

THE STORM ON AVIATION'S RADAR

HOW TO REROUTE THE YOUNG INTO THE AVIATION AND
AEROSPACE WORKFORCE

AUTHOR

Geoff Murray, Partner



ABOUT THE SUMMIT



SPONSORED BY



A TAWAZUN SUBSIDIARY

The Global Aerospace Summit is an invitation-only event for C-level executives, senior decision-makers, and government officials involved with the aerospace, aviation, defense, and space industries.

The 2014 summit brought together more than 1,250 world industry leaders in Abu Dhabi's St. Regis Hotel, Saadiyat Island, to discuss the future of these sectors. At the April summit, 62 percent of attendees were C-level executives, vice presidents, or directors. They came from 52 countries and represented 468 companies.

INDUSTRY MUST FORGE CREATIVE PARTNERSHIPS

The global aviation industry faces an urgent challenge. At the same time that orders, backlogs, and manufacturing activity are at or near record levels, aerospace companies are facing unprecedented numbers of employee retirement that could make it difficult to keep pace with demand.

While new technology such as additive manufacturing might boost productivity and ease the staffing crunch, the pool of potential replacement talent is increasingly limited. Interest in the aerospace sector is waning, fewer students are excelling in math and science, and competition from other industries for top graduates is intense.

To develop the management and factory floor talent that aerospace companies will need, the industry must inspire and train the next generation of students. That's going to take some unusual and creative partnerships.

In April 2014, more than 1,250 delegates from 52 countries convened at the Global Aerospace Summit in Abu Dhabi and, in one session, discussed how to meet this challenge. They faced sobering data: Next year, 24 percent of hourly manufacturing employees in the industry and 18 percent of engineers will be eligible for retirement. Boeing Co. expects half of its workforce to retire in the next five years.

Further, in the next 20 years, airlines will more than double the size of their fleets, adding 25,000 aircraft. To accommodate retirements and growth, the industry will have to add about 480,000 technicians and 350,000 pilots in the next decade.

And just as demand for workers increases, competition from other industries has heated up. The tech industry continues to thirst for talented scientists and technicians, and the energy industry has gone on a hiring binge to satisfy the oil and gas boom.

"If you have a college junior about to go to their senior year who has just completed an internship and you think that's a strong person, you better have them a job offered by September 1st or they will be gone," said Textron Systems Chief Executive Ellen Lord.

In the 1960s, heroes like astronaut and conference attendee Buzz Aldrin inspired the young to build the modern aerospace industry. As that generation retires, industry leaders are creating fresh ways to motivate today's children to take flight.

"Our teenagers recently took a ride on the robotic Raytheon simulator in Disney World," said Dawne S. Hickton, chief executive of titanium and specialty metals supplier RTI International Metals Inc., during a summit session. Raytheon International President Matt Riddle had just described how the defense contractor is using interactive museum exhibits to encourage future engineers. The Raytheon-sponsored simulator allows children to design their own thrill ride by using basic math and science principles. It's an eye-catching example of the creativity the industry needs to recruit fresh talent.

24

Percentage of hourly manufacturing employees in the aerospace industry eligible for retirement next year.

18

Percentage of aerospace engineers eligible for retirement next year.

25,000

The number of new aircraft likely to be added to commercial fleets in the next 20 years.

480,000

The number of technicians that the aerospace industry must add in the next decade.

350,000

The number of pilots airlines must hire in the next decade.

HIRING REMAINS DIFFICULT

Expanding the hiring pool is challenging. Compared with other industries, an aviation education is particularly expensive, and the salary of an engineer with 10 years of experience is lower than the pay for business or finance professionals at the same career point. Many children lack adequate science and math education, particularly in elementary and middle school; by the time they are teenagers, it's too late to catch up. To compound this challenge, many kids and, more important, their families have little knowledge of the aviation and aerospace industries and can't envision such careers, much less dream of them.

"You are not recruiting only young guys or girls, you need to recruit their parents," said Doug Raaberg, chief executive UAE for Northrop Grumman.

Part of the problem is that the industry did so little hiring during the downturn of the 1980s and '90s. So as the oldest workers retire, there are few middle-age people to take leadership roles. This makes it all the more important to quickly hire young people to learn from soon-to-retire mentors.

As the traditional aviation markets ramp up hiring, emerging aviation hubs are also scouting for talent. Often, those jobs are filled by ex-patriots, but more and more, these developing regions aim to place their own citizens in the jobs. This is even more challenging because some areas, like the UAE, must build the infrastructure to educate and train people for the industry, while also competing with more developed sectors. In 2014, Khalifa University in Abu Dhabi will graduate its first class of aerospace engineers. Number of graduates: 15.

"The whole nexus is moving east. And I would suggest it's moving east not just because of the great opportunities here in the Gulf region and other parts of the world, it's moving east because in many of the so-called mature markets, North America and Europe, we have an aging workforce. And in these markets that's not the case. We have a huge emerging workforce and a great opportunity to build that talent elsewhere," said Alan May, vice president for human resources at Boeing Commercial Airplanes.

You might expect that regions with high unemployment could satisfy the demand for workers, but not quite. Conference attendees said local schools, universities, training centers, and governments are often disconnected from the aviation and aerospace industries. These nations aren't making sure students are prepared for jobs, and the industry often doesn't clearly communicate its needs.

The industry must also account for the risk and cost of recruiting. If aviation and aerospace companies face another downturn, their recruiting efforts might be lost to layoffs. A flexible staffing scheme, like that used in the hospitality industry, could help.

Companies must be sure they are recruiting in countries that are politically and economically stable. When government subsidies support training or jobs programs, companies should consider whether those programs are likely to last. A further issue that can complicate hiring is whether the governments allow skilled workers to migrate to the company's location.

WANTED: INNOVATIVE RECRUITING

Aerospace companies are trying a range of initiatives to hire more people, including training programs, marketing campaigns, and programs to recruit more women. What is common to most of the programs is some level of partnership with entities outside the company.

To increase the pool of applicants, hiring managers are starting young – some as early as kindergarten. The idea is to increase the number of children who have the aptitude in math and science, then ensure that they move into higher-level classes and, eventually, university courses. In addition, companies aim to generate excitement about the industry by holding competitions and boot camps for kids, and, of course, sponsoring a theme park ride.

In a conference session, Marion Blakey, chief executive of the Aerospace Industries Association of America, described the association's annual Team America Rocketry Challenge for kids. Rockets must meet certain criteria such as altitude, flight duration and payload (usually an egg), but otherwise school teams are free to be creative. "Every science teacher should do it – we have found there are a lot of kids that will talk about this experience as the moment where they really caught fire on what they wanted to do in aerospace," she said.

Other companies are developing education programs for their specific needs, such as training for airport workers, an aerospace MBA program, and a dual education and hands-on apprenticeship program. Ms. Hickton of RTI International Metals, as a trustee for the University of Pittsburgh, pushes curriculum ideas that will help prepare students for her company's corner of the industry. "For example," she said, "I've suggested development of additional courses in material sciences at the engineering school."

Embry-Riddle Aeronautical University is taking an even broader approach. The university established dual enrollment programs in some high schools so that students complete entry-level college courses during high school. The program is partly designed to help students avoid taking basic classes in college that can slow down graduation.

"If they are taking developmental coursework, it gets discouraging because you've got the finance sector, the management sector – they can leave in four years and they command a good salary," said Embry-Riddle Chancellor Dr. John Watret.

Once hired, young people need mentors. Executives must engage with new hires more than ever before to pluck out the best people and move them into meaningful, exciting projects. This one-on-one mentoring, by executives and senior staff on important projects, can help retain the top young employees, groom them for leadership roles, and transfer knowledge from imminent retirees.

"So how do we really get this population that's about to retire to share their knowledge?" said Mr. May of Boeing Commercial Airplanes.

One-on-one mentorships are effective, he said. "There are some barriers to it, but realistically, we find that it's an exciting way that, frankly, older workers will be able to give back and finish their career. Many of them like to travel, they would like to go to other societies, so it's a big initiative that we are fostering."

"We have found there are a lot of kids that will talk about this experience as the moment where they really caught fire on what they wanted to do in aerospace."

Marion Blakey,
chief executive
of the Aerospace
Industries Association
of America, on
the Team America
Rocketry Challenge

Some companies are becoming more strategic about their locations in order to boost employment. Partnerships among companies, governments, and universities to create centers of industry excellence can draw local talent.

One prime example of a partner bringing in local talent for growth is Sikorsky's program to build Black Hawk helicopters in Turkey. In March 2014, the company licensed Turkey's aerospace industry to make 109 Turkish versions of the Black Hawk. The helicopters are assembled in Turkey, and one of the Turkish aerospace partners, Aselsan, is developing a new cockpit avionics system.

"What we did was work together on a program that recognized the capabilities of Turkish industry and Sikorsky, and how we could best work together and, toward that end, for essentially over the next 20 years or so developing a complete supply chain for the Black Hawk that will augment what we have today. That's a win for Turkish industry, it's a win for us in terms of serving our other customers and making the product that much more competitive," said Sikorsky President Mick Maurer.

Mr. Maurer said the Sikorsky program was 10 years in the making.

Ten years from now, a large segment of the industry's most capable leaders will be retired. It's time now to establish workforce development programs that will bear fruit. It's crucial that the industry create a talent pool. Companies can do it by marketing themselves to traditional candidates and winning them away from other industries, by seeking out new groups of people in countries that are just developing their aviation industries, or by tapping groups that weren't traditionally considered for aviation jobs. The alternative is to slow down innovation and shrink.

"That's a win for Turkish industry, it's a win for us in terms of serving our other customers and making the product that much more competitive."

Mick Maurer
president, Sikorsky

RECENT PUBLICATIONS FROM OLIVER WYMAN

For these publications and other inquiries, please visit www.oliverwyman.com.



MRO SURVEY 2014

Oliver Wyman's annual survey explores MRO response to manufacturer dominance of the aftermarket. Key themes are new partnerships, fresh hiring, and 3-D printing.



AIRLINE ECONOMIC ANALYSIS

Oliver Wyman's popular Airline Economic Analysis is both an annual reference book of aviation data and an analysis of key trends.



THE OLIVER WYMAN TRANSPORT & LOGISTICS JOURNAL

A publication that discusses issues facing global transportation and logistics industries.



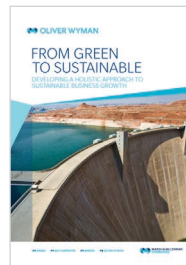
THE OLIVER WYMAN RISK JOURNAL VOL. 3

A collection of perspectives on the complex risks that are influencing many companies' futures.



PERSPECTIVES ON MANUFACTURING INDUSTRIES

A collection of viewpoints on challenges for industrial companies, as well as opportunities and potential courses of action.



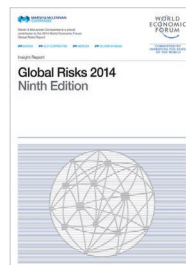
FROM GREEN TO SUSTAINABLE

The fig-leaf approach of "going green" is no longer enough to show commitment to the sustainability agenda. Companies that take active leadership on sustainability will gain competitive advantage and long-term growth.



ROCKET SCIENCE

Will the aviation industry soon feel the winds of change when it comes to fuel? Ground transportation is transitioning to lower-emission fuels. But nearly all airplanes still run on petroleum-based jet fuel, due to a lack of commercial options.



GLOBAL RISKS 2014

Our ninth edition of Global Risks, published by the World Economic Forum, offers a snapshot of how more than 700 industry leaders and experts perceive evolving, interconnected risks that cut across national boundaries, the economy, technology, society, and the environment.

ABOUT OLIVER WYMAN

Oliver Wyman is a global leader in management consulting. With offices in 50+ cities across 25 countries, Oliver Wyman combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation. The firm's 3,000 professionals help clients improve their operations and risk profiles and accelerate their organizational performance to seize the most attractive opportunities. Oliver Wyman is a wholly owned subsidiary of Marsh & McLennan Companies [NYSE: MMC]. For more information, visit www.oliverwyman.com. Follow Oliver Wyman on Twitter @OliverWyman.

ABOUT OUR AVIATION, AEROSPACE & DEFENSE PRACTICE

Oliver Wyman's global Aviation, Aerospace & Defense practice helps passenger and cargo carriers, OEM and parts manufacturers, aerospace/defense companies, airports, MROs, and other service providers develop growth strategies, improve operations, and maximize organizational effectiveness. Our deep industry expertise and our specialized capabilities make us a leader in serving the needs of the industry. Also, Oliver Wyman offers a powerful suite of industry data and analytical tools to drive key business insights through www.planestats.com.

For more information on this report, please contact:

GEOFF MURRAY
Partner
geoff.murray@oliverwyman.com

JEROME WEILL
Partner
jerome.weill@oliverwyman.com

MARCUS NEUDEL
Partner
marcus.neudel@oliverwyman.com

Elizabeth Souder edited this report.

www.oliverwyman.com

Copyright © 2014 Oliver Wyman

All rights reserved. This report may not be reproduced or redistributed, in whole or in part, without the written permission of Oliver Wyman and Oliver Wyman accepts no liability whatsoever for the actions of third parties in this respect.

The information and opinions in this report were prepared by Oliver Wyman. This report is not investment advice and should not be relied on for such advice or as a substitute for consultation with professional accountants, tax, legal or financial advisors. Oliver Wyman has made every effort to use reliable, up-to-date and comprehensive information and analysis, but all information is provided without warranty of any kind, express or implied. Oliver Wyman disclaims any responsibility to update the information or conclusions in this report. Oliver Wyman accepts no liability for any loss arising from any action taken or refrained from as a result of information contained in this report or any reports or sources of information referred to herein, or for any consequential, special or similar damages even if advised of the possibility of such damages. The report is not an offer to buy or sell securities or a solicitation of an offer to buy or sell securities. This report may not be sold without the written consent of Oliver Wyman.