# Practical implications of comprehensive asset management

#### **Ton van Wingerden**



#### **Overview**

- Introductory examples

- Complexity of real world

- Comprehensive approach

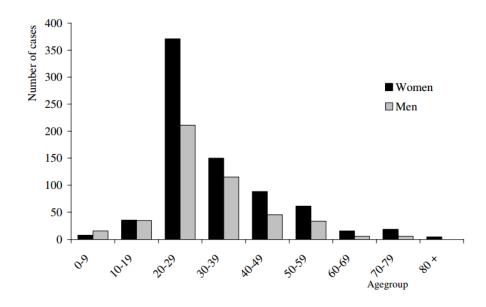
- Some approaches

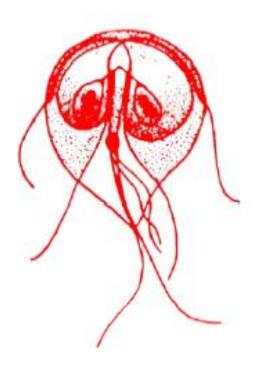
- Will it work?

# **Introductory examples**

#### Bergen, Norway, autumn 2004

- Outbreak of Giardia Lamblia
- An estimated 5000 people were infected
- Around 1400 people were diagnosed
- 200 to 400 had chronic giardiasis
- 40 were hospitalized
- 1 fatality (female, age 33)

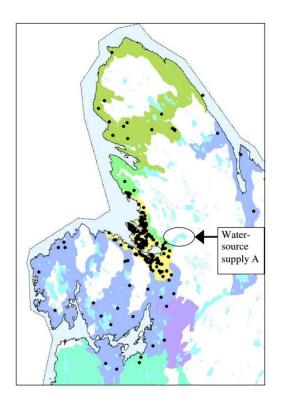




#### Bergen, Norway, autumn 2004

- Found in drinking water, especially in area A
- Source: lake Svartediket
- Leaking sewage pipes were the plausible cause
- Outbreak could have been detected 2-4 weeks earlier









# **Utrecht, The Netherlands, January 10 2006**

- Gas explosion in shopping centre
- Several shops were demolished
- 24 people were injured
- 4 hospitalized
- 1 girl was in coma for 3 weeks





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#### **Utrecht, The Netherlands, January 10 2006**

- A probe was used to test soil stability for renewal of shops
- Drawings were not taken to the site
- Crew used a dowsing device

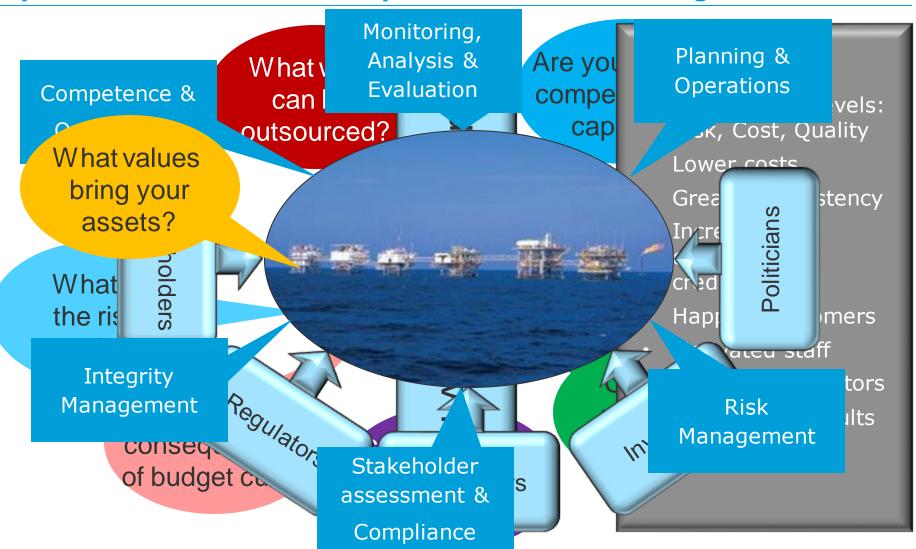




- Natural gas diffused through the soil into the crawlspace
- An explosion occurred two hours after incident alert

**Comprehensive asset management** 

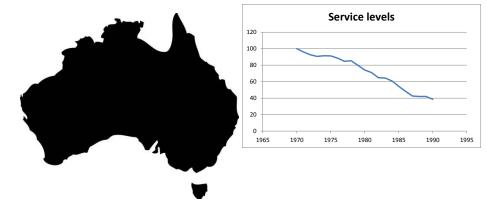
#### **Distribution deministration** compose hensive asset management



## **Origins of comprehensive asset management**



Piper Alpha disaster



Australia and New Zealand dropping service levels





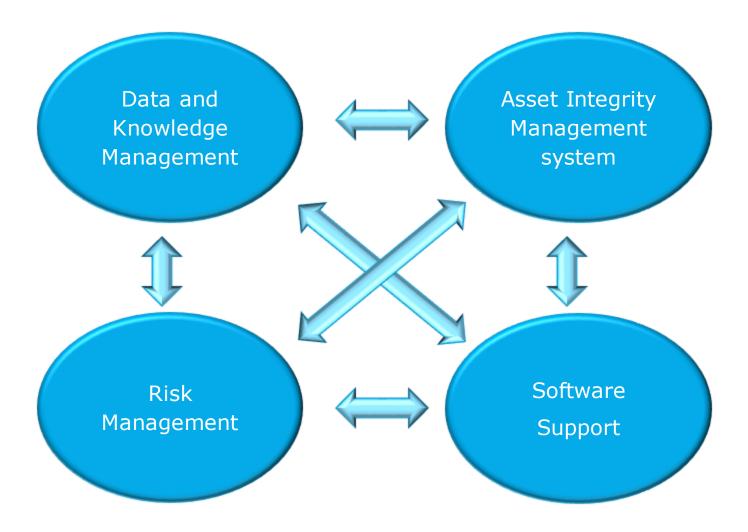
Dedicated

Multi Discipline

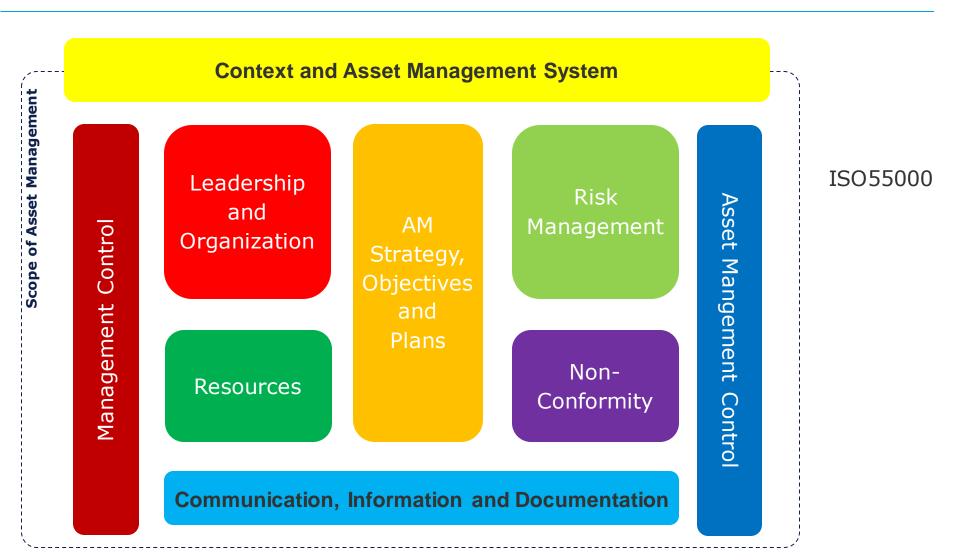
Approach

10

# **Asset integrity management: 4 high level services**

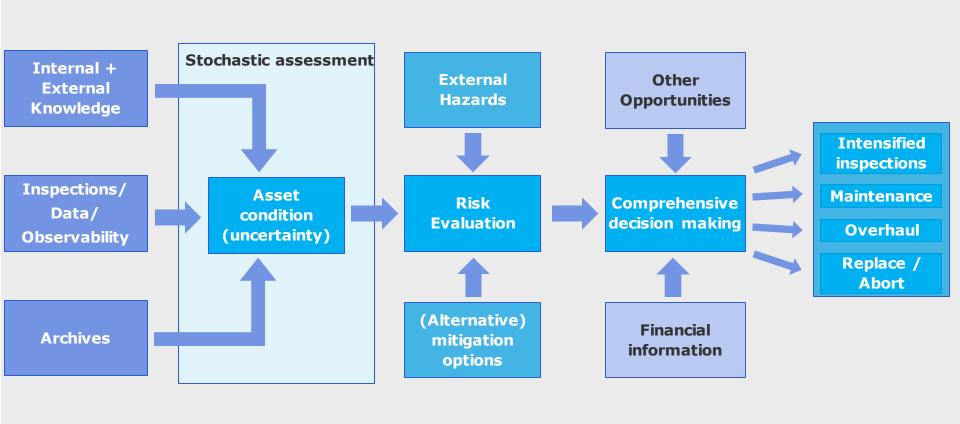


# Platform: Comprehensive asset management ISO55000



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#### **Data and Knowledge Management**



**DNV-GL** 

#### **Aligned Software Support: Tailored made approach**

"Getting Together"-workshop

Propose, discuss and decide "Reference Organization"



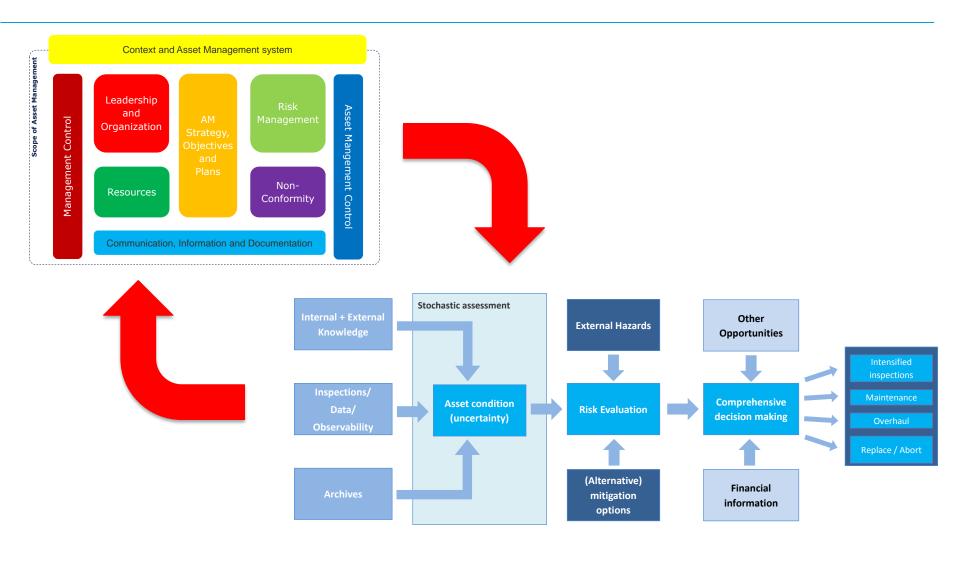
- Business values and policy
- AM Strategy and AM objectives, including KPI's
- Supporting activities:
  - Documentation / information management
  - HR management and outsourcing
- HSE management
- Operations



- Asset register
- Data acquisition/registration/KPI's
- Risk Registration
- Incident Registration
- Operational: GIS, SCADA, MM
- Load flow calculations
- Documentation/information Management
- Supporting Tools

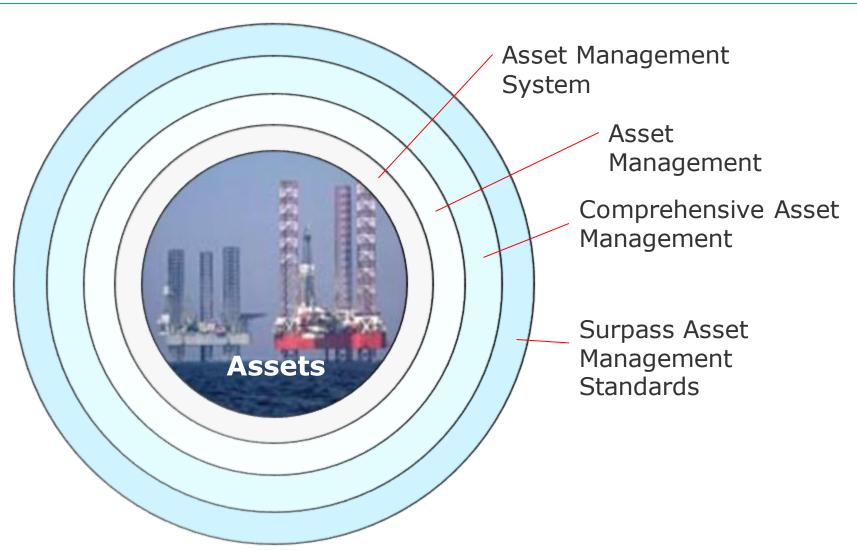


#### **Data and Management system integration**



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Extra: From technical knowledge to integration and comprehensive



# **Suggested Activities: Roadmap**

#### Timing of activities

- urgent
- Ambitiously scheduled
- Finishing
- Integrated with other activity

Activities

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Initiative and form

Workshop

DNVGL to initiate

Follows other activity

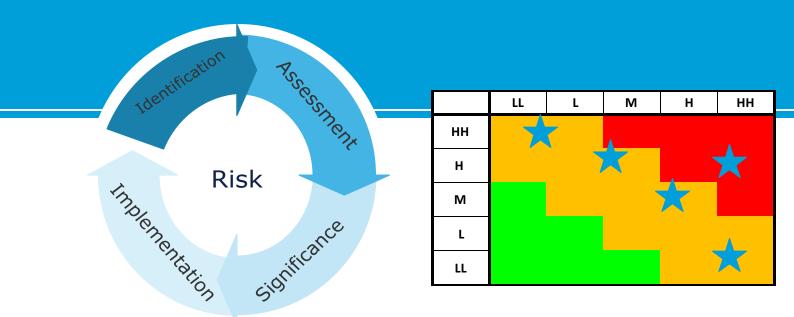
DNVGL to review

Customer decision

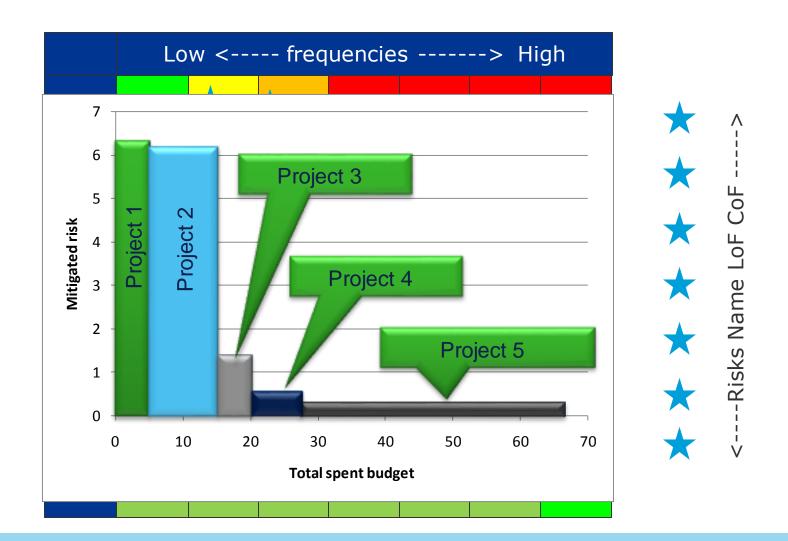
Initiative and form

# **Implementation**

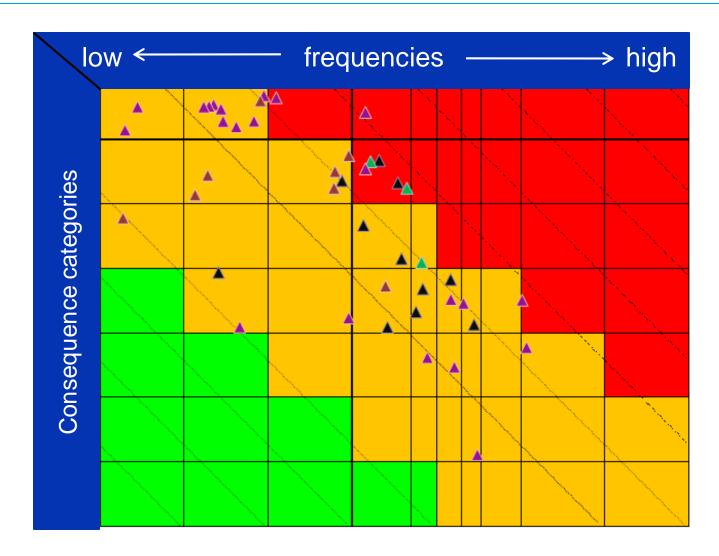
# **Risk Management: process and matrix**



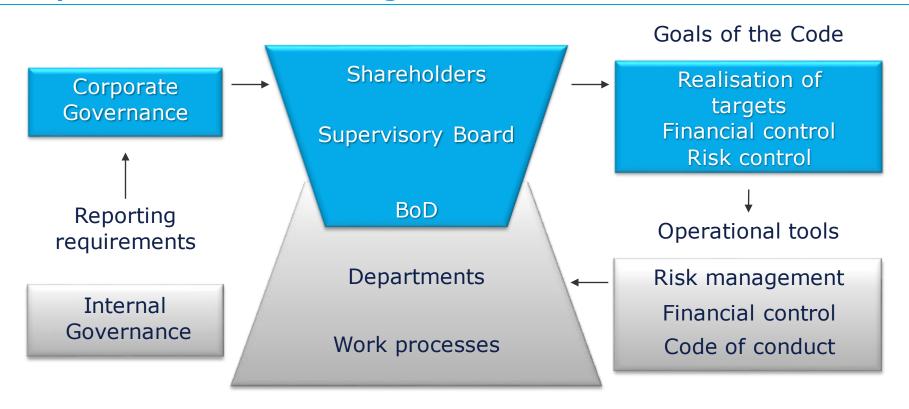
## Risk management: risk matrix



# **Example of assessment results**



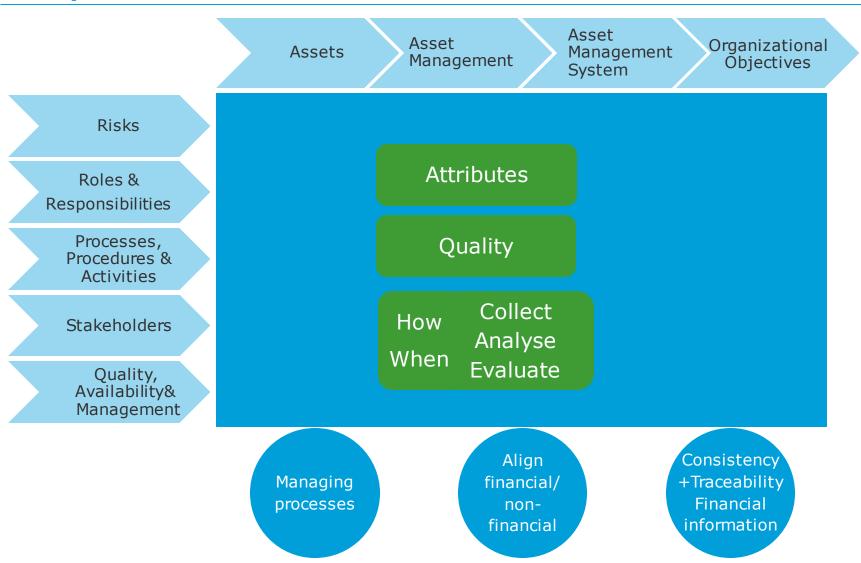
# Risk Management enables the Board of Directors to realise the required control over an organisation



To manage our risks better in order to ensure our performance

# Information requirements Overview

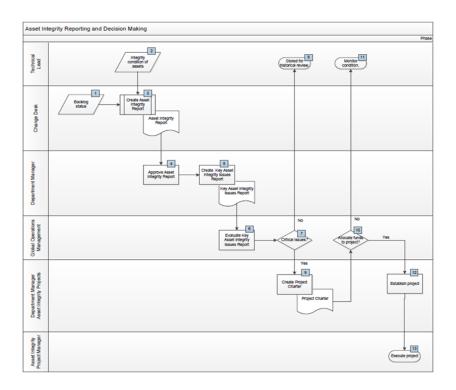
#### **Requirements in ISO 55000**



**Processes assessment** 

#### **Processes**

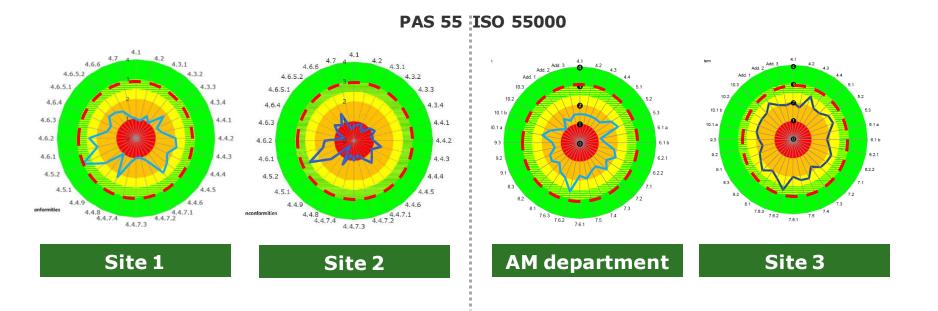
- Clear description
- Stakeholder requirements
- Link to roles and responsibilities (RACI)
- Information and documentation
- Organisation review
- Part of communication plan



**Implementation** 

**Results and incident prevention?** 

#### **Checking Maturity along the way**



**Time** 

**Dotted Line:** Maturity Level of 3 (required for ISO 55001 certification)

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#### **Bergen: Would it have worked?**





warning

#### **Utrecht: Would it have worked?**



**Asset Mangement** 

Control

# **Context and Asset Management System**

Compliance with safety

procedures

Leadership and Management Control Organization

Resources

AM Strategy, Objectives and Plans

Risk Management

Non-Conformity

Competence

1, Information and Documentation

Availability of drawings

Outsourcing

Scope of Asset Management

# Thank you!

# **Questions?**

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**SAFER, SMARTER, GREENER**