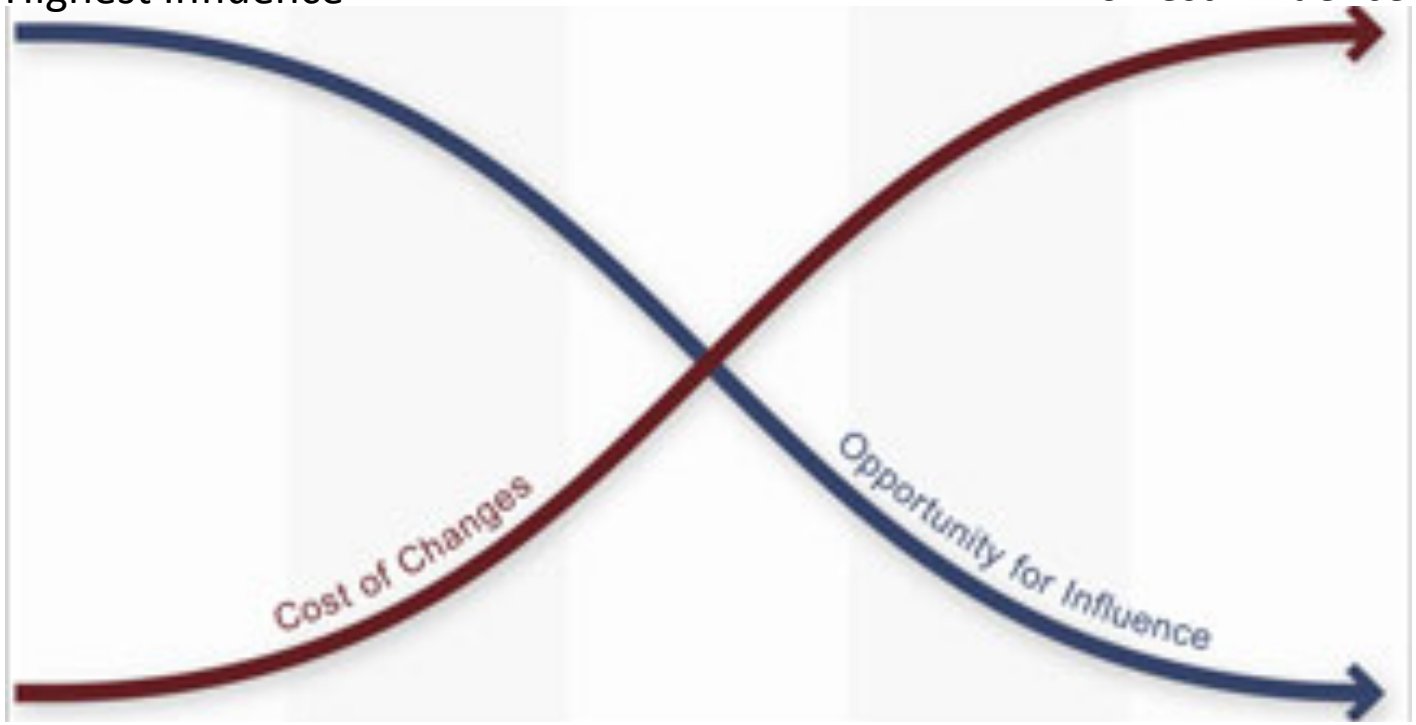
Typical Components in Subsea System

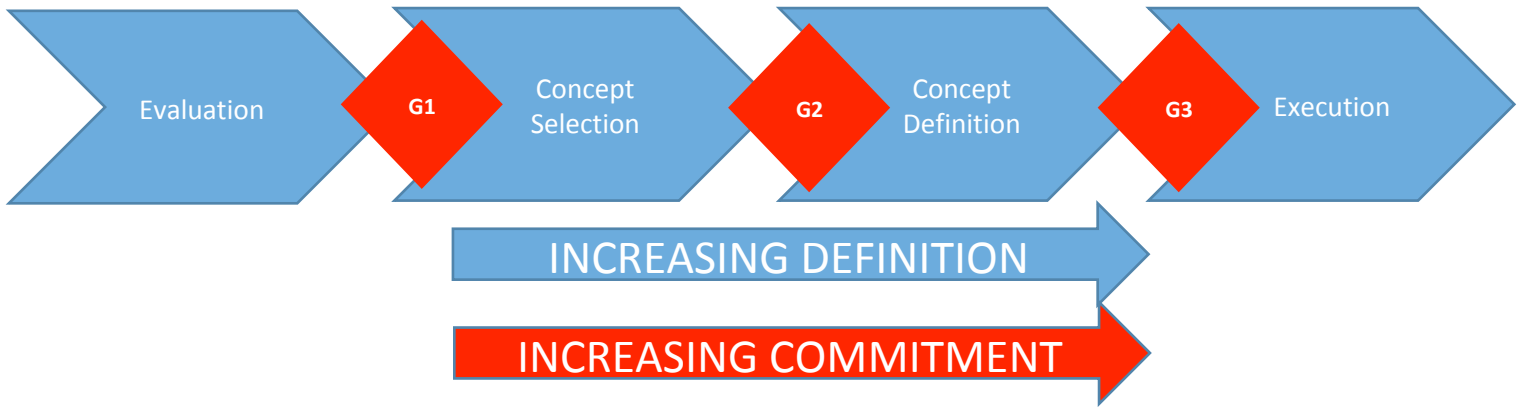


Opportunity of influence

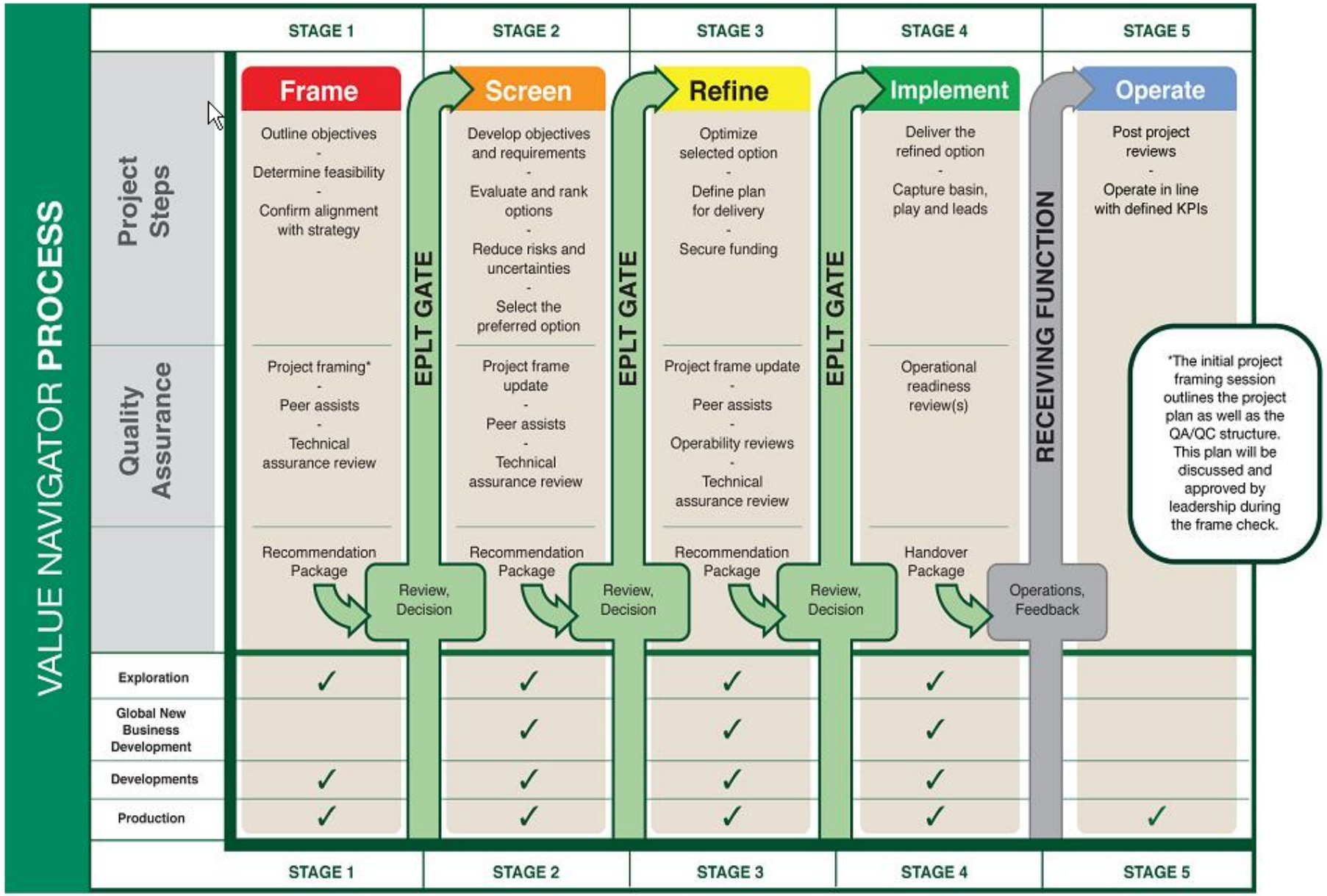
Highest Influence

Lowest Influence





The Stage Gate Process



Process

Project Evolution Process

- We identify the opportunity
- Gather data where available, make assumption where not
- Develop a business case
- Develop our execution strategy
- Execute Project

Defining the Resources

- Reservoir Analysis
  - Seismic
  - Exploration Drilling
  - Appraisal Drilling
  - Well Testing & Fluid Sampling

- What is the value of the “Prize”?

Data

- Reservoir Definition
- Market Conditions and Export Opportunities
  - Oil vs. Gas
- Equipment and Service Costs
- Operating Costs
- Schedules

Ranges for ALL of this data

Develop Business Case: Return on Investment

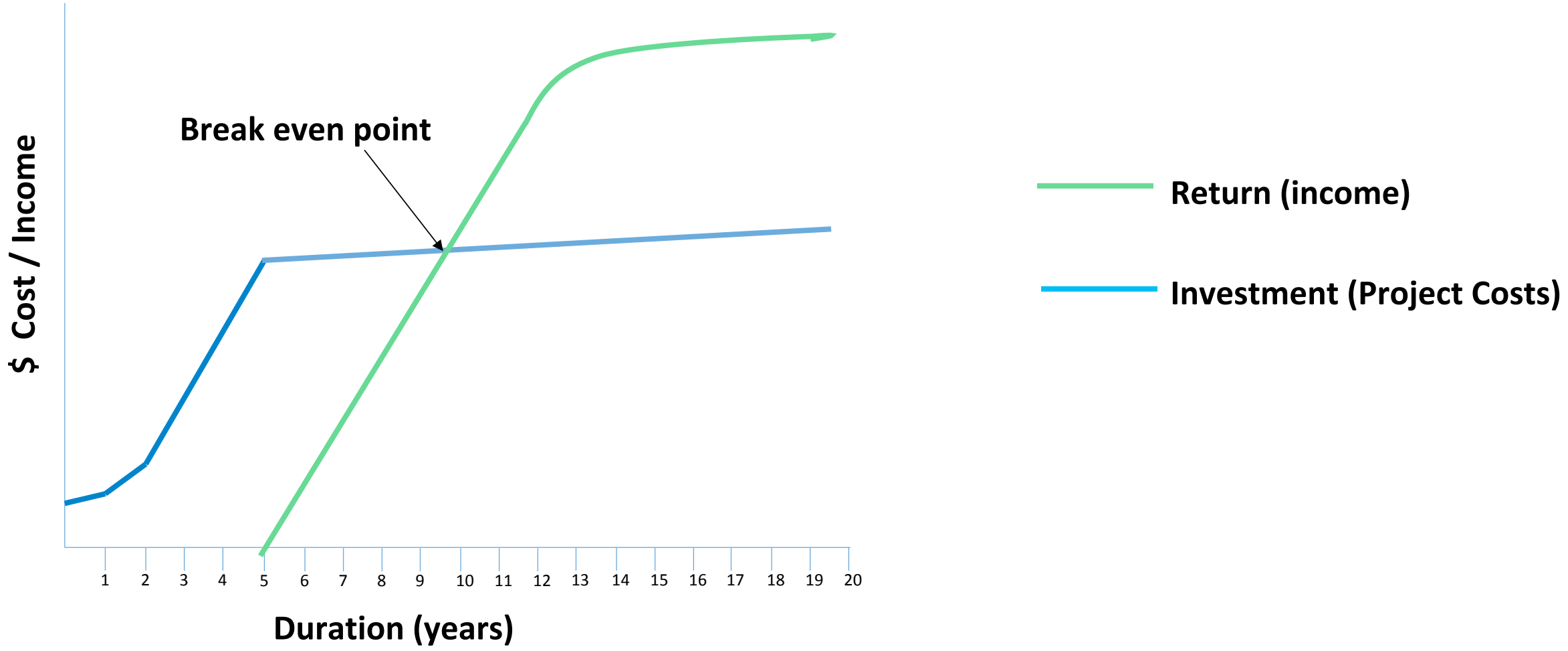
- ROI = Net Profit / Asset or Investment Cost.
- Developments require significant financial commitment before any income is realized.
  - This includes Lease Acquisition, Seismic, Exploration Drilling & Modeling costs
- Developments Costs include Planning, Engineering, procurement, Fabrication, Drilling, Transportation, Installation, Commissioning

Develop Business Case: Rate of Return

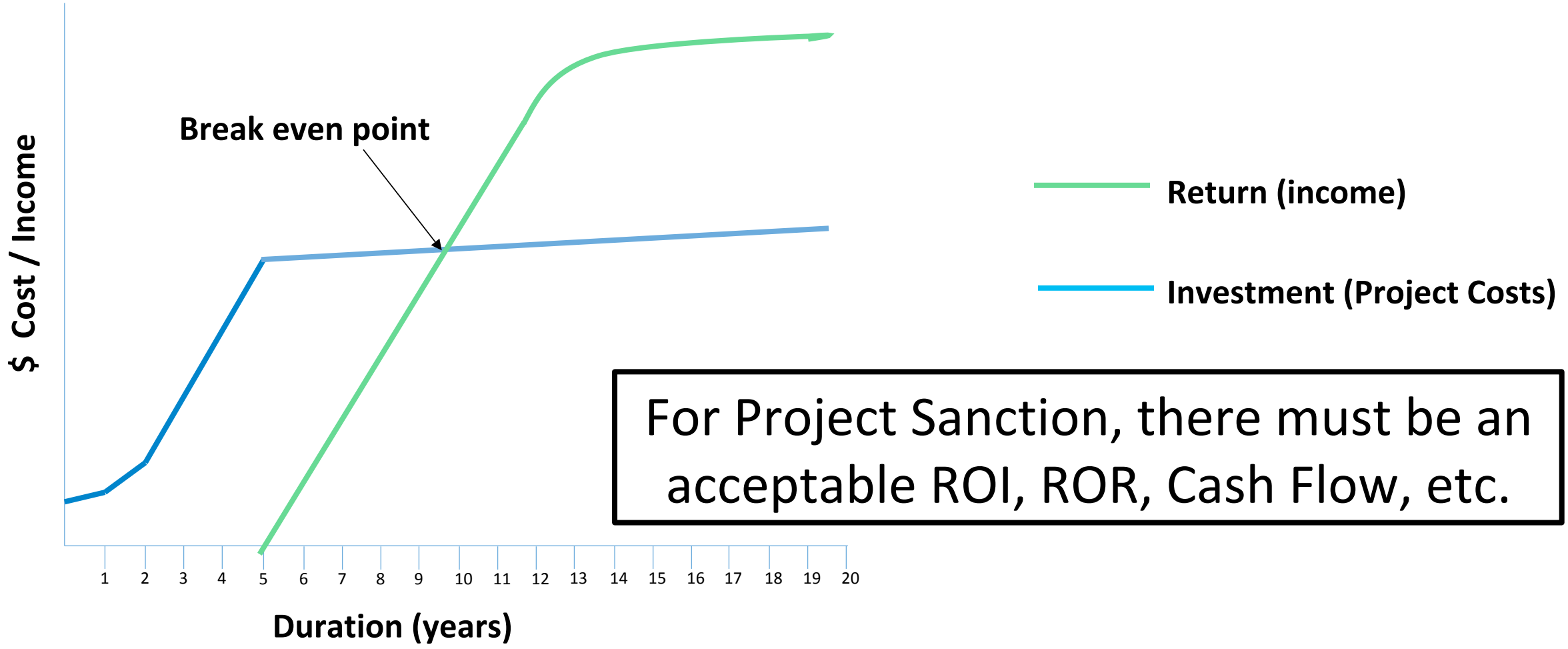
ROR = Gain (Loss) / Investment over Time

- Used to estimate the time it will take to recover the initial investment.
- Influenced by:
  - Oil Price
  - Production Rates
  - Duration of the Plateau
  - Well Productivity Index (PI)
  - Water Cut and GOR
  - Uptime
- In other words; Performance and Market

Develop Business Case: Project Economics



Develop Business Case: Project Economics



For Project Sanction, there must be an acceptable ROI, ROR, Cash Flow, etc.

Execution Plan

Staff Organization, WBS, Contracts, Budgets, etc.

- Drilling
- Hull / Structure
- Topsides
- Export
- Subsea Facilities
- Flowlines / Umbilicals
- Installation
- Operations

Before Moving into Execution

- Concept Basis of Design and Selection defined
- Business Case & Economics prepared
- Budgets, Schedule & Contingencies agreed
- QHSE & Risk Management agreed
- Execution Plan & Contracting Strategy finalized
- Management, Partners and 3rd Parties aligned
- Sanctioned and Approved for Execution

Basis of Design

- Compilation of known data points and assumptions
- Evolves as additional data is gathered and developed
  - Surveys, Fluid Samples, Calculations, Simulations, Drawings etc.
- It is not unusual to freeze ahead of having all data

A Selection of Key Elements

- Interface Management
- SIMOPS
- Metrics
- Impact of Poor Definition
- Improvement Opportunities

Interface Management

- Multiple Contractors, Vendors, Service Providers
- Alignment is Essential to Success
- For Each to Win, ALL must win
- As with All things, the interfaces are the potential Weak Link

- Identify
- Worked Early, and Worked Often
- Communicate

SIMOPS

- Similar to Interface Management
- Schedule Flexibility & Understanding
- Design
- Communications
- Critical to Ensuring Safety
- Critical to Drilling and Installation

Metrics

- Safety
- Environment
- Schedule
- Interfaces
- Cost
- Management of Change
- Risk Management

Impacts of Poor Definition

- Reservoir
  - Reduced Ultimate Recovery
    - Compartmentalization
    - Lack of Facilities
- Flow assurance
  - Inability of wells to flow in flowline
    - Pressure imbalance and reduced flowrates
    - Thermal performance constraints, wax deposition, hydrate formation
    - Slugging
- Failure to meet commercial objectives

Opportunities for Improvement

- Design One, Build Many
- Contractor Specifications as Appropriate
- Paper is Cheaper than Steel
- Use Flexibility Correctly
- Early Production / Phased Development
- Contract Strategies – Alliances, etc.

Conclusions…. In Other Words

Operators have to Explore, Fund, Manage Risk, Define, Supervise, Procure, Coordinate, Manage the Interfaces and Personalities of Competing Companies, Install and Operate a Subsea Facility….

With Incomplete Data, A Changing Story, A Mix of Personalities, and a Changing Market, all to the Satisfaction of a bunch of Wiz Kids from Wall Street!

Questions