The Missing Link
Unlocking human behaviour for max energy savings
I’m not like other guys...
We’re not like other energy mgt consultants...

- Behaviour piece not new

- **New**: our science-informed, evidence-based, patented approach
  - Influences on people’s judgement, decision making, behaviour

- Define + secure **bigger $ opportunity** than you may think possible
Why energy management?

reduce GHGs
Utilities = ~3% hospital net operating budget, operating costs rising ~8%/yr
Source: OHA Energy Efficiency, 2006
Energy use increasing

2012 Data
- HVAC: 35%
- Misc. Equipment: 23%
- Lighting: 13%
- Refrigeration: 29%

2040 Projection
- HVAC: 11%
- Misc. Equipment: 41%
- Lighting: 17%
- Refrigeration: 31%

Reproduced from NS Power, 2012 data
How much $ can be saved?

Annual energy bill

Equipment consumption + max waste (min efficiency, max cost)

*Source: ENERGY STAR Benchmarking*
How much $ can be saved?

Equipment consumption + hi waste (lo efficiency, hi cost)

*Source: ENERGY STAR Benchmarking
How much more energy $ can be saved?

<table>
<thead>
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<th>Y%</th>
<th>5-30%*</th>
<th>2-5%</th>
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Equipment consumption + less waste (mod efficiency, mod cost)

*Source: Guide to Energy Management*
Typical program: measure, maybe tech

- **Savings:** av 5-15%* quickly
  - ~30% long term w strong commitment, aggressive program

- **Sustained results?**
  - Depends on strategy, leadership commitment

*Source: Guide to Energy Management*
Q: Who has done the audit + tech fixes?

Project v. program?
Measurement + tech savings

- Roseway Manor
  - 3.4% reduction
  - $3,000/year

- FaciliCorp NB (4)
  - 6% reduction
  - $712,000/year

- Evergreen Home
  - 8.7% reduction
  - $11,400/year

- Capital Health, NS (multi)
  - 6% reduction
  - ~$1 M/year

Good start. Will they get to 35%?
Do you need more cash?
Q: Why do savings efforts hit a ceiling?
Attitudes on saving energy at work

- 96% willing - turn off lights in unoccupied areas, only 52% do
- 60% more likely take action if rewarded $, 58% more likely if only recognized
- Only 22% confident they know what actions to take
- Only 16% are sure have authority to do it. Really.

Employees behave differently at home
- 92% concerned about home energy costs, only 47% concerned about employer’s
Attitudes on saving energy at work

- Few employers taking action to engage workforce
  - Only 23% of employees’ managers asked them to help save energy at work
  - Only 13% rewarded for saving energy

2013 Carbon Trust/ Populus survey
1,135 UK employees
Not a lot of success, so far...

“More than 70% of all major transformation efforts fail. Why? Because organizations do not take a consistent, holistic approach to changing themselves, nor do they engage their workforces effectively.”
   - Dr. John Kotter, Harvard professor, management consultant, award-winning author

“Many [energy conservation] campaigns fail because they don’t take behavioural psychology into account.”
   - 2013 Carbon Trust/Populus survey, p.3

“Policy makers seem focused more on [the direct feedback] instrument itself than on the behaviour...that needs to be affected.”
Unlock human behaviour, unlock more cash

Nothing changes until behaviour changes
How much more energy $ can be saved?

Equipment consumption + less waste (max efficiency, min cost)

- **45-88%**
- **5-20%***
- **5-30%**
- **2-5%**

*Source: Achieving energy efficiency through behaviour change

\[ \Delta = 12-55\% \]
Behaviour change

- Leadership commitment & policy
- Financing
- Communication strategy, phased plan
- Green team
- Training
- Performance mgt, measurement
How much money $ can be saved?

- Facility energy bill:
  - Behaviour change:
    - 5-20 plus %
  - Technology:
    - 5-30%
  - Measurement:
    - 2-5%

- Equipment consumption:
  - Least waste
  - High efficiency, min cost

**TATE-DUNN TOTAL APPROACH**

\[ \Delta = 20-55\% \text{ plus} \]
Q: What is current waste costing you?

Dollars, frustration, credibility, job satisfaction
<table>
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<tr>
<th>Commitment &amp; Policy</th>
<th>Organization &amp; People</th>
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<td>Waste</td>
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Traditional behaviour changes fail

- Demands informed leadership
- Can’t get past bias
  - No objective appreciation of real cash potential
  - Act without understanding behaviour drivers
  - Can’t see change through employee eyes
  - Can’t see org barriers blocking employee change
  - Solely focused on tech solutions
Mental models
The brain’s operating system
To influence behaviour, understand people’s **Mental Models**

- Complex web of deeply held, subconscious beliefs
- Built over lifetime of experiences
- Explains underlying influences on judgment, decision making, behaviour
Your mental models determine
Your mental models determine

How you:

- Define problems
- Define boundaries of your thoughts & actions
- React to issues
- Make decisions
- Stop yourself from seeing different perspectives
- Limit yourself to familiar patterns
Behaviour in strategic management

- Mental Modeling Technology™
- Applying decision sciences + behavioural comms to strategic mgt
  - Science-informed, evidence-based, patented approach
  - Reproducible results, many peer-reviewed
  - Proven 25+ years of application
  - Dunn & Associates: certified, licensed, exclusive for Atlantic Canada
Research options

- Opinion polling
- Focus groups
- Mental Models or “dialogue” method
  - What people believe + why
  - Mitigates group + moderator effects
  - Explain changes over time
  - Better informs opinion research
  - Better informs strategic mgt+ communication
Mental Modeling Technology™

- Tells you what people:
  - Know that is correct & essential to making informed decisions
  - Misunderstand that is consequential
  - Do not know that is consequential
  - Want to know & what is important to them
  - Use as criteria to judge trustworthiness & competence

Uncovers path to capturing biggest energy cost savings, keeping it
In-home energy display program

Bias can lead to waste
Mgt ready to buy, install units in homes...
  - Decided on small unit, placed next to thermostat

Realized needed to know how to encourage conservation behaviour

Base purchase decision on resident preferences
  - Electricity consumption, use patterns, other info
  - System design: display size, location, control options...
Mental models research-informed web survey

- Most interest: learn how to reduce electricity bill
  - See consumption by appliance
  - Use info to save $
  - See savings from their actions
  - Other: weather forecasts
  - Most would use at least once/day
- Preferred larger display sizes
Mental Models

Changing behaviour to save lives in South African mines
Challenge: Significantly improve OH&S in SA mines

- Pre-1994 mining sector: ~800 fatalities, 12,000 injuries/year
  - Dust - silicosis, death
  - Collapses, slides - injury, death
  - Noise - hearing loss

- Research:
  - OH&S best practices + technology at company & mine-site
  - Aids + barriers to successful tech transfer

- Sample
  - 31 interviews, 6 companies - coal, gold, platinum
  - 5 head office execs; 26 leaders at all levels in mines
Interview protocol topics

- OH&S leadership roles, activities
- Leadership behaviours, aids, barriers
  - Affect tech + best practice implementation
    - Personal
    - Formal leaders
    - Informal leaders
- Leadership comms
- Worker advice for leaders
Insight: aids to successful adoption
Insight: barriers to adoption
Bottom line

- Research revealed it’s not about technology transfer …it’s about **adoption**

- Adoption depends on behaviour change, starting with leadership behaviour
Chamber of Mines Adoption System Initiative

The mission of the MOSH Best Practice Adoption System is to facilitate widespread adoption of knowledge, technology and practice that will significantly improve health and safety performance in South African mines. Our Adoption Teams interact widely to identify best practice and technology to address priority areas and work with key staff on mines to foster eager adoption of demonstrated solutions, and a culture of continuous improvement, accountability and visibly felt leadership. Our target is to provide working conditions that are free of harmful impacts.

Our Mission

- Communication Team
- Adoption Teams
- Secretariat

Our Values

- **People**: Zero harm to people is what we care about; it is our ultimate and continuing objective.
- **Empathy**: Demonstrated alignment with people’s values for safety and health and effective communication is our primary means to earning the confidence of our employees and earning Leadership credibility.
- **Excellence**: Goals and standards for our work will be consistent with the highest standards worldwide for safety and health performance.
- **Involvement**: Employees at all levels will be involved in the design, implementation and measurement of technologies and best practices that may affect them; it creates ownership and better assures success.

Adoption System Objectives

- **Dust**
  - By December 2008, 95% of all exposure measurement results will be below the occupational exposure limit for respirable crystalline silica of 0.1mg/m³ (these results are individual readings and not average results).
  - After December 2013, using present diagnostic techniques, no new cases of silicosis will occur amongst previously unexposed individuals. (Previously unexposed individual = individuals unexposed prior to 2008, i.e. equivalent to a new person entering the industry at 2008).

- **Noise**
  - After December 2008, the hearing conservation programme implemented by industry must ensure that there is no deterioration in hearing greater than 10% amongst occupationally exposed individuals.
  - By December 2013, the total noise emitted by all equipment installed in any workplace must not exceed a sound pressure level of 110dB(A) at any location in that workplace (includes individual pieces of equipment).

- **Falls of Ground**
  - In the Gold Sector: By 2013 achieve safety performance levels equivalent to current international benchmarks for underground metalliferous mines, at the least.
  - In the Platinum, Coal and Other Sectors: By 2013 achieve constant and continuous improvement equivalent to current international benchmarks, at the least.

- **Management**
  - Demonstrate Leadership behaviour and communication that assures a positive workplace environment and foster a culture of continuous OH&S performance.
Results

Fatality rates for gold mines

- Milestones set
- CEO Commitment
- MOSH System agreed

Years

- 2000
- 2002
- 2004
- 2006
- 2008
- 2010
- 2012
- 2014

Fatalities / million hours worked

- 0.50
- 0.40
- 0.30
- 0.20
- 0.10
- 0.05
- 0.00

2013 Milestone (0.05)
Results

Fatality rates for Platinum and Coal mines

- Platinum mines
- Coal mines
- Milestone Target

2013 Milestone (0.03)
“2015 sees ‘lowest-ever fatalities recorded in the mining sector’”

Johannesburg
28 January, 2016
Paradigm shift: raise your expectations

1. Start with Mental Models research
   - Get visibility on a larger savings $\Delta$
   - Understand $1^\circ$ influences on key energy consumption behaviours

2. Leverage w comprehensive program design + implementation
   - Behaviour + measurement + tech
   - Sustain your gains - avoid rebound

3. Redirect savings to your purpose
What’s your true $\Delta$? How will you get it?

TATE-DUNN TOTAL APPROACH

$\Delta = 20-55\% \text{ plus}$

Facility energy bill

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Equipment consumption + least waste (max efficiency, min cost)

Behaviour change  Technology  Measurement