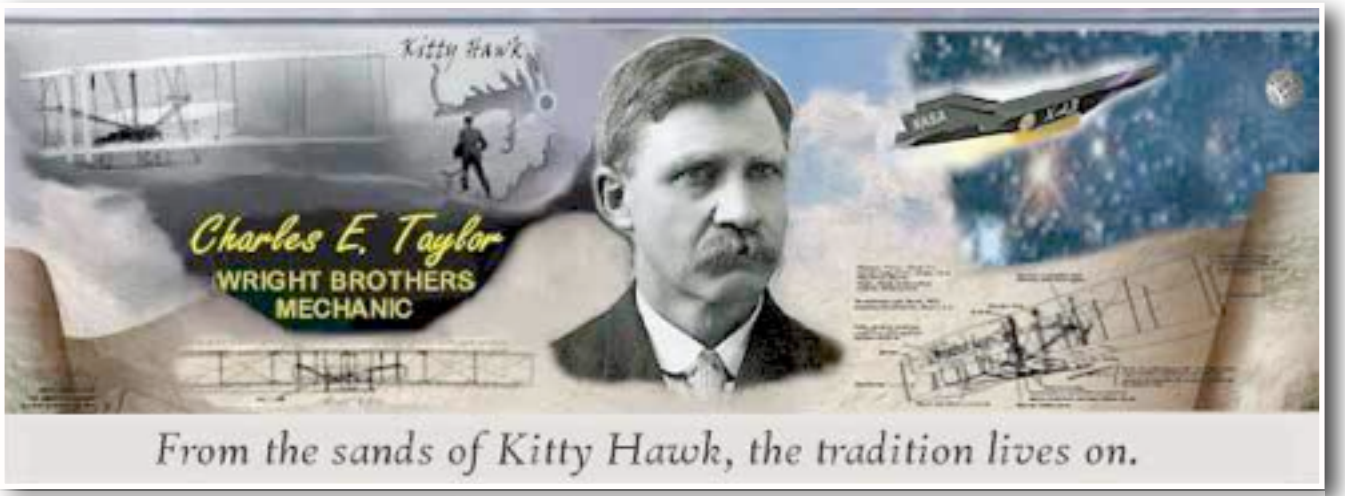
Aviation Human Factors Industry News

Volume X. Issue 09, May 04, 2014



Hello all,

To subscribe send an email to: rhughes@humanfactorsedu.com

In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

Human Error the Greatest Threat to Aviation Safety

"Human error is now the principal threat to flight safety," according to an article by Don Harris in the February 2014 issue of The Psychologist, the magazine of the British Psychological Society.

Harris, a member of the human systems integration group at Coventry University, said there's actually more to the problem than simply pointing to human weaknesses. "Although there is increasing recognition of the importance of the human component in aviation safety, further work is required. The science base and regulations still lag behind changes in the nature of modern flight operations." Aviation psychology is, of course, designed to help reduce human error.Interestingly, Harris questions the relevance of Jim Reason's Swiss cheese model of error prevention in an era when many new airlines around the world operate without the benefit of an organizational system like the one upon which Reason's work relies. "Today more work is outsourced and contracted out," he said. "Airlines operate into a wide range of airports (none of which they own), and maintenance is often provided by third parties. Some low-cost carriers may not even own their aircraft, or employ their own ground and check-in personnel. In extreme cases, they don't even employ their own pilots…the person making the final error may not be one of the victims of [an impending] accident. Safety management now has to extend beyond the immediate organization." To Harris that means realizing that aviation psychology "needs to take an integrated, long-term approach to tracking human-related costs and safety issues, significant wide-ranging benefits will accrue."

Site Of 1956 Accident At The Grand Canyon Memorialized

128 People Fatally Injured In Mid-Air Collision

The site of an accident which occurred in 1956 has been designated a national landmark. The site was designated the 1956 Grand Canyon TWA-United Airlines Aviation Accident Site, Grand Canyon National Park, Arizona.

On June 30, 1956, a Trans World Airlines Super Constellation L-1049 and a United Airlines DC-7 collided in un-congested airspace 21,000 feet over the Grand Canyon in Arizona, killing all 128 people onboard the two flights. The tragedy spurred an unprecedented effort to modernize and increase safety in America's postwar airways, culminating in the establishment of the modern FAA. Other improvements that resulted from the crash included nationwide radar coverage, a common military/civilian navigation system, and the development of technologies such as collision avoidance systems and flight data recorders.The announcement was made as part of National Park Week, an annual event honoring the natural beauty and cultural heritage contained in America's national parks. The National Historic Landmarks Program is one of more than a dozen programs administered by the National Park Service that provide states and local communities technical assistance, recognition, and funding to help preserve our nation's shared history and create close-to-home recreation opportunities.

Accident Overview - Lessons Learned- FAA

http://lessonslearned.faa.gov/ll_main.cfm?TabID=3&LLID=50&LLTypeID=2

Mechanic Input Crucial to Success of SMS Programs by John Goglia

A critical component of any SMS is the identification of hazards in a company's operation. And mechanics are in the right position to identify them.

Safety management systems or SMS are fast becoming the standard in many aviation organizations in the United States and across the globe. Even though the FAA has not issued a rule yet mandating SMS (a rule applicable to Part 121

airlines is possible this year), many U.S. aviation entities — including airlines and repair stations — have proceeded to implement SMS even in the absence of an FAA rule.

Many of these companies see the benefit of a structured, data-driven approach to risk management to improve the safety of their operations. And that is the promise of a well-run SMS program. But in addition to safety improvements, many operators I have spoken with who have implemented an SMS program have also found that the costs of implementation are more than off-set by the money that can be saved, particularly when potential problems are uncovered and either eliminated or mitigated before they can become actual incidents or accidents. So over the next few years, more and more mechanics will find themselves working in organizations that have an SMS.So what's a mechanic's role in an SMS?

So what's a mechanic's role in an SMS? A critical component of any SMS is the identification of hazards in a company's operation. For any aviation entity performing maintenance, those hazards can range from dangers to the workers themselves to the dangers of aircraft damage to the risk of an aircraft accident affecting the lives of passengers and people on the ground. Clearly, mechanics by the very nature of their work are in a position to know about many hazards. While some of the hazards could be observed by others — such as trip and fall hazards — others are exclusively within the realm of a mechanic's experience and expertise. And these are the hazards that could have the greatest potential impact on aviation safety.

Observe the hazards

Mechanics, of course, are in a unique position to learn of hazards that affect the maintenance of aircraft. Many of those hazards will be observed in the course of performing maintenance. Some of those hazards could involve the aircraft or aircraft systems, components, or parts. For example, mechanics frequently observe problems in areas unrelated to the task at hand but their companies don't always have a standardized system for reporting these problems to the engineering department for review and taking appropriate action. The benefit of an SMS program would be to standardize how these problems are recorded and handled, including disseminating information to everyone in the company who might have a need to know, such as the engineers.

Identify problems with unclear paperwork

Other hazards that mechanics would have insight into are the problems with unclear or incorrect paperwork used to perform maintenance, such as job cards, maintenance manuals, or instructions for continued airworthiness. Getting incorrect paperwork corrected has proved challenging — and frustrating — for many mechanics. A well-run SMS program would ensure that any deficiencies noted would be properly dealt with and the procedures corrected.

Because of the unique knowledge that mechanics have of a maintenance operation, no SMS program involving aircraft maintenance can be successful without the input of mechanics. If and when you work at an outfit that has an SMS program, it is important that you fully familiarize yourself with the program and participate in it. In my experience, SMS is definitely worth the effort.

A Day Late Letter Could Have Saved A Pilot's Life

We now know what caused a deadly plane crash in DeFuniak Springs that killed a pilot. The National Transportation Safety Board released its final report on the 2012 crash that killed Pablino Gutierrez shortly after take-off.

77-year old Pablino Gutierrez took off from the DeFuniak Springs airport around 11:00 a.m. on May 9, 2012. The plane crashed moments after takeoff. Now federal investigators say they know why.
Pablino Gutierrez was an experienced, having flown in the Air Force and as a commercial pilot after leaving the service. On the day of his death, he was flying a Hummel Bird, an experimental plane he built himself.

According to the accident report, Gutierrez took off from the DeFuniak Springs airport, and climbed to a height of 300 feet. The plane then plunged to the ground, killing Gutierrez.

Pilot/Witness Michael Murphy said, “Trying to make a decision to get some altitude to turn and land or possibly lost control all together. The plane went into a nose up attitude pitched hard to the left rolled and kind of in an adverted dive, just went into the ground.”

Investigators say the reason the plane crashed is because there was too much weight on board, as much as 58 lbs. more than the plane was capable of carrying.

In fact, Gutierrez had reported a recent weight gain, which he said made it difficult to control the small aircraft. His daughter calls the new information shocking.

"Knowing who he was or how he was, he would not have taken, he would not have taken a risk like that,” said Mary Gutierrez.

The irony is Federal Aviation Administration officials were a day late with an action that could have saved Gutierrez's life.

They decided to revoke his pilot's license because of medications he was taking for high blood pressure. The certified letter arrived at Gutierrez's home on May 10, 2012, the day after the crash.

His daughter says if Gutierrez had known about the letter, he would not have flown.

"My dad was very by-the-book, very meticulous and things of that nature. He was retired Air Force he's very structured,” she said.

The report says the doctor and some of Gutierrez's friends told him to get a larger plane that he could safely fly.

Investigators say they did not find any mechanical problems with the aircraft.

Brain Lesions More Common in High-Altitude Pilots, Study Finds

Results could also apply to deep-sea divers, mountain climbers

Pilots of U.S. Air Force U-2 reconnaissance planes may be at risk of developing brain lesions, a new study suggests.

America's involvement in two wars has increased the workload of U.S. airmen, and cases of decompression sickness -- a potential hazard of high-altitude flying -- have tripled over the past two decades, the researchers say. But this study suggests that U-2 pilots in general are more vulnerable to bruises in the brain, a sign that decompression damages the brain even in the absence of illness. The findings, published in the Aug. 20 issue of the journal Neurology, indicate that decompression sends tiny bubbles known as emboli into the brain where they don't necessarily make people ill but may still cause harm, said study lead author Dr. Stephen McGuire, a neurologist with the U.S. Air Force School of Aerospace Medicine in San Antonio, Texas.

"If the bruise is not too severe, the brain recovers," he said. However, "we don't really know what the long-term implications are."

Decompression sickness, also known as "the bends," occurs when pressure around a person suddenly dips. High-altitude pilots, miners, mountain climbers and scuba divers can be affected.

Dr. Adam Bender, a diver and attending neurologist at Lenox Hill Hospital in New York City, described what happens with decompression sickness this way: "Tiny bubbles of nitrogen gas form in the blood and coalesce in the blood vessels of the joints. Bubbles can also coalesce in the blood vessels of the skin, causing itching and skin rash. Most dangerously, the blood vessels of the brain and spinal cord can be involved, causing multiple small strokes," he explained.

"The blood actually 'boils' at these very low atmospheric pressures," Bender said. "The effect is similar to the bubbles seen when you quickly open a bottle of soda or champagne. The decrease in pressure in the bottle causes the release of carbon dioxide gas, previously dissolved under pressure in the liquid, to come out in the form of small bubbles."

Bender said the resulting lesions can be harmful. "They can accumulate and result in symptoms varying from mild (slowed thought process) to severe (speech difficulty, confusion and unresponsiveness)," he said.

Commercial airline pilots and passengers fly in pressurized airplanes and shouldn't be concerned. U-2 pilots, however, fly at very high altitudes -- often above 18,000 feet -- with limited cabin pressurization.

The number of decompression sickness incidents per U-2 flight has grown threefold over the last 20 years, although they're still rare at well under 1 percent, McGuire said. The rise in cases could be attributed to increased flight demands related to the wars in Iraq and Afghanistan, he said.

In the new study, researchers examined brain scans of 102 male and female U-2 pilots and 91 people of similar age, health and education level.

The U-2 pilots had 295 percent more lesions than the non-pilots and almost 400 percent more brain lesions by volume. The findings suggest that decompression sickness is caused by "micro-emboli" instead of large air bubbles, McGuire said. And these tiny bubbles often seem to enter the brain without causing symptoms, he added.

What do the study findings mean for pilots, divers and others? "If you have someone being exposed to altitude, even on oxygen (to prevent decompression sickness), you have to be concerned about potential brain injury," McGuire said. It's possible, but unproven, that the bruises contribute to senility, he suggested.

Bender said possible prevention strategies include oxygen treatment, fewer flights and less exposure to extreme altitude. Another idea is to make U-2 planes that don't expose pilots to extreme pressure.

"Although such planes are not yet being produced," Bender said, "research is currently underway to design U-2 planes with these specifications."

Air Canada Sacks Two Baggage Handlers For Luggage Abuse

Caught On Video Dropping Baggage 20 Feet From A Jetway To A Cart

Readers of a certain age may remember a commercial for a luggage company that depicted airline baggage handlers as gorillas tossing suitcases around like toys. The point then was to sell hard-shell luggage, but the scenario played out in real life recently in Canada.

A passenger aboard an airplane waiting for departure shot video of two Air Canada baggage handlers dropping bags about 20 feet from a jetway to a luggage bin, according to a report from The Toronto Star and relayed by USA Today.The airline's action was quick. Air Canada spokeswoman Angela Mah said in an email to the paper that "The employees involved have been advised that their employment will be terminated pending the outcome of our investigation."

The video, has accumulated over a million views. The baggage handlers tossed more than a dozen bags from the elevated jetway to the bin, rather than carry them down the steps.

Air Canada has apologized for the incident.

(Image from YouTube video)

FMI: Watch the Video http://youtu.be/PgDizh4DMno

Use Your Eyes

The most basic nondestructive test/inspection (NDT/NDI) is the experienced eyes of an aircraft maintenance technician. Whether you are working on a piece part or an aircraft, using your eyes efficiently and effectively will make the difference among being OK, good, and great. My Papa told me,

"Eyes open and mouth shut;" not only did he expect me to watch and learn but to be vigilant — working around large animals on a farm is dangerous for the unaware. The same is true in aircraft maintenance; not only can an aircraft, engine, or propeller kill you, but what you see or don't see can be life-saving.An experienced technician looks not only for obvious damage but signs of abuse, misuse, and potential problems. There is much to-do about the different types of visual inspections; we have gotten to the point where airworthiness directives have to define what a detailed inspection entails. We have also had controversy over how much or how deep someone should look during "routine" inspections, such as 100 hour or even annuals. The fear seems to be that one will find something that has to be fixed or that is unexpected; like that isn't the purpose of the inspection? While there is no doubt one can always find something wrong, not all discrepancies render an aircraft (or other article) unairworthy. The difference among the OK, good, and great is the ability to know routine issues from the what the he** items.

While training can provide the basic knowledge on how to accomplish tasks, constant awareness provides the experience necessary to become efficient and effective in a job. The aircraft technician's job is to ensure no unairworthy item is missed during an inspection. It takes both training and experience to accomplish sophisticated NDT/NDI techniques such as ultrasonic, magnetic-particle, liquid penetrant, radiographic, eddy-current testing, and low coherence interferometry. However, every technique requires visual acumen. Wisdom is developed by incorporating new experience into existing knowledge, and in the case of an aircraft maintenance technician, constant use of one's eyes.

FAA Fact Sheet Shows Alaska's Dependence On Aviation

Over 8-Thousand Active Pilots In The State Flying More Than 9,500 Registered Aircraft

The FAA recently issued a fact sheet focusing on air transportation in Alaska pointing up just how dependent Alaskans are on their airplanes.

According to the FAA, there are 8,066 active pilots, 2,869 air frame and power plant mechanics of which 733 have inspection authorizations, and 9,515 registered aircraft in Alaska. The state's 2.4 million square miles of airspace are served by 3 Flight Standards district offices 8 FAA control towers and 4 military towers; 1 certificate management office 2 terminal radar approach control facilities; 1 aircraft certification office 1 air route traffic control center; 141 automated weather monitoring systems 17 Flight Service Stations; 217 aviation weather camera sites; and 1 commercial spaceport.The FAA says Alaska has 403 public use land-based airports, 43 heliports, and approximately 736 recorded landing areas (private, public, and military) total. Of course pilots land on many of the thousands of lakes and gravel bars across the state where no constructed facility exists. The number of enplanements (4.54 million) in Alaska is 6.2 times the state population compared to 2.3 times the U.S. population for all states. There are 286 certified air carriers in Alaska providing scheduled and on-demand services.Lake Hood in Anchorage is the world's largest and busiest seaplane base and the only seaplane base with primary airport status in the U.S. It accommodates an average of 177 daily takeoffs and landings with nearly 600 on a peak summer day. There were just fewer than 65,000 operations in 2013, when combined with the Lake Hood gravel strip. Alaska has the most seaplane bases in the country at 139.

The FAA also spends a lot of money in Alaska. Since 1982 the Airport Improvement Program (AIP) has provided over $3.7 billion for airport construction, development, and planning in Alaska. This funding was provided via approximately 1,444 AIP grants. In fiscal year 2013, the FAA Alaskan Region distributed $190.4 million in 37 AIP grants to State and other “local” airport sponsors.

Fatigue Risk Management

Civil Aerospace Medical Institute researcher Dr. Thomas Nesthus traveled to Washington, D.C. to participate in a meeting with AFS-200 and MITRE Corp. personnel. Discussions were focused on details and further development of a database for voluntary submissions of Fatigue Risk Management Program

variables from participating members of the Aviation Safety Information Analysis and Sharing System (ASIAS). The ASIAS system provides users the ability to perform integrated inquiries across multiple databases in useful formats. Related meetings were held with the Fatigue Risk Management Team, ATO, AJI-155 and support staff regarding their progress and product development on fatigue mitigation in the ATO. Future plans and potential research sponsorship were discussed along with corroboration availability. Following these meetings, discussions were conducted with additionalAFS-220 representatives and a member of the FAA Office of Chief Counsel at the Airlines for America regarding questions from participating members regarding 14 CFR Part 117 Flight Crewmember Duty and Rest Requirements. A final stop involved a briefing on integration of fatigue science during development and implementation of the requirements to three NTSB Board Members (including Chairman Hersman), NTSB Legal Counsel, and a number of accident investigation personnel.

This research activity supports the Administrator's Destination 2025 Goal to Move to the Next Level of Safety.

Human Factors Report:

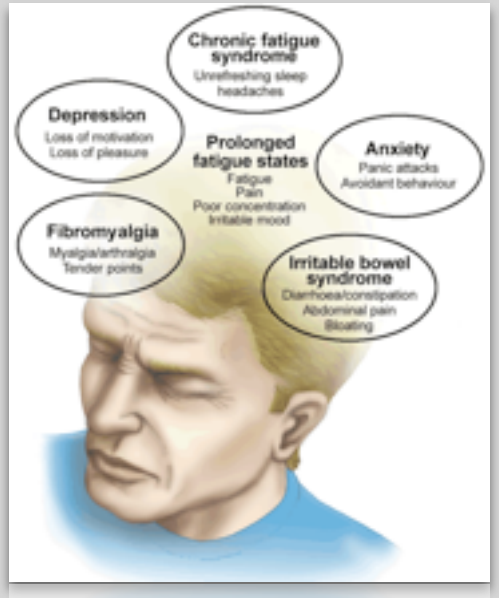
The FY 2013 Human Factors Division Summary Annual Technical Reviews available on the division website. The human factors team is pleased to report that we continue to deliver exceptional research and engineering services to the FAA and our sponsors, while at the same time demonstrating agility to best align ourselves with a dynamic and evolving environment. This success is shown by how sponsors have used our research products, as well as how human factors considerations have been further integrated as part of the FAA Acquisition Management System. For a copy of the report, please visit:

https://www.hf.faa.gov/hfportalnew/AnnualReports.aspx

For more information about the FAA Human Factors Research and Engineering Program, please visit: https://www.hf.faa.gov/

Mitigating Fatigue for Aircraft Maintenance Technicians

NBAA - While extensive research has been conducted on methods to mitigate fatigue among flight crews, comparatively little has been done on the effect of fatigue on those who maintain aircraft. However, technicians should be aware of their own fatigue, and maintenance managers should pay attention to it, "like any other factor involved in human performance," said former NBAA Maintenance Committee member Jack Tunnell, who has studied fatigue countermeasures for Part 91 and 135 technical crews. Fatigue countermeasures in maintenance operations will be among the many topics covered at this week's Maintenance Management Conference (MMC2014) in Tampa, FL.

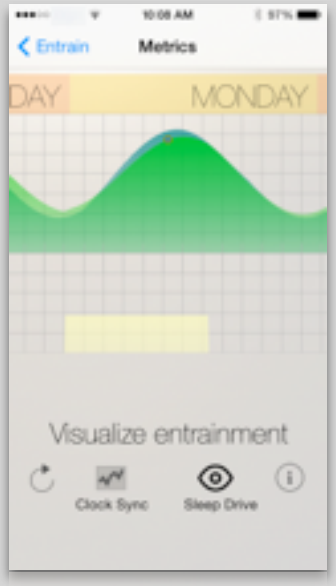


Read more about fatigue in the digital edition of Business Aviation Insider.

An App That Shortens Jet Lag?

“Overcoming jet lag is fundamentally a math problem and we’ve calculated the optimal way of doing it,” says Danny Forger, professor of mathematics at the University of Michigan (U-M) College of Literature, Science, and the Arts, in a release.U-M mathematicians have created a smart phone app that they say will help travelers snap their internal clocks to new time zones as efficiently as possible. Dubbed Entrain, the free app is believed to be the first to take a numbers-based approach to “entrainment,” the scientific term for synchronizing circadian rhythms with the outside hour. It’s based on new findings by Forger and Kirill Serkh, a doctoral student at Yale University who worked on the project while an undergraduate at U-M.

The shortcuts the app offers are custom schedules of light and darkness depending on the itinerary. The schedules boil down to one block of time each day when users should seek the brightest light possible and another when travelers should put themselves in the dark, or at least in dim light.



If users must go outside during the dim light recommended periods, the creators recommend the traveler wear pink-tinted glasses to block blue wavelength light. And if the app prescribes “bright outdoor light” in the middle of the night, a therapeutic light box can do the job.To show how this new method is different, the researchers illustrate circadian rhythms as a clock with a point at the hour when body temperature is lowest. This usually occurs about 2 hours before a person wakes up. If the point is usually at 5 am and a person travels overseas, it could abruptly swing over to, say, 3 pm in your destination. The person is likely to experience jet lag until the system adjusts and the body is once again at its lowest temperature just a few hours before the alarm goes off.

“The way other approaches get these points to line up again is by inching along on the outside of the circle, sometimes pushing you toward and sometimes pulling you away from the target. But our schedules can just cut through the middle,” says Olivia Walch, a mathematics doctoral student who built the app. “This is almost like a body hack to get yourself entrained faster.”

http://entrain.math.lsa.umich.edu/

Icelandair to Add Emteq Lighting to 757s

Icelandair has completed installation of Emteq's 115VAC Quasar II lighting system to its first Boing 757 aircraft.

Emteq's Quasar II has a two-inch node resolution with customizable colors, and Icelandair worked with the aircraft lighting system manufacturer to create an interior "Northern Lights" scene, a mixture of blue and green throughout the cabin.

Ed Callahan, director of global business development, said the Iceland carrier went "beyond what anyone else in the industry is doing with mood lighting," with its Northern Lights concept.
The addition of the Emteq lighting system goes beyond just an interior upgrade for Icelandair though, according to Helgi Mar Bjorvinsson, the airline's senior vice president for marketing and sales.

“Less maintenance and lower fuel consumption was an important case for the upgrade, as well as the desire to create a unique passenger experience and to utilize the lighting for branding purposes," said Bjorvinsson.

Six Roots to healthy Leadership

To understand the secret to great leadership, forget everything you’ve been taught until now. What worked in the past simply won’t cut it anymore.

Until recently, the accepted wisdom has been that leaders should be judged by short-term results. But, we’ve found that, thanks to rapidly changing technological innovation, deepening globalization and an ever-present uncertainty, this perspective hasn’t kept up with the times.

In fact, another, completely different model is necessary, with a new, more personal focus: effective leadership results from deeper internal qualities, not actions. Who you are drives what you do and that, in turn, determines performance.These qualities—what we call roots—form the foundation of healthy, grounded leadership. We’ve pinpointed six:

Physical health. It’s vital for providing the energy and stamina needed to meet the relentless demands of a constantly changing world. But you also have to understand the complex interconnection between mind and body. And you need to develop an energy management system that allows you to keep going over the long-term.

Emotional health. A necessity for stopping negative feelings from getting in the way of productive thinking, it helps you stay optimistic, while avoiding getting carried away by enthusiasm. It requires that you understand your strengths and weaknesses, are comfortable with ambiguity and are able to bounce back when times are difficult.

Intellectual health. This quality involves an intellectual adroitness and deep curiosity, which allows you to weigh quickly changing and potentially contradictory information. It also requires a multi-faceted flexible approach, rather than the usual linear thinking we're used to.

Social health. Without strong personal connections, no leader can function effectively. Social health lets you build an environment of trust and a commitment to the organization's goals. The most important element: authenticity, a consistency and integrity in everything you do, allowing you to build a wide array of mutually beneficial relationships.

Vocational health. With this quality, you can tap into a meaningful calling reflecting who you are and what you want to be. Vocational health makes it possible to reach your highest potential, setting an example for others about the value of life-long learning. And, it's essential for developing leadership potential in others.

Spiritual health. It means serving a larger purpose—one that's more than meeting organizational goals. That focus lets you get to the heart of the matter, avoiding trivial distractions and building an environment of respect and trust.

Why are these healthy roots so critical? The answer: it's leaders with these particular qualities who are up to the job, able to take the actions necessary to meet the challenges of today's world. For example, they allow leaders to tap into a higher purpose, thereby inspiring their people to feel that they matter, and to forge a shared direction, uniting the organization around a challenging, common goal. Healthy leaders also are able to unleash human potential, taking the steps to engage their people and encourage them to work to their full potential; to foster productive relationships and connections with others; to seize new opportunities and moving quickly; and to drive ever-higher individual and company performance.

Consider Alan Mulally. When he became CEO of Ford Motor Co. in 2006, the company was in serious trouble. Drawing on his full complement of healthy roots, from his clear authenticity to his ability to forge strong social connections, he was able to form the One Ford plan, restructuring the company and ensuring that everyone worked together to make it work. Today, Ford is profitable and growing.

In fact, through extensive research, we've found that such leaders not only make effective decisions, take the right actions and inspire others around them, but they accomplish something more–significantly out-performing their peers, thereby boosting the organization's ability to succeed and thrive in a fast-changing, complex environment.

20 Positive Ways to Confront Poor Performance

Lousy leaders whine about mediocrity but can't or won't have tough conversations. Excellence is a function of confronting performance issues.

Call people to rise up or they will leave or lay down.

Exceptional organizations consist of exceptional people. Talent develops when poor performance is confronted.6 Reasons performance deteriorates:

1. Resentment, anger, and getting even.
2. Over-work and over-commitment.
3. Lack of clear direction.
4. Unmatched skill-sets.
5. Distractions from meddling bosses.
6. Organizational culture that accepts mediocrity.

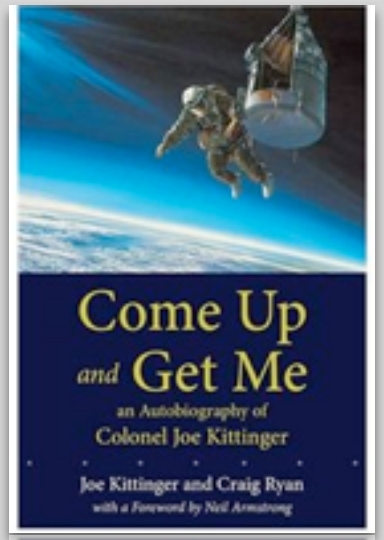
20 Ways to confront performance issues:

1. Begin with the person not the performance. People aren't machines.
2. Manage your emotions. Your feelings are obvious.
3. Act quickly. Delay invites mediocrity.
4. Never allow a first conversation to be an accusation.
5. Choose engagement over compliance.
6. Become a partner not superior.
7. Commit to their success or begin the process of setting them lose.
8. Assume responsibility. Blame invites defensiveness. Own your responsibility to develop their best.
9. Use "I" more than "you."

10. Ask them to assess their performance, first.
11. Don't use job descriptions as a crutch. Official documents create distance not connection.
12. Explain their unique and essential contribution. Describe how declining performance lessens meaningful impact.
13. Speak hard truths optimistically. "You have more in you."
14. Avoid adversarial tones and terminology.
15. Explore "with" before explaining "to." You don't know the whole story.
16. Don't rely on leadership by decree. Disconnected leaders use pressure. "This is going to stop." Coercion leads to manipulation which leads to deception.
17. Connect. The more difficult the conversation the more important connection becomes. Authority and position hinder connection.
18. Describe failure kindly but clearly. Pulling punches leads to mediocrity.
19. Define the win.
20. Develop a clear path forward. Talk more about the future than the past.

Come Up And Get Me An Autobiography of Colonel Joe Kittinger

A few years after his release from a North Vietnamese prisoner-of-war camp in 1973, Colonel Joseph Kittinger retired from the Air Force. Restless and unchallenged, he turned to ballooning, a lifelong passion as well as a constant diversion for his imagination during his imprisonment. His primary goal was a solitary circumnavigation of the globe, and in its pursuit he set several ballooning distance records, including the first solo crossing of the Atlantic in 1984. But the aeronautical feats that first made him an American hero had occurred a quarter of a century earlier.



By the time Kittinger was shot down in Vietnam in 1972, his Air Force career was already legendary. He had made a name for himself at Holloman Air Force Base near Alamogordo, New Mexico, as a test pilot who helped demonstrate that egress survival for pilots at high altitudes was possible in emergency situations. Ironically, Kittinger and his pre-astronaut colleagues would help propel Americans into space using the world's oldest flying machine--the balloon. Kittinger's work on Project Excelsior--which involved daring high-altitude bailout tests--earned him the Distinguished Flying Cross long before he earned a collection of medals in Vietnam. Despite the many accolades, Kittinger's proudest moment remains his free fall from 102,800 feet during which he achieved a speed of 614 miles per hour.

One of The Many Faces of Human Error

http://www.westseattleherald.com/sites/robinsonpapers.com/files/DirtyDozen%20maintenance%20mistakes.pdf