ERM and Business Intelligence Lessons from World War II Codebreakers

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Celebrating 40 Years of Service

Agenda

1 Prequel

2 Lessons

3 Reprise

4 Sequel

Questions To Ponder

Financial Crisis

1   Did we learn our lesson?

2   In Q1 2007 a time traveler brings back state of the art models, technology, governance and compensation policies, etc. Would it have made a difference?

3   Was government intervention or non-intervention appropriate?

4   Was the crisis severe enough?

Upon this battle depends the survival ... If we can stand ... all ... may move forward into broad, sunlit uplands.
But if we fail, then the whole world, ... will sink into the abyss ... Let us therefore brace ourselves to our duties, and so bear ourselves that, if ... {we} last ... men will say, "This was their finest hour."
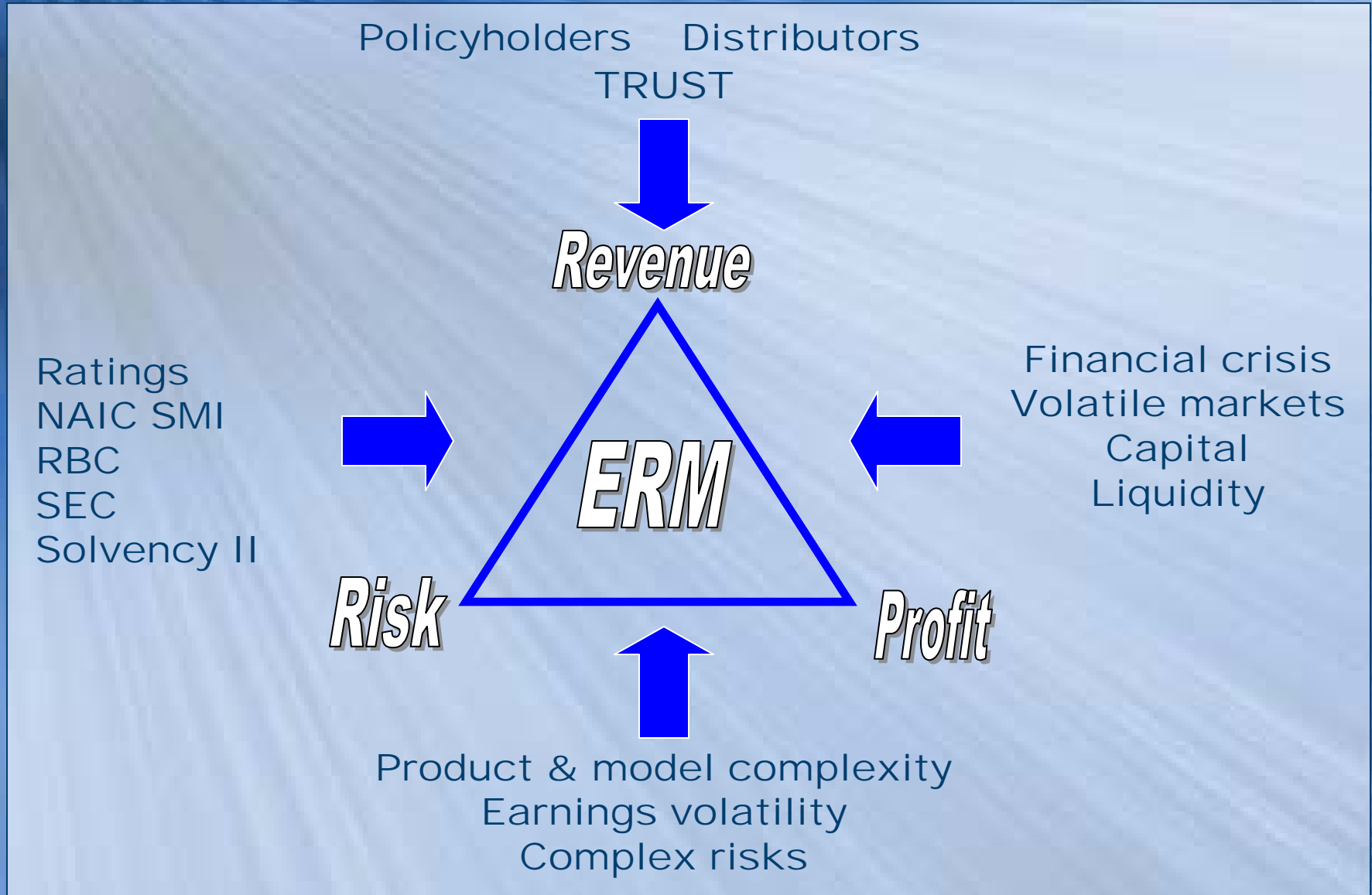
Churchill

Prequel

Cardinal and Li. "Strategic Organizational Behavior: Finding the Right ERM Fit," *The Actuary*, Feb/Mar 2011
the right ERM fit for a company can be found by involving the company's employees

Cardinal and Li. "ERM and Business Intelligence: Lessons from World War II Codebreakers," *Contingencies*, Mar/Apr 2011
a framework for developing and using intelligence that is a model for today's corporate risk managers

Insurer Challenges/Forces Driving ERM

Policyholders   Distributors
TRUST

Revenue

Ratings
NAIC SMI
RBC
SEC
Solvency II

ERM

Risk

Profit

Financial crisis
Volatile markets
Capital
Liquidity

Product & model complexity
Earnings volatility
Complex risks

Prequel

- ERM is process and people centric
  - Utilize disciplines from strategic organizational behavior
  - High involvement management
- ERM can be a sustainable competitive advantage
  - Valuable, rare, and difficult to imitate
- Convergence
  - ERM - Performance management - Business management
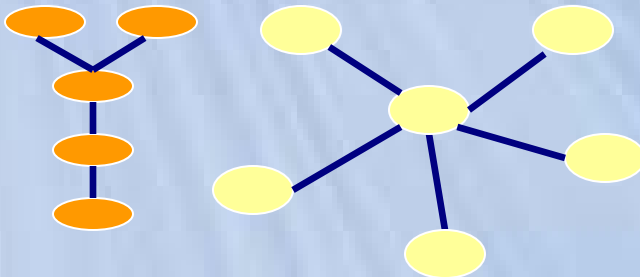
Strategic Organizational Behavior[*]

- Transparency
  - (which is not disclosure)
- Communication
- Conflict
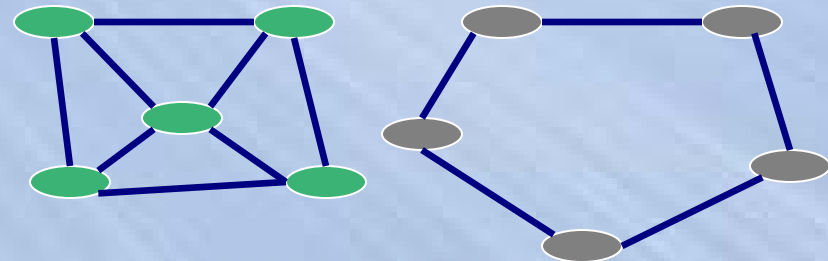- Decision making pitfalls/biases
- Patterns of work
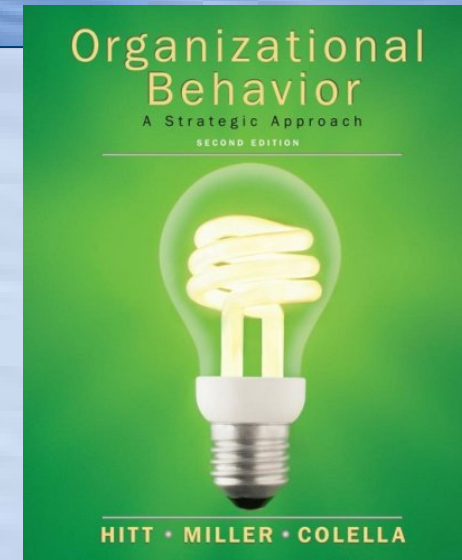
Centralized Networks
- Command-and-control hierarchy
- Simple tasks
- Efficiency, speed and accuracy

Decentralized Networks
- Complex tasks
- Solving complex problems

* Hitt, M., Miller, C. and Colella, A. *Organizational Behavior: A Strategic Approach,* **2nd ed. Hoboken NJ: Wiley, 2008**

OB Chap 1, 9-12

Communication Barriers

Organizational Barriers

- Information overload
- Noise, time pressure
- Network breakdowns
- Information distortion
- Cross-cultural barriers

Individual Barriers

- Differing perceptions, semantic differences
- Status differences, self-interest considerations
- Poor listening skills

OB Chap 9

Decision Making Pitfalls

Individuals

- Cognitive bias
- Confirmation bias
- Anchoring bias
- Ease of recall bias
- Sunk-cost bias

Groups

- Groupthink
- Common information-bias
- Diversity-based infighting
- Risky shift (group decisions tend to shift towards increased risk more often than toward increased cautiousness)

OB Chap 10

Lessons from WWII Codebreakers

All Military and Intelligence examples are derived from

Keegan, John. *Intelligence In War* New York: Knopf, 2003.
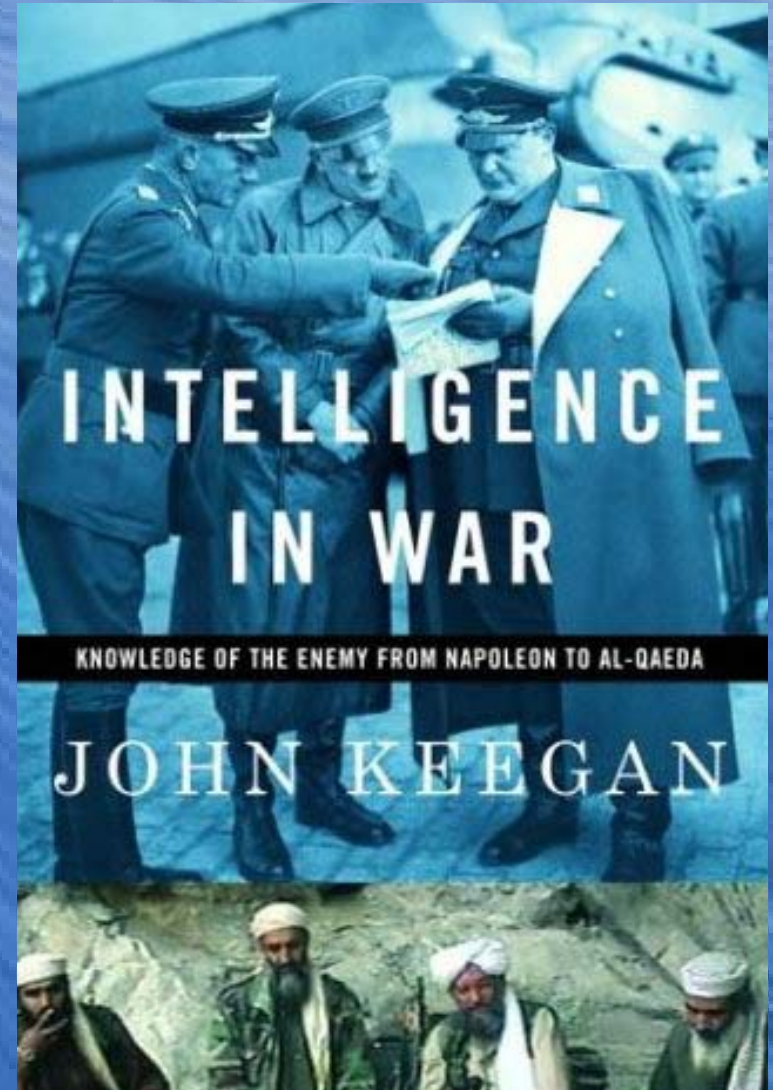
Parallels

Codes ~ ERM models

Cryptanalysts ~ Actuaries, financial analysts

Staff officers ~ Department heads/Managers

Generals ~ Senior management

Intelligence

5 Stages

To formulate and make intelligence useful

1. Acquisition

2. Delivery

3. Acceptance

4. Interpretation

5. Implementation

Lesson 1: Intelligence acquisition is only the first stage. All five stages are critical for ERM.

Codes

- Code & key – trillions of combinations
  - Key - similar to modern PC passwords
  - Keys changed frequently as did codes
  - Deciphering = knowing both the code and key
  - Breaking a code - reducing possibilities to 1,000s
- Codes
  - German Enigma
  - Japanese Purple
  - British Naval Code and Naval Cypher
  - American Black and Navajo

Codebreakers

- Codebreaking efforts
- British Intelligence - Bletchley Park
  - Staff divided into five sections
    - 1 Traffic analysis
    - 2 Directing intercept stations to the most promising sources
    - 3 Application of decryption tools
    - 4 Coordination of the first two tasks and oversight of the 3rd
    - 5 Dealing with any messages that yielded to decryption
- American Intelligence
  - Secret Intelligence Service
  - OP-20-G

Lesson 2: Intel acquisition entails creativity and highly expert and coordinated resources.

Codebreakers Performance

- Early results – limited
- British
  - Interpretation, Decryption departments
  - Coordination vs. Collaboration
  - Disclosure vs. Transparency
  - End users
- Americans
  - Army and Navy - silos
  - Insufficient resources and staffing
  - Available intel not used

Lesson 3: Transparency and collaboration are central to all five stages of intelligence.

Battle of Jutland: 5/31 – 6/1, 1916

- Commanders and intelligence staff – silos
- "displayed supreme contempt for [our] work. He never came into the room …"
- Minimal communication and nonexistent collaboration
- Commander withheld intent and objectives
- Precise narrow answers

Lesson 4: Intelligence is only as good as the *interpretation* put on it, often best supplied by the intelligence staff who acquires it.

Battle of Crete: May 20, 1941

- British retreat from Greece April 26
- Freyberg arrives April 29; assigned as Crete Commander
- German operation *Merkur* decrypts
  - Timing of attack
  - Objectives
  - Sequence
  - Strength
  - Composition of attacking force
  - Almost complete foreknowledge
- Competent commander, adequate force, experienced soldiers, more numbers (2:1), better weaponry, element of surprise negated

What could go wrong?

Battle of Crete Lessons

- Intel source kept secret (far from decision-maker)
- Commander unable to consult on operational decisions
- Filtered interpretations
  - Omitted which units would land where, etc.
- Commander confused/misled regarding various enemy Divisions and references to shipping (seaborne landing in addition to airborne?)
- Limited wireless
- Interpreters abilities and achievements lagged the cryptanalysts

Lesson 5: Intelligence is only as good as the *use* made of it.

Fixated beliefs

Von Muller

- Made facts fit existing beliefs
- Did not accept the intelligence delivered

Lindemann

- Rejected alternative viewpoints
- Rejected intel opposed to prior belief
- Used influential position to deride and discredit contrarians

Churchill

- "I would rather be right than consistent"

Lesson 6: ERM and business intel become stronger through alternative perspectives and dialogue.

Battle of Midway: June 4, 1942

Americans

- Battle of Coral Sea: May 4-8, 1942
- Intel indicates 4 possible Japanese operations between May 25-June 15
- Centralization vs. Decentralization
- HYPO believes AF is target and is Midway
  - HYPO provided valuable intel before Battle of Coral Sea
- D.C. believes continuation in South (Coral Sea)
- D.C. directs to assume their view is correct
- Rochefort suggests idea to confirm AF as Midway

It's May 18, what should Admiral Nimitz, Commander of the Pacific Fleet, do?

Battle of Midway

Americans

- Rochefort proves AF is Midway
  - Instructed Midway to fake a water shortage message
- May 25 intel establishes strength, composition, place, time
  - 175 miles from Midway bearing 325° at 7:00 am June 4
- Nimitz commits all

Japanese

- Objective: draw American carriers into battle (trap) by attacking Midway (element of surprise)
- Nagumo's Midway fleet under orders of radio silence
- Intel sights American air patrol far west of Midway
- Intel intercepts messages from sub patrol in path of Midway fleet which does not have radar capabilities.

What should Admiral Yamamoto do?

Japanese

- 4:30 am: first attack launched; second attack needed
- 7:15: refueling planes and switching from anti-ship strike to prepare for second attack
- 7:28: air patrol sights 10 enemy surface ships in proximity
- 7:45: Admiral Nagumo makes a decision

What should he do?

Japanese

- 4:30 am: first attack launched; second attack needed
- 7:15: refueling planes and switching from anti-ship strike to prepare for second attack
- 7:28: air patrol sights 10 enemy surface ships in proximity
- 7:45: Nagumo prepares for carrier defense and attack on Midway; requests they "ascertain ship type."
- 8:09: "five cruisers and five destroyers"
- 8:20: "accompanied by a carrier"
- 8:55: "ten enemy torpedo planes heading towards you"
- 9:30-10:20: 5 American squadrons attack but fail

Battle of Midway Lessons

Americans

- Divisional divisive conflict
- Resolve. Accept intelligence
- Foreknowledge
- Incorporate new observations; decisions in the field

Japanese

- Withheld information
- No dialogue/consultation
- Not flexible, adaptable
- Indecisive, forgot the objective

Lesson 7: ERM must incorporate new intel in decision-making within a new context and requires decentralized decision-making authority.

Battle of the Atlantic Lessons

Germans

- Confined direction to tiny group; Self-imposed exclusion
- Clung to the "single idea"

British

- Included all who needed to know
- Were a modern day learning organization
- Shared best practices
- Championed bottom up ideas
- Key was Junior Officer idea originally rejected by Admiralty
- Collaborated, varied techniques, invoked new technologies

Lesson 8: Culture has a significant impact on the five stages, especially implementation, and, hence, on ERM efficacy.

British

- Mathematical ability, amateur, informal, high % were women
- Impressive degree of unification
  - Extraordinary singleness of purpose
  - War Cabinet to the Admiralty and Air Ministry to Bletchley Park and the Derby House
- Bletchley is popular in fiction and film

Americans

- Language skill, serviceman, bureaucratic, male-dominated
- Divided into naval/military branches
- Intelligence branches – no respect; lack popular acclaim

Germans

- Polar opposites of British
  - Lacked efficiency, collaboration, learning, sharing

Japanese

- Army and Navy operated as separate entities
- Army, which dominated government, only reluctantly accepted the Navy's right to speak on strategy

Operational intelligence

- Military hierarchy - Intel officers subordinate to operations
- Modern espionage - professionals, bureaucracies, guard and withhold knowledge

Lesson 9: ERM should be based on a learning, high-involvement management culture.

Intelligence + Strength

- Convention: Knowledge is Power

- Intelligence is not necessarily the means to victory; ultimately, it is *force* that counts.

- Foreknowledge is no protection against disaster
  - Western democracies allowed Hitler to undermine their European security system
  - The Japanese persuaded themselves against all evidence and their leading admiral's warnings, that they could attack America and survive

Lesson 10: ERM and business intelligence need to be delivered, accepted, interpreted, and implemented - and implemented with force.

Reprise

- AIG [1]
  - "Debate and discussion that was common under the previous CEO ceased"

- Merrill Lynch [2]
  - *CEO:* "We've got the right people in place as well as good risk management and controls"
  - Reality: "There was no dissent, so information never really traveled"

- HBOS [3]
  - "No-one wanted or felt able to speak up for fear of stepping out of line"

1 Lewis, M. "The Man Who Crashed the World," *Vanity Fair*, June 2009

2 Morgenson, G. "How the Thundering Herd Faltered and Fell," *New York Times*, Nov 9, 2008. Available at www.nytimes.com/2008/11/09/business/09magic.html

3 Moore, P. *Memorandum from Paul Moore, Ex-head of Group Regulatory Risk, HBOS Plc*. Available at www.publications.parliament.uk/pa/cm200809/cmselect/cmtreasy/144/144w243.html

- Countrywide [4]
  - CEO: "In all my years in the business, I have never seen a more toxic product."
  - CEO "worked to quash dissent in the ranks … Mr. Winston was marginalized and later dismissed."
- Katrina. Madoff. Toyota. BP. …
- Goldman Sachs [5]
  - "The firm's risk management processes did not, and could not, provide absolute clarity; they underscored deep uncertainty … That uncertainty dictated our decision to attempt to reduce the firm's overall risk."

4 Morgenson, G. "How a Whistle-Blower Conquered Countrywide," *New York Times*, Feb 19, 2011. Available at http://www.nytimes.com/2011/02/20/business/20gret.html

5 Kelly, K. "How Goldman Won Big On Mortgage Meltdown," *Wall Street Journal*, Dec. 14, 2007 and *http://online.wsj.com/public/resources/documents/goldman0424.pdf*

Lessons revisited

Allies' response to perils of WWII

- Invested heavily in technologies, R&D
- Recruitment of people (not just military) and training
- Utilized resources and ingenuity from manufacturing, logistics, transportation and new technologies
- Unprecedented coordination of silos
- Changed work culture, fostered transparency
- Created collaborative high performance high involvement cross-functional teams
- Exemplified adaptation, flexibility, responsiveness and being a learning organization
- All these lessons we can learn from and apply today

Contrasting Cultures 1 of 2

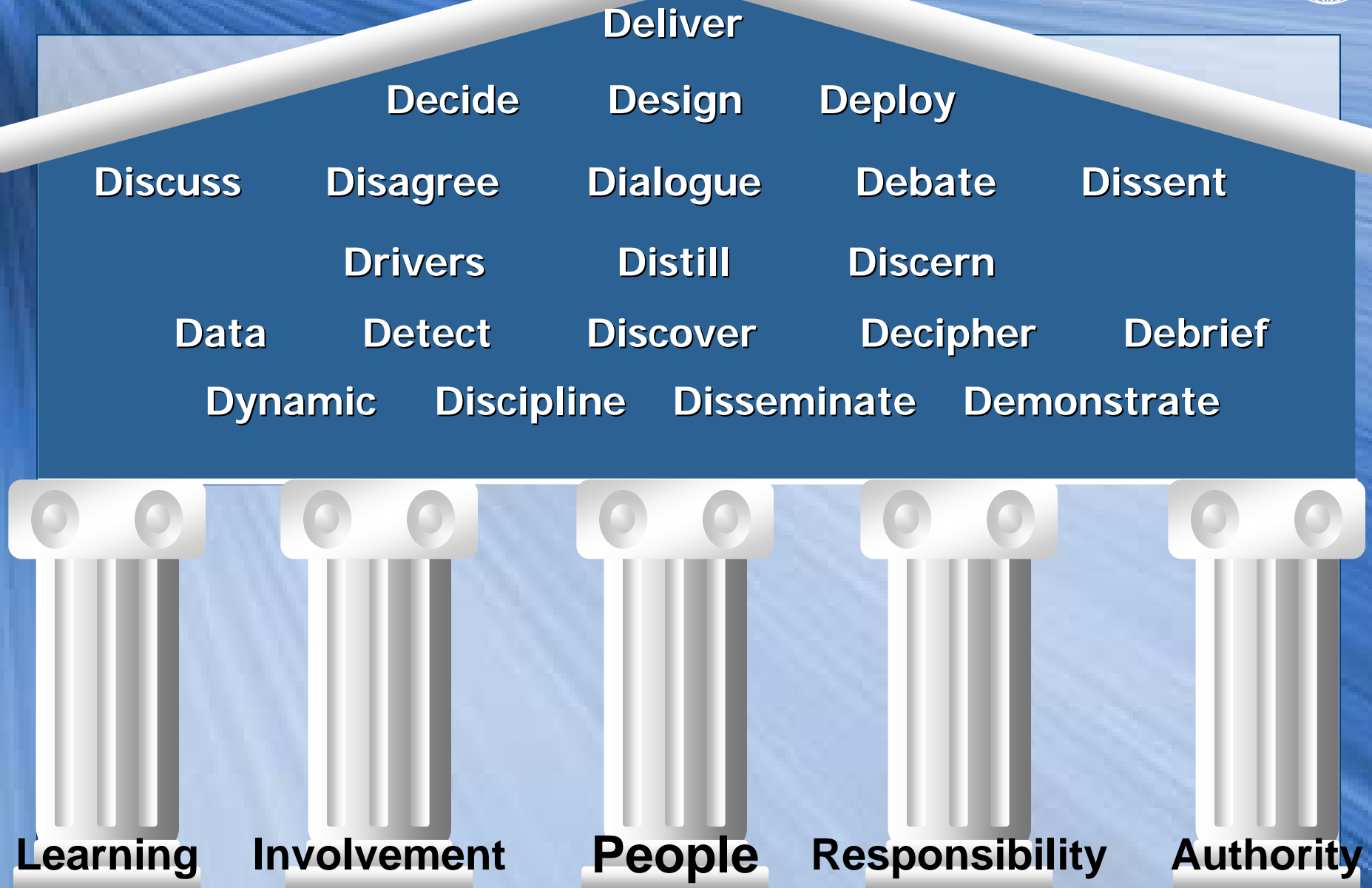| Control RM	High Involvement ERM
Silos	Enterprise - integration
Centralized communication networks	Decentralized communication networks
Single points of connectivity	Multiple connectivity points
Power resides in positions	Power resides in interactions
Need to know; secretive	Transparent
Club member only	Wide circles - engage/delegate
Separation/Partition	Collaboration
Exclusive	Inclusive
Withhold intel downstream	Take in confidence

Control RM	High Involvement ERM
Filter/censor up	Inform, Alert
Top dictates solutions; bottom carries out orders	All levels engaged; top receptive to bottom up ideas
Reports far-removed from source	Reports from/close to the source
Non- & Miscommunication	Dialogue
Single perspective/measures	Multiple perspectives/measures
Delays	Speed
Fixated beliefs	Receives & explores alternatives
Limits sharing	Promotes sharing best practices
Cost minimization	Investment maximization

The D's of ERM

Deliver

Decide   Design   Deploy

Discuss   Disagree   Dialogue   Debate   Dissent

Drivers   Distill   Discern

Data   Detect   Discover   Decipher   Debrief

Dynamic   Discipline   Disseminate   Demonstrate

Learning   **Involvement**   **People**   **Responsibility**   **Authority**

Victory at all costs ... victory however long and hard the road may be; for without victory, there is no survival

Churchill

Risk Management Leadership Survey

Take our survey at

http://www.polysystems.com/currentpolls.php

The goal is to get you to think and ask questions about what constitutes a strong risk culture and makes a great risk management leader.

It has 4 lists:
    Choose 5 Traits
    Choose 3 Military leaders
    Choose 3 Statesmen
    Choose 3 Business leaders

Questions

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