High Performance and High Reliability:  
Building Performance-Based Organizations

The Third International Biannual Conference of High Reliability Researchers and Practitioners  
The University of New Orleans in New Orleans, Louisiana on January 9-10, 2010

High Reliability Organizing
Virtually all modern organizations have exposure to risks that threaten to their ongoing viability. High Reliability Organizing (HRO) is the process of managing organizations to allow them to successfully deal with these threats. The principles of HRO used to identify risk and threat and then develop an effective response are similar across different types of organizations and industries.

Our Roots
Observation of successful leaders in high risk organizations, such as Tom Mercer, Admiral (Retired), U.S. Navy, led to the codification of the principles of High Reliability Organizing (HRO). Several academicians, including Karlene Roberts and Karl Weick then codified their observations as HRO.

First, Karlene Roberts and her colleagues in organizational psychology identified successful organizational structures that supported these practices after observation of the U.S. Navy, nuclear power plants, and the U.S. Federal Aviation Administration.

Karl Weick and colleagues, from their social psychology research, then added observations of mindfulness as a source for successful practice on the management of and response to wildland fire.

Today, the HRO community is made up of a vibrant group of scholars studying HRO principles in many areas as well as a group of practitioners with long-term, naturalistic use of HRO principles and who have successfully implemented these principles. Current activities of this community focus on implementation of HRO into new fields and the identification of principles shared by military combat, public safety, healthcare, industry (such as rubber, paper, steel, oil, chemical processing, petroleum refining), customer service, and financial institutions.

This informal group of high reliability practitioners and researchers has organized the biannual conference since for the last five years. The reason for this gathering is not only to deepen our knowledge of high performance and high reliability in various organizations, but to also to increase our network connections of excellence, to attune methodologies, and to establish working groups that will continue these themes over time.

2010 Workshop Theme
The central theme for this workshop is about intervention strategies for developing the organization towards higher mindfulness, performance, and reliability. We have found that many interventions, such
as Lean and Six Sigma, do not address collective mindfulness but, instead, decrease the organization’s variability. Increased variability, as a means toward organizational strength and agility, allows the organizations to stay in a high state of performance and reliability for a longer period. HRO aims to make all members of the organization generative toward problem solving; they keep on learning, they keep on improving, they keep on embedding mindful organizing in their systems, manuals, procedures, structures, interactions, training, recruiting, etc.

We define reliability as the ability to maintain performance during complexity, uncertainty, and the unexpected. Reliability is managing complexity. Reliability is decision making. Reliability is managing errors. Reliability is learning. Reliability is managing the unexpected. Most important, reliability is high-performance and building the reliable organization.

**Workshop Objectives**
1. Discuss internalizing vs. imposing high reliability organizing and safety culture. Describe the subtle signs of imposing these changes during education and training.
2. Identify the relationships between quality, reliability, and safety (the QRS Complex)? Discuss the role of decision making, and its natural consequence of error, in the QRS Complex.
3. Compare and contrast primary experience and primary research in preparing for the rare, catastrophic event.
4. Discuss the differences between naturalistic HROs and created HROs.
5. Describe how HROs are manifested at the levels of executive management, operations management, and field operations.

**Workshop Overview**
Each day will start with a plenary session by an HRO pioneer followed by morning and afternoon workshops and focus groups. Each workshop is 90 minutes followed by a 10 minute break before the focus group commences. This break allows registrants the opportunity to move to a different focus group if desired. Panel presentations will involve 3-4 practitioners and academicians with a moderated discussion between panelists. The focus group that follows will have a question, answer, and group discussion format involving the audience and panelists.

Researchers and practitioners responding to Calls For Papers from around the world will have a session for presentations of primary research or primary experience. Presentations will follow the standard format, “**Objectives or Background, Methods, Results, and Conclusion,**” with 10 minutes allotted for presentation and 5 minutes allowed for commentary, questions, and answers. (See the two “Call for Abstracts” documents at [www.high-reliability.org](http://www.high-reliability.org)

**Introduction & Welcome**

Chancellor of University of New Orleans

Daved van Stralen, MD
Plenary Lectures

- Mindfulness for Performance: The basis of reliability
  Karl Weick, PhD

- The Codification of Naturalistic High Reliability
  Naturalistic HRO, Tom Mercer, ADM, USN (ret.)
  The Codification of HRO, Karlene Roberts, PhD

Guest Speakers sponsored by the Wildland Fire Lessons Learned Center:
  Karl Weick, PhD, Coauthor of Managing the Unexpected: Resilient Performance in an Age of Uncertainty, University of Michigan, School of Business
  Karlene Roberts, PhD, Haas School of Business, UC Berkeley
  Tom Mercer, ADM, USN (ret.), USS Carl Vinson
  Michelle Barton, PhD (C), University of Michigan, School of Business
  Amy Edmundson, PhD, Harvard University School of Business
  Dorothy Leonard, PhD, author of Deep Smarts: How to Cultivate and Transfer Enduring Business Wisdom, Harvard University School of Business (ret.)

Please Note: Panels listed below are not presented here in the agenda order but by topical group. Please check the Workshop Agenda for each of their presentation times and locations.

Interventions for creating awareness and urgency

1. Mindfulness as a cornerstone for high performance and reliability: Where and how to start
   Bert Slagmolen, Bill Hoyle
   Mindfulness leads people to a new openness to the situation and problem solving. They will welcome, rather than fear, new information and use it to create new categories of information. They will value how others see the situation, using these different points of view as an added resource for problem solving. Faced with the complex, uncertain, unknown, or unexpected they will then focus on performance over results and outcome. In this manner, they will bring control to the situation through engaged problem solving which changes the context of what they see.

Interventions for tooling and training individuals

2. Learning to Analyze, Evaluate, and Create: Educating in the System
   Michele Zembo, MD; Sam Stringfield, PhD; Jim Holbrook, EdD

   We teach memory, understanding, and application for routine problem solving but for complex problems we use analysis, evaluation, and creativity. How do we teach for the complex problem? Rather than inserting high reliability throughout the organization we can insert it incrementally to create the environment that our foundations, goals, and objective swim in.
3. The organization acts through the individual, how do we optimize human behavior for reliability when complexity occurs suddenly?

Highly reliable organizations build people rather than fix them. Recruit training in the military and public safety, though self-selective, has the goal of building an agile, resilient member of the organization. Some of these approaches can translate to civilian organizations.

Interventions for tooling and training groups

4. Protection from failure with defense, offense, and strength: How do we increase the intrinsic strength of an organization?

Organizations build into their structure mechanisms for protection, either offensive techniques or defensive. Individuals, through the drive for self-preservation, do so the same. Highly reliable organizations develop resilience and agility through developing strength from within.

Interventions in systems, structures and procedures

5. Error Management to prevent the bigger problem
When error occurs the organization must manage it before it creates consequences. Once the error has resolved the organization can then learn and, through well-identified processes, become a learning organization.

6. Decision Making: Optimizing the Individual (AM)
The organization makes decisions through the individual at several levels: operational, management, and executive. Decisions are made for problems that can be deterministic, stochastic, or indeterminant and may or may not have time pressures. An organization can appropriately teach and utilize algorithm, decision trees, and loop decision making in a manner that follows circumstances when the situation expand from the simple to the complex.

7. Decision Making: Optimizing the Structure (PM)
While the individual makes the decision, the organization must allow it. The organization’s structure can facilitate effective decision making or lead to paralysis.

Using incidents and catastrophes as a lever for change

8. Beyond the Black Swan to the killer swan or death swan: The Typhoon and the Volcano
Tom Mercer, ADM, Bert Slagmolen

Preparing for events one has not experienced is confounded by that very lack of experience. This can lead to imaginative threats that stunt the growth of the organization. What is more critical is the hazard that one has not experienced or cannot think of. A highly reliable organization can use its operational experience to develop flexibility and agility in response to novel, dynamic threats.
Mindless definitions of risk, error, reliability, performance and how to change them

9. Foundations of Reliability: Risk anticipation, problem containment, and decision making with error management

Anticipation of risk, as opposed to planning, guides us individually to identify the unexpected. As individuals identify the problem in a highly reliable organization they begin their efforts to contain the problem and its consequences. We would not have error except that we make and we make decisions to reduce error; error management, rather than error prevention, will reduce the consequences of error.

10. Error of the 3rd kind: Are we asking the right questions? Error of the 4th kind: Working the wrong problem because you have to? Dorothy Leonard

Solving dynamic problems can lead individuals and organizations to ask the wrong questions and frame the problem in the wrong way. This exacerbates the situation and can lead to acceptance of poor outcomes or catastrophe.

Interventions for enduring change towards HRO

11. How can the organization foster reliability?

High reliability organizations see improvement of operations (productivity), processes (quality), and safety as never completed processes. They manage error, avoid blame storming, and encourage spontaneous team formation and collaborative decision making. Under pressure, the individual in the highly reliable organization suppresses ego as “It is not the heat; it’s the humility,” (Debra Andersen). These organizations foster proactive skills building, critical thinking, commitment to resilience, and dynamic recombination of resources.

12. Building blocks of a learning organization: Learning in action Amy Edmundson

Easy to imagine, but rare in reality, are those organizations that change the behaviors of their people by leading them into new knowledge that they eagerly apply. Organizations in high risk industries need to learn continuously and quickly, especially when surprised by difficult to imagine events. Getting things done despite surprises is required for the high performance of a highly reliable organization. The art of leading learning in both high and low tempo times increases success.

Walk the talk: behavior in the here and now that shows HRO

13. In command and out of control: The Structure of Command and Leadership from low tempo to high tempo Michelle Barton
In stable environments central control and hierarchy allow leaders to extend the distance of their reach however in unstable times effective leaders foster distributed decision making. When this happens the values of obedience and conformity diminish in importance, replaced by the values of initiative and creativity. The command style of individual leaders can allow the organization to expand in high tempo yet many leaders exclusively use one of the other style. There are effective methods that allow use of distributed decision making in low temp, stable situations.

**Change strategies for developing mindful cultures in organizations**

14. **The thrill and agony HRO construction:** What works, what takes a little longer, and what never will

   Bert Slagmolen, David Christenson

   What we always knew our organizations could be: our hunt for the illusive right tool to get the best. Superficial approaches line the shelves with management by book of the month. Deeper changes in individuals and organizations create lasting changes in resilience and agility. These methods exist and are used today but lack the translation to other and quite different organizations.

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**Confirmed Speakers** (these 32 have confirmed)

Karl Weick, PhD, Coauthor of *Managing the Unexpected: Resilient Performance in an Age of Uncertainty*, University of Michigan, School of Business
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Simon Bradley, EADS
Kaja Tooming Buchanan, PhD, Cleveland Institute of Art
Richard Buchanan, PhD, Weatherhead School of Management, Case Western Reserve University
Earl Carnes, DOE
Pascale Carayon, PhD, Department of Industrial and Systems Engineering, University of Wisconsin-Madison
John Carroll, PhD, MIT
David Christenson, MA, Wildland Fire Lessons Learned Center
Rebecca Clark, Tulane School of Medicine
Louise Comfort, PhD, University of Pittsburgh
Amy Edmundson, PhD, Harvard Business School
Chris Hart, NTSB
Rick Hartley, BW Pantex
Jim Holbrook, Crafton Hills College
Ryan Holmes, Loma Linda University School of Dentistry
Bill Hoyle, US Chemical Safety Board (ret.)
Dan Kleinman, Operations Section Chief, National Incident Management Organization
Dorothy Leonard, PhD, Harvard Business School (retired)
Peter Madsen, PhD, Marriott School of Management, Brigham Young University
Ivan Pupulidy, MS, USFS
Gary Provansal, Division Chief, Fire Department
Ranga Ramanujam, PhD, Owen Graduate School of Management, Vanderbilt University
Roger Resar, MD, Institute for Healthcare Improvement
Gene Schaffer, PhD, University of Louisville
Bert Slagmolen, PhD, Apollo 13, the Netherlands
Sam Stringfield, PhD, University of Louisville
Daved van Stralen, MD, Loma Linda University
Renaud Vidal, PhD
Kuo Frank Yu, PhD, City University of Hong Kong
Michele Zembo, MD, Tulane University