



Wilson Perumal  
& Company

A Strategy consulting  
firm with unique depth  
in operations



# Aligning Behaviors for Incident Free Operations

AFPM Process Safety Group

*March 23, 2015*

# Objectives

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- Address the **challenge of complexity**
- Describe how complexity impacts **safety and risk management**
- Identify a **new approach** to aligning behaviors

# Complexity is stretching the capabilities of most organizations

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TECHNOLOGY IS MORE COMPLEX

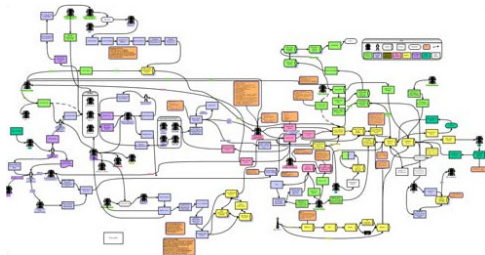


PRODUCTS & SERVICES MORE COMPLEX



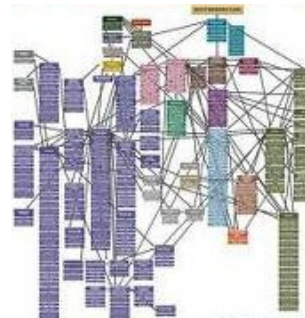
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PROCESSES MORE COMPLEX



X

ORGANIZATIONS MORE COMPLEX



X

MARKETS MORE COMPLEX



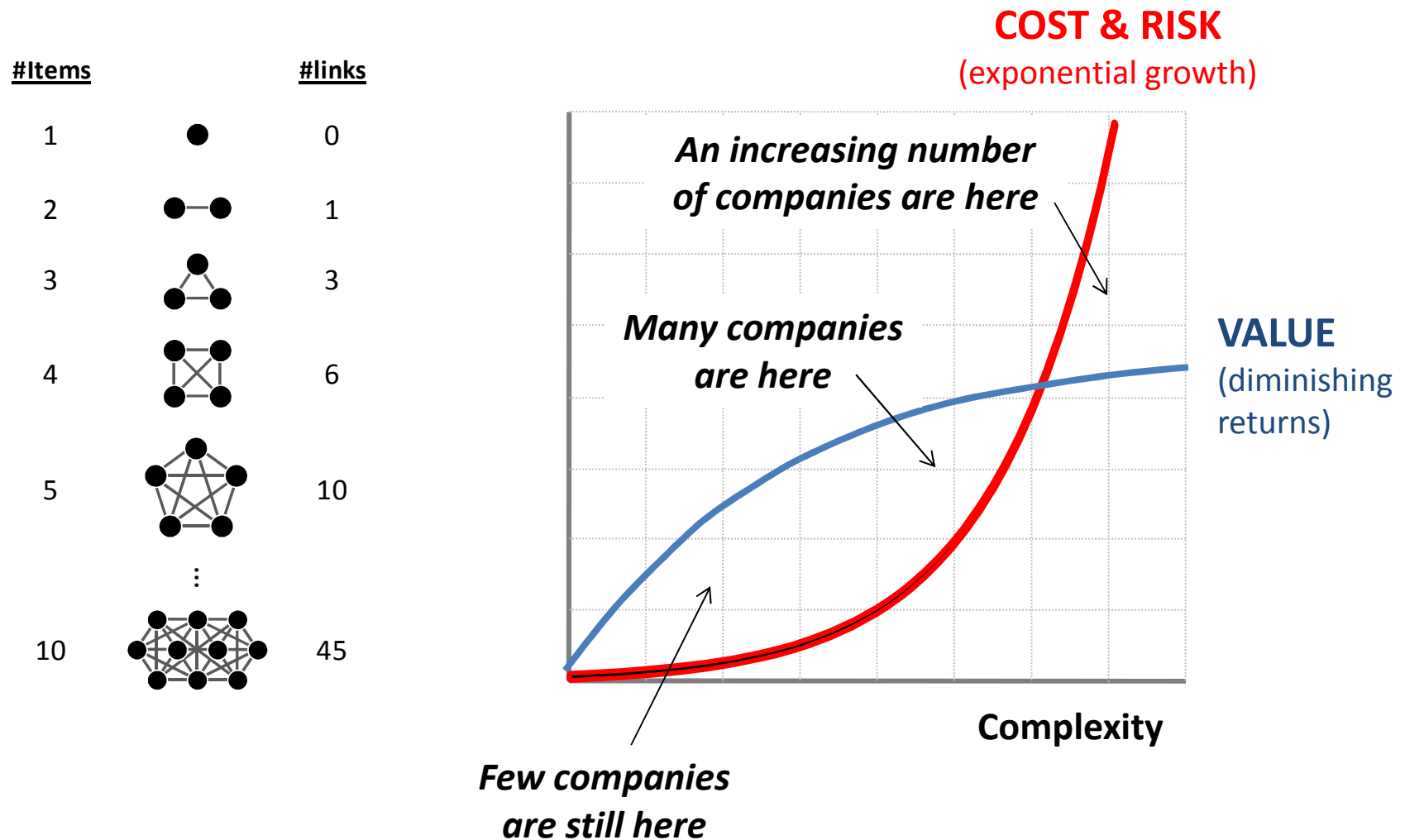
REGULATIONS MORE COMPLEX

X



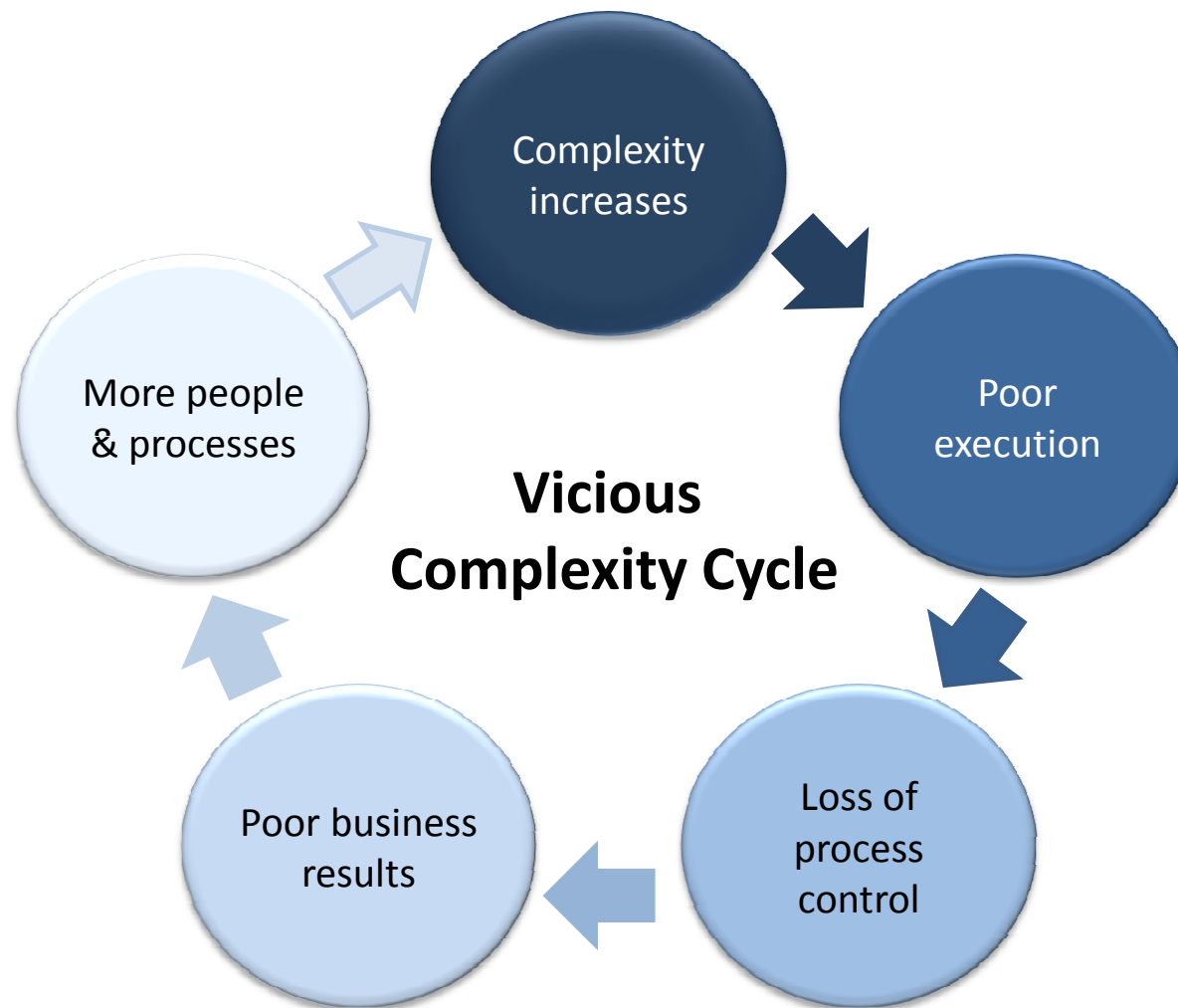
# Companies are passing a complexity threshold

*Operational risk grows exponentially with complexity*



# Response to incidents adds complexity

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# Complexity is a major contributor to human error

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## Leaders must dig deeper to systemic cause of incidents

- Too many programs
- Too much change
- Unclear expectations
- Misaligned behaviors
- Overload creates “personal management systems”
- Physical fatigue
- Mental exhaustion



# Highly-regarded organizations struggle to manage complexity and risk

Examples:

2015 – BNSF Crude Train Derailment, IL

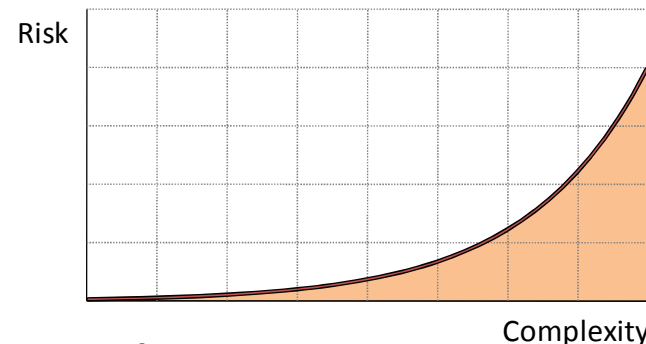
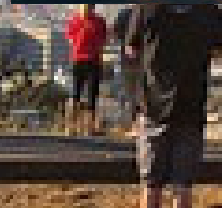
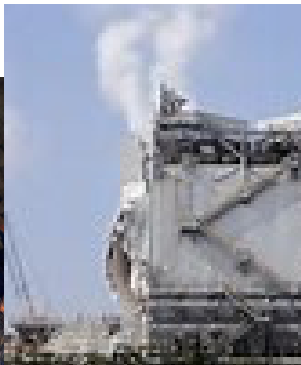
2015 – ExxonMobil Torrance Fire

2012 – Chevron Richmond Fire

2010 – BP Deepwater Horizon oil spill

2010 – Tesoro Anacortes Explosion

2005 – Texas City Explosion



***These organizations all had well-developed risk management programs and management systems***

# A fresh look at operational discipline and behaviors

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Behaviors

Systems

Execution

**Aligned  
behaviors are  
the foundation  
for excellence**





# The right behaviors and culture are essential

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**How We Do It**



**What We Do**



**Operational  
Excellence**

**Values**

**Procedures**

**Premier Refinery**

**Behaviors –**

**Standards**

“Doing the  
Right Thing, the  
Right Way,  
Every Time”

**Work Processes**

**Systems**

**Processes and procedures, without a culture that embraces values and behaviors, will not result in Operational Excellence**

# The Nuclear Navy's culture and system stand out

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PHOTO: AFP/GETTY IMAGES

## President's Commission on Three-Mile Island

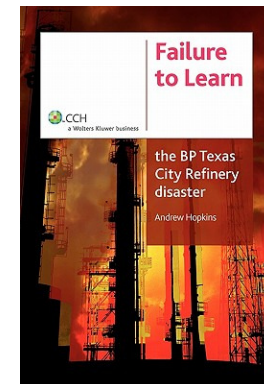
*"The nuclear navy emphasizes training and education in a way that would be thoroughly astonishing if you were not already familiar with it. And I urge you, in the strongest possible terms, to take a look at that program."*

**Dr. John Deutsch**, Director of Energy Research & Acting Secretary of Energy Technology, U.S. DOE

## BP Texas City Refinery Disaster

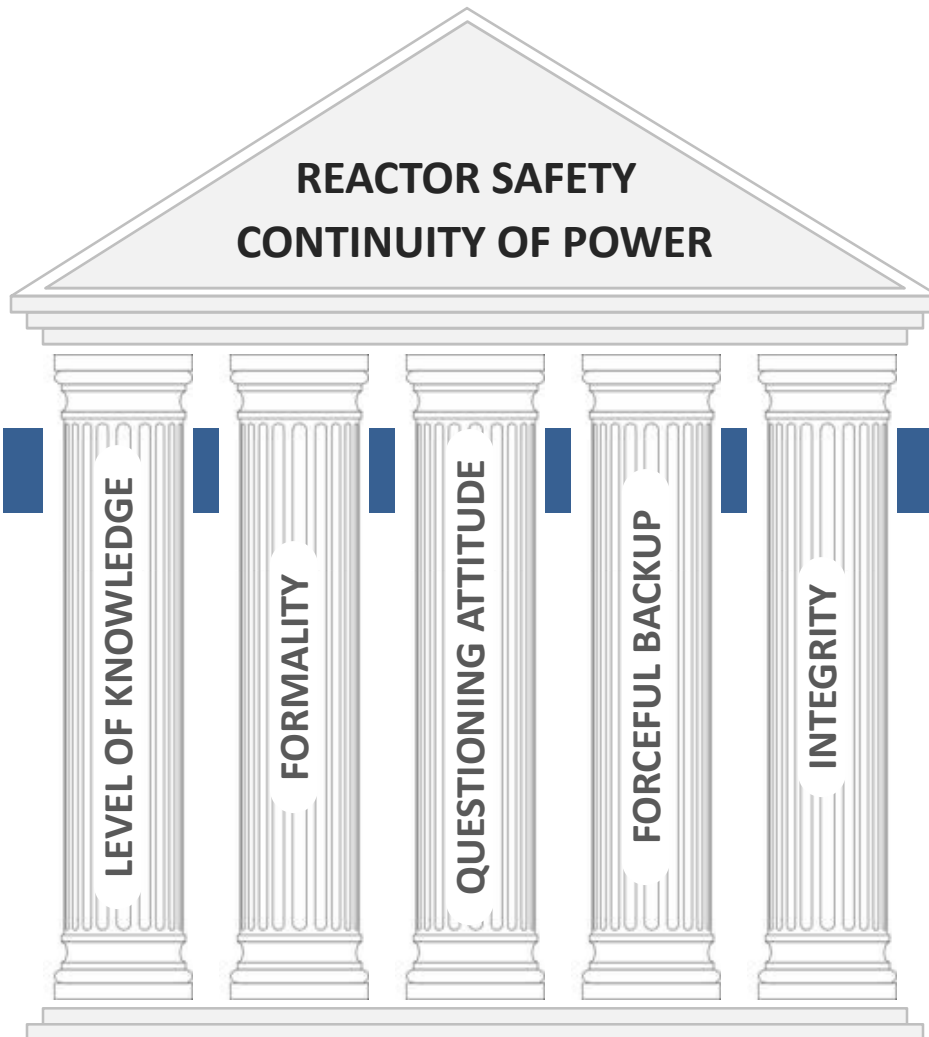
*"One of the best examples of the creation of an HRO culture is the US nuclear navy."*

—**Andrew Hopkins**, *Failure to Learn*



# Behaviors must be simple, aligned, alive and assimilated

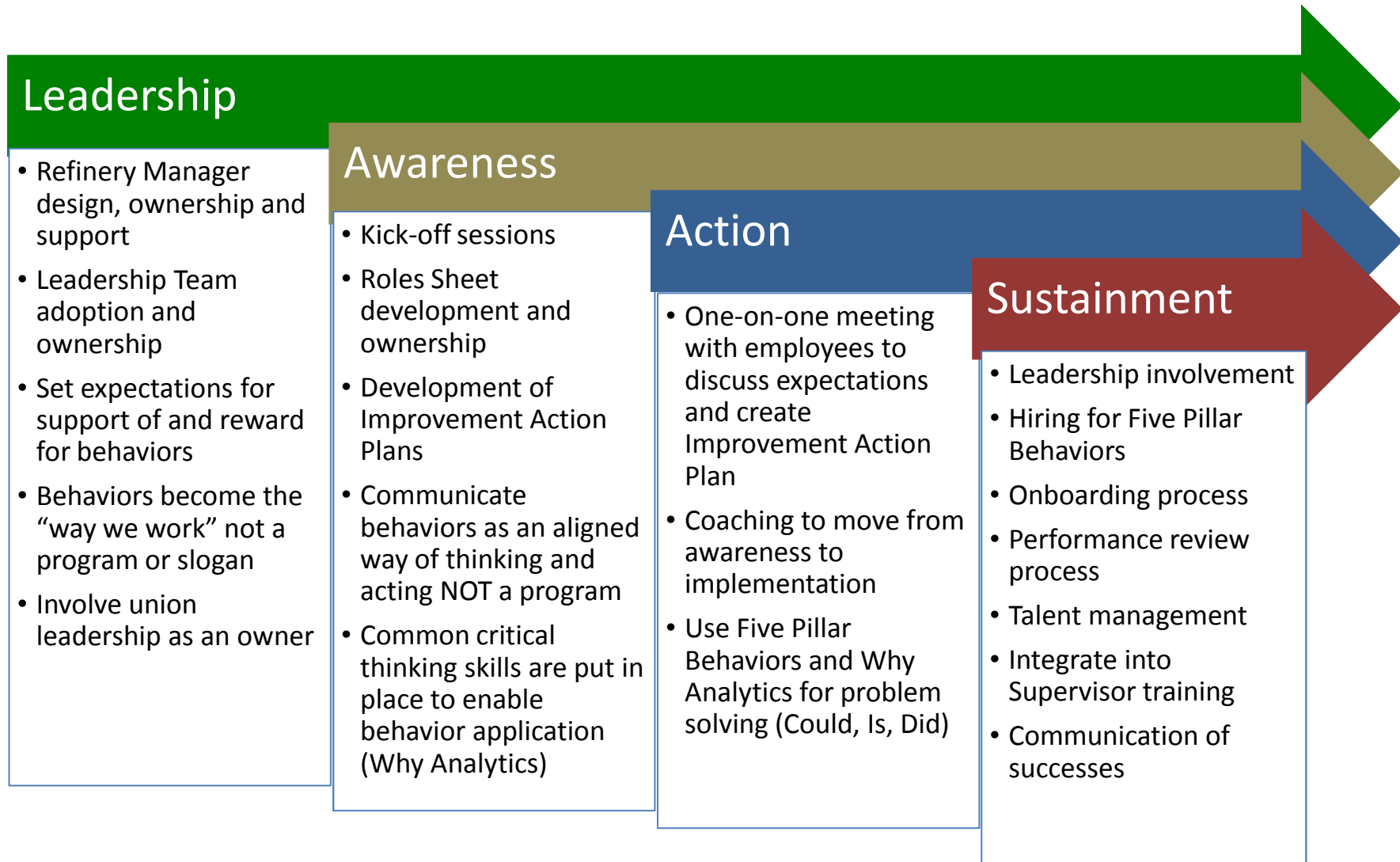
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## The “Pillars of the Program”

- Level of Knowledge
- Formality
- Questioning Attitude
- Forceful Watch Team Backup
- Integrity

# Four step approach to align behaviors and reduce incidents



# Five Pillar Behaviors: Role Sheets And Improvement Action Plan Worksheet

## Maintenance Planner

Role – To plan the safe, high quality and efficient execution of maintenance activities

Behaviors:	Questioning Attitude	Integrity & Courage	Engagement	Increasing Knowledge	Structured Approach
<b>Expectations: What is expected of me</b>	<ul style="list-style-type: none"> <li>- Ask questions to assess job hazards during planning</li> <li>- Develop weekly maintenance plan with goal of eliminating or managing risks and resource limitations</li> <li>- Provide leadership for safe, reliable and efficient maintenance</li> </ul>	<ul style="list-style-type: none"> <li>- Accountable for effectiveness of maintenance work plan</li> <li>- Recognize unacceptable levels of risk and decide on course of action to mitigate</li> <li>- Challenge and evaluate temporary fixes</li> <li>- Report all incidents, procedure deviations and near misses</li> </ul>	<ul style="list-style-type: none"> <li>- Work with all maintenance crafts to balance priorities &amp; resources for the support of operations</li> <li>- Build collaborative working relationship with operations</li> <li>- Work closely with operations supervisors, reliability personnel, maintenance execution supervisors and craftsmen</li> <li>- Understand weekly maintenance plan &amp; schedule</li> </ul>	<ul style="list-style-type: none"> <li>- Increase knowledge of best practices</li> <li>- Ensure routine audit of plan effectiveness and incorporate learnings</li> <li>- Share personal knowledge with other planners</li> <li>- Incorporate findings from incident investigations and near misses into future maintenance plans</li> <li>- Increase understanding of all maintenance processes and how they impact effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>- Responsible to execute established maintenance planning processes</li> <li>- Understand and apply all maintenance work procedures to work plans</li> <li>- Understand how overall refinery work flow process functions</li> <li>- Understand and assess risks that come from deviation in work plans and process changes</li> </ul>
<b>Tasks: How I fulfill these expectations</b>	<ul style="list-style-type: none"> <li>- Review current maintenance plans; communicate with Ops/ Maint coordinator as needed</li> <li>- Help craft group understand incident trends and impacts on planning</li> <li>- Ask hard questions while planning work</li> <li>- Conduct daily field visits to assess emerging risks and communicate key maintenance issues</li> </ul>	<ul style="list-style-type: none"> <li>- Challenge any deviations from work plans</li> <li>- Take ownership of issues that occur and ensure a plan for resolution</li> <li>- Ensure all maintenance data is truthful, accurate and complete</li> </ul>	<ul style="list-style-type: none"> <li>- Be proactive in finding collaborative solutions within maintenance/ops departments</li> <li>- Actively participate in routine planning/scheduling meetings</li> <li>- Seek out frequent feedback from maintenance supervisors and craftsmen</li> <li>- Communicate well, explain why, gather needed input for decisions</li> </ul>	<ul style="list-style-type: none"> <li>- Meet regularly with supervisor to discuss personal development plan</li> <li>- Support new industry processes on principles and practices of maintenance planning and look for new and better ways of doing things</li> <li>- Review development needs (including areas outside of expertise) with Superintendent</li> </ul>	<ul style="list-style-type: none"> <li>- Review KPIs with Planning Superintendent</li> <li>- Work with supervisor to develop long range maintenance efficiency plan</li> </ul>
Pillar	Behaviors	Improvement Actions	Results		
Questioning Attitude	<ul style="list-style-type: none"> <li>• Question abnormal situations</li> <li>• Maintain vigilance</li> <li>• Chronic unease about risk</li> <li>• Anticipate risk</li> <li>• Verify, don't assume</li> </ul>				
Integrity & Courage	<ul style="list-style-type: none"> <li>• Be reliable</li> <li>• Do what you say</li> <li>• Hold yourself and others accountable</li> <li>• Tell the truth</li> </ul>				
Engagement	<ul style="list-style-type: none"> <li>• Help each other out</li> <li>• Work closely with peers</li> <li>• Solicit and value each others input</li> <li>• Intervene when you see risk</li> </ul>				
Increasing Knowledge	<ul style="list-style-type: none"> <li>• Seek out knowledge to continually improve</li> <li>• Observe and learn</li> <li>• Practice</li> <li>• Utilize expertise of others</li> </ul>				
Structured Approach	<ul style="list-style-type: none"> <li>• Comply with procedures and rules</li> <li>• Document thoroughly</li> <li>• Follow roles and responsibilities</li> <li>• Act with professionalism</li> <li>• Communicate effectively</li> </ul>				

✓ A powerful tool to drive change and improvement

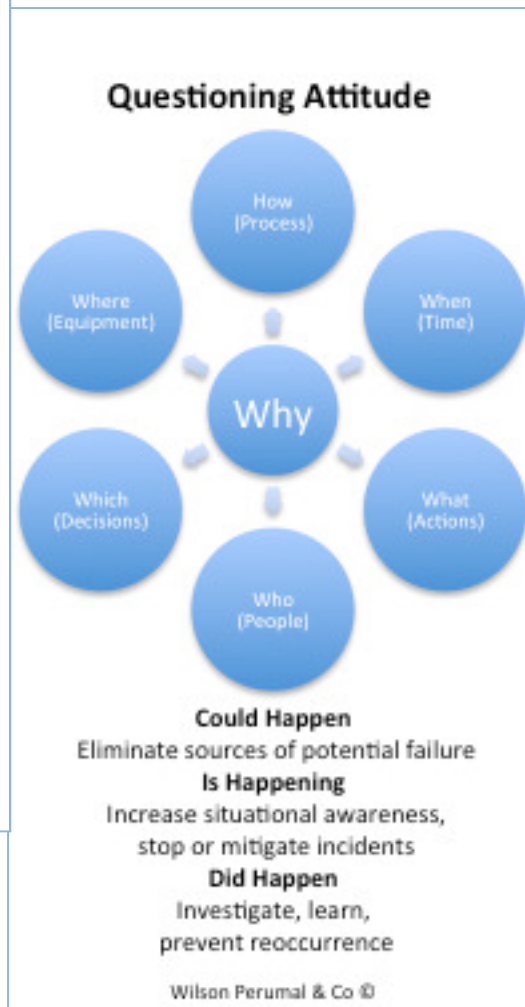
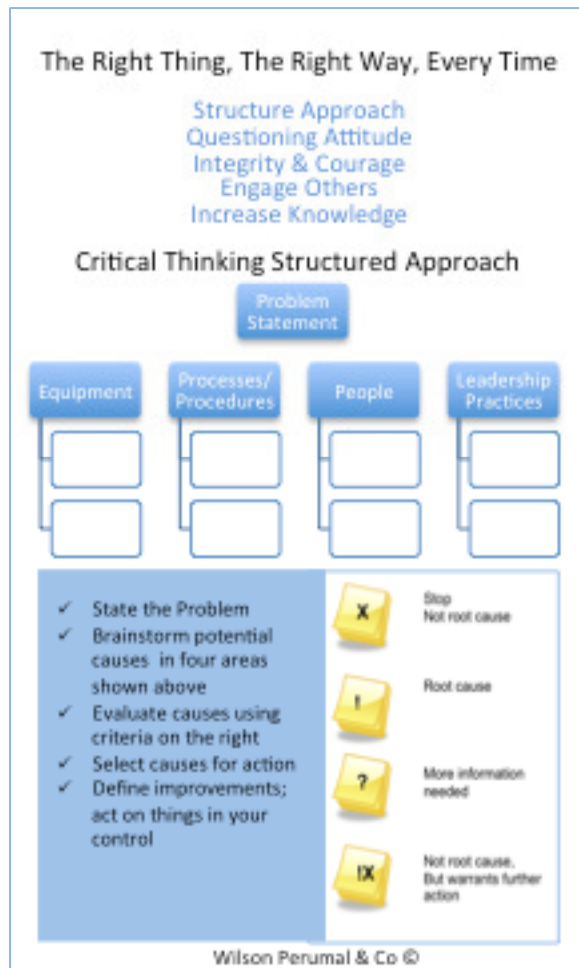
- Questioning Attitude
- Integrity and Courage
- Engagement
- Increasing Knowledge
- Structured Approach

✓ Role Sheets developed for all positions in the company

✓ Improvement Action Plan Worksheets define areas for personal improvement

✓ The improvement process works best when managers and supervisors interact with individuals, drive and lead the process

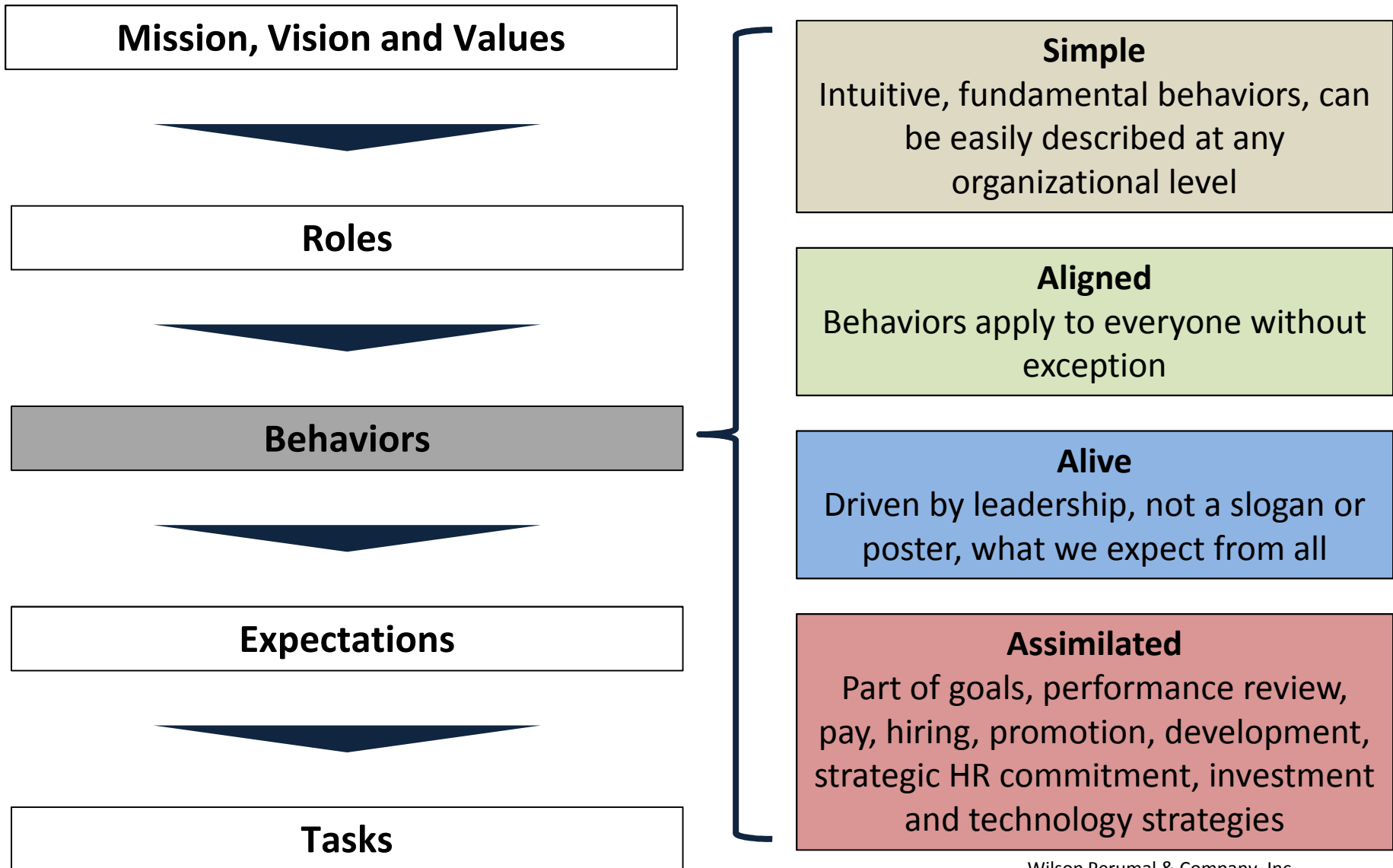
# Why Analytics: an effective way to apply the Pillars



- ✓ Develop skills in all segments of the refinery (Operations, Maintenance, Engineering, SHE, Accounting, Executives)
- ✓ Integrates with the Pillars, shows how to apply the Pillars
- ✓ Builds common language of critical thinking skills
- ✓ Simple to apply
- ✓ Our experience is that participant feedback very positive – ability to improve problem solving has been demonstrated



# Build a people advantage



# Summary

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- Complexity must be systematically addressed
- Take a fresh look at the alignment of behaviors within your company
- The human impacts of complexity and misaligned behaviors are the next focus area to reduce incidents and improve performance consistency



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