



Principles for Managing the Uncertainty of Human Error in Operations

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MUSCHARA



The Certified Performance Technologist (CPT) designation is awarded by the International Society for Performance Improvement (ISPI) to experienced practitioners in the field of organizational performance improvement whose work meets both the performance-based Standards of Performance Technology and application requirements.



2018 Human Performance Conference





Video: Dr. James Reason*

Retrieved from:

<https://www.youtube.com/watch?v=5jk0uAVdBC4>

Uploaded June 3, 2008.



Knowing and Doing Gap*

Knowing

(without doing)

- ▶ Schools, consulting, books, meetings, messaging, reports (means of knowledge transfer)
- ▶ Reliance on past “successes”
- ▶ Smart talk & complex language
- ▶ Critical of others’ ideas; fear
- ▶ Decisions w/ no follow-up or accountability
- ▶ Inaccurate theories of behavior and how organizations work

Doing

(belief / buy-in)

- ▶ ‘Why’ before ‘How’ (principle)
- ▶ Teach others / simple language
- ▶ Engaged in operations / learn by doing
- ▶ Measure and reward what matters
- ▶ Exercise responsibility & accountability
- ▶ Technical expertise
- ▶ Humility (don’t know everything)



Rare Photo of Nuclear Submarine Operations

“The U.S. Navy has sailed ships around the world for 60 years with nuclear power plants on them and we've never had an accident. That's because we have well-trained and capable people.”

**-Sen. John McCain
June 2, 2008**

Rickover Industrial Principles (1983)*

1. Respect the technology.
2. Develop expertise.
3. Be conservative.
4. Know what is going on.
5. Get into the details.
6. Face the facts.
7. Accept responsibility.



*Rickover, H. (19 November 1983). An Assessment of the GPU Nuclear Corporation and Senior Management and its Competence to Operate TMI-1. Retrieved from <http://archives.Dickinson.edu/document-descriptions/admiral-hyman-George-rickovers-assessment-three-mile-island..>



“Procedures or practices must be changed as circumstances change. Principles are constant and can be applied now and in the future. If management is imbued with these principles and accustomed to using them, it will adapt to change ... If management has chosen such a course, it will lead to competent and dependable operation.”*

-Admiral Hyman G. Rickover, USN
Assessment of the GPU Nuclear Corporation

* Rickover, H. (19 November 1983). An Assessment of GPU Nuclear Corporation Organization and Senior Management and Its Competence to Operate TMI-1. (p.ii).



Good Habits & Good Thinking

“Good habits come from thinking repeatedly in a principled way..., good thinking comes from exploring the reasoning behind the principles.”

-Ray Dalio

Author: *Principles* (2017)
Founder, Bridgewater Associates
investment company



Principle and Beliefs

Principles explain how things work—cause and effect—models of reality.

Belief:

If ..., then
Therefore,



Principles of Managing H&OP

Core
Beliefs

1. People have dignity and inherent value as human beings.
2. People are fallible.
3. People do not purposefully come to work to fail.
4. Error is predictable and manageable.
5. Risk is an inherent, dynamic property of the way an organization operates.
6. Organizations are perfectly tuned to get the results they are getting.
7. The causes of tomorrow's events exist today.

Principle No. 1

People have **dignity** and inherent value as human beings.

Do you Believe?

GENERATIONS OF VALOR



Principle No. 2

People
are
fallible.



Do you Believe?

Principle No. 3

People do not purposefully come to work to **fail**.



Do you Believe?

Principle No. 4

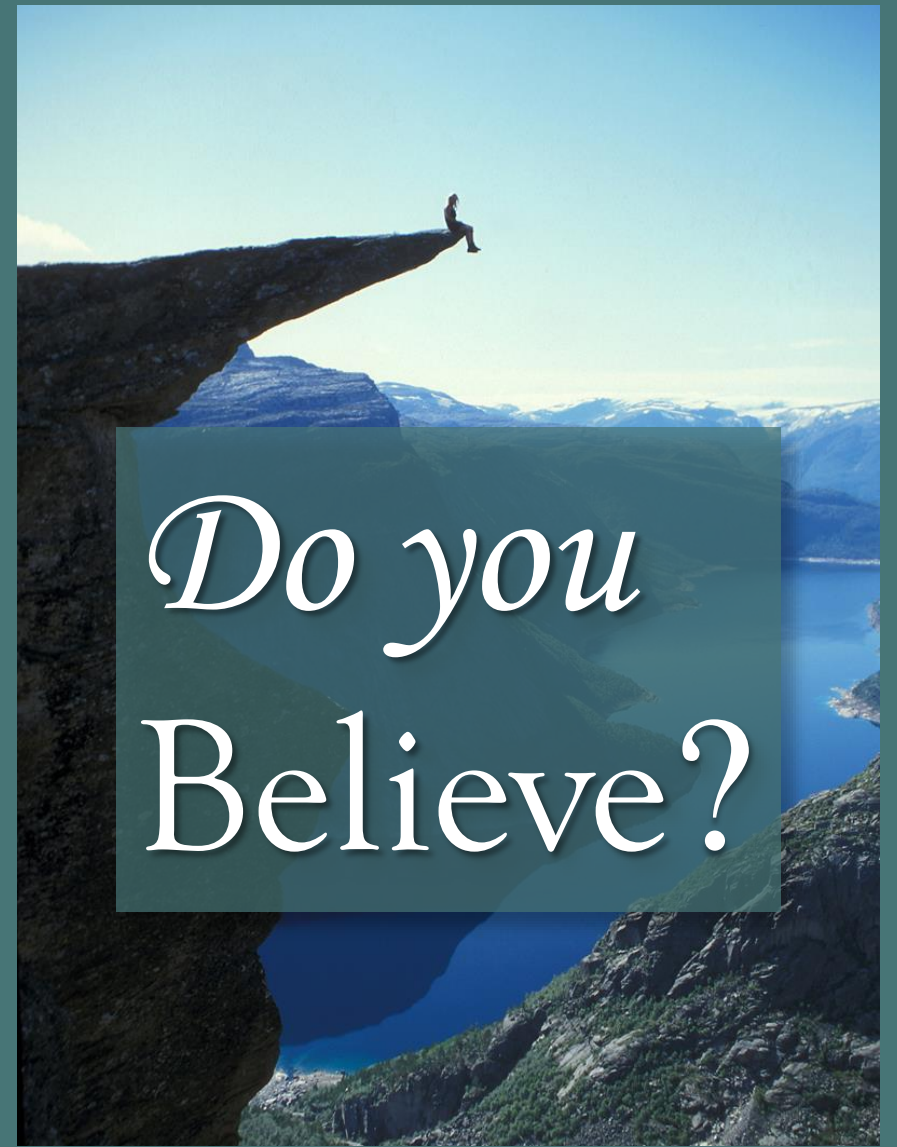
Error is
predictable
and
manageable.



Do you Believe?

Principle No. 5

Risk is an inherent, **dynamic property** of the way an organization operates.



Principle No. 6

Organizations are **perfectly tuned** to get the results they are getting.



Do you Believe?

Principle No. 7

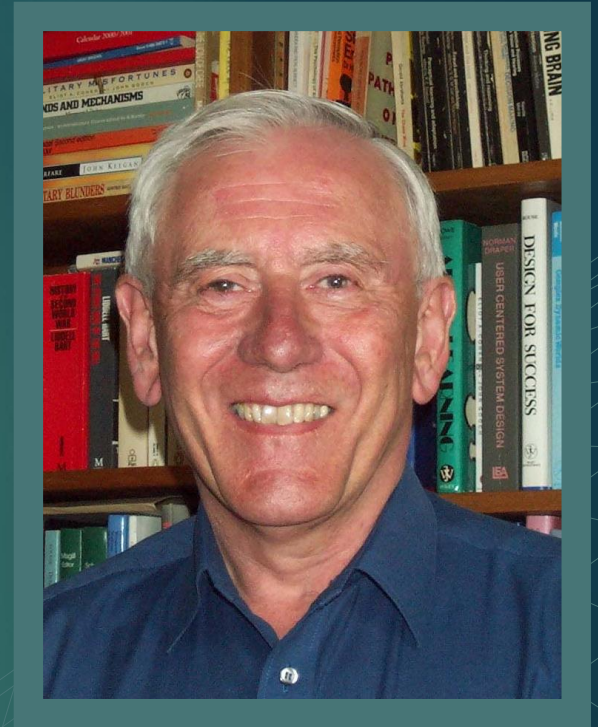
The causes of tomorrow's events exist **today**.

Do you Believe?





“Most attempts at error management are piecemeal rather than **planned**, reactive rather than **proactive**, event-driven rather than **principle-driven**.”*



-Dr. James Reason
*Managing the Risks of
Organizational Accidents (1997)*

Managers Control Two Things:*

1. **Behavior Choices:** Local Factors

- Knowledge & skill (technical expertise)
- Control: Hu tools (“error wisdom”)
- Adaptability: risk awareness (RbT / Cu)

2. **System Design:** Organizational Factors

- Differences between WaD and Wal[§]
- Defenses: barriers & safeguards
- Learning: detect and correct
“latent system weaknesses”

[§] WaD – Work as Done; Wal – Work as Imagined

* Adapted from Marx, D. (2012). *Just Culture: Training for Managers*. Plano: Outcome Engenuity (p.19-24)

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Building Blocks of H&OP*





Principles of Managing H&OP

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6. Organizations are perfectly tuned to get the results they are getting.
7. The causes of tomorrow's events exist today.

Do you

BELIEVE?



Risk-Based Thinking: Managing the Uncertainty of Human Error in Operations

Available via:

<http://riskbasedthinking.com>

or

[https://www.routledge.com/
9781138302495](https://www.routledge.com/9781138302495)

Live Long and Prosper*



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* Popularized by actor Leonard Nimoy as the character Mr. Spock in the television show, *Star Trek*, but is actually an variation of a blessing expressed by rabbis during Jewish sabbath (Shabbat) worship services. See Deuteronomy 5:33 (NIV).