



Strategic Risk Factors in Projects

Norwegian Center for Project Management

Trondheim, Sept 5, 2007

Consider Kashagan (per WSJ 8/28/07)

- Shell operator for Exploration – logistics challenges etc.
 - 2001: Eni=operator, 1st Oil 2005 – lack of benchmarks for estimating
 - issue of artificial islands delays project
 - 2004: new plan approved, 1st Oil 2008, \$10G
 - 2007: update: 1st Oil end 2010, \$19G (Life \$57G->\$136G)
 - LQ too close to treatment plant, weak \$, lack of benchmarks, inflation
 - Cost of drilling rigs, “soaring steel prices”, lack of engineers, PMs
 - Kashagan: deny permits, project on hold, fire Eni
-

RISK FACTORS:

- Reservoir: H₂S, pressure (“costly stress-resistant pipes”)
- Location: Caspian freezes 5 mo./yr. (“rig-wrecking ice-packs”), cold winter, logistics, 10’WD
- No export pipeline
- Environmental: beluga, sturgeon, seals (no spills!) – permitting issues
- Partners: strong, misaligned, dysfunctional
- Kazakh government new at this ...

Questions:

- Were these really Black Swan risks?
 - Could they have been predicted?
 - If so, why weren't they?
- If you were the Kazakhs, would you fire Eni? If so, why? If not, why not?

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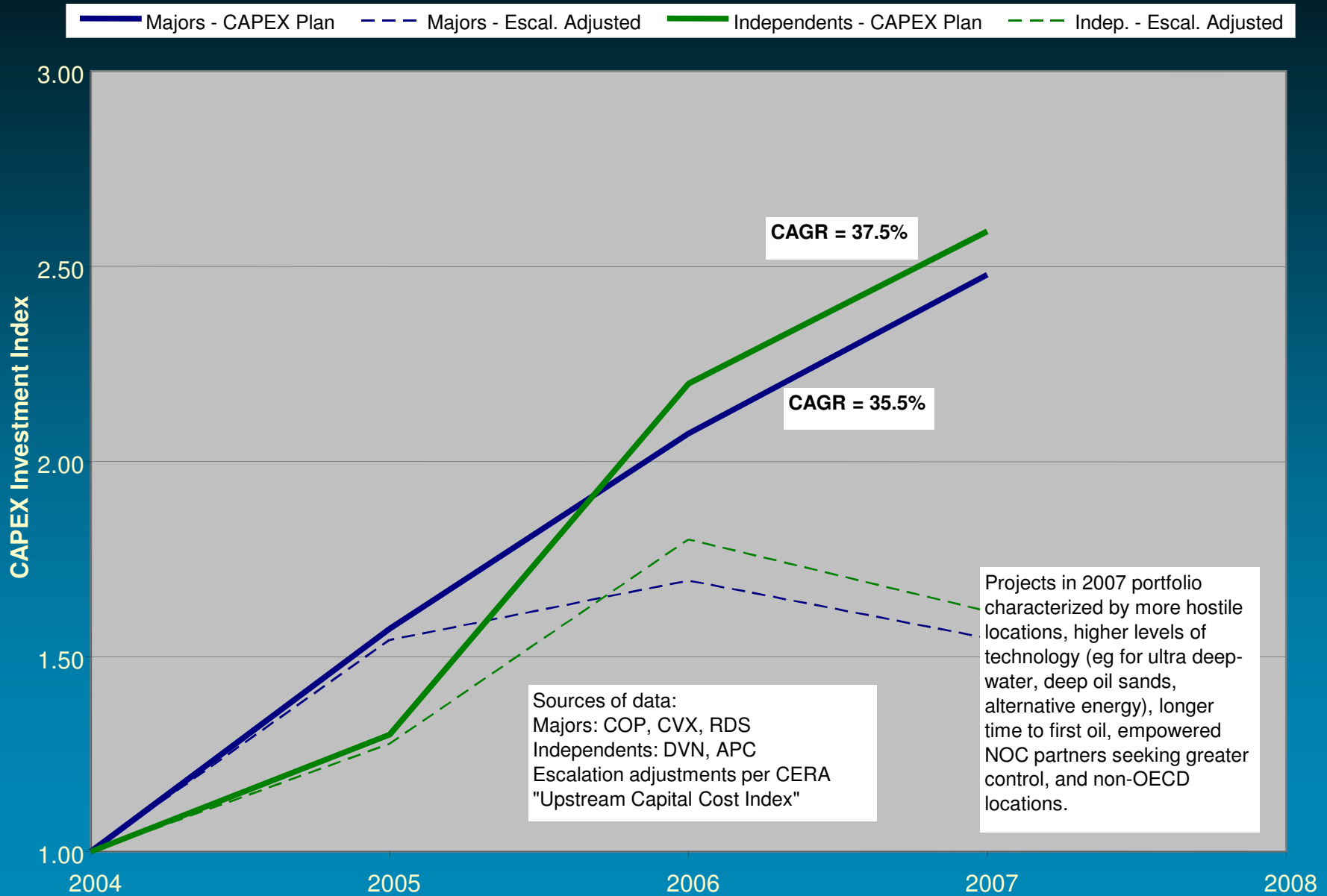
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The Industry Today

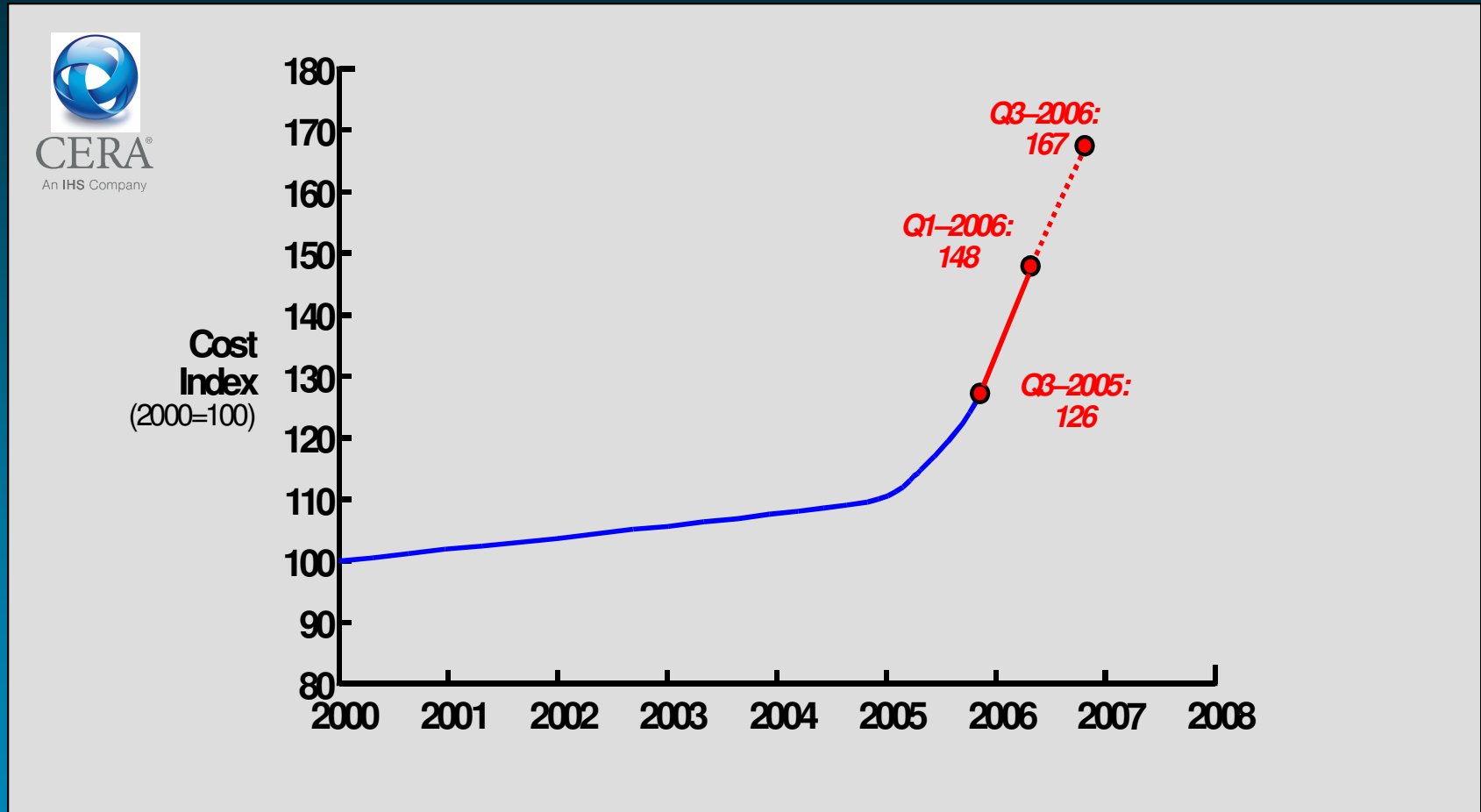
- Poor project performance is not acceptable when capital markets are looking for predictability & strong returns
- >50% of execs are dissatisfied with project performance (eg 40% of projects overrun) – more-so than ever
- ... cannot afford to miscalculate capital project risks – yet do not have a good grasp of how to manage (them)

Source: *Capital Project Execution in the Oil & Gas Industry* – Booz Allen Hamilton

Trends in Capital Project Investment & Complexity



Is Escalation the Culprit?



A Look Outside Our Industry

- Mega-project performance has historically been poor
- Consider Infrastructure Projects
 - Cost overruns of 50 – 100% are common
 - Main causes¹:
 - Underestimated (“appraisal optimism”)
 - Risk analysis assumes “everything goes according to plan”
 - “Delusion” is often necessary for projects to proceed
- How do these conclusions compare with oil & gas megaprojects?

1: “Megaprojects & Risks” – Bent Flybjerg

So What is the Problem Here?

- A. Lack of “Front – End Loading”?
- B. Ineffective organization?
- C. Management does not want to hear bad news?
- D. Outdated approach to Capital Project Risk Management?
- E. ALL of the above?

CAPEX Predictability Requires A New Approach



How Can We Improve?

A. Lack of “Front – End Loading”?

- We have stage-gate processes – do we use them?
- Are they “facilities - centric” or do they provide cross – functional integration?
- Are they used consistently – with discipline?

How Can We Improve?

B. Ineffective organization?

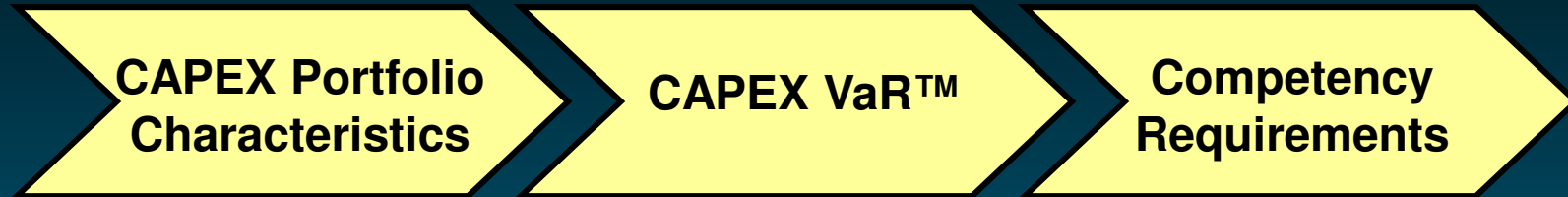
How do project organizations need to change?

- **New or different roles & responsibilities?**
- **New or different skills?**

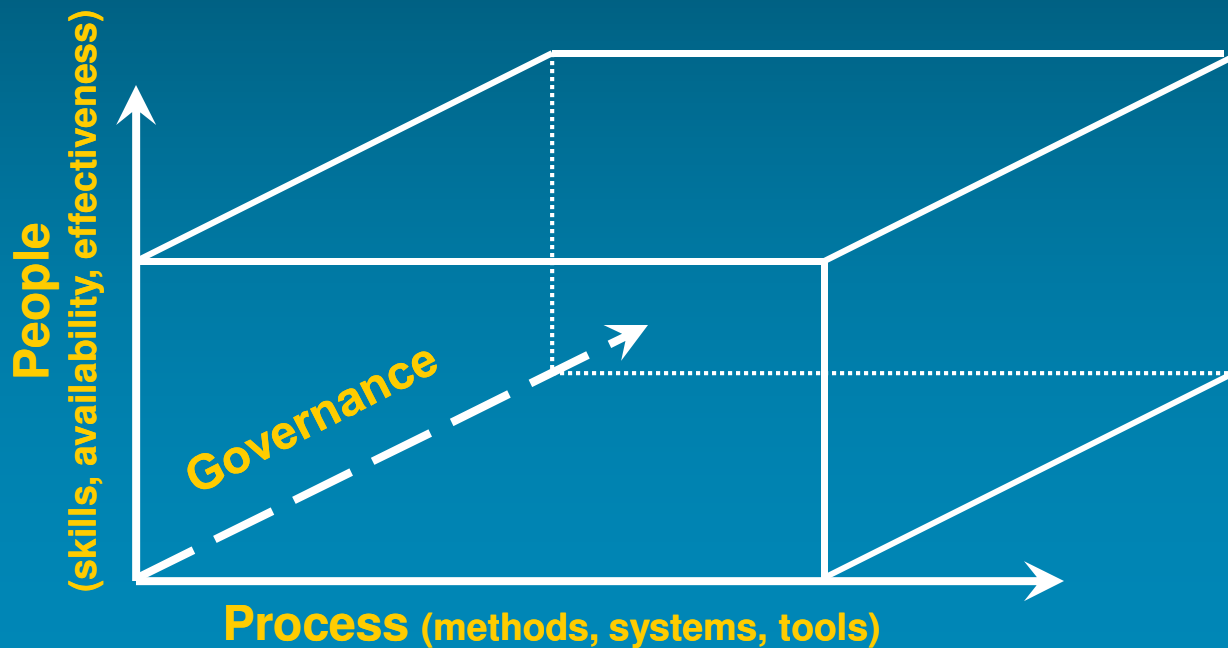
How do corporate organizations need to change?

- **New or different roles & responsibilities?**
- **Stronger governance?**

Enterprise Risk Management: The Risk-Driven Project Delivery System



The PROJECT DELIVERY SYSTEM delivers each of the competencies required to predictably execute the project portfolio:



How Can We Improve?

C. Management does not want to hear bad news?

How does management's view of projects and project teams need to change?

Managing Risks at the Right Level

**Governance
Authority / Accountability**



Management

PMT

e.g.:

- Management intervention in PMT tactics leads to internally driven risks

e.g.:

- Political
- Global economic trends
- Partner / NOC issues
- Organizational alignment

e.g.:

- Project definition
- Contractor performance
- Pricing
- Logistics

e.g.:

- Unmitigated strategic risks become tactical problems for PMT

Tactical

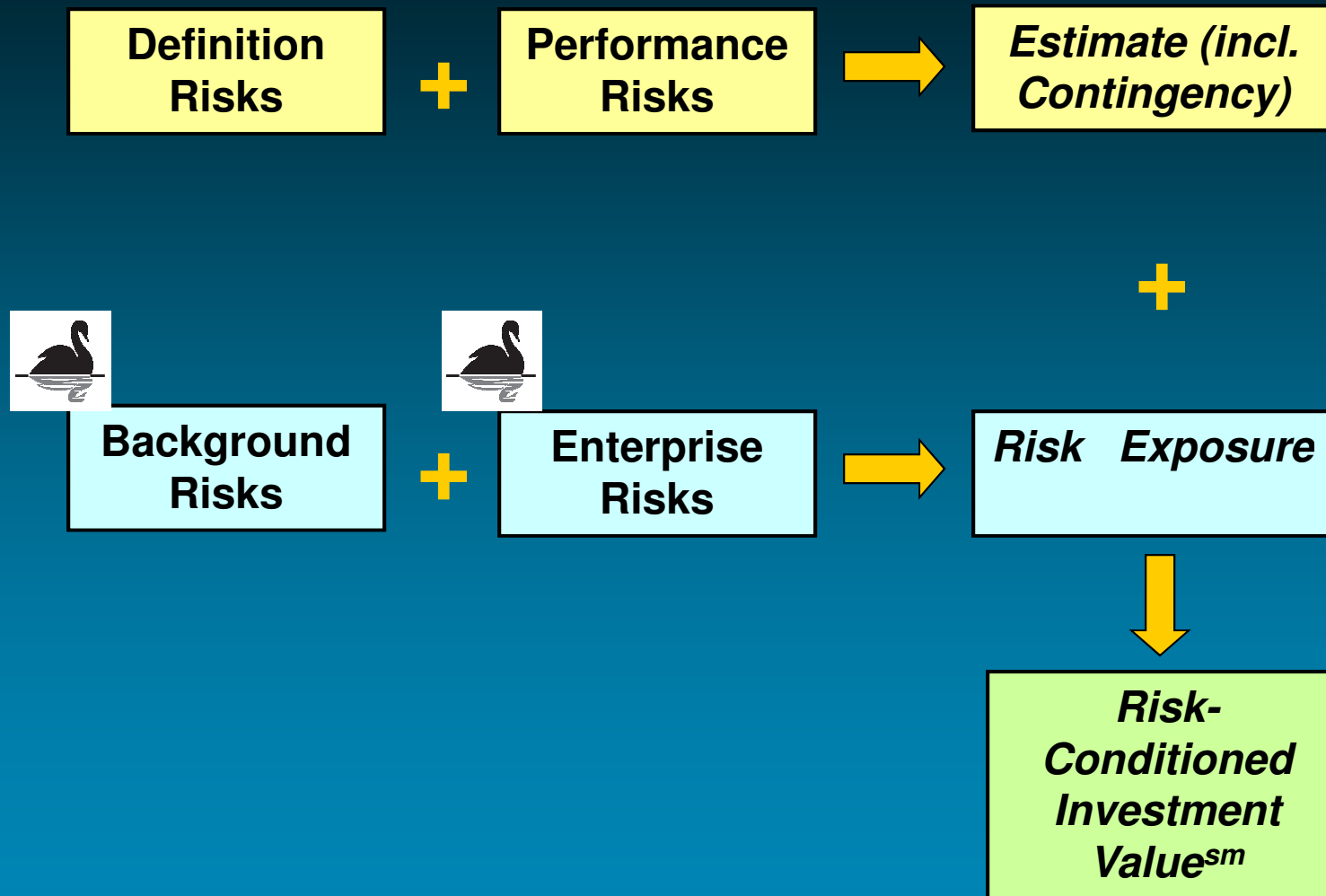
Strategic

Risk →

So What is the Problem Here?

- D.** Outdated approach to Capital Project Risk Management?

All Risks Must Be Considered



Strategic vs. Tactical Risks

TACTICAL RISKS (ranged around the deterministic estimate & schedule; managed at the project level)

Definition Risks

Risks associated with the degree of technical and planning definition

Performance Risks

Risks associated with owner and contractor performance

STRATEGIC RISKS (outliers; managed at the executive level)

Background Risks

External outliers e.g.,
SCOPE-related: *new or unproven technology, edge of experience” engineering solutions, prototype components*
MARKET-related: *extreme market conditions & trends,*
LOCATION – related: *undefined site conditions, uncertain government regulations & requirements*
COMMERCIAL – related: *business deal issues, partner relationship risks*

Enterprise Risks

Internal outliers e.g.,
RESOURCE-related: *lack of project engineering and management resources with requisite skills and experience*
GOVERNANCE-related: *inefficient of misguided governance model*
PROCESS-related: *inadequate or inappropriate project development and execution work processes*

Risk Framing - Improving VOI for Executive Decision-Making

Decision Process



Decision Support Methodology

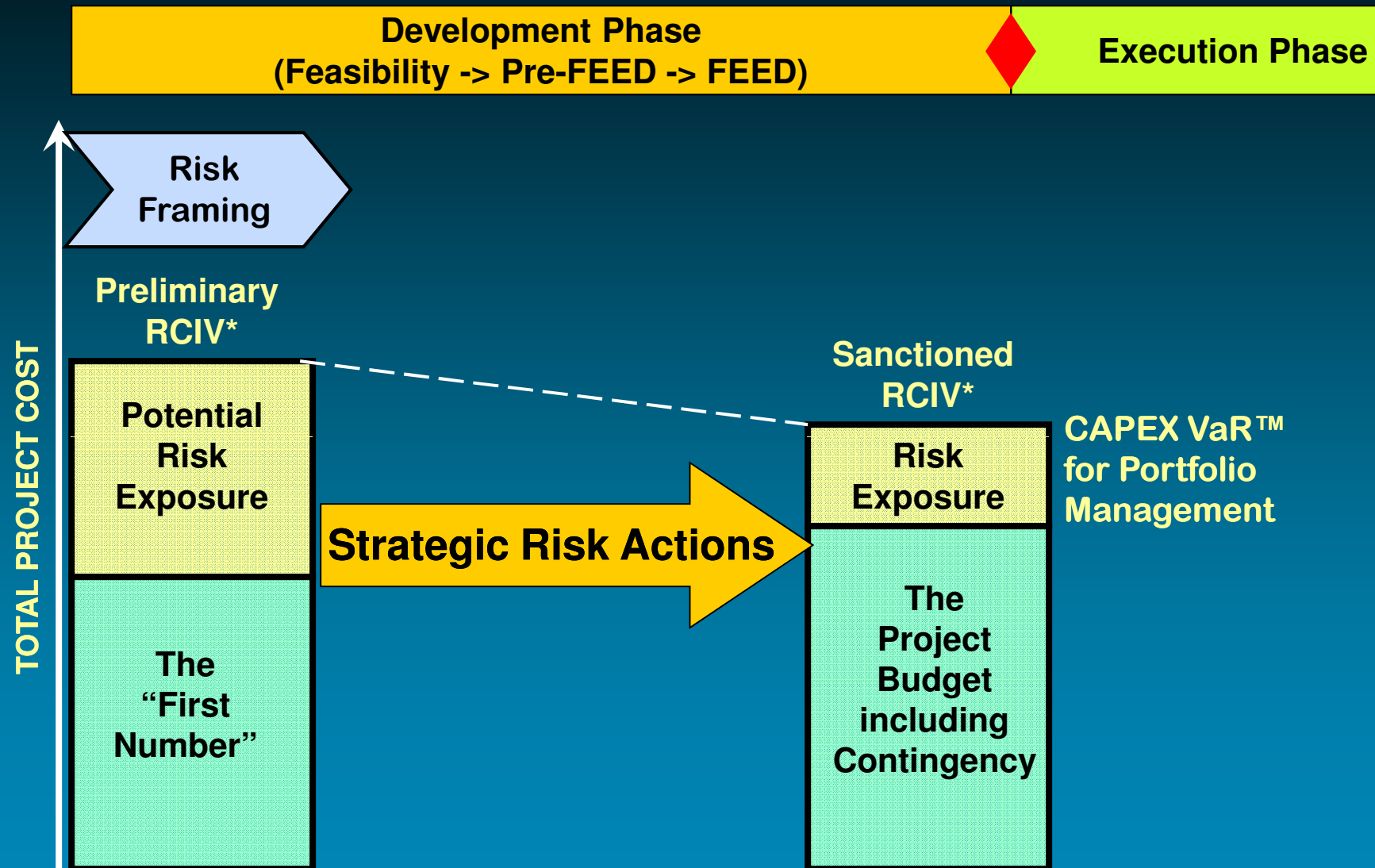


“The goal of forecasting is not to predict the future but to tell you what you need to know to take meaningful action in the present”

Paul Saffo, HBR, July-Aug 2007

“VOI”=Value of Information

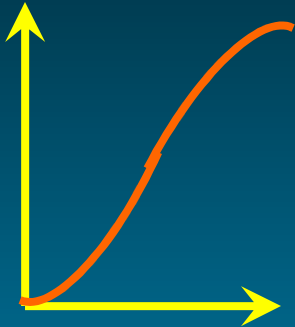
Risk Framing Shapes Capital Project Outcomes



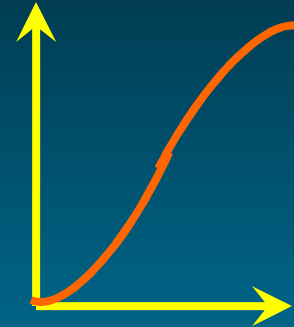
*Risk-Conditioned Investment Value™

Managing All Project Risks

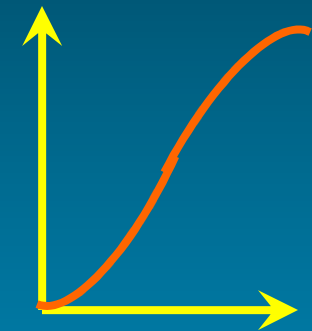
Subsurface – Reserves Risk



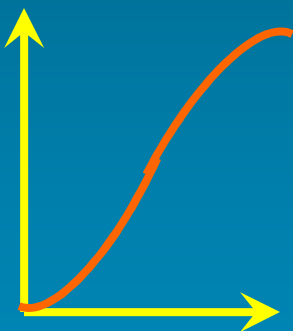
Drilling – DRILLEX Risk



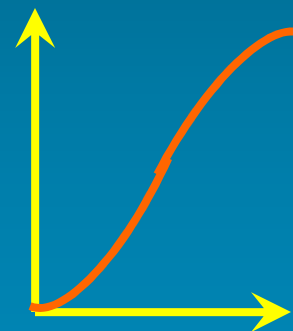
Business – NPV Risk



Facilities – CAPEX Risk



Operations – OPEX Risk



Risk Management Strategies

