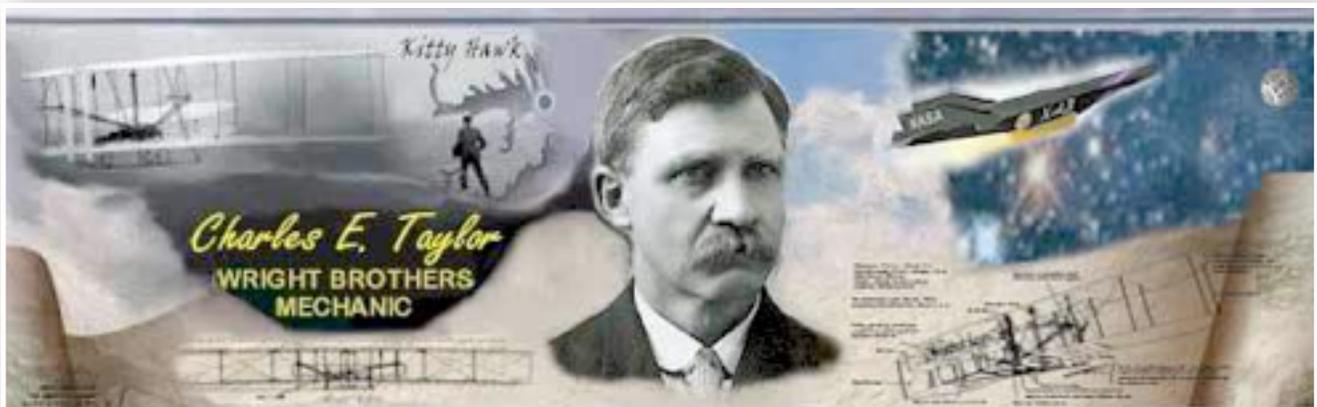


# Aviation Human Factors Industry News

Volume XII. Issue 16, August 21, 2016



From the sands of Kitty Hawk, the tradition lives on.

Hello all,

To subscribe send an email to: [rhughes@humanfactorsedu.com](mailto:rhughes@humanfactorsedu.com)

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

★ARSA Seeks Industry Input on Technician Training

★Get Ready for the New Small Drone Rule

★AIRCRAFT MAINTENANCE:  
BREAKING THE ACCIDENT CHAIN  
POST-FLIGHT INSPECTIONS

★Laxity of ground staff behind increasing accidents at airports apron area

★Fatal private plane crashes falling to new lows

★FAA Puts New Emphasis on Reducing Takeoff Excursions

★The FAA Announces A New Center of Excellence

★U.S. Part 135 Operators Will Need SMS To Fly in Europe

★And Much More

## **ARSA Seeks Industry Input on Technician Training**

The Aeronautical Repair Station Association (ARSA) has opened an online survey [to get industry input](#) on the training content most needed by the aviation maintenance community. The association's training program has taken many forms over the past decade and after a break in live sessions that began in 2014, ARSA's educational component reopened last year. The full regulatory schedule began in earnest in September with a three-part series on the purchase, receiving and sale of aircraft parts. "It was exciting when we hosted those first sessions last September," said Brett Levanto, vice president of operations for Obadal, Filler, MacLeod & Klein, the firm that manages the association. "Our office hosts decades of hard-won experience in regulatory compliance and these sessions are a means for us to make good on it."



The most highly requested topics will be added to the association's training schedule. Recordings of completed live sessions are made accessible in ARSA's expanding training library. [The survey will close on Friday, August 26](#)

## **Get Ready for the New Small Drone Rule!**

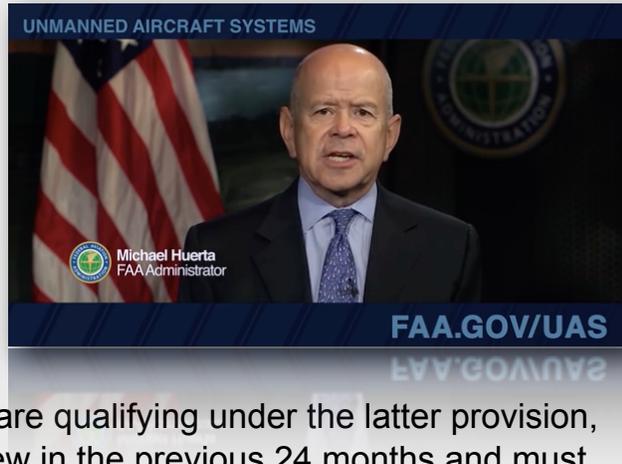
A new world of opportunities for drone operators opens next week on August 29 when the new small drone rule for [non-hobbyists](#) becomes effective. The Federal Aviation Administration (FAA) wants to make sure you have the information you'll need to take advantage of those opportunities.

### **Aeronautical Knowledge Test**

One very important step you have to take is to obtain your remote pilot certificate.

Under the new rule—also known as Part 107—the person actually flying a drone must have a remote pilot certificate with a small UAS rating, or be directly supervised by someone with such a certificate.

To qualify for the certificate, you must either pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center or have an existing non-student Part 61 pilot certificate. If you are qualifying under the latter provision, you must have completed a flight review in the previous 24 months and must take an FAA UAS online training course. The Transportation Security Administration [will conduct a security background check](#) of all remote pilot applications prior to issuance of a certificate. The FAA has posted extensive materials, including a test guide and sample questions, to help you prepare for the knowledge test.



You can review the materials by clicking on the “Knowledge Test Prep Part 107” button at [www.faa.gov/uas](http://www.faa.gov/uas).

You also can watch a short video about the knowledge test here: <https://youtu.be/v-d1RuTFvbs>.

## **AIRCRAFT MAINTENANCE: BREAKING THE ACCIDENT CHAIN POST-FLIGHT INSPECTIONS**

The human mind is capable of a surprising amount of [self-deception](#) in order to achieve what (we think) we want. We have the ability to [rationalize](#) many things in order to justify our actions to avoid pain or to fulfill an immediate desire. Rationalizing our desires can result in actions as benign as breaking a diet or as serious as risking death.

Without discipline, self-awareness, and/or a strong moral compass, "magical thinking" takes over and poses a risk to ourselves and to those around us.

In aviation accidents, we typically review the chain of events (or error chain) that consists of the many contributing factors leading up to the accident. If just one link in the chain had been broken, the theory goes, the accident would have been averted. The contributing actions that make up the links in the chain typically stem from human factor-related mistakes and pilot error, rather than simple mechanical failure. That's not to say that accidents aren't caused by mechanical failure; it just means that our own decision-making often plays a significant role in the outcome of the situation.

This is, after all, a maintenance column; so let's look at ways we can break the accident chain by preventing mechanical issues from becoming accidents.

I consider the postflight inspection to be the most important inspection a pilot can perform. The end of a flight might seem to be the least likely first step in accident prevention, but it's actually the best time to be thinking safety with a clear head. Preflight inspections, while critical, are the riskiest time for us to be making good decisions. We have all sorts of other pressing issues on our minds: weather, time, packing, passengers, etc. Our ability to focus completely on the job at hand is a challenge, to say the least. That said, an even greater danger is how we will handle the decision-making process if we happen to find a discrepancy.

Preflight is the perfect situation for rationalization and "magical thinking" to begin the error chain.



We have a mission, a place to go or something we need to do. If we discover something that might jeopardize the trip, our first instinct will be to find a way to justify continuing with our plan. Time is not on our side, so we are likely to make different decisions than we might otherwise make. The oil could be down a quart, a tire could be a little low, a nick could be found in the prop, the engine idle could be rough, or just something may not feel right during the preflight inspection. The temptation is strong to think: ["It's only a few hours of flying. I'll be OK."](#)

Take those same situations during a thorough postflight inspection, and the outcome is likely to be very different. Time is not a factor, so we make a plan to get everything taken care of. Buy a case of oil, check and fill all the tires, properly dress-out the nick in the prop, and make a plan to find the cause of the rough engine idle. We have time to order parts, get a second opinion, or dig deeper into something that seems a little off. We don't fly until the airplane is perfect because we don't have to.

[So, consider adding a thorough postflight inspection to your routine.](#)

Open the cowl after each flight and inspect the engine, check the control surfaces and everything else that you would typically check on a good preflight (and then some). This is the time to find a problem because this is when you can be uncompromising in your action plan.

Everyone plays the mental game of rationalizing potentially bad decisions or actions. The key is to have the tools, the checkpoints, and the [self-awareness](#) to prevent those thoughts from turning into actions. Stack the deck in your favor and leave "magical thinking" to the magicians. Happy Flying!

## Laxity of ground staff behind increasing accidents at airports apron area

When a private airline shuttle bus plowed into a parked aircraft at the Kolkata airport last year, it triggered an alarm. While pilots are subjected to intense scrutiny and have to strictly adhere to duty hour norms, the incident highlighted the laxity in monitoring of other staff, including those that ply passenger coaches in the crucial apron area where aircraft are parked.



*This incident at Kolkata airport in December 2015 has put the focus on alertness of ground staff.*

The Directorate General of Civil Aviation and Airports Authority of India have woken up to this

security concern and asked airlines to take a stock of its staff practices and behavior. They also want the carriers to look at the high attrition rates.

"Ground incidents are becoming a big issue at airports. While the number of incidents in the air has nosedived, there are still too many incidents on the ground," said DGCA director (air safety) Maneesh Kumar. Several of these incidents have been attributed to lack of adequate training of ground staff or fatigue due to overwork. The driver of the bus that damaged the Air India ATR aircraft beyond repair had fallen asleep at the wheel.

In 2013, there were 44 ground accidents at airports in India which came down to 35 the following year. But in 2015, it has again shot up to 43. While 79% accidents were on the ramp in 2013, the figure went up to 85% in 2014. In 2015 ramp accident stayed high at 83%.

"The growth in airlines is creating jobs. But the people who are being inducted into the industry need to be properly trained and looked after," said Ashok Srivastava, deputy airport director of the NSCBI airport.

At Kolkata airport, the Airlines Operators' Committee (AOC) comprising representatives of various carriers that operate out of Kolkata have taken it upon themselves to regularly train staff.

AAI executive director (aviation safety) SV Satish said **bird hazard** was also emerging as a major safety challenge at airports like Kolkata and Mumbai. "Kolkata has a bird problem. There were similar problems at Mumbai airport but they managed to overcome it by taking help of the community. Slaughter houses and waste disposal system were taken care of and the problem was contained to a large extent," said Satish.

The issue has figured in coordination meetings for several years now with AAI urging adjoining municipalities to remove garbage dumps and keep the area clean to prevent the flocking of birds. "Bird incidents have reduced. But we cannot lower the guard. **Cleanliness has to worked on continuously,**" said Sarvesh Gupta, chairman of the AOC, Kolkata.

## **Fatal private plane crashes falling to new lows**

Fatalities in crashes of small private planes have fallen to the lowest levels in decades as industry and government work to address an area of aviation that has lagged behind jetliners in dramatic safety improvements. While aviation crash analysts caution that it's **still too early to say** for sure that the data represents a long-term trend, the declining number of fatal crashes and deaths are a sign of possible progress.



The number of fatal crashes per year on small private planes averaged 180 per year from 2013 through 2015, according to a report to be released Thursday by the Aircraft Owners and Pilots Association. That's a 17.8 percent decline compared to the previous three-year period.

"It goes to a trend we've seen in the last several years," said George Perry, who heads AOPA's Air Safety Institute. "Safety numbers have been significantly better year-over-year."

Among the factors credited for the decline: better training of pilots and technological advancements that make planes easier to fly and provide up-to-date weather and other information. That can range from advanced crash-avoidance systems to apps for mobile devices.

The Federal Aviation Administration, which tabulates private-plane accidents using slightly different criteria, calculated the rate of fatal crashes in the 2015 fiscal year was the lowest it had recorded, 1.03 per 100,000 flight hours, according to a July 28 fact sheet. The number of private-plane flights per year has been falling, so the decline in the accident rate is less steep than the drop in overall accidents.

The data should be approached with care because there is less information collected on general aviation as compared to commercial operations and the declining accident rate has been relatively small, said John Hansman, an astronautics and aeronautics professor at the Massachusetts Institute of Technology. But the data jibes with broad new efforts to improve safety in that arena, Hansman said.

"It's encouraging," said Hansman, who has studied private-aircraft safety data. "There are reasons to think it might be accurate. There's a lot of things happening in the system that are slowly making it better."

Electronic devices, including aviation applications for Apple iPads and other mobile devices, are giving pilots much better weather information than just a few years ago, and newer planes are easier and safer to fly, he said.

Meanwhile, the FAA and the National Transportation Safety Board have each begun efforts to improve safety among private aircraft operators, who are generally the least regulated in the aviation system.

The FAA in recent years has studied accidents and taken steps to lower the leading causes, [which include pilots losing control, engine failures and flying into bad weather](#). The agency has made it easier to add new equipment to planes, such as a device warning pilots they are about to lose control. It has also approved weather and other programs for mobile devices.

The NTSB has said finding ways to prevent pilots from losing control is among the "Most Wanted" safety improvements and has urged aircraft owners to install the [loss-of-control devices](#).

Similarly, AOPA's Air Safety Institute holds training seminars across the country and has safety guidance materials on its website.

The accident rate for privately owned aircraft declined incrementally in previous decades and remained about the same through the 2000s, according to NTSB accident statistics. By comparison, risks on scheduled airline flights fell by more than 90 percent in recent decades.

For the first time since the AOPA began compiling safety data 25 years ago, its calculation of the fatal crash rate fell in 2013 to less than one accident per 100,000 flight hours. The rate rose slightly in 2014 to 1.15, which was still lower than the average for preceding years.

The FAA has not released its annual estimate of the hours that private planes fly for 2015, so AOPA didn't calculate an accident rate for that year.

The AOPA data focuses on a narrower set of accidents than the FAA or the NTSB, looking [only at planes weighing less than 12,500 pounds \(5,670 kilograms\)](#) and excluding such categories as hot-air balloons and gliders. It considers that group more representative of its members.

Fatal accidents on privately operated helicopters, which were calculated separately, haven't shown the same downward trend, according to the AOPA report. While the fatal crash rate reached 0.81 per 100,000 hours in 2014, it was 1.48 in 2013, the highest recorded since 2006.

For all categories of privately operated aircraft, there were 229 fatal accidents that killed 376 people last year, according to NTSB's data. The death toll is the lowest for at least the past 20 years.

There are more than 220,000 private aircraft registered with the FAA, the most of any nation in the world, according to the FAA.

## **FAA Puts New Emphasis on Reducing Takeoff Excursions**

While landing excursions outnumber takeoff excursions by **four times**, the latter category of mishaps “still occur at an unacceptable rate,” the FAA said in a Safety Alert for Operators released on Friday. Two-thirds of takeoff-related events are overruns, and turboprops are involved in the largest percentage, followed closely by jets, the agency said. According to the FAA, it's often errors in takeoff performance calculation that increase the risk of a takeoff runway excursion. “Operators should have procedures in place that provide proper weight-and-balance data, accurate takeoff-performance data and methods for error detection,” it noted.



The FAA said that it is of “primary importance” that weight-and-balance and takeoff performance numbers be verified by both flight crewmembers. In addition, training should also focus on “risk recognition and mitigation” regarding the hazards of incorrectly entering data into the flight management system, electronic flight bags or other electronic devices used for takeoff performance calculations. “Last-minute changes due to passengers and/or cargo adjustments, changes in weather, assigned runway or runway conditions or clearances are fertile ground for errors to occur,” according to the agency.

Using the guidance contained in the FAA Takeoff Safety Training website with “clearly defined” SOPs and training for rejected takeoff decisions also guards against potential errors, the agency concluded.

<http://ea.ecn5.com/Clicks/RGpzN3ZMcUQyQjVsTyt0dmJJdTJXbGZpZFdjWXNEb1VucGt6K01oWGNlajlWR2RoVUh3cjh6T1pqeFlnUXE2Rw%3d%3d>

<http://ea.ecn5.com/Clicks/RGpzN3ZMcUQyQjVsTyt0dmJJdTJXbGZpZFdjWXNEb1VucGt6K01oWGNlajlJYUGFNV29NQ2NsZDNRZUhyZW5ZYw%3d%3d>

## **The FAA Announces A New Center of Excellence**

Federal Aviation Administration (FAA) Administrator Michael Huerta recently announced that the agency has selected the University of Oklahoma and Embry-Riddle Aeronautical University teams to lead the new [Air Transportation Center of Excellence for Technical Training and Human Performance](#) (COE TTHP). The COE will conduct research and development on technical training for air traffic controllers, aviation safety inspectors, engineers, pilots and technicians.



“This world-class, public-private partnership will help us focus on the challenges and opportunities of this cutting-edge field of research,” Administrator Huerta said. “We expect this team will help us educate and train aviation professionals well into the future.” The academic team members all have nationally-recognized collegiate aviation-related education programs and core members also own and operate their own aircraft and airports. A partnership of principal investigators from the different universities will perform the research projects. The universities will engage senior faculty as well as graduate-level and undergraduate students in their research activities.

The FAA expects the COE will be fully operational and engaged in a robust research agenda within the next few months.

The FAA will take advantage of advancements in teaching, such as part-task training, modeling, immersive human-in-the-loop simulation, and adaptive learning technologies that are standard in other technical workforces. The COE will examine human factors issues such as changes in learner expectations and academic best practices for training a new generation of learners. The center also will research innovative training methods for this new generation. This includes new technologies such as mobile learning as well as new ways of collecting and managing training data.

The FAA's Center of Excellence program is a long-term, cost-sharing partnership between academia, industry and government. Congress authorized Air Transportation Centers of Excellence under the Federal Aviation Administration Research, Engineering and Development Authorization Act of 1990. This legislation enables the FAA to work with center members and affiliates to conduct research in airspace and airport planning and design, environment and aviation safety, as well as to engage in other activities to assure a safe and efficient air transportation system.

The FAA has established 12 Centers of Excellence in critical topic areas focusing on: unmanned aircraft systems, alternative jet fuels and environment, general aviation safety, commercial space transportation, airliner cabin environment, aircraft noise and aviation emissions mitigation, advanced materials, general aviation research, airworthiness assurance, operations research, airport pavement and technology, and computational modeling of aircraft structures.

For more information about the FAA Centers of Excellence program, visit the COE web page at <http://www.faa.gov/go/coe> .

## **U.S. Part 135 Operators Will Need SMS To Fly in Europe**

The FAA is advising U.S. Part 135 operators that they soon will need an [approved safety management system](#) (SMS) program to fly throughout Europe under the Third Country Operators (TCO) regulation.



Before you reach for your copy of Brave New World or do a Google search on neural reprogramming, rest assured. Guy Meadows doesn't mind what employees dream about or hear while they are sleeping.

However, the sleep physiologist has become increasingly concerned that employees are not getting the sleep they need to [perform their duties to the levels](#) that their employees need.

Judging from the number of organizations that have signed up to send staff on the courses of Meadows' London-based Sleep School, they agree too.



Dr Meadows hit upon the idea when he was researching treatments for chronic insomnia and pioneering a new approach called acceptance and commitment therapy (ACT), a form of cognitive behavioral therapy that seeks to change the way people relate to discomfort they are suffering. His clinic has been training doctors in this approach since 2005 but in recent years noticed an increase in demand from organizations.

“They do staff surveys and discover that their employees are struggling to sleep,” he says.

The Sleep School therefore began to provide what Dr Meadows calls “[sleep education](#)” workshops under the mantra “sleep to perform.”

“The aim is to enable employees to perform at their very best during the day by knowing how to sleep really well at night,” he says.

“There seems to be an intimate relationship between how people sleep at night and how they perform the next day: [how resilient they are to stress.](#)”

The Sleep School has defined [three key areas](#) in which it wants to teach employees to excel: how well they are at night, how resilient they are to stress during the day and their ability to transition from work to home and connect with their personal lives.

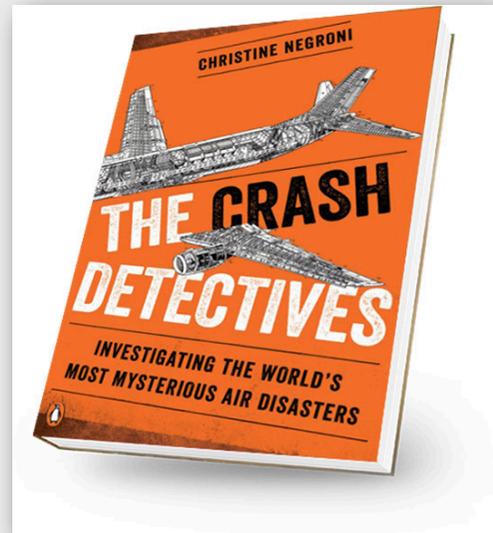
“The goal is that when people are performing in all three areas, this will have a knock-on effect,” says Dr Meadows.

## **The Crash Detectives**

### **Investigating the World’s Most Mysterious Air Disasters**

A fascinating exploration of **how humans and machines fail**—leading to air disasters from Amelia Earhart to MH370—and how the lessons learned from these accidents have made flying safer.

Capt. Chesley Sully Sullenberger calls Christine Negroni "a talented aviation journalist. The Crash Detectives, Investigating the World's Most Mysterious Air Disasters will be published by Penguin and Penguin Random House Audio in September 2016. See what the critics are saying.



### **The Crash Detectives Book Trailer**

[https://www.youtube.com/watch?v=W\\_g6F3aXmlg&feature=youtu.be](https://www.youtube.com/watch?v=W_g6F3aXmlg&feature=youtu.be)

<http://christinenegroni.com/books/the-crash-detectives/>

## Seniors push athleticism to the limit

As we see during the Olympics, athletes are getting faster and stronger all the time. The same can be said for a large percentage of America's senior citizen population: Men and women showing the benefits of staying active as they age, with some breaking world records while they do it. Lee Cowan reports.



<http://www.cbsnews.com/videos/seniors-push-athleticism-to-the-limit/>

## The Power of Personal Initiative

Think of something you want to achieve that is really important to you? (Don't continue without selecting one of your top goals.)

Now imagine having achieved it? You're basking in the satisfaction of a job well done. What does it look like? What does it smell like? What does it taste like? What does it feel like? How do **you** feel?

The ONLY way in which you will experience the joy, beauty, and fulfillment that will come by achieving this goal is if you use your personal initiative. It won't happen without it. What is Personal Initiative?

Dwight Turner, a newspaper columnist, defines it this way: "Initiative is a force of personal energy that arises from deep within and flows forth into positive, goal-oriented action."

Your personal initiative is your inner power that starts all action. **It is the enemy of procrastination.** It's the spark that initiates your productive actions. Without personal initiative, you cannot be successful.

### **How Does One Achieve Success?**

Napoleon Hill talked about personal initiative at length in his 9<sup>th</sup> principle of success. He said, "*Success is something you must achieve without someone telling you what to do or why you should do it.*"

Success comes to those who are proactive. Instead of drifting through life doing only what is required, successful people do the extra things that bring more meaning to life.

No one told Fred Smith to start FedEx; he started it using his own personal initiative. No one told Sergey Brin and Larry Page why they should start Google; they did it using their own personal initiative. No one pushed me every day to do the things that were required of me to achieve my goals; it was the consistent use of my personal initiative that allowed me to achieve them.

No matter what your goal is—becoming a remarkable mom, an honor student, an outstanding athlete, a top-producing sales person, or the owner of your own business—if you are going to be successful you must use your personal initiative to do the little things required of you to succeed. Sorry, but it won't happen any other way.



## Why Do Little Things Matter?

Personal initiative is more than a fundamental requirement to achieving your goals, it's also about doing the little things that make your life and the lives of others, both at work and at home, more enjoyable.

It's doing the simple things like picking up your dirty clothes, cleaning the dirty windows or emptying the overflowing trash can. It's taking three minutes to clean the coffee mugs in the sink at the office. It's taking time to express your genuine gratitude to someone who did something for you. It's offering to help a friend in need.

In a sense, your personal initiative is **noticing and being aware of the things that need to be done without being asked.**

One of my fundamental beliefs is that the only way you will have personal initiative to do big things is by first using it to do the little things. Every big success is made up a great number of little successes, each of which requires personal initiative and many of which are so small and insignificant that only you notice, but they all add up.

## What Are the Hidden Benefits?

Using one's personal initiative has more benefits than meet the eye.

1. People who use their personal initiative are more respected and have greater influence.
2. No other method for building one's self esteem is more effective than using your personal initiative to do the little things that make you a better person.
3. People who consistently use their personal initiative to advance their careers are those who are at the top of the pay scale in their profession.
4. You will have the edge at everything you do because you will stand out as a person worthy of being noticed.

## Why Wait to Use Your Personal Initiative?

I not sure of the reason, but I see fewer people using their personal initiative to advance their lives forward than at any time in my life. It's like everyone is sitting in a [holding pattern](#) waiting for something to change.

This is your opportunity to step up your game and distinguish yourself from the growing number of apathetic people. This is your chance to use your unique talent, skill, and ability to achieve the things that are important to you. Don't let the lethargic environment around you keep you from stretching yourself to be your very best.

David Mahoney said, "*There comes a time when you need to stop revving up the car and put it in gear.*" Now is the time to put [your life](#) in gear and go conquer your dreams.

***"Destiny is not a matter of chance, it is a matter of choice; it is not a thing to be waited for, it is a thing to be achieved."* William Jennings Bryan**