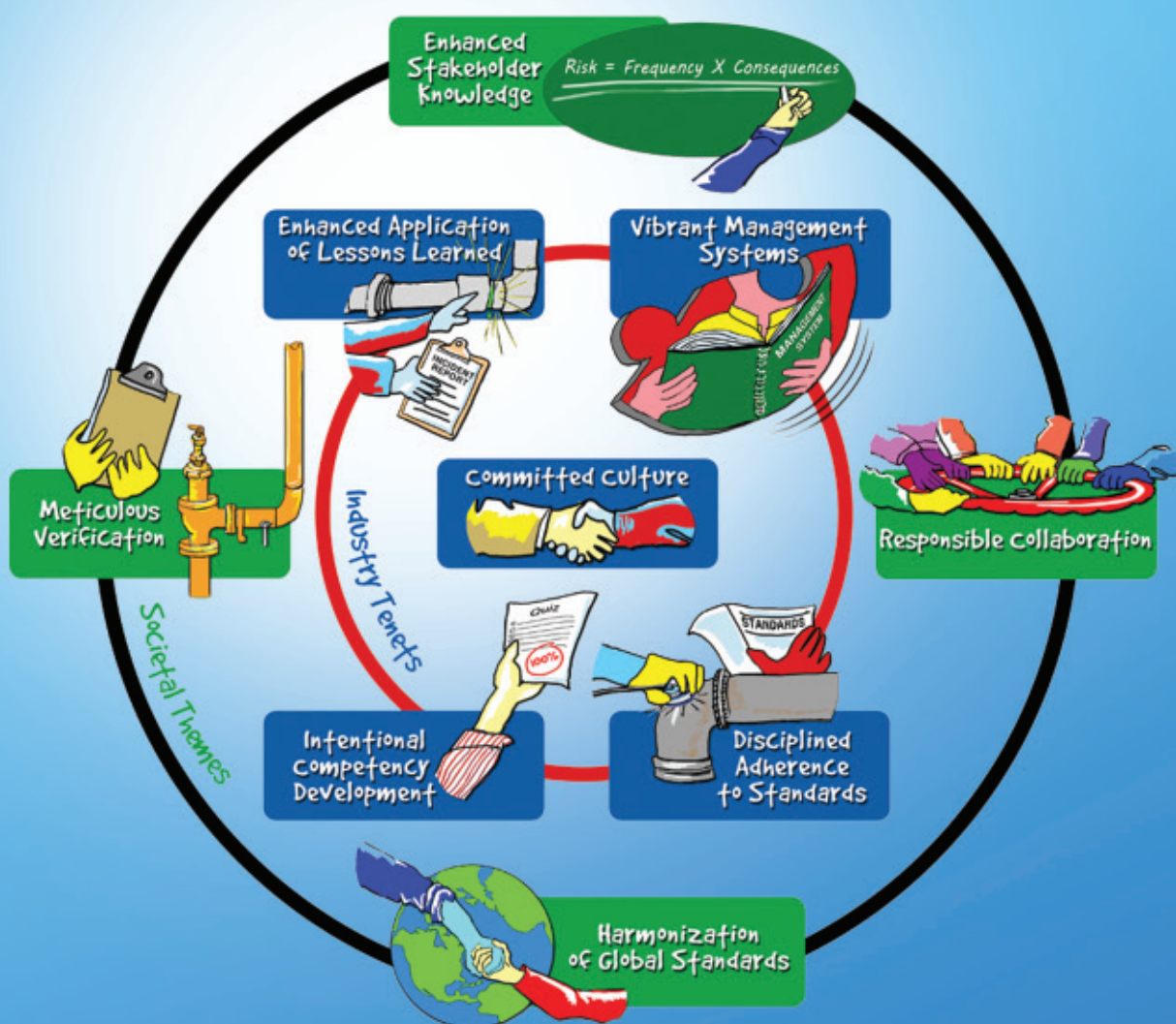


VISION 20/20

An AIChE Technology Alliance
CPS
Center for Chemical Process Safety



Vision 20/20

Our society continually raises expectations for process safety performance. **Vision 20/20** looks into the not-too-distant future to describe how great process safety is delivered when it is collectively and fervently supported by industry, regulators, academia, and the community worldwide.

It focuses on five tenets for industry and four societal themes.

Introducing the Five Industry Tenets and Four Societal Themes

This paper is the first in a series, each highlighting one of the following:

Industry Tenets

- Committed Culture.
- Vibrant Management Systems.
- Disciplined Adherence to Standards.
- Intentional Competency Development.
- Enhanced Application & Sharing of Lessons Learned.

Societal Themes

- Enhanced Stakeholder Knowledge
- Responsible Collaboration
- Harmonization of Standards
- Meticulous Verification



What is the value?

Vision 20/20 leverages our collective energy on one objective... fewer incidents.

It focuses on the core tenets and themes required to meet society's expectations of industry.

What can I do?

- ☒ Learn more about these Five Industry Tenets and Four Societal Themes at the web address below.
- ☒ Think about how you can apply the tenets and themes in your daily work.

More information is available at <http://www.aiche.org/ccps/about/vision-2020>

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Committed Culture

In a **Committed Culture**, executives involve themselves personally, managers and supervisors drive excellent execution every day, and all employees maintain a sense of vigilance and vulnerability.

What does it mean in 20/20?

All employees and contractors commit to “do it right” and have a plan for when it goes wrong.

- Executives personally and visibly lead process safety.
- Operators and mechanics diligently follow procedures and speak up when they suspect a problem or see an opportunity for improvement.
- Supervisors and managers verify work is done properly, intervene to correct situations, and openly communicate negative news to management.



What is the value?

Doing “the right thing, the right way” shift after shift, day in and day out, prevents incidents.

A **Committed Culture** supports both safe AND reliable operations.

What can I do?

- ☒ Perform all tasks, correctly, every time.
- ☒ Support your leadership in demonstrating a commitment to process safety.
- ☒ Recognize that “it could happen here...”

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Vibrant Management Systems

Vibrant Management Systems are engrained throughout the organization. Vibrant systems readily adapt to the organization's varying operations and risks.

What does it mean in 20/20?

For vibrant management systems to be effective, all employees must clearly understand their role in managing process safety.

The management system:

- Is documented, accessible, and easily used.
- Defines how operations are conducted at the workplace.
- Promotes safety in design, operations, and maintenance.
- Is agile and continuously improved.



What is the value?

Everyone consistently works together towards the same goal of great process safety performance.

Vibrant Management Systems support both safe AND reliable operations.

What can I do?

- ☒ Do your part as a member of the team - use the system!
- ☒ Share your learnings and suggested improvements to the system.

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Disciplined Adherence to Standards

Disciplined Adherence to Standards means using recognized design, operations, and maintenance standards. These standards are followed everytime, all the time, and are continually improved.

What does it mean in 20/20?

Companies identify, document, and diligently follow standards for new designs.

Companies also identify, document, and diligently follow a set of standards applicable to existing equipment. These standards for existing equipment set the minimum expectations for design, operations, and maintenance. Companies identify and manage process safety risks arising from gaps against these standards.

As industry standards evolve, companies codify significant new learnings in their identified standards for existing equipment.



What is the value?

Use of standards promotes efficiency, reduces major accident potential, and minimizes opportunities for error in design, operations, and maintenance.

Disciplined Adherence to Standards supports both safe AND reliable operations.

What can I do?

- ☒ Ensure a system exists to effectively use industry and company standards.
- ☒ Make sure that the system applies to existing equipment.
- ☒ As a leader, assure standards are followed and respond accordingly.

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Intentional Competency Development

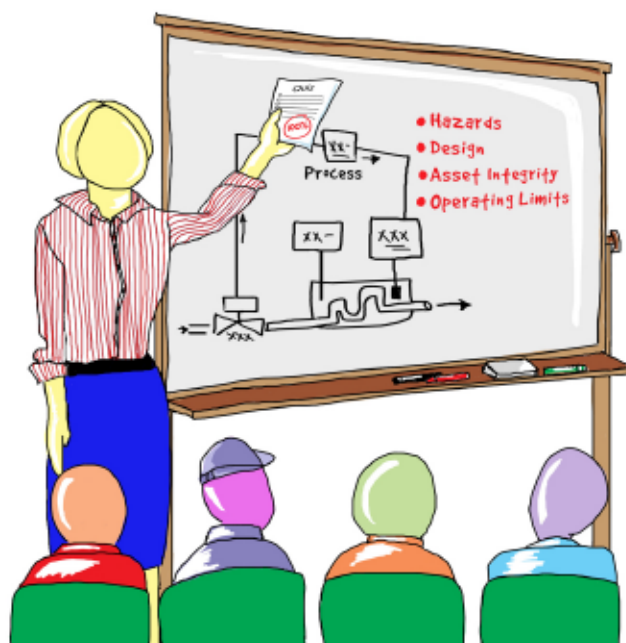
Intentional Competency Development ensures that all employees who impact process safety are fully capable of meeting the technical and behavioral requirements for their jobs.

What does it mean in 20/20?

The bottom line: no matter how good the culture or management system is, or how well the company adheres to standards, it takes competent employees to implement those systems and standards.

This requires intentional competency development, which includes understanding competency expectations, providing educational resources, and allowing time for people to build competency.

Intentional competency development applies to all levels in the organization. Competency includes engineers implementing technical designs, operators knowing their process and safe operating limits, and leaders visibly leading process safety.



What is the value?

Highly competent people drive great process safety performance and enhance reliability in design and operation.

Intentional Competency Development supports both safe AND reliable operations.

What can I do?

- ☒ Develop a plan to fill your competency gaps.
- ☒ When you're outside your area of competency, contact an expert that can help.
- ☒ As a leader, build and recognize team member competence.

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Enhanced Application & Sharing of Lessons Learned

Enhanced Application & Sharing of Lessons Learned communicates critical knowledge in a focused manner that satisfies the thirst for learning.

What does it mean in 20/20?

To reduce incidents, everyone needs to continually learn. We learn from accidents, near misses, industry benchmarking, and success stories.

First, identify the learnings and recognize the value in sharing it with others.

Second, use a system to efficiently share learnings, without overwhelming the organization.

Third, embed the learning in standards or practices, and check if existing equipment or processes require modification.



What is the value?

Rapidly sharing lessons drives improvement in company standards and practices and is key to delivering process safety performance.

Enhanced Application & Sharing of Lessons Learned supports both safe AND reliable operations.

What can I do?

- ☒ Use a significant incident or near miss as an opportunity to encourage and embed learnings.
- ☒ Take a personal action, or make a change, as a result of the learning. Sharing only makes you feel good, learning makes a difference.

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Enhanced Stakeholder Knowledge

Enhanced Stakeholder Knowledge promotes understanding of risk among all stakeholders, including the public, government, and industry leaders.

What does it mean in 20/20?

Enhanced Stakeholder Knowledge starts in high school where students learn the basic concepts of risk.

Engaging in science, technology, engineering, and mathematics (STEM) education in business and engineering schools allows university students to absorb technical concepts and understand process safety risk.

This Enhanced Stakeholder Knowledge allows the public to effectively challenge industry to prevent process safety incidents. The same holds true for industry challenging the public to understand process safety risks.



What is the value?

Understanding risks allows industry and stakeholders to have meaningful two-way conversations addressing public concerns on managing process safety risks.

Enhanced Stakeholder Knowledge supports a partnership to challenge each other to deliver great process safety performance.

What can I do?

- ✓ Support local STEM education, both in high school and university.
- ✓ Have a conversation about risk with students and other stakeholders within your community.
- ✓ Continue to build knowledge throughout your career.

More information is available at <http://www.aiche.org/ccps/about/vision-2020>

Responsible Collaboration

Responsible Collaboration is a cooperative relationship among regulatory and investigative authorities, labor organizations, communities, research institutions, universities, and industries.

What does it mean in 20/20?

Responsible Collaboration means working together on a common goal of excellent process safety performance.

This means seeking to understand each other's point of view and respecting each other's perspective.

This includes removing barriers to sharing and learning from incidents, promoting consistent understanding of risks, and maintaining effective process safety.



What is the value?

Everyone working towards the same process safety goal is more efficient and effective.

Responsible Collaboration supports a partnership to challenge each other to deliver great process safety performance.

What can I do?

- ☒ Recognize the value that others bring to the table and commit to working together toward the common process safety goal.
- ☒ Be open-minded and focus on that common goal.
- ☒ Actively participate in or lead joint industry projects.

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Harmonization of Standards

Harmonization of Standards for the safe design, operation, and maintenance of equipment streamlines practices, eliminates redundancy, and cooperatively addresses emerging issues.

What does it mean in 20/20?

It is important to communicate requirements consistently ... down the street, across the country, and around the world.

Currently, a variety of standards may apply to a single operation, including local, industry, national, and international, which have the potential to conflict with each other.

Harmonized standards provide consistent guidance for design, operations, and maintenance, to support effective understanding of process safety risk.



What is the value?

Harmonization of Standards leads to efficiency in conforming to applicable standards in local, national, and global commerce.

Harmonization of Standards supports a partnership to challenge each other to deliver great process safety performance.

What can I do?

- ☒ Recognize the diversity in standards, be open-minded, and work towards harmonization of standards.
- ☒ Promote harmonization through active participation in standard and practice writing groups.

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Meticulous Verification

Meticulous Verification by knowledgeable independent parties helps companies evaluate their process safety programs from an independent perspective.

What does it mean in 20/20?

Companies use various assessment techniques to assure their process safety management systems are working as intended.

It will become standard practice for companies to supplement internal audits with competent third-party verification of their engineered systems and process safety management systems.

Third-party technical experts verify specific technical details.

Public and non-governmental organizations evaluate implementation of company process safety programs.



What is the value?

Third-party assessments may identify additional opportunities for improvement in company process safety management and can enhance stakeholder relationships.

Meticulous Verification supports a partnership to challenge each other to deliver great process safety performance.

What can I do?

- ☒ Identify opportunities where third-party verification could add value.
- ☒ Personally support external verification in your area when it occurs.

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Process safety is important to our individual health, to our company's success, and to our region's business economy. Companies that handle toxic, flammable, reactive, and explosive materials understand the importance of process safety and risk management. So do regulators. So should the community and other stakeholders. Individually these stakeholders

have been working for years to improve process safety performance. Accidents continue to occur. It's time to leverage our resources, knowledge and skills to all strive for a common goal of great process safety performance. CCPS's Vision 20/20 describes that vision.

Industry Tenets

Committed Culture

Vibrant Management Systems

Disciplined Adherence to Standards

Intentional Competency Development

Enhanced Application &
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Societal Themes

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