

Implementation of Decision Analysis

20 years of Building Chevron's Decision Analysis Culture



Larry Neal, Chevron Project Resources Co.
Brian Putt, Chevron Global Upstream & Gas
Frank Koch, Chevron Project Resources Co.

Society of Decision Professionals
30 November 2010

Replay of
Decision Analysis Society
2010 Practice Award
INFORMS
November 7, 2010



SCALE

Project Size

Project Complexity

Numbers of Projects and Practitioners

Depth of Executive Understanding

Recognition of the DA Function

“A View from the Top”

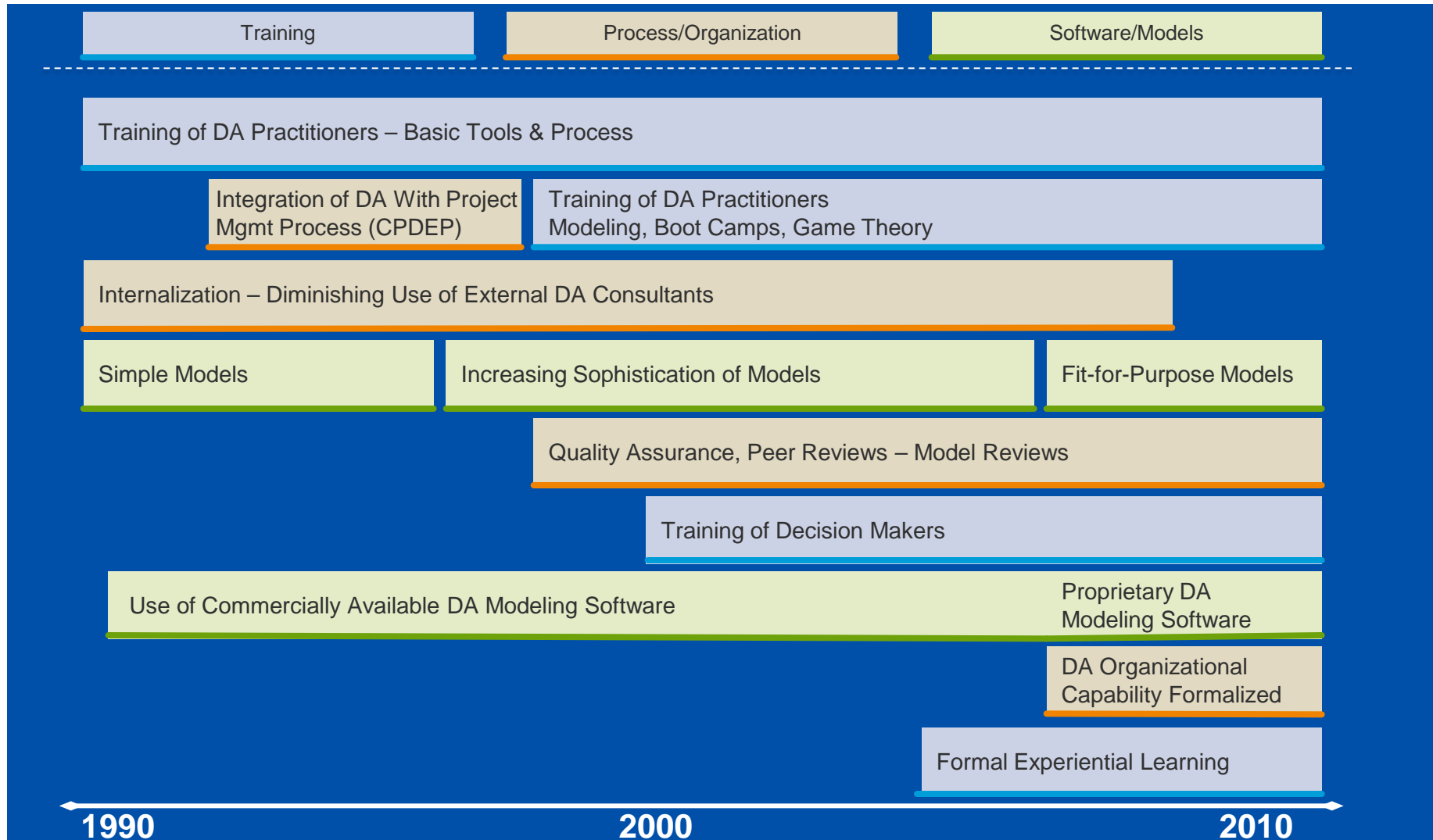


To view a 3½-minute video of George Kirkland, vice chairman of Chevron Corporation, describing Chevron’s use of decision analysis, visit this link:

<http://www.youtube.com/chevron#p/u/12/JRCxZA6ay3M>

How did we get here?

Evolution of Chevron's DA Practice



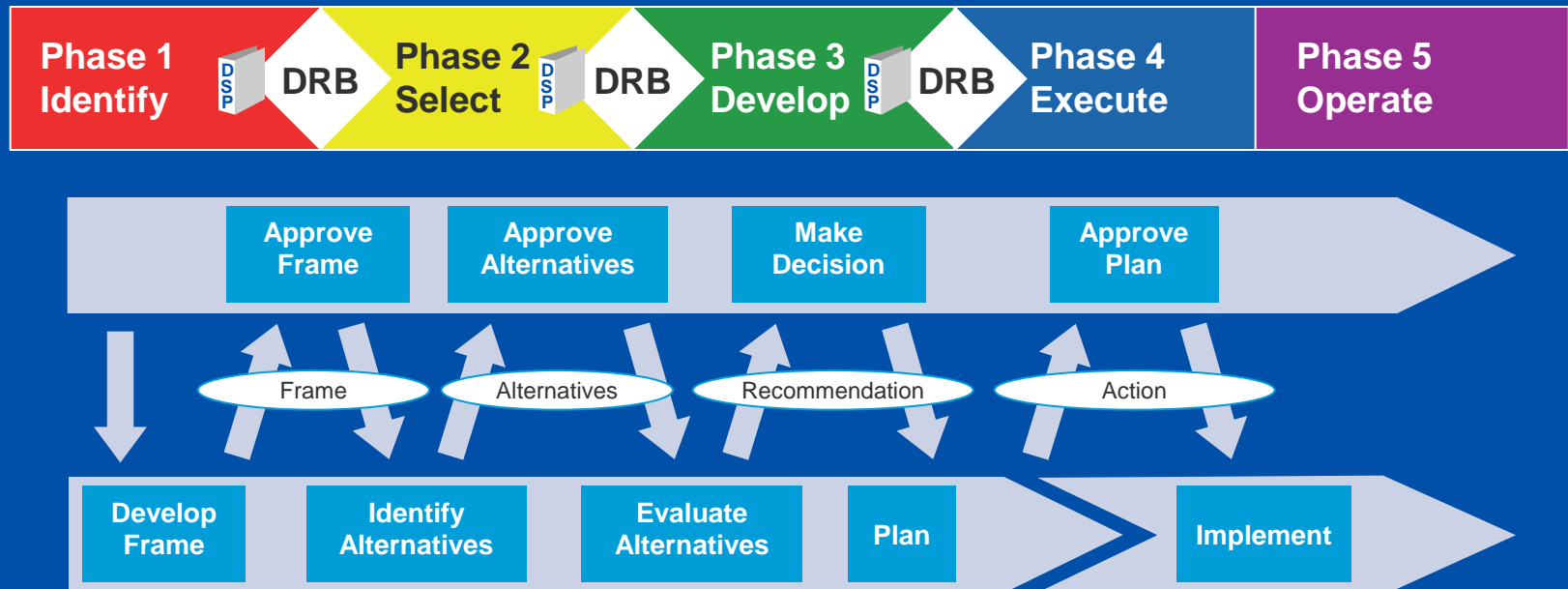
Chevron Project Management System

Investment Decision Making



All significant investments must follow a standard corporate process of reviews and endorsements.

The Dialogue Process is firmly integrated into Project Management



Chevron Project Management System

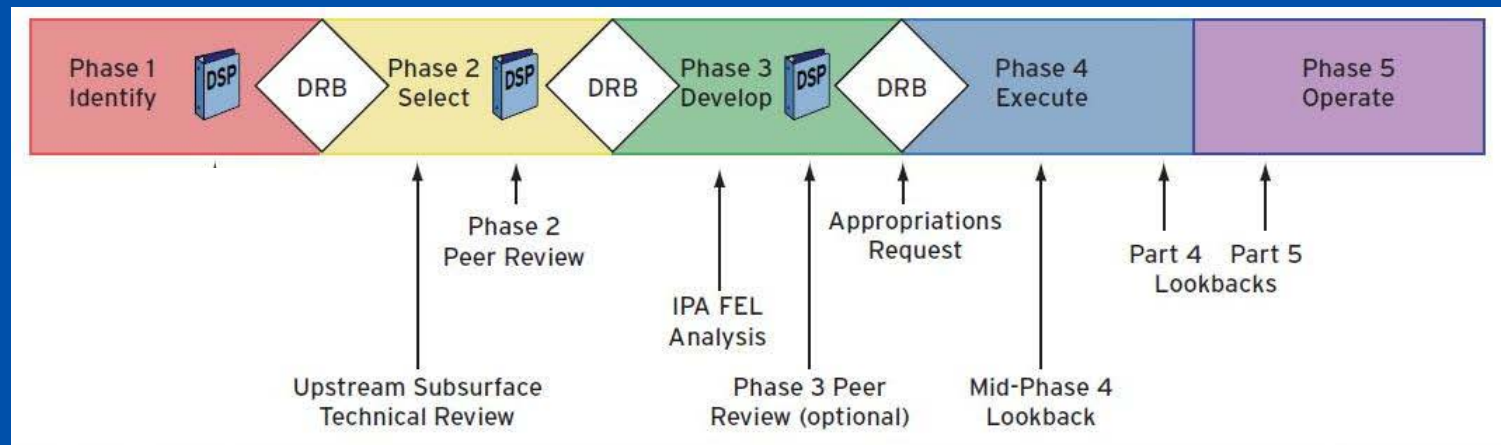
Investment Decision Making



All significant investments must follow a standard corporate process of reviews and endorsements.

The Dialogue Process is firmly integrated into Project Management

The process includes a number of reviews leading up to a Final Investment Decision and appropriate lookbacks after project completion.



Without the commitment to have quality assurance and lookback/ feedback as part of the DA process, just doing “DA calculations” probably won’t create much value

Industry Leading Project Inventory

All Require Decision Analysis to Obtain Approval

40 Projects > \$1B Chevron share



Industry Leading Project Inventory

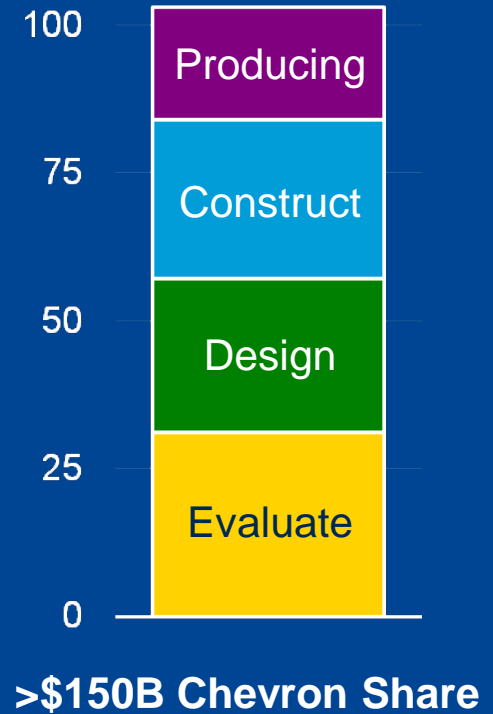
All Require Decision Analysis to Obtain Approval

40 Projects > **\$1B** Chevron share
102 Projects > **\$200MM** Chevron share



Project Phase

Number of Projects



Industry Leading Project Inventory

All Require Decision Analysis to Obtain Approval

40 Projects > **\$1B** Chevron share
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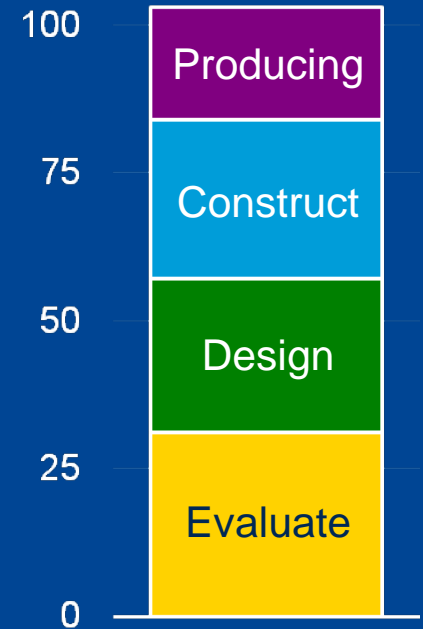


Gorgon	~ \$37B
Target	~ \$38B*
Nokia	~ \$38B*
Colgate Palmolive	~ \$37B*

*Market Cap Sept 2010

Project Phase

Number of Projects



>\$150B Chevron Share

Decision Analyst Training Curriculum



- Seven Multi-Day Courses Offered
- Over 350 attendees annually



Decision Maker Training – CEO through Project Manager



- Decision Quality for Decision Makers
 - One day workshop for management teams
- Capital Stewardship Certification
 - Over 10,000 Regular Certified
 - Over 2,600 Supreme Certified



Certification Test for Decision Makers



Phase 2: Generate and Select Alternative(s)



Unit 2: Generating Alternatives Effectively
Baseline Evaluation

[Unit Map](#)[Help](#)[Glossary](#)[Resources](#)[Exit](#) X

Which statements exemplify effective ways to ensure that the team's generating activities are creating value?

Select ALL that apply.

☐ "We need to make sure the alternatives don't stray outside the project's frame."

☒ ☒ "Try to uncover alternatives that meet as many success criteria as possible."


☐ "Let's quickly eliminate alternatives that do not meet all of our criteria for success."

☒ ☒ "Let's use the project's frame to get an idea of the alternatives' applicability."

Criterion for certification met.

Choose the correct answers, and then click Feedback.



Topic Progress: 0%  100%

Question 1 of 2

[Return to Case Study](#)

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Certification Test for Decision Makers

Wrong answers – Relearn/Retest



Phase 3: Developing the Preferred Alternative(s)

Unit 4: Cost/Schedule Estimates/Final Expected Value
Baseline Evaluation

[Unit Map](#)[Help](#)[Glossary](#)[Resources](#)[Exit](#) X

From the choices to the right, select those statements that represent an appropriate use of the term "expected value."

- ☐ Expected value includes a representation of the entire range of project outcomes.
- ☒ Expected value is what we expect to return from the project.
- ☐ Expected value indicates the sum of project returns over the life of a project.
- ☐ Expected value represents the probability of returns over time.

Criterion for certification not met. See recommended topic(s) at the end of this evaluation.

Choose the correct answers, and then click Feedback.

Topic Progress: 0% 100%

Question 3 of 4

[Return to Case Study](#)

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Interactive Simulation Software for Decision Maker Training/Certification



CSOC Supreme Certification

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Decisions

Round 2 Team 1 DRB

Service Extension

Green Fuel

Vaya Market Entry

Refinery Upgrade

Project Manager

Project Manager Assignment

Portfolio

	Low Case	Base Case	High Case	Don't Include
Service Extension	Project was placed on hold this round			
Green Fuel	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	\$2.3	\$12.7	\$22.3	
Vaya Market Entry	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	\$6.8	\$9.8	\$11.2	
Refinery Upgrade	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	\$16.5	\$20.1	\$22.3	

Current projections show that you are exceeding your capital expenditure budget of \$65MM per year in Year 3 (Current CapEx Forecast: \$71.5MM in Year 3)

Print

Total Capital Expenditures (\$MM)

Year	Maintenance Compliance Projects	Other Investment	Green Fuel	Vaya Market Entry	Refinery Upgrade
Y1	10	20	0	0	0
Y2	10	20	0	0	0
Y3	10	20	0	0	10
Y4	10	20	0	0	0
Y5	10	20	0	0	0
Y6	10	20	0	0	0
Y7	10	20	0	0	0
Y8	10	20	0	0	0
Y9	10	20	0	0	0
Y10	10	20	0	0	0

Total Project Cash Flows (\$MM) - NPV: \$42.6

Year	Cash Flow (\$MM)
Y1	0
Y2	-10
Y3	-15
Y4	5
Y5	10
Y6	12
Y7	15
Y8	15
Y9	15
Y10	15

Resources

Portfolio

Perspectives

Stakeholder Mail

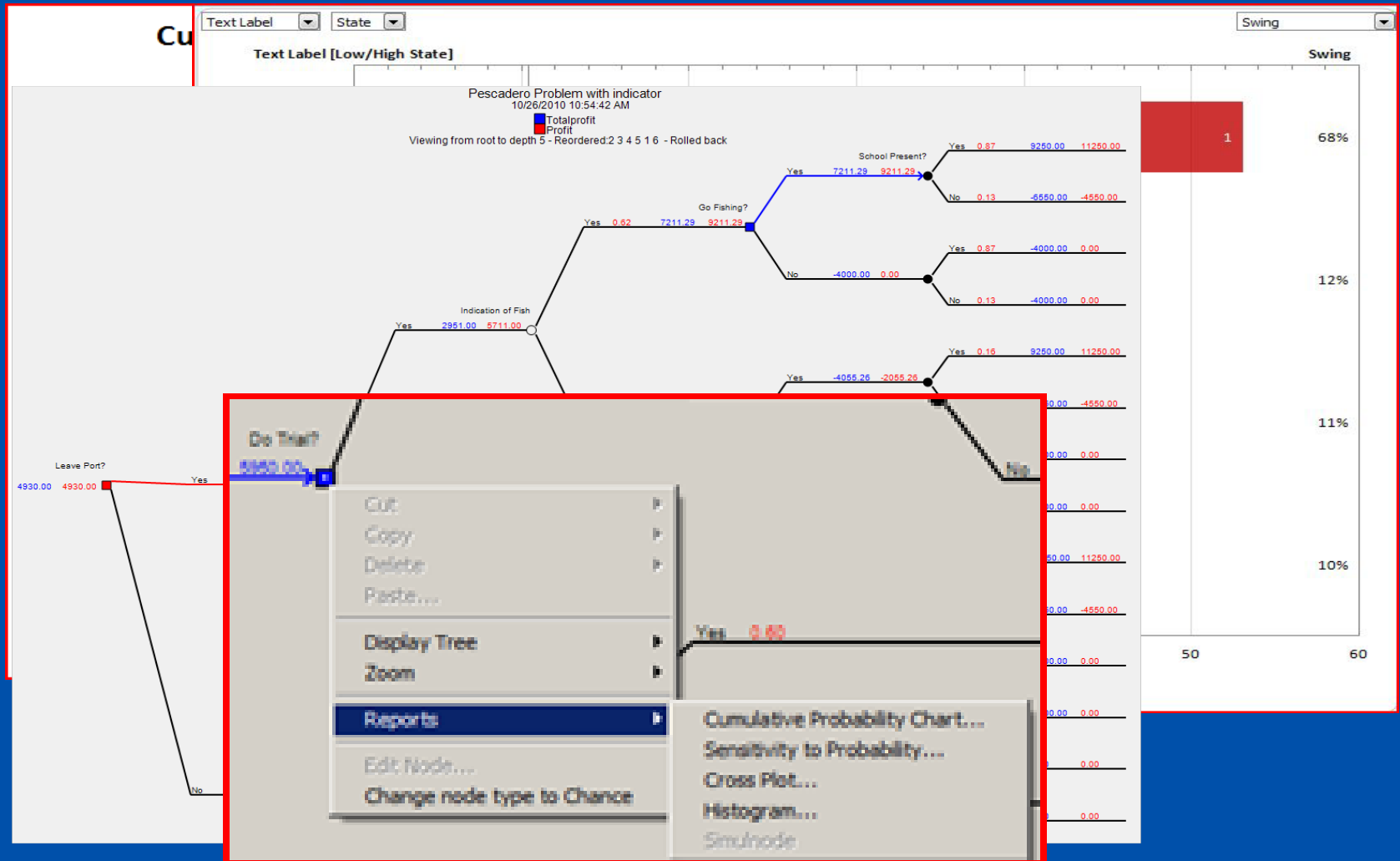
Chevron's Decision Software



- Incorporates “expert wish list”
- Improved work flow
- Multiple decision criteria
- Secret stuff
- Neal wins Chairman's Award



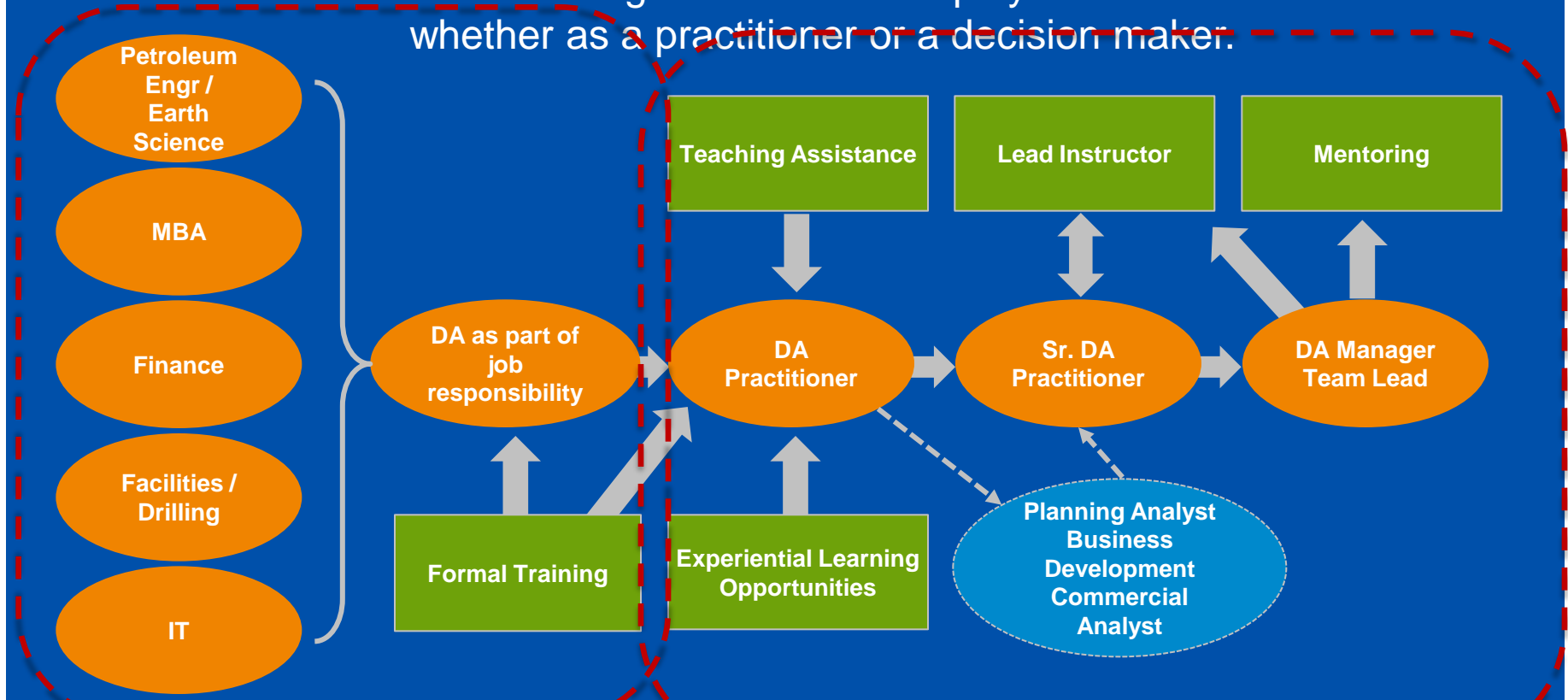
Chevron's Decision Software



Organization Capability (Business Development, Planning & Commercial)



- DA capability typically has a foundation in another discipline.
- DA Career Ladder – From Entry Level to Management
- DA knowledge retained as employee continues career whether as a practitioner or a decision maker.



Decision Analysis Adds Value by Supporting Chevron's Strategic Intent to Maintain/Improve Capital Stewardship



■ Capital Stewardship Principles

- Facilitating decision making
- Shaping project development plans
- Producing transparent Appropriation Requests

■ Improving Project Evaluations

- Using appropriate assumptions & ranges
- Integrating disciplines and value chain
- Communicating insights, risks, upsides and tradeoffs
- Selecting the “best” alternative

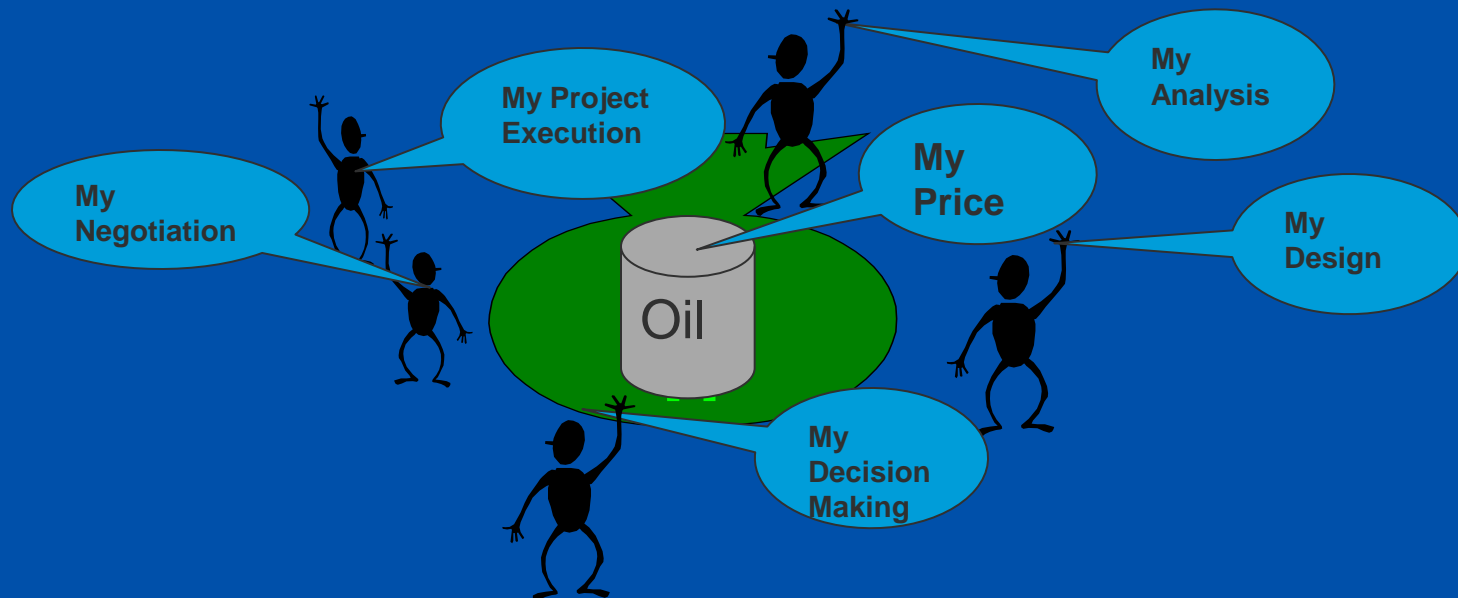
■ Developing Organization Capability

- Training, mentoring and career development
- Collaboration & transfer knowledge and learnings
- Leverage of partnerships and technology



Does it really work? Is it worth it?

- Yes. However it can be difficult to isolate the impact of the Decision Analysis and Decision Maker training from the rest of our efforts to improve Capital Stewardship



- Internal annual assessments have highlighted improvements in decision making and capital project management
- External benchmarking has shown improvements in project performance
- Peer reviews of projects prior to final investment decision indicate improvements made as well as remaining gaps

Questions + Answers