Time = Money

Relevance of project planning in relation to cost and how to effectively implement

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FPSO Turret
FPSO (Floating Production, Storage, and Offloading) - Principle
### Some FPSO projects

<table>
<thead>
<tr>
<th>YEAR OF INST.</th>
<th>FIELD OPERATOR</th>
<th>LOCATION / FIELD Type of Mooring</th>
<th>WATER DEPTH (M)</th>
<th>TANKER NAME / SIZE (DWT)</th>
<th>PRODUCTION FACILITIES (bopd + MMscfd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>ENI KITAN FIELD DEVELOPMENT</td>
<td>TIMOR LESTE</td>
<td>325</td>
<td>GLAS DOWR 89,562</td>
<td>40,000 bopd + 22 MMscfd (gaslift)</td>
</tr>
<tr>
<td>2009</td>
<td>NEXEN</td>
<td>NORTH SEA U.K., ETTRICK FIELD, UK Disconnectable Turret</td>
<td>115</td>
<td>AOKA MIZU 105,000</td>
<td>30,000 bopd 20 MMscfd</td>
</tr>
<tr>
<td>*) 2005</td>
<td>EXXON MOBIL</td>
<td>CENTRAL NORTH SEA, NORWEGIAN SECTOR</td>
<td>126</td>
<td>JOTUN 92,000</td>
<td>70,000 bopd 68 MMscfd</td>
</tr>
<tr>
<td>**) 2004</td>
<td>SHELL UK LTD</td>
<td>NORTH SEA U.K., PIERCE FIELD, UK Disconnectable Turret</td>
<td>85</td>
<td>HELWENE BRIM 103,000</td>
<td>70,000 bopd 110 MMscfd</td>
</tr>
<tr>
<td>2004</td>
<td>CONOCOPHILLIPS</td>
<td>XIJANG FIELD, CHINA Dynamic Positioned</td>
<td>100</td>
<td>MUNIN 103,000</td>
<td>60,000 bopd</td>
</tr>
<tr>
<td>**) 2004</td>
<td>STATOIL/CNOOC</td>
<td>LUFENG Internal Turret (APL)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>PETRO SA</td>
<td>SOUTH AFRICA/ SABLE FIELD Internal Turret</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>TALISSMAN</td>
<td>NORTH SEA U.K. / ROSS Internal Turret</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>AMERADA HESS</td>
<td>NORTH SEA U.K. / DURWARD &amp; DAUNTLESS Internal Turret</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>AMERADA HESS</td>
<td>NORTH SEA U.K. / FIFE Internal Turret</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>OCCIDENTAL</td>
<td>CHINA / LUFENG CALM with Mooring Hawser</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>MAXUS ENERGY</td>
<td>INDONESIA / INTAN Spread Mooring</td>
<td></td>
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</tbody>
</table>

As weight is added to a ship, it submerges. Maximum DWT is the amount of weight a ship can carry without riding dangerously low in the water.
**Planning:** focus on execution strategy translated into concrete plans. What are the project objectives and how to achieve these.

**Scheduling:** Detailed representation of the plan; discrete activities with specific durations, resource loading and dependencies (relationships / constraints) organized within the project Work Breakdown.

**Control:** focus on constantly monitoring and analyzing project progress and performance to be able to provide reliable forecast information for decision making in order to reach set goals.
The need to segregate the two (Planning vs Scheduling) is due to the simple fact that in today’s world of sophisticated software being substituted for brains and experience, planning is a forgotten art.

Thus we purposefully make the impression that a planner is not a scheduler and vice versa so that they know to plan first, last and always before they start creating a schedule model to meet their execution plan.
MANAGEMENT NAVIGATION TOOL
Planning - Plan ahead!

- Define Scope of Work
- Establish Work Breakdown Structure
- Identify Stakeholders, Required resources, Constraints and Variables
- Establish initial Timeline
- Determine budget

- What, How, Who, When, How Much?
Work Breakdown Structures = OBS + PBS + ABS

The three completely opposing structures will guaranty unique nodes

QUOTE:
“If it is not in the WBS it does not exist!”
Integrated Project Controls

Standard Breakdown Structures

Continue
WBS in Meridian

1) OBS Level 4 Cost Code
2) ABS Level 1 Category Code
3) PBS Level 4 System or 3D Location Code
Schedule development process

Level 1 - Contract Master Schedule
Level 2 - Project Management Schedule
Level 3 - Project Level Schedules
Level 4 - Progress Measurement

Primavera P6

High level project summary for senior management

Integrated E,P,C schedule indicating key milestones and activities; providing sufficient overview for PM decision making

Integrated network including all project activities. Control tool for project leads

Progress measurement at deliverable / task level

(Man-hour) budgets distributed; earned value calculations performed

L4 dbases
Plan-Do-Check-Act: Control Cycle

Establishing Control Base (PLAN)

Monitoring, Tracking (DO)

Analysing & Forecasting (CHECK)

Taking corrective actions (ACT)

Historical data

Contract

Variation Orders

Deviations/Trends
Plan-Do-Check-Act: Control Cycle

**PLAN**
- Project Execution Plans
- Risk Management Plan
- Level 1-3 schedules
- Manpower planning

**DO**
- Measure progress
- Record manhour spent
- Record commitment & Expenditures

**ACT**
- Recovery Programme
- Reschedule activities
- Update manpower

**CHECK**
- Progress & Productivity calculations
- Critical Path Analysis

Variation Orders

Historical data
Plan-Do-Check-Act: Control Cycle

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**CHANGE MANAGEMENT**
- Change Management

**Contract**
- Variation Orders

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Variation Orders
Management of Change

- No changes is an illusion!
- Be prepared!
- Prevent claims!
- Till the fat lady sings!
- It’s core business!

-Again: scope + schedule = cost
Time (delay) Related Cost - Construction phase

- Cost of finance $150k
- BES Indirect labour $900k
- Yard indirects $150k
- Stand-by time Install. Vessel $500k
- Operations (e.g. crew) $300k
- Liquidated Damages (LD’s) $1500k

EVERY WEEK $1500 - $3500k

ALL THESE COST EASILY ADD-UP TO 3-7% OF THE OVERALL PROJECT BUDGET, EVERY MONTH OF DELAY!

$150k

$1500 - $3500k
Additional effect of schedule delay

No income until start production!
So...

Scope + Schedule = Cost

Cost = Money

Time = Money!!!!
Which direction should we heading for?

Planners: be pro-active!
- Step out of reporting role; communicate, steer and control project time!

Cost engineers: be aware on the cost implications of schedule information!
- Strong collaboration with the planner, team work is required

Project Controls: independent department and with the right level of involvement
- From advise to demand

Project Managers: respond swiftly to proposed corrective actions!
- Project float is limited

Data integrity: without it no Project Controls
- As a ‘control’ department you’ve got 1 chance
Cost Engineering

zonder planning

heeft geen zin!