High Reliability Across Worlds:
Comparing Military and Civilian Communities

-Tony Hare, Chair

Robert Burg:

1) Airline industry is very safe. One in 2,000,000 chance per day of injury on a commercial airplane.

2) Incentives in the airline industry are aligned for safety. Pilots, crew members, executives, and shareholders are all damaged by accidents.

3) Airline industry has been able to learn from mistakes and failures. Success of American airline industry can be partially attributed to its no-fault reporting system.

4) U.S. Navy nuclear submarines are extremely safe. No radiation releases in history of program. Reporting is mandatory and rewarded.

5) Naval aircraft carrier decks are some of the most dangerous places to work in the world. Nevertheless aircraft carriers are very safe. There are incentives for reporting of mistakes.

6) Army snipers require great discipline as well.

7) In the medical field, systems need to be developed to improve safety. There are few incentives for reporting or even notices mistakes.

8) Systemic changes need to be made in healthcare to implement high reliability.

Dennis Kowal

1) The biggest trouble for the military in Iraq is identifying IDDs before they go off.

2) Army has a technology to pre-detonate IDDs. The enemy responded by placing the detonator 100 yds in front of the explosives.

3) SNA is a tool for understanding problems.

4) People tend to have a tool or a solution and then look for a problem to apply it to. Rather we need to observe what is really happening and respond to it; be willing to discard pre-established solutions.

5) To make a difference, you need to be "sufficiently annoying." Change is difficult, especially when comes from outside.

6) Decision-making process. OODA loop: Observe, Orient, Decide, Act. Intuitive decisions occur much more quickly than do analytical decisions. Experts can make decisions intuitively because of their domain knowledge and experience.

7) Knowledge Spectrum: Knowledge ranges from Explicit to Tacit. It is difficult for people to recognize tacit knowledge and use or change it.

8) Decision-making information flow goes from Data to information to knowledge to understanding.

9) The traditional OODA loop is becoming more complex because things change so quickly. Decisions need to take into account information from many different sources and stakeholders.

10) The default solution is to get information from people that I already know and trust, but they may not have the information I need. For example to understand what is happening in an urban battlefield, I need information from many sources integrated very quickly.

11) Need to evaluate the sources of information as to their effectiveness and cost.

12) The problem with plans are that they may need to change. If you bet on one solution and then the future situation is not what you expected, then the plan must change.

13) The military is very wrapped up in simulation and modeling. These plans can be good, but they are fragile.

14) The most effective plans are variations of what you do every day. If you plan something and train it once or twice, you will not be able to execute it effectively.

Joe Martin

1) HRO methodologies are applicable to a wide variety of contexts. Experience in the Air Force showed him that we need to challenge our assumptions. This viewpoint was reinforced by experience in emergency medicine.

2) The American fire service is a military operation. The fire service fights wild fire wars every summer in southern California.

3) People have a hard time integrating resources and working in teams. Teamwork has been a necessity in fighting large wildfires.

4) You do not put out a wildfire; you simply try to control its spread.

5) When you have a functioning team at any level when people's lives are on the line, things are boring most of the time. Emergency are rare, so chances to practice and develop teamwork are rare.

6) People need to be trained in their duties during an emergency. Then if communications go down, they can still do their job. You need to push decision-making authority to the lowest possible level.

7) However, not acting is a valid choice when more information is needed. People who act without understanding the situation put themselves and others at danger.

8) When you can make a difference, you should act. But when you can't just stand back. You need to understand your acceptable losses. In oilfield fires, you shut off the pipeline and then back off and let it burn. Why put people at risk when no one is in danger. Stand back and let it burn and everyone goes home OK.

9) If someone dies at your operation, you need to ask questions. But it has to be tied to trust or you won't get good information.

10) Think about the principles of HRO and think about which ones are applicable to your line of work.