



Industry discussion on solutions

The third party perspective

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Safety &
Assurance

Relationships

Social
Responsibility

People

Innovation

Financial
Responsibility

Integrity

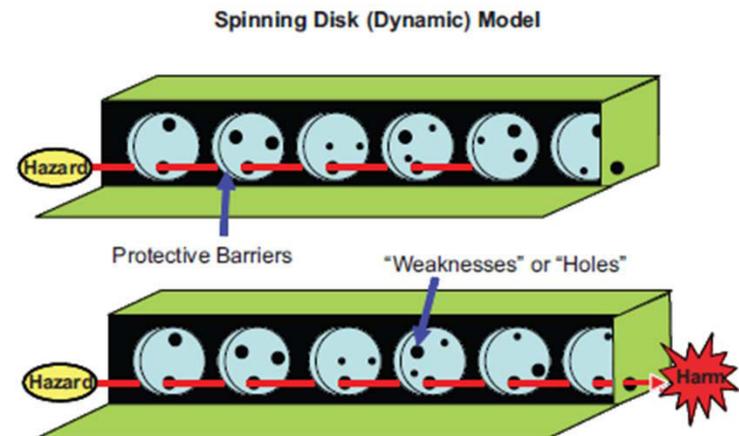
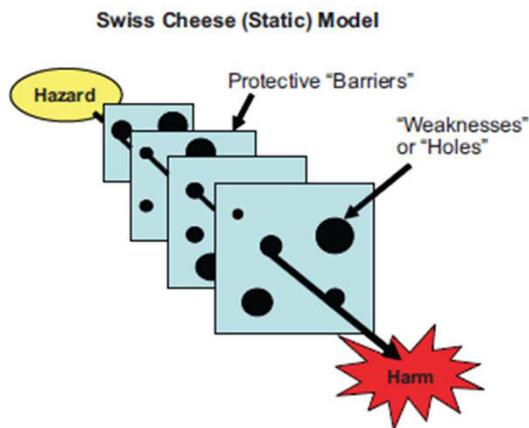
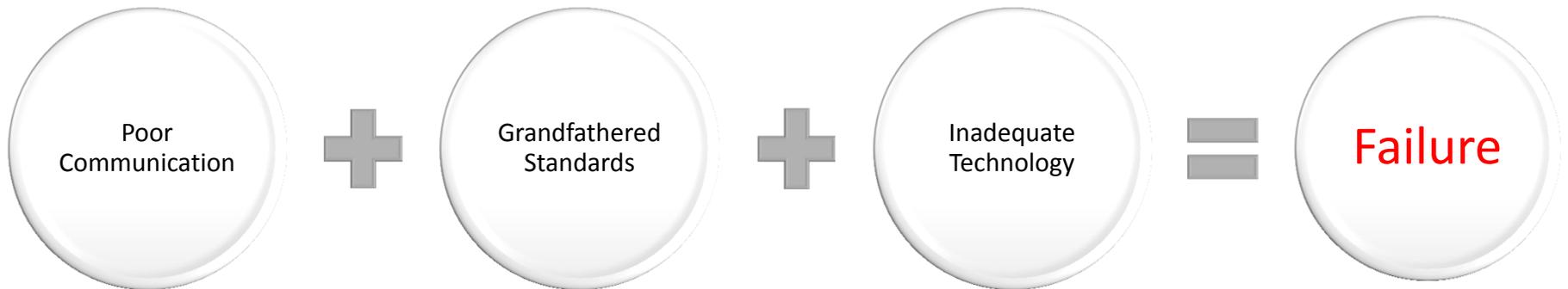


Agenda

- What have we learned
- What are the gaps
- What are the next steps
- Industry initiatives and ongoing activities



What have we learned:



What have we learned:



- When performing safety critical equipment (SCE) evaluations, how does the industry measure performance of subcomponents or barriers?
 - Proper level of scrutiny?
 - Independent verification or validation?
 - Standard part?
 - “Its just how we’ve done things?”
- What qualification standards and verification practices did we use to evaluate our SCEs? What about the subcomponents?
 - Do we know the application for use?
 - Did we consider all failure possibilities?



What are the gaps:



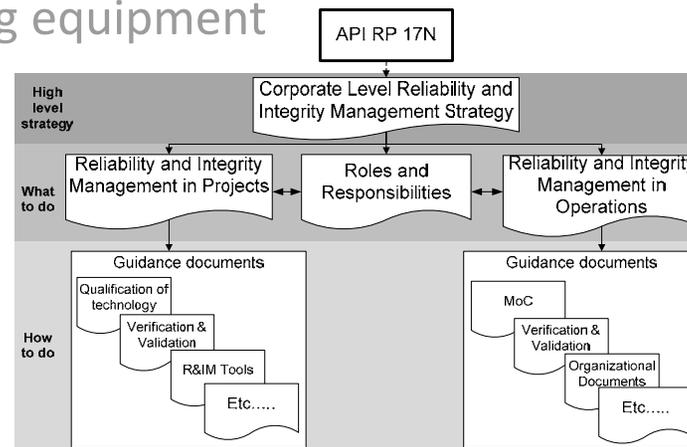
- Performance needs and requirements when planning/ testing/ qualifying equipment
 - Contract management strategies should be performance driven
 - Vendor and supplier auditing practices should be reviewed
- Vendor, Operator, Regulator interfacing (communication) should be proactive to ensure qualification validates that equipment is “safe for use”
- Qualification test programs cannot rely on standards for new and novel technologies and material use information





What are the next steps:

- Clearly establish and communicate requirements when planning, qualifying and validating equipment



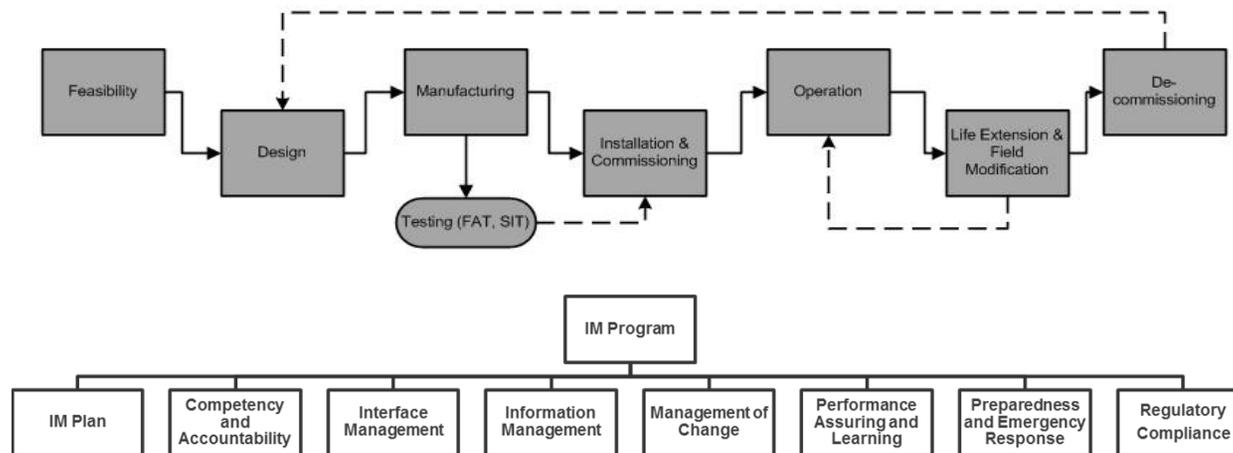
- Expand research initiatives to ensure alignment of goals:
 - High pressure high temperature (HPHT)
 - New and exotic material qualifications
 - Subsea processing
 - Align cross-industry TRLs/TRCs (performance ratings)





What are the next steps:

- Development of comprehensive lifecycle management tools for safety critical equipment



- Independent testing to be conducted to ensure operability of the system





Industry initiatives and ongoing activities:

- Internal and external standardization efforts
 - SPE standardization effort
- SURF-IM Joint Industry Project
 - Example: SCM reliability
- Other Joint Industry Projects and best practices
- Increase collaboration:
 - Society of Petroleum Engineers (SPE)
 - American Petroleum Institute (API)
 - American Society of Mechanical Engineers (ASME)
 - And others (ASTM, NACE, etc.)



References

- American Petroleum Institute. 2010. *Process Safety Performance Indicators for the Refining and Petrochemical Industries*, API-RP-754, First Edition, April 2010, 54. API Publishing Services, Washington D.C.
- American Petroleum Institute. 2009. *Recommended Practice for Subsea Production System Reliability and Technical Risk Management*, API-RP-17N, First Edition, March 2009, 107. API Publishing Services, Washington D.C.



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