



Presenting:

**Turning the Supertanker:
Structured Decision-Making at BC Hydro
by Basil Stumborg**

DAAG Conference 2016

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Turning the Supertanker: Structured Decision-Making at BC Hydro

The good, the bad and the icebergs

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Introduction

BC Hydroelectric and Power Corporation

BC's (near) monopoly producer and supplier of electricity

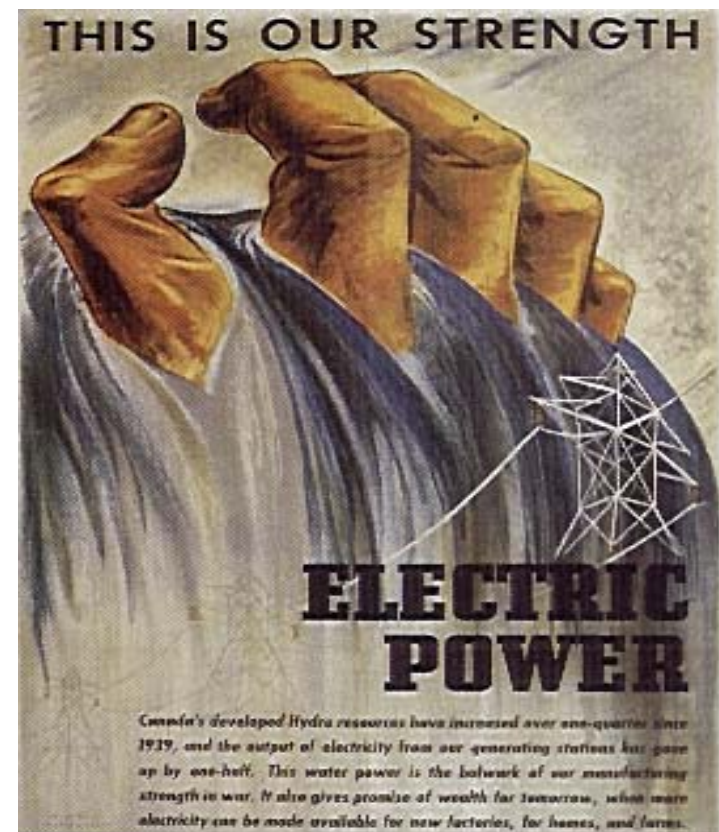
Roughly 4 million customers

Revenues ~ \$5b / year (including trade)

Capital spend over next 5 years, ~ \$2.5b/yr

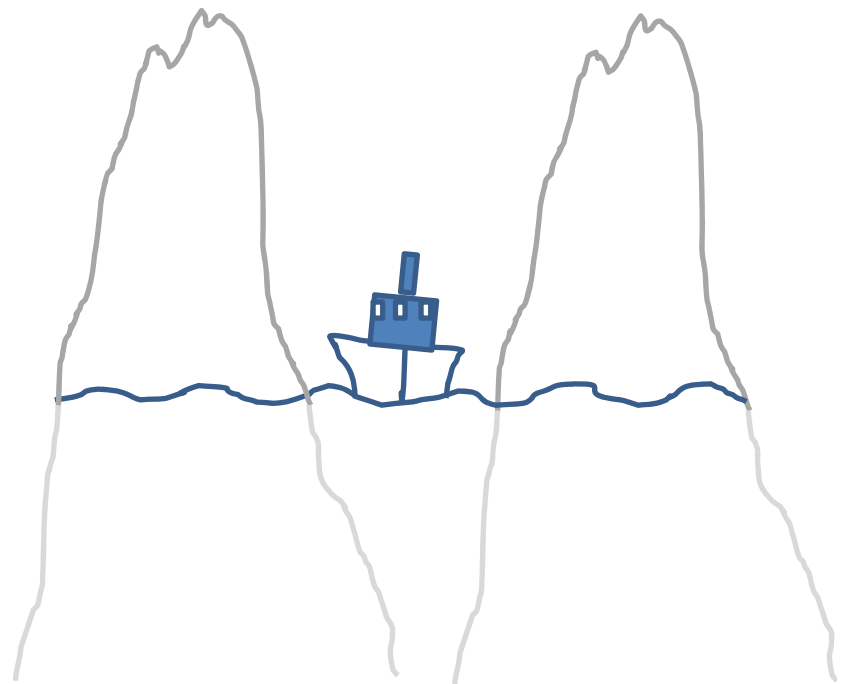
One shareholder

Multiple objectives in legislation and gov't policy



Charting our course for today

- What is our resource constraint?
- Where we started
 - Building on pockets of success
- What we have now
- How do we stack up?
 - To an ideal
 - To industry leaders
- What's slowing us down?



What is our resource constraint?

- BC Hydro is a regulated utility
 - Cost-plus regulation
 - One shareholder – the provincial government
 - BCH surplus is split between:
 - Keeping rates down
 - Provincial revenue
- Consent to operate
 - First Nations
 - Shareholder
 - Public
 - Environmental Regulators

Where we started...

- Keeney helped with multiple-objective framework for BCH strategic options (1992)
- Early 1990's – System-wide review of reservoir operations
- BC Utilities Commission (1995) – ordered a multi-attribute framework to be used for long term energy planning
- But – these were rare exceptions.
 - Most decisions were still made by BOGGSAT*
 - Incorporation of multiple objectives ad-hoc at best

*Bunch of guys and gals, sitting around, talking

Where we started ...



Objectives & Criteria	Diesel	Small Hydro
Minimize local air emissions		✓
Minimize greenhouse gas emissions		✓
Minimize disturbed fish habitat	✓	low
Minimize transport and storage of diesel spill risk		✓
Maximize service reliability	=	=
Enhance relationship with First Nations		✓
Minimize cost per kWh	=	=
Stabilize cost of generation		✓
Minimize equipment failure and environmental clean up costs		✓
Min. greenhouse gas liability and/or future regulatory costs		✓

BC HYDRO SERVICE PLAN

Service plan excerpt circa 2003

Triple Bottom Line

BC Hydro is committed to sustainability as a driving force for its business. To achieve a sustainable business BC Hydro balances environmental, financial and social considerations and uses the Triple Bottom Line approach to track progress toward a sustainable future. BC Hydro will integrate Triple Bottom Line reporting into its next Annual Report.

From crisis opportunity

- Water Use Planning process
 - 5 years
 - 30 facilities
- To balance multiple, competing interests at dams
- To preserve provincial consent to operate

STEPS 2-9



FIGURE 2

WUP Process: Plan Development



Preliminary work: Determining issues and process

- Step 2 – Scope water issues and interests
- Step 3 – Determine consultative process
- Step 4 – Define water use issues and objectives



Gathering information

- Step 5 – Collect data on water use impacts



Creating and evaluating alternatives

- Step 6 – Create operating alternatives
- Step 7 – Assess tradeoffs between alternatives
- Step 8 – Determine and document areas of consensus and disagreement
- Prepare consultation report



Documenting

- Step 9 – Licensee prepares draft WUP

*draft WUP and
consultation report*

So, what had we built for ourselves?

- A solution to the “TBL” decision-making puzzle. But...
 - Single project focus
 - Portfolio aspect of the problem not built out
 - Emphasis on:
 - Stakeholder engagement
 - Environmental and social values
 - Multiple values (stakeholders)
 - Consensus

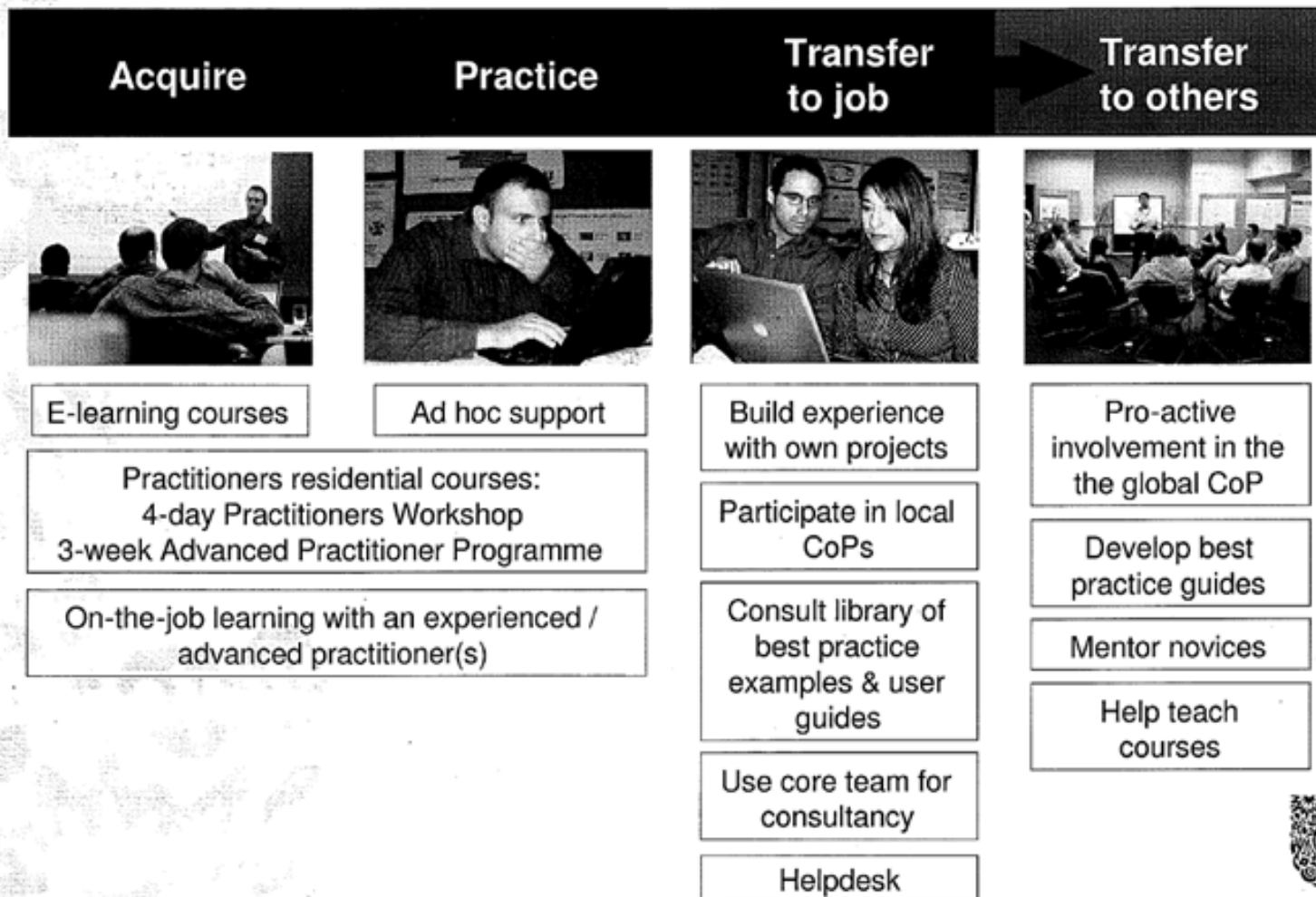
A name change, a sea change

- Late 2008, Chief Financial Officer
 - Changed name from “TBL Decision Making” to “Structured Decision Making” (SDM)
 - Agreed it should be used for all high profile, high risk, complex decisions
 - Supported:
 - training,
 - project support,
 - policy development,
 - consistency with other practices.

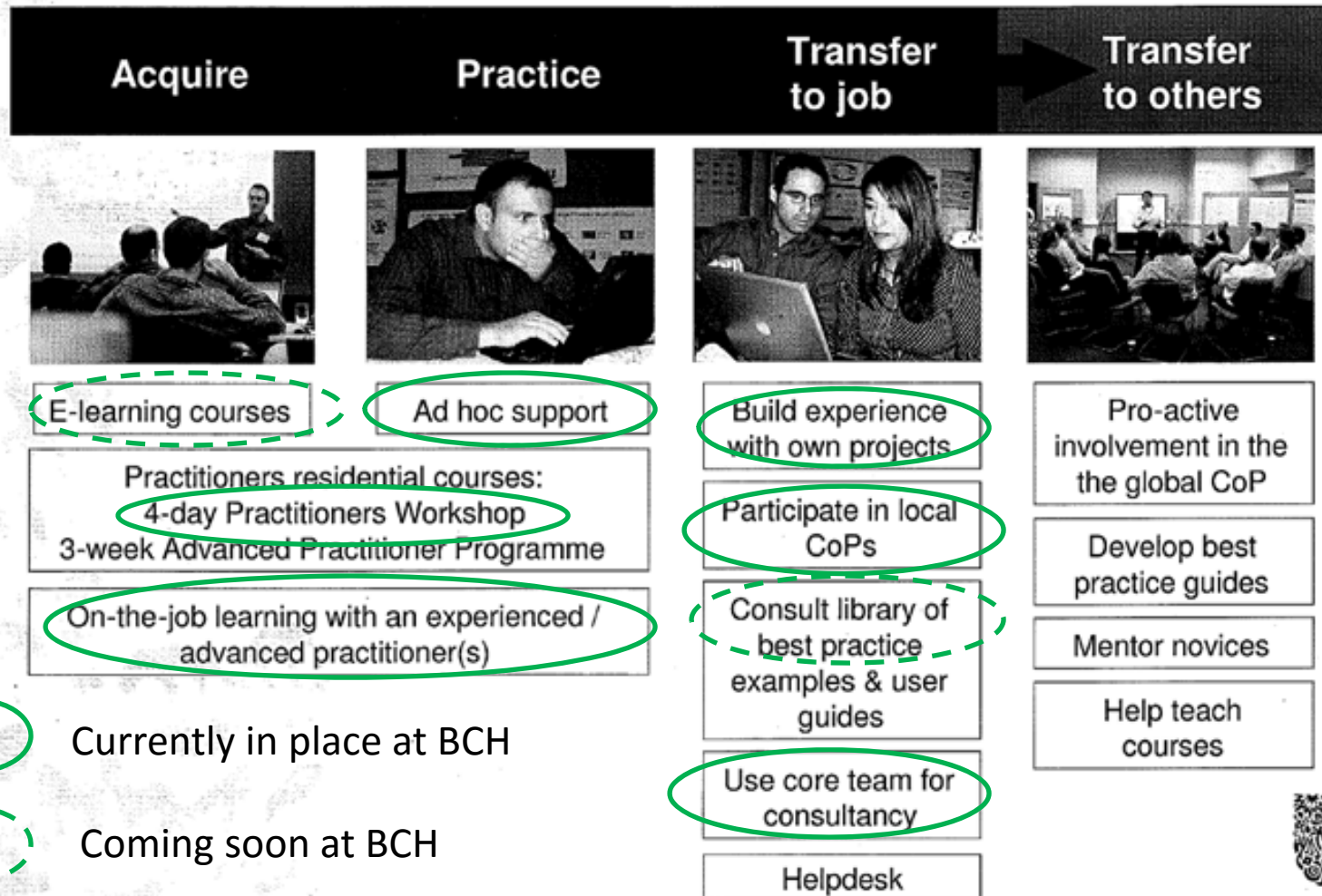
What do we have now?

- Generic Structured Decision-Making (SDM) Framework
- SDM training
- SDM in Business Case Guidelines
- Specific SDM practices (e.g., project delivery)
 - With web support
 - With e-learning (in development)
- SDM “toolbox” (excel, Palisade)
 - And support
- Enhanced analysis regarding uncertainty, risk
- SDM community of practice

How do we stack up?



How do we stack up?



Currently in place at BCH



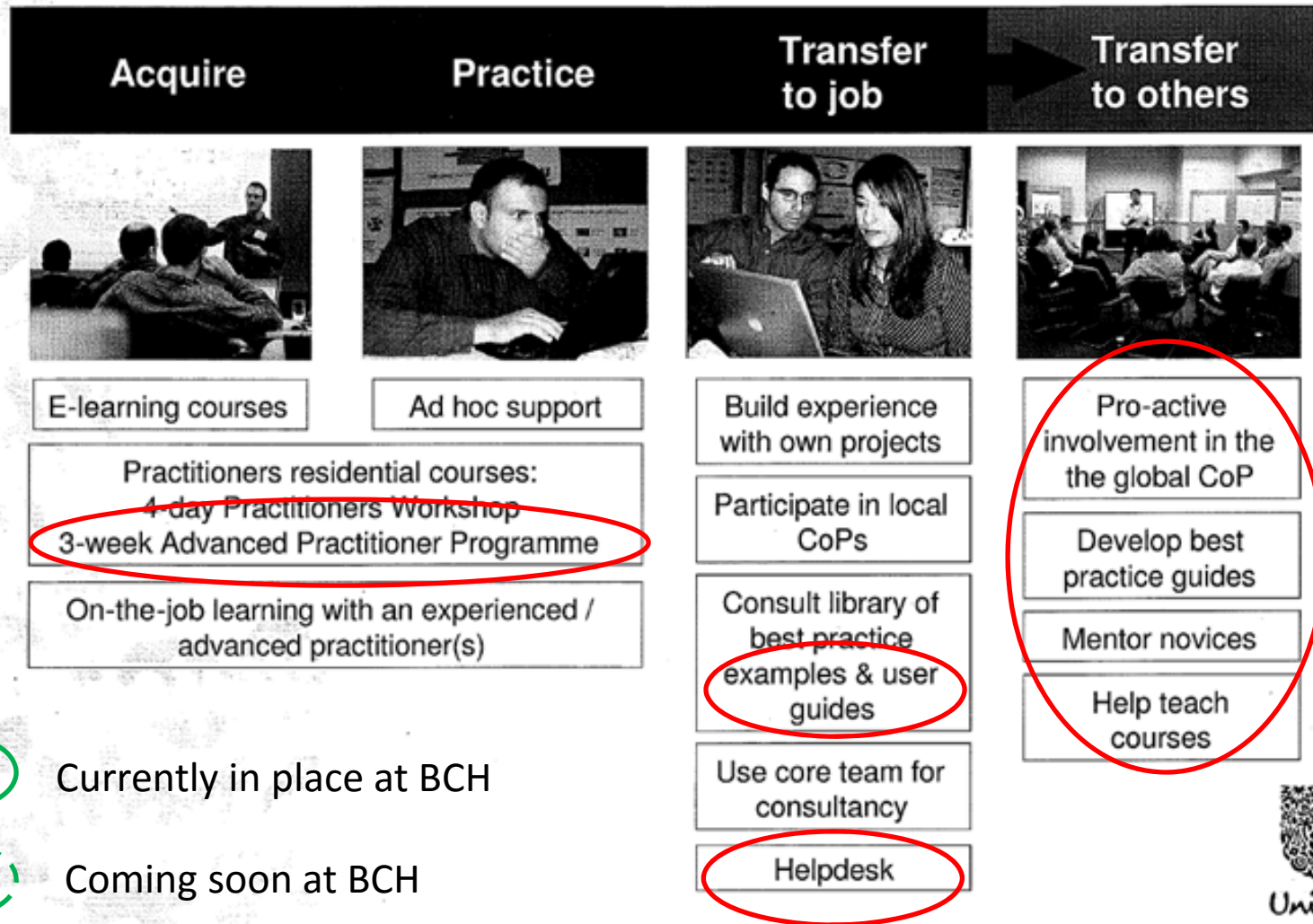
Coming soon at BCH



Not even on the horizon



How do we stack up?



Currently in place at BCH

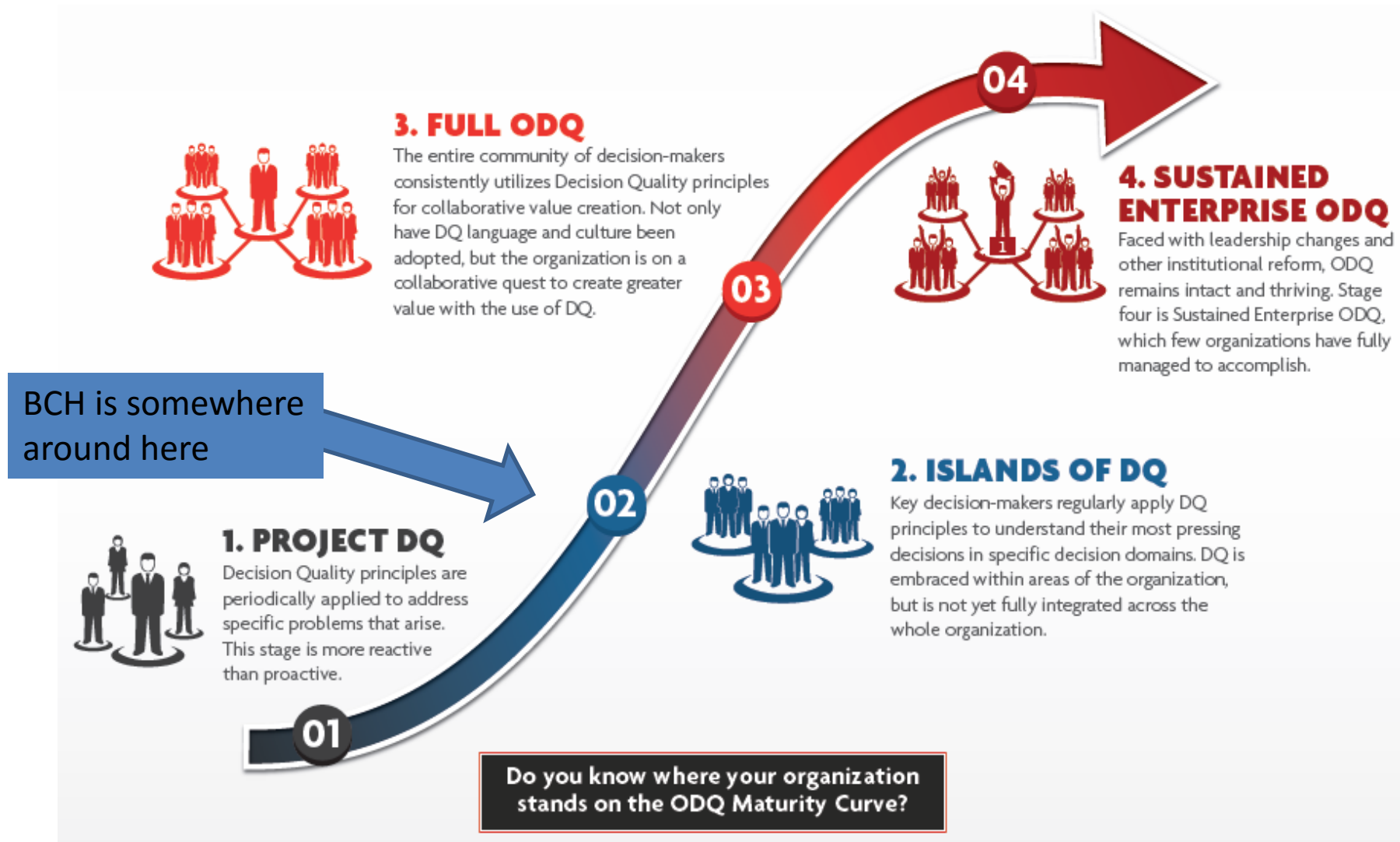


Coming soon at BCH

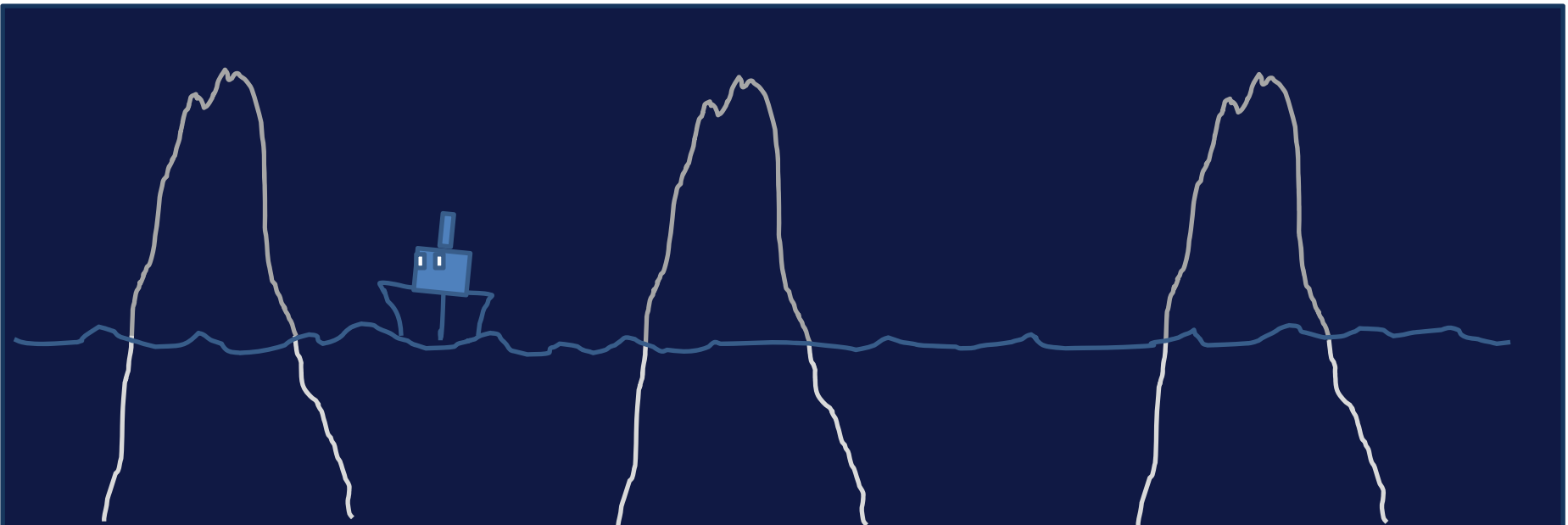


Not even on the horizon

How do we stack up?



What's slowing us down?



This stuff is hard!

- Human wiring
- Power of Status Quo in a large corporation

Multiple objectives vs. a good story?

Cost Plus Utility Regulation

- Reduces need to take a portfolio view
- Reduces need to compare disparate projects, initiatives
- BUT – adherence to new 10-yr rate plan will change all of this!