



Chemical Industry Challenges in EU

ETP *Industrial Safety Seminar*

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SusChem & Dow Europe

Stuttgart – 13th February 2007

Overview

1. SusChem ETP
- Integrating Networks

2. Dow Europe
- Inherent Safety

3. Industry Need
- Innovation Support

1. SusChem ETP

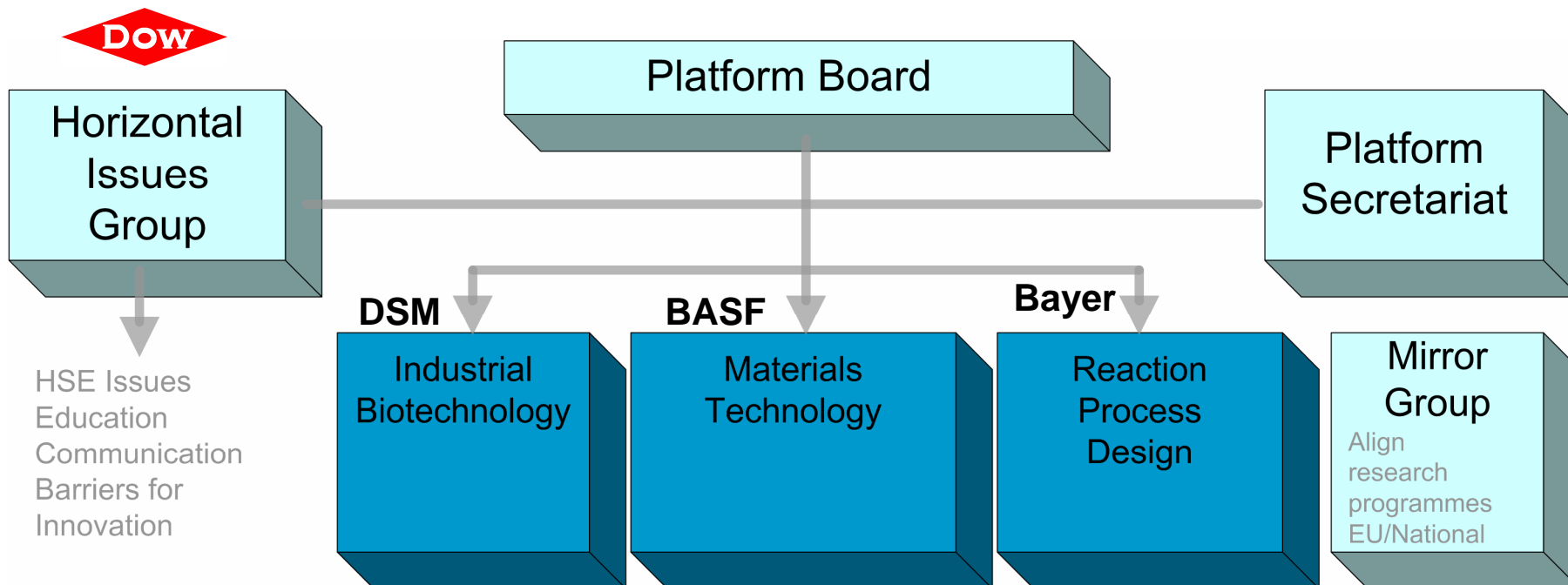
- **Vision and Plan** for “a more sustainable future EU industry”
 - More **innovative** approaches in key **technologies** by **chemistry using industries**
 - Increased leveraging of networks, better collaborative R&D, alignment of key EU policies etc.



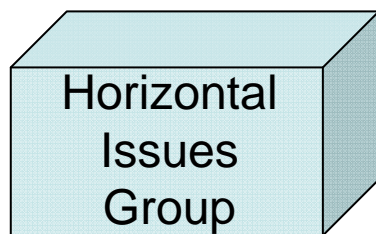
1. SusChem ETP



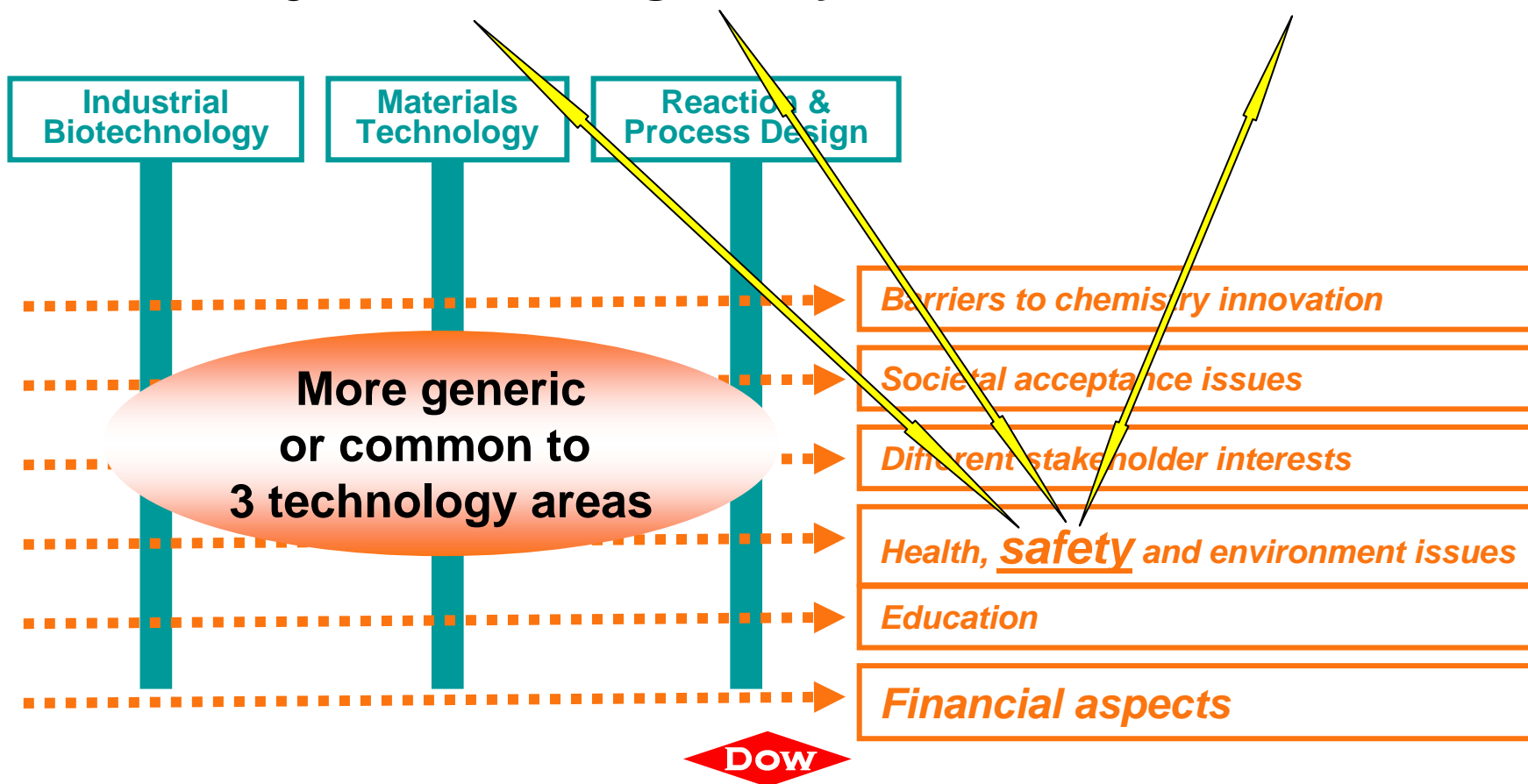
Integrating multiple aspects of sustainability



1. SusChem ETP



Addressing **economic, regulatory, and societal issues**



2. Dow Europe



Inherent Safety - Strategy

- Intensification

Use smaller quantities of hazardous substances

- Attenuation

Use less hazardous conditions or forms of material

- Limitation of Effects & Error Tolerance

Designing to minimize impact of release of Material, or tolerate operating errors

2. Dow Europe



Inherent Safety - Examples

Attenuation – Use less hazardous conditions or forms of material

- Use of a catalyst for DPO process to operate at significantly lower temperatures and pressures
- Storing highly toxic or flammable materials (e.g., chlorine, LNG) as a refrigerated liquid at atmospheric pressure rather than at atmospheric temperature under pressure

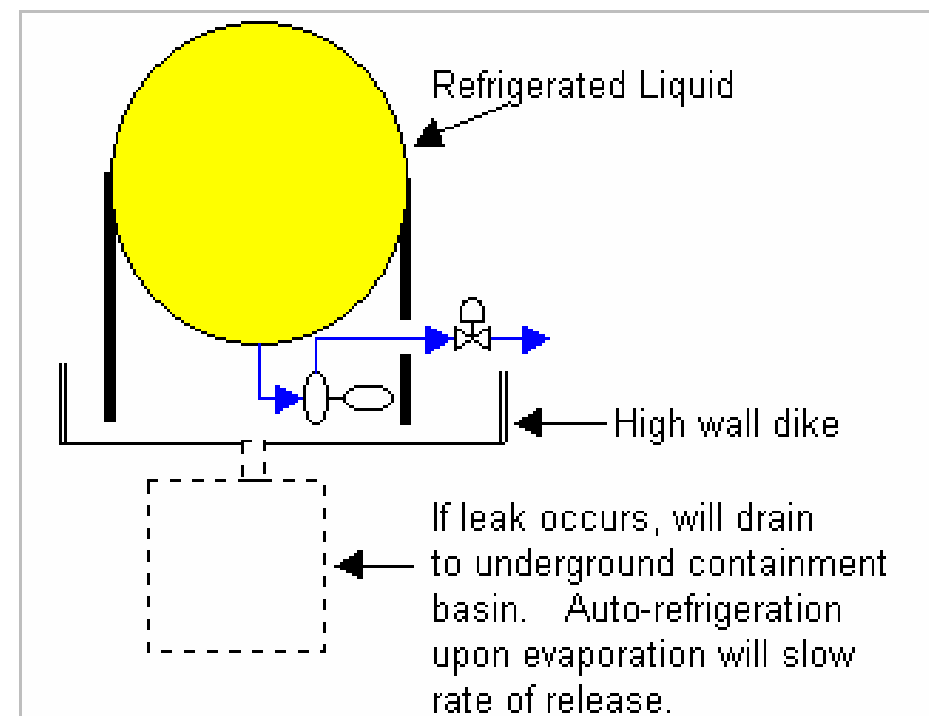
2. Dow Europe



Inherent Safety - Examples

Limitation of Effects - Design to minimize material release impact

- Use small diameter piping or restricting orifices to limit flow rate
- Designing process equipment to contain maximum foreseeable pressures
- Use of high wall dikes and other secondary containment to severely limit surface area available for evaporation of toxic liquid spills



2. Dow Europe



Inherent Safety – Key Learnings

- Increasing safety via inherently safer technology is evolutionary process
- Inherently safer technology can be misapplied
 - results in higher risk if “big picture” not properly considered
- Unsound to attempt to regulate the use of Inherently Safer Technology

3. Innovation Support



- 150 years ago Chemical Industry was born here
 - EU remains the world leader
- Our vision & plan is to ensure “Sustainable Chemistry” is re-born here
 - Implications for all facets of sustainability
- Open for intelligent innovation

3. Innovation Support



- **Industries innovate**Governments (can) provide enabling frameworks ... to ensure we innovate here
- **Technology Platforms**
 - Industry led but EU supported
 - First support & stimulate before you regulate
- Apply same logic to innovations in safety

SusChem Horizontal issues

Email us at: horizontal@suschem.org

Dow & EH&S Commitments

Surf at: www.Dow.com

Innovation Plans

Join our 5th Stakeholder event March 8th Brussels

Summary



- Integration: build on ETP networks
- Inherent safety: apply intelligently
- Innovation: enable the global standards for sustainable chemistry to be set here