
Closing the “Know - Do” Gap

How You Can Improve Your Chances of
Becoming a Best Practise Organisation

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Ingredients

Presentation Overview

- The Maintenance Best Practices Gap at Fonterra
 - Hearing about What to Do
- USA Trip to Best Practices Sites
 - Seeing What to Do
- The Knowing - Doing Gap
 - Doing What to Do
- One of the Companies that Does it
 - SAS Institute Video Clip
- Summary

Background Information - Fonterra Ingredients

- Annual milk volume of 10.5 billion litres
- Processing capacity 70 million ltrs/day
- 23 processing sites
- 335 Maintenance Staff
- \$5 Billion capital plant
- \$83M Annual R&M Budget

Average Plant Availability 2001 - 2002 Season

94.3%

vs.

99% Best Practise

BROKEN DOWN.....all day, every day



Formation of Maintenance Best Practices Working Party (MBP WP)

- February 2002 Kick - Off
- National Focus
- EPMU & Fonterra Management Reps.
- Goals:
 - **Define Maintenance Best Practice**
 - **Increase Plant Availability to 99% by 2005-2006 Season**
 - **Improve Engineering Staff Lifestyle**

Best Practices "GAP"

FIGURE 1 - NZMP COMBINED AVERAGE - MAINTENANCE SELF ASSESSMENT SURVEY

		Leadership & Capability 45%				47%	Processes 50%				
		Maintenance Management V & Strategy	Performance Measures	Organisation Structure	Human Resources	Knowledge Base	Maintenance Tactics	Materials Management	Planning & Scheduling	Contractor Management	Reliability Engineering
P R O A C T I V E		Personal action plans and appraisals are clearly tied to the Maint Mgmt Strategy.	On-going benchmarking of metrics and processes Full cost database	Maint structure supports training of operators in equip functions, minor servicing, and root cause failure analysis.	Empowered, flexible, world class workers. Self-managed team focus.	Expert systems used. Fully Integrated into CMMS; common database.	The Prev / Pred Maint Plan is continuously being optimised The "right" tactic is applied based on analysis.	Stores system integrated to CMMS and accounting system. Bar- Coding of all stores items.	+90% all maint jobs planned and scheduled at least the week before. Linked short, medium, and long term planning.	Small number of Contractors used on long term risk sharing partnership agreements with high innovativeness.	Risk and unplanned failure reduced to best in industry.
	C O M P E T E N C E	Maint improvement action plans are linked to the Maint Mgmt Strategy.	Statistical Process Control applied to Maint Process Measures. Equip specific maint costs available	Established teams for key objectives in the Maint Mgmt Strategy.	Multi-skilled trades with process capability analysis and basic operating skills	Easy access to Knowledge Base available to all employees at all times.	Prev / Pred Maint Plan exists for all maintainable items. Emphasis on Predictive maint. All tactics understood.	Single source supplier partnerships established and effective. rea stores with visual controls.	Long term asset planning established. Critical path analysis used for all rebuilds, shutdowns.	Contracts are established based on the principle of "risk sharing"	Effective Root Cause Analysis successfully applied to extend equipment life
U N D E R S T A N D I N G		A clear Maint Mgmt Vision & Strategy is documented and communicated to all employees	Input, Process, Output measures reviewed and displayed. Downtime by cause. Segregated maint costs reviewed.	Decentralised with central support. Clearly	Trades have problem identification & solving, team dynamics and training skills	Document control system established. CIMS installed and used to manage Knowledge Base	Prev / Pred Maint Plan exists for key equipment. Compliance is more than 95% as scheduled.	Spares classified with separate strategies. Spares linked to BOMs/Equipment Drgs.	All but unexpected failures planned. All planned jobs specify safety, labour, materials, tools, technical data	All contractors repairing rotaries are capable of Original Equip Manufacturer's testing	Basic Equip Conditions established. Good failure database.
	A W A R E N E S S	No clearly documented Role of Maintenance or Maint Mgmt Vision & Stratew exists	Some downtime records. Maint costs regularly available but not segregated into area/ line.	Centralised maint with alignment to production. Team approach to technical problem solving.	Trades have OH&S and maint support (inspection, reporting) skills	Plant register established and used for data collection. All drawings and equipment information identified	System exists to identify all maintainable items. Emphasis on time-based inspections and overhauls.	Stores catalogue established. Inventory accuracy +95%. AN spares identified and protected	Work Request/ Work Order system established. Major rebuilds, shutdowns fully planned and programmed.	Contractors used for peak loads and non-core maint work	Collect the data. Equipment histories occasionally reviewed for failure analysis.
R E A C T I V E		Our main role is to fix it when it breaks / fails	Inaccurate or no maint downtime records. Maint costs not readily available.	Centralised maint with no alignment to production. "Command and Control" approach.	Trades have their basic trades skills, however little or no technical or support training given	Ad-hoc records. No plant register or control of drawings.	If it ain't broke, don't fix it." Annual shutdown and inspections only.	Ad-hoc stores. No costing or control of spares.	No planning. Little scheduling. Short term focus.	All maint work carried out by in-house resources	No failure records.

“Buying in Engineering Staff on MBP Practices

- **WIIFM = What’s in it for me?**
 - Job security
 - Self determination/Self management
 - Reduced breakdowns , crisis , more hometime
 - Opportunity to expand scope of work
 - Achievement & satisfaction
 - Income protection/less hours for salaried trades and staff
- **WEEBIES = We be here when you be gone....**

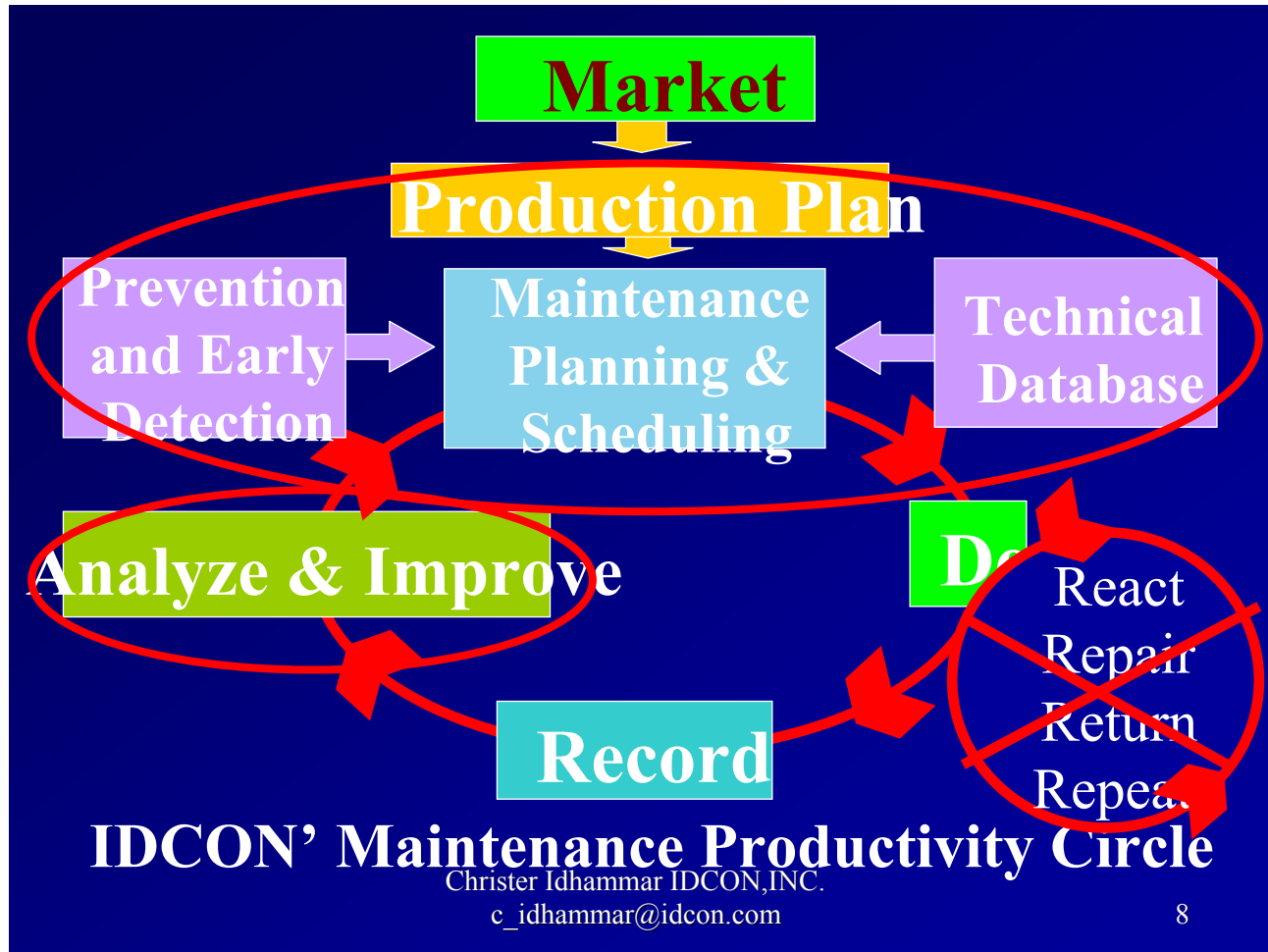
Management Paradigms at Fonterra

- Maintenance is a Production “Service”
 - Reactive maintenance is the rule
 - 24/7 maintenance shift cover
 - Production rewards maintenance “Tarzans”
- “You Break it, We Fix It”
- Maintenance is a “Necessary Evil”
 - cost cutting rather than reliability focus

The Paradigm Buster - C.Idhammar



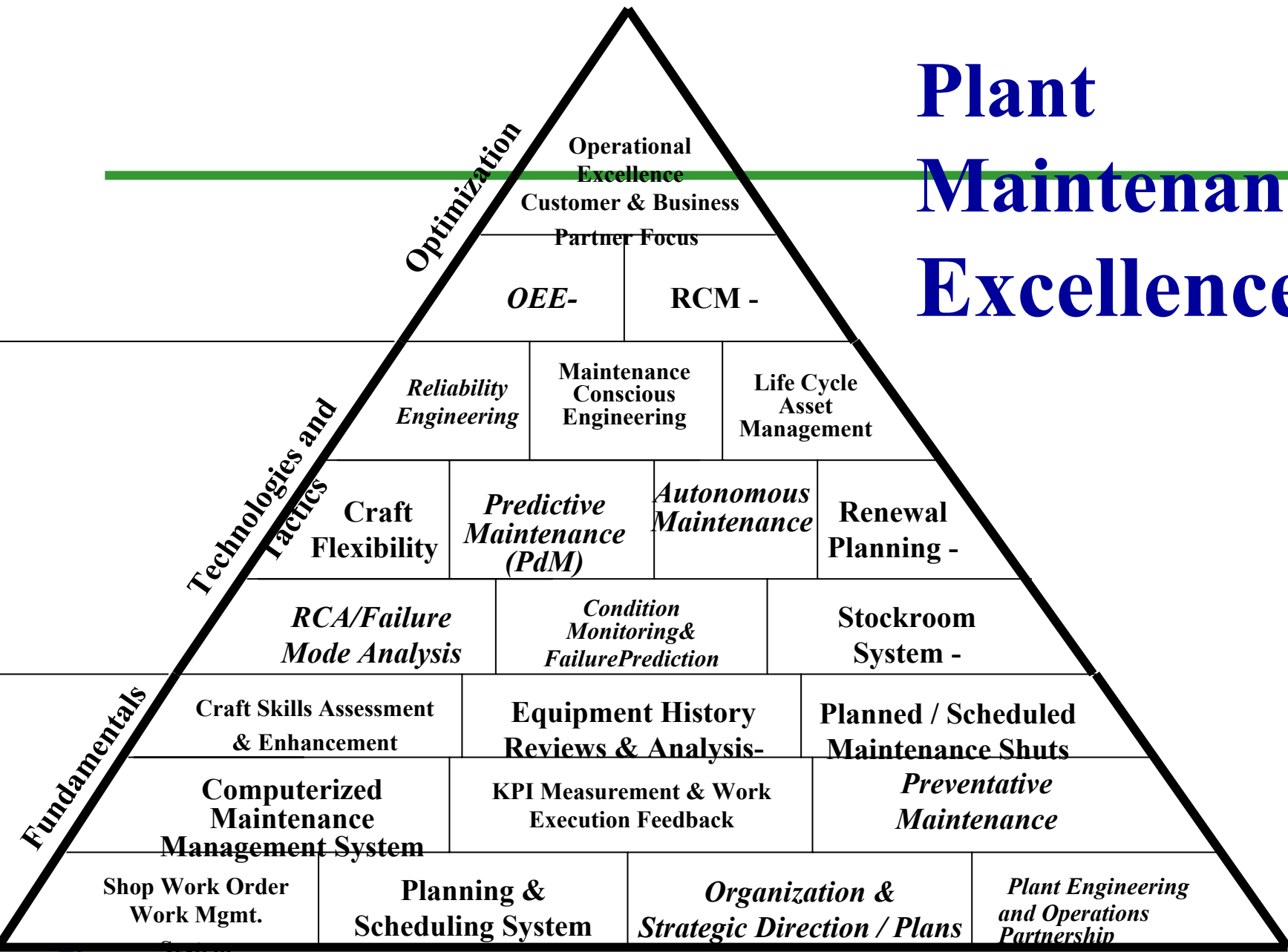
“Cycle of Despair”



Conclusion

**Improved
Reliability drives
down Costs.**

Plant Maintenance Excellence



Environmental, Health, Safety Plans, Team & Skill Training, 5S

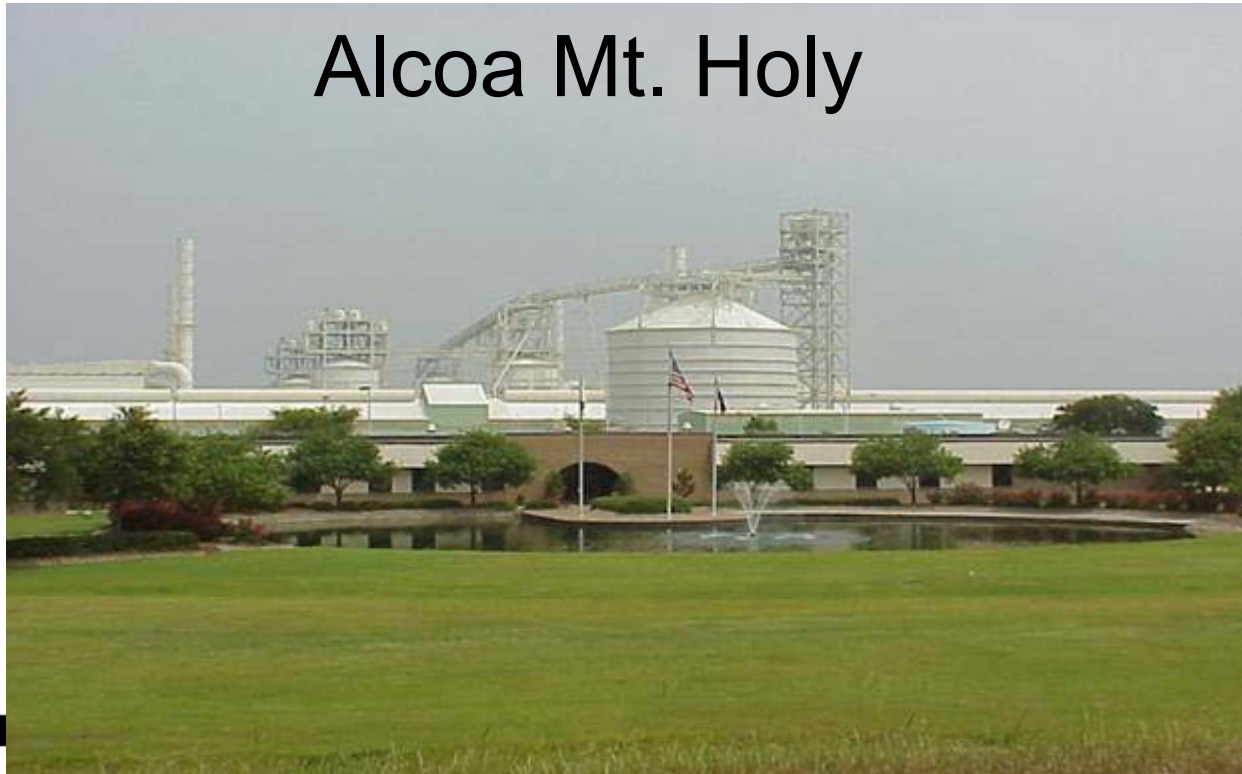
Programme

WE HEARD

.....and needed to SEE



Alcoa Mt. Holy



ALCOA Mt. Holly – November 2002

- Primary Aluminum Reduction Plant
 - Capacity: 234,000 tons/year
 - Plant Operates 24 hours/day, 365 days/year
 - 600 employees total
 - 125 maintenance employees

ALCOA - Planning & Scheduling

- “Monday’s a good day for us”...
- 91% Work Planned >1 week in ahead
- 3% Work generated by Operators
- 99.5% Availability

ALCOA - Performance

- Best Aluminium Smelter in the World
- 1.5% Ratio R&M \$ / ERV
- 3% Reduction/ Year target for R&M \$
- 880 stock items/ 14,000 sku's = 0.25%

ALCOA CHALLENGE

3 / 500 / 15 Years

Many “Know”few “Do”

L.A. Bookstore Providence

“The Knowing-Doing Gap”

Pfeffer & Sutton
Harvard Business School Press
2000

Why a book about “knowing-doing” Gap?

1996 in the USA

- 1,700 Business Management Books
- \$60 Billion on training
- \$43 Billion on Management Consultants
- 80,000 MBA graduates

“Knowing-Doing” Gap Occurs

- When Talk Substitutes for Action
- When Memory Is a Substitute for Thinking
- When Fear Prevents Acting on Knowledge
- When Measurement Obstructs Good Judgement
- When Internal Competition Turns Friends into Enemies

When Talk Substitutes for Action

Don't 's

- Talking without walking
- Planning & no follow-up
- Decision making & no action
- Cosmetic Re-organising
- Preparing, Delivering and listening to flashy well-rehearsed presentations

Do's

- “Ready, fire, aim”
- Good succession planning
- Culture that values simplicity; common sense is a compliment
- Use action oriented language with follow-up processes
- Do not accept excuses and criticisms for why things don't work or can't be done.

When Talk Substitutes for Action

- SAS Institute – Raliegh, NC
 - Every manager is a working manager, doing a job as well as managing others
 - CEO James Goodnight progammes and leads product development teams
 - credibility
 - contact
 - can't be misled by “smart talk”

When Talk Substitutes for Action

“Knowledge that is actually implemented is much more from learning by doing than from learning by reading, listening or even thinking”

When Memory Is a Substitute for Thinking

Don't 's

- Company has strong view that anything new is “inconsistent with “who we are”
- Pressures to be consistent with past decisions, avoid admitting mistakes
- Decisions are based on implicit, untested models of behavior and performance
- People carry expectations from the past about what is and isn't possible

Do's

- Break from the past
 - Get “Out of the Box”
- Build an Organisation that resists mindless action ... (or mindless inaction)
- eliminate rituals, rules and practices.....precedent never becomes overly important
 - radical decentralised structure
 - Give people opportunity to take on totally new activities for which they have little or no formal preparation

When Memory Is a Substitute for Thinking -NZ Post

- Re-inventing itself as a new organization with the same people who had been part of the old organisation
- Possible to make broad, deep changes in how people think despite daunting obstacles
- 1986 - Government Dept - NZ Post lost \$38 Million
- 80% of mail delivered on time
- too many people
- arcane work rules
- civil service mentality
- poor customer and employee relations

When Memory Is a Substitute for Thinking -NZ Post

- Operating Systems Changes
- Focus on common sense and simplicity and not relying on precedent or even what other postal systems did
- Eliminated weight-based charges....size-based
- Took over all transportation infrastructure instead of contracting like most other postal systems
- Clear floor “ policy - leftover mail visibility ...all mail sorted or delivered at end of shift
- Fixed vs. rotating shifts for employeesretention +

When Memory Is a Substitute for Thinking

- Continuous improvement implies breaking precedents. Eliminate the “gatekeepers” of the past.

When Fear Prevents Acting on Knowledge

Don't 's

- People won't work hard unless they are under pressure and fearful
- People can't be trusted and tight, centralised control is required to monitor compliance

Do's

- Praise, pay, and promote people who deliver bad news to their bosses
- Treat failure to act as the only true failure; punish inaction, not unsuccessful actions
- Encourage leaders and staff to talk about their failures, especially what they have learned from them
- Encourage open communication
- Give people second (and third) chances
- Banish people, especially leaders, who humiliate others
- Decentralise and delegate authority

When Fear Prevents Acting on Knowledge

- **SAS Institute**
- “We punish nothing. We reward creativity. We believe creativity should be followed, not led.”
D.Russo SAS V.P.
- “Have you ever heard us talk about the holes? We’ve dug a lot of holes. The only smart thing is knowing when to quit digging. We don’t know if it’s going to make a lot of money for the company , or not. but the technology out there is exciting and it might turn into something. Go for it. J.Goodnight, SAS
CEO

When Measurement Obstructs Good Judgement

Don't 's

- Focus on short-term financial performance
- Overly Complex Measurements
- Outcome versus In-Process Measures
- Individual vs. Group Measures
- Hard measures drive out soft elements of performance
- Why Poor Measures Persist
 - Appropriate for shareholders but not for processes
 - Incorrect model of behavior assumes consequences are results of individual not combined decisions & actions

Do's

- Global in scope, factors critical to organisational success (not individual)
- Process measures vs. outputs; guide actions and decision making
- Adherence to values; recruitment, retention, working cooperatively...not accounting-based indicators
- Understanding that measures will change and evolve
- Small set of measures - crucial for supporting business model, philosophy and culture
- Close the loop; auditing and assessing that the firm does what it knows

When Measurement Obstructs Good Judgement

- **SAS Institute**
 - Employee turnover is critical measurement (<3%)
 - Management evaluated on ability to attract and retain people
 - No formal performance appraisal process
 - No posting of sales results by individual names
 - Fortune list of 100 Best Places to work ranking
- **AES (international power generation)**
 - plant uptime, new business development, environmental & safety compliance
- **Southwest Airlines**
 - lost bags, customer complaints, on-time performance
(Southwest Airlines)

When Internal Competition Turns Friends into Enemies

Don't 's

- People have incentives to avoid helping others
- Leaders regard performance as a sum of individual actions rather than cooperation, knowledge sharing and mutual assistance
- Management pits people in “competition” within the firm
- Individuals are under constant scrutiny and comparison
- Performance evaluations are comparative between individuals
- Leaders are selected on history of dominating peers
- Little attention is paid to the power of expectations

Do's

- Hire, reward and retain people in part based on their cooperative work ability
- Fire, demote, and punish people who act on their individual self-interest
- Focus external competitive threats, not on internal ones
- Avoid performance measurement systems that create internal competition
- Leaders model collaboration
- Promote people to top management positions who build cooperative groups
- Use power and authority to get people and units to share information, learn and work collaboratively

When Internal Competition Turns Friends into Enemies

- **SAS Institute**
 - Encourages collaboration between employees
 - One employee said...“I want to be able to have performance that permits (me) to do whatever I want. When I walk down the hall, I want to feel like “I’m the man.”
 - I told him that this sounded like a wonderful goal, and that I would work hard to find him a place of employment - not at SAS Institute - where he could realize the goal.” story from B.Joyner, SAS V.P. North American Sales
- **Willamette Industries (forest products USA)**
 - Short-term performance bonus plan eliminated
- **The Men’s Wearhouse**
 - Team sales performance measures only

Estimating Your Chances

- Don't's

- Talk the Walk (5)
- Stuck in the Past (4)
- Fear Factor (2)
- Measurements (4)
- Friends or Enemies(7)
- Total Score (22)

- Do's

- Walk the Talk (5)
- Break with the Past (5)
- No Fear (7)
- Measurements (6)
- Friends not Enemies (7)
- Total Score (30)

SAS Institute

Eight Guidelines for Action

- 1 Why before How: Philosophy is important.
 - Too many managers want to learn “how” in terms of detailed practices and behaviors and techniques....rather than “why” in terms of philosophy and general guidance for action.
 - It’s a process, not an answer; based on the general “do’s” listed for the five “causes”
- 2 Knowing Comes from Doing and Teaching Others
How
 - “If you do it, then you will know” David Sun /Kingston
 - Knowing by doing develops a deeper and more profound level of knowledge and eliminates the gap
 - Hear, See, Do.....remember.

Eight Guidelines for Action

- 3 Action Counts More Than Elegant Plans and Concepts
 - “ready, fire, aim”
 - opportunities for learning by doing
 - establishes a culture tone that action is valued and talk and analysis without action are unacceptable
- 4 There Is No Doing without Mistakes. What is the Company’s Response?
 - “all learning involves some failure”...something from which one can continue to learn

Eight Guidelines for Action

- 5 Fear Fosters Knowing-Doing Gaps, So Drive Out Fear
 - No one is going to try something new if the reward is likely to be a career disaster.
 - Establish a forgiveness framework , not a failure framework
 - remove status markers and other symbols that reinforce the hierarchy
- 6 Beware of False Analogies: Fight the Competition, Not Each Other

Eight Guidelines for Action

- 7 Measure What Matters and What Can Help Turn Knowledge into Action
 - “The foundation of any successfully run business is a strategy everyone understands coupled with a few key measures that are routinely tracked”
 - Don’t measure the past...measure processes
- 8 What Leaders Do, How They Spend Their Time and How They Allocate Resources Matters
 - They help build systems that transfer knowledge into action
 - Create an environment where lots of people know and do

SUMMARY

- Why
- WIIFM
- Ready, Fire, Aim
- Get out of the Box
- No Fear
- Decentralise & empower
- Few, powerful measures
- Teamwork
- Take care of your people...and they'll take care of the company