INTRO TO NETRISK COST

Presented by: Seve Ponce de Leon

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Meet the presenter

Seve Ponce de Leon

Seve is a senior director at PMA Consultants under Innovation, where he leads Product Management for NetRisk. He has 10 years of experience including UI/UX, QA/QC, Scrum, customer support, and product strategy. Seve earned a Bachelor of Science from the University of Wisconsin-Madison.
# PMA’s History of Risk Management Consulting

## Oil & Gas/Energy/Mining Projects

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993-99</td>
<td>Cooper River PTA #2 (CRisk), Texas City PX-1 (SRisk)</td>
</tr>
<tr>
<td>2000-04</td>
<td>Tangguh LNG (SRisk), SECCO (Qual Risk), Bilbao BBG/BBE (Multiple SRisk)</td>
</tr>
<tr>
<td>2005-09</td>
<td>Zhuhai PTA #2 (Multiple SRisk), WRMP (Multiple SRisk)</td>
</tr>
<tr>
<td>2010-14</td>
<td>Toledo Reformer #3 (Multiple SRisk), Hydrogen Energy CA (SRisk + CRisk), Oman Khazzan (SRisk)</td>
</tr>
<tr>
<td>2015-20</td>
<td>Cherry Point Clean Fuels (Multiple SRisk), Oman Ghazeer (SRisk)</td>
</tr>
</tbody>
</table>

## Amoco

**BP: Upstream, Downstream, Renewables (Wind, Solar, Biofuels)**

- **Amoco**
  - DWSD Retention Facility (SRisk)

- **BP**
  - Rajastan Field Development (Multiple SRisk + CRisk)
  - Ruby Field Development (SRisk + CRisk)

- **Cairn India**
  - Multiple SRisk, Various Projects

- **OMV**
  - Multiple SRisk, Various Projects

- **OMV**
  - PA Chemicals (SRisk)

- **Shell**
  - Multiple SRisk, Various Projects

- **Freeport LNG**
  - Multiple SRisk, Various Projects

- **Marathon Petroleum**
  - Multiple SRisk, Various Projects

- **Long Harbour Nickel Processing**
  - Multiple SRisk + CRisk
PMA’s History of Risk Management Consulting

Pharmaceutical & Infrastructure Projects

1993-99

Leiden RemiCap 150
(Multiple SRisk)

Gurabo Oros Exp.
(SRisk)

2000-04

2005-09

2010-14

2015-20

AstraZeneca

Gurabo Oros Exp.
(SRisk)

Ethicon
(SRisk)

Johnson & Johnson

Alticor

Port Authority of NY & NJ

CRisk. SRisk, C/S Risk

Canadian Pacific Railway

DAPI US
(SRisk)

FDOT

Integrated CSRA

Rockville Pilot
(SRisk)

MSP T1 Parking Structure
(Qual Risk)
NetPoint
Planning and scheduling together.

TRY NETPOINT FREE

The best companies work with PMA Technologies

Ideal for Getting the Players to the Table

NetPoint has made the process of getting all the stakeholders in the same page easy. Initially some folks were asking for other tools, but after a couple of years using it now they ask for the NetPoint schedule. “Seeing is planning” is a true statement in project management.

A great Scheduling Software that will give MS Project a run for its money

The best part about this software is that I can lay down schedules of multiple projects on one sheet and see if there are any overlaps between projects. In addition, it is great to make presentations to the stakeholders and team.

NetPoint Used for Upstream Oil & Gas

The best part about the software is the ease of operability and the next best part is you can visualize the schedule which is great for presentations and gives you an overall view of the project.
NetRisk
Empowering project managers to accurately predict project completion dates and costs.

REQUEST A DEMO  TRY IT FREE

Industry-leading Risk Management Software

In the real world, no project proceeds on early dates. NetRisk is the first and only Monte Carlo risk analysis tool that can model the risk of float-use during simulation.
WHAT IS INTEGRATED COST AND SCHEDULE?

01. A Summary Schedule

02. A summary-level cost estimate

03. Cost elements loaded onto activities or hammocks

04. Probabilistic cash flow
WHY NOT A DETAILED SCHEDULE?

- May have more activities than are needed to model the strategic effect of risk.
- May be incomplete or omit scope outside of the contractor’s work.
- Often have many dangling activities, constraints, poor logic, and lags.
- Simulation may be more time-consuming.
- Resource-loading may be more difficult and time-consuming.
FOOD PROCESSING FACILITY
CHARACTERISTICS OF THE SUMMARY COST ESTIMATE

Contingency free

Distinction between time-dependent costs (labor and rented equipment) and time-independent costs (material and installed equipment)
# SUMMARY COST ESTIMATE

## Cost Loading Rebuild Food Processing Facility

<table>
<thead>
<tr>
<th>Ref #</th>
<th>%</th>
<th>Deterministic</th>
<th>Optimistic</th>
<th>Most Likely</th>
<th>Pessimistic</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>42 Design</td>
<td>2%</td>
<td>$160K</td>
<td>$152K</td>
<td>$160K</td>
<td>$176K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>43 Permits</td>
<td>1%</td>
<td>$66K</td>
<td>$63K</td>
<td>$66K</td>
<td>$72K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>44 General Conditions</td>
<td>8%</td>
<td>$526K</td>
<td>$500K</td>
<td>$526K</td>
<td>$579K</td>
<td>Time Dependent</td>
</tr>
<tr>
<td>45 Substructure</td>
<td>6%</td>
<td>$384K</td>
<td>$365K</td>
<td>$384K</td>
<td>$422K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>46 Superstructure</td>
<td>14%</td>
<td>$928K</td>
<td>$882K</td>
<td>$928K</td>
<td>$1021K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>47 Elevator</td>
<td>2%</td>
<td>$128K</td>
<td>$122K</td>
<td>$128K</td>
<td>$141K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>48 MEP</td>
<td>22%</td>
<td>$1472K</td>
<td>$1398K</td>
<td>$1472K</td>
<td>$1619K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>49 Process Equipment</td>
<td>38%</td>
<td>$2560K</td>
<td>$2432K</td>
<td>$2560K</td>
<td>$2816K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>50 Finishes</td>
<td>4%</td>
<td>$288K</td>
<td>$274K</td>
<td>$288K</td>
<td>$317K</td>
<td>Time Independent</td>
</tr>
<tr>
<td>51 Startup/Commissioning</td>
<td>3%</td>
<td>$173K</td>
<td>$164K</td>
<td>$173K</td>
<td>$190K</td>
<td>Time Dependent</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>$6685K</strong></td>
<td><strong>$6351K</strong></td>
<td><strong>$6685K</strong></td>
<td><strong>$7354K</strong></td>
<td></td>
</tr>
</tbody>
</table>

- **Note:** Time Dependent indicates varying costs dependent on project schedule, while Time Independent indicates costs are fixed and not affected by project duration.
OPTIONS FOR LOADING COST
LINK THE COST ESTIMATE TO THE SUMMARY SCHEDULE
### Define Risk Cost Impacts

The Schematic Design phase could be delayed due to additional hours added by A/E firm for Civil and Geotechnical disciplines. Negotiations are needed to discuss potential cost overruns and new start date.

<table>
<thead>
<tr>
<th>Includ... ID</th>
<th>Description</th>
<th>Category</th>
<th>Strategy</th>
<th>Probability (Qualitative)</th>
<th>Schedule Impact</th>
<th>Schedule Rating</th>
<th>Cost Impact</th>
<th>Cost Rating</th>
<th>Combined</th>
<th>Probability (Qualitative)</th>
<th>Distribution Type</th>
<th>Cost Min</th>
<th>Cost Most Likely</th>
<th>Cost Max</th>
<th>Cost Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>DES-T-001</td>
<td>The Schematic Design phase could be delayed due to additional hours added by A/E firm for Civil and Geotechnical disciplines. Negotiations are needed to discuss potential cost overruns and new start date.</td>
<td>Threat</td>
<td>Mitigate</td>
<td>H</td>
<td>VH</td>
<td>70</td>
<td>VL</td>
<td>39</td>
<td>58</td>
<td>70% Triangular</td>
<td>8</td>
<td>10</td>
<td>20</td>
<td>Triangular</td>
<td>$15,000.00</td>
</tr>
</tbody>
</table>
OUTPUT: PROBABILISTIC CASH FLOW
OTHER TYPES OF COST RISK ANALYSIS

Standalone cost

<table>
<thead>
<tr>
<th>Description</th>
<th>Duration and Cost</th>
<th>Cost Planned</th>
<th>Cost Min</th>
<th>Cost Most Likely</th>
<th>Cost Max</th>
<th>Cost Distribution Type</th>
<th>Cost Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebuild Food Processing Facility</td>
<td></td>
<td>$6,685,020.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td></td>
<td>$160,000.00</td>
<td>$152,000.00</td>
<td>$150,000.00</td>
<td>$176,000.00</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
<tr>
<td>Startup/Commissioning</td>
<td></td>
<td>$172,800.00</td>
<td>$164,180.00</td>
<td>$172,800.00</td>
<td>$190,800.00</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
<tr>
<td>Permits</td>
<td></td>
<td>$65,802.24</td>
<td>$62,512.13</td>
<td>$65,802.24</td>
<td>$72,382.46</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
<tr>
<td>General Conditions</td>
<td></td>
<td>$526,417.92</td>
<td>$500,047.00</td>
<td>$526,417.92</td>
<td>$579,060.00</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
<tr>
<td>Substructure</td>
<td></td>
<td>$384,000.00</td>
<td>$364,800.00</td>
<td>$384,000.00</td>
<td>$422,400.00</td>
<td>Triangular</td>
<td>Time Independent</td>
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<tr>
<td>Superstructure</td>
<td></td>
<td>$928,000.00</td>
<td>$881,600.00</td>
<td>$928,000.00</td>
<td>$1,020,800.00</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
<tr>
<td>Elevator</td>
<td></td>
<td>$128,000.00</td>
<td>$121,600.00</td>
<td>$128,000.00</td>
<td>$140,800.00</td>
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<td>Time Independent</td>
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<tr>
<td>MEP</td>
<td></td>
<td>$1,472,000.00</td>
<td>$1,398,400.00</td>
<td>$1,472,000.00</td>
<td>$1,619,200.00</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
<tr>
<td>Process Equipment</td>
<td></td>
<td>$2,560,000.00</td>
<td>$2,432,000.00</td>
<td>$2,560,000.00</td>
<td>$2,816,000.00</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
<tr>
<td>Finishes</td>
<td></td>
<td>$288,000.00</td>
<td>$273,600.00</td>
<td>$288,000.00</td>
<td>$316,800.00</td>
<td>Triangular</td>
<td>Time Independent</td>
</tr>
</tbody>
</table>
We envision schedule risk analysis to be as commonplace as scheduling itself, and for every schedule to be risk assessed using Graphical Path Method principles throughout the lifecycle of the project.

<table>
<thead>
<tr>
<th>NOW</th>
<th>COMING UP</th>
<th>FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost modeling</td>
<td>Effortless schedule visualization</td>
<td>Effortless end-node diagrams</td>
</tr>
<tr>
<td>Import from MS Project</td>
<td>Modeling of hours/crafts</td>
<td>Stochastic total float</td>
</tr>
<tr>
<td>Floating even easier and more use friendly</td>
<td>Risk impact visualization</td>
<td></td>
</tr>
</tbody>
</table>
QUESTIONS