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INTERNATIONAL LOSAs Pave The Way For Safety Best Practices

How safety managers are collecting data to identify threats

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Ground Support

WORLDWIDE

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I want to personally thank you for reading *Ground Support Worldwide*. You're in good company as this magazine has the largest circulation in the industry for a reason. Airport leaders, brand specifiers and decision makers like yourself turn to *Ground Support Worldwide* to learn about and share the latest trends and best practices.

The AviationPros Group has also grown our multimedia products and services to help you perform your job even better.

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While I am proud of what the AviationPros Group has accomplished in 2015, I'm actually more excited with what we have in store for

2016 and beyond. *Ground Support Worldwide* and AviationPros have many new partnerships with associations and industry leaders to make sure you have the knowledge and tools to be a leader. Look for a new thought-provoking video editorial series called "On The Mark" featuring aviation expert Rob Mark. Mark often appears on CNN, CNBC, BBC and many other media outlets as an industry expert. We have partnered with him to launch a unique, cutting-edge video editorial series on issues in aviation. Make sure to sign up for our digital products to receive "On The Mark" and other digital offerings to compliment those you already receive.

We will continue to invest in our properties to bring you the best print and digital products in aviation. Please contact me anytime with ideas, suggestions or comments on how we are doing or what we can do to help support both you and the industry. Brett@AviationPros.com

Com' on Aboard!

Brett Ryden
Publisher, Aviation Group



► Upcoming Events

October 26-28
Cargo Facts Symposium 2015
 Miami

November 17-19
NBAA
 Las Vegas

January 19-22, 2016
NBAA Schedulers & Dispatchers
 Tampa, Fla.

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BUSINESS BUZZ

► TOP NEWS

United Replaces CEO in Amid Federal Corruption Investigation

United Continental Holdings dismissed CEO Jeff Smisek and two other top executives, in the middle of internal and federal probes associated with the Port Authority of New York and New Jersey, those probes, however, “do not raise any accounting or financial reporting concerns” according to United. United’s executive vice president of communication and government affairs, Nene Foxhall, and senior vice president of corporate and government affairs, Mark Anderson, were also replaced.

Dnata Purchases 30 Percent Stake in Italian Ground Handler

Emirates Group’s cargo handling division has picked up a controlling interest in Airport

► Corrections

The listing for Somerset Aviation Capital was incorrect in the August 2015 *Ground Support Worldwide* Directory. The correct listing is as follows:

Somerset Aviation Capital

612 Wheelers Farms Rd.
 Milford, CT 06461
 United States

Website: www.somersetaviation.com
 Email: Neil.Bennett@somersetcapital.com



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Handling, and an option to buy another 40 percent of the company, as part of danta’s European expansion. Dnata has already acquired Belgian company Aviapartner, a cargo handler at Schiphol airport in Amsterdam for an undisclosed sum in July, as well as Gold Medal Services, a division of Thomas Cook, for 45 million GBP last year. Dnata is expected to retain all 1,800 Airport Handling employees.

New Jersey Transportation Commissioner Quits During United Corruption Investigation

Just weeks after former United CEO Jeff Smisek resigned during a federal corruption investigation, Jamie Fox, the New Jersey transportation commissioner appointed by Governor Chris Christie resigned as well. Federal prosecutors are investigating the nature of the relationship between the Port Authority of New York and New Jersey and United Airlines, which Fox was previously a lobbyist for.

Alaska Airlines Loses Alaska Airlines’ CEO’s Baggage on Flight to Washington, D.C.

Alaska Airlines Chief Executive Bradley Tilden had a mildly embarrassing moment at an airline summit in Washington, D.C. The executive said, on stage, that Alaska Airlines misplaced his bag during his flight to the summit, and didn’t get to him until the next day. Ironically, Alaska Airlines offers passengers a 25 dollar credit toward a future flight or 2,500 miles in the airline’s reward program if their bags are not delivered to them within 20 minutes of reaching the gate.

Dozens of Menzies Aviation Workers Walk Off Job at Sea-Tac

Baggage handlers, cabin cleaners and ramp workers employed by Alaska Airlines contractor Menzies Aviation went on strike at Sea-Tac International Airport on September 11 in protest of unfair labor practices. The striking workers were also demanding a \$15 hourly wage and union rights.

Calspan Air Services Expands Services to BWI

Calspan Air Services has been awarded the contract to provide ground handling services

for Spirit Airlines at Baltimore Washington International Airport (BWI), effective August 1, 2015. Calspan employs over 50 people on site at BWI and provides all ground handling services for Spirit, including customer support.

Inaugural Girls in Aviation Day a Rousing Success

Thousands of girls were introduced to aviation as a career and lifestyle thanks to the organization Women in Aviation International on September 25 as part of Girls in Aviation day. The event served to “plant the seeds to grow the aviation community,” according to the group. Girls in Aviation Day was made up of 45 events in 7 different countries and 25 states. The next Girls in Aviation Day has already been scheduled for September 24, 2016.

Air New Zealand launches Sustainability Framework

Air New Zealand has launched a new sustainability framework as part of its commitment to help supercharge the country. The economic, social, and environmental pillars of the framework are supported by six key focus areas – the airline’s people; the communities it operates within; carbon, nature and science; tourism and trade and enterprise.

Azerbaijani Government Says AZAL Privatization Unnecessary

The privatization of the Azerbaijani state airline, AZAL is not inevitable according to Azerbaijani Finance Minister Samir Sharifov said. Sharifov addressed the issue while answering questions from Azerbaijani representatives during the discussion of the country’s 2016 budget. “For example, in the US, private airlines are constantly going bankrupt,” Sharifov said. “As a result, the government has to invest in them, only then their [financial] situation improves. As for the experience of small countries, in most cases in these countries, the airlines somehow receive subsidies from government.”

RWM Makes Powder Coating Standard

RWM Caster Company announced that powder coating finishing is now standard on their industrial casters manufactured

in the United States. Powder coating, an environmentally safer option over liquid paint, was previously an available option on RWM casters.



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NAHCO Deploys \$7.5 Million in GSE

Nigerian ground handling company nahco aviance announced the deployment of new equipment in major airports across Nigeria. The company said that the equipment started arriving the country in August and is currently being deployed to all airports where nahco operates.

AirIndia Attempting to Raise \$100 Million

State-owned, debt-heavy Air India will try to raise up to \$100 million in overseas funding as the airline explores multiple ways to access cheaper finance to fuel expansion. The funds will be used to make initial payments on up to six Boeing Dreamliner aircraft, according to two Air India executives. Air India has already taken delivery of 21 Boeing 787 Dreamlin-

ers, aircraft that are considered critical to the turnaround of AirIndia.

Capt. Chesley ‘Sully’ Sullenberger to Address NBAA2015

Retired US Airways Capt. Chesley B. “Sully” Sullenberger III will be the featured speaker on the second-day of NBAA’s Business Aviation Convention & Exhibition on November 18. The conference is scheduled to take place November 17 to 19 in Las Vegas. Sullenberger successfully completed an engine-out water landing in the Hudson River on January 15, 2009 after the Airbus 320-200 he was piloting was hit by multiple bird strikes. All 155 passengers and crew survived the landing and the incident later became known as the “Miracle on the Hudson.”

▶ PEOPLE

Tommy Hughes

VAS Aero Services has named Tommy Hughes as the company’s new chief executive officer. Hughes was previously VAS’ Chief Commercial Officer and has more than 20 years of industry experience.



TIACA Names Warren Jones director, Kenneth Gibson business development manager

The International Air Cargo Association has appointed Warren Jones as di-



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rector. Jones was most recently president of Cargo Network Services (CNS) at IATA and will focus primarily on TIACA's sales initiatives.

TIACA has also named **Kenneth Gibson** manager – accounts and business development.

Gibson brings a decade of experience in the logistics and finance sectors, having previously worked for organizations including IATA, Kerry Logistics, and World Fuel Services.



► NEW DEALS

Virgin America Teams With Netflix For Streaming Content on Select Flights

The California-based airline announced the deal with Netflix that will allow Netflix subscribers to watch movies and television shows for free on the airline's two new A320 jets which are equipped with high-speed satellite internet. Virgin America says it expects to offer Netflix subscribers the service on 10 A320 jets by 2016.

Scandinavian Airlines Signs Exclusive GSE contract with TCR International

Belgium's TCR International, a GSE leasing firm, announced the signing of an exclusive contract through its subsidiary TCR Denmark with Scandinavian Airlines for the purchase and leaseback of all vehicles – motorized or not – providing ground services to the airline on Copenhagen Airport at inter airport Europe. The deal covers some 5,000-plus GSE units throughout most Scandinavian airports. The deal is expected to conclude TCR's expansion in the region.

Crisplant Secures Second Baggage Handling System at Calgary International Airport

Crisplant, a BEUMER Group subsidiary, has signed a contract with the Calgary Airport Authority, operator of Calgary

International Airport (YYC), to install a second CrisBag baggage sorting system. Crisplant will replace the conveyor-based baggage handling system in YYC's existing terminal building with a tote-based baggage sorting system that includes with

integrated Standard 3 screening. The contract also includes an extension to the already-installed system which will allow the CrisBag systems in the existing terminal and the airport's new international terminal to be linked.



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Oman Air, Swissport sign cargo handling agreement

Oman Air and Swissport International have signed a multi-station agreement for full cargo handling services at London Heathrow, Munich, Frankfurt and Paris Charles de Gaulle. The agreement took effect on September 3.

AMSS and JBT Join Complete Global Marketing Agreement

AMSS and JBT AeroTech have signed a global, joint marketing and co-manufacturing agreement for the sale of military GSE. As part of the multi-year deal, each company will offer the other's products in their market to increase the range of GSE available to military customers including conditioned air, high pressure air, and electrical power needs of virtually all U.S. and NATO fighter, trainer, cargo, naval,

and specialty military aircraft. In addition to meeting the air and power needs of military aircraft, the companies will make a broad range of air-transportable, military air cargo loaders available capable of moving three to six pallets of cargo.

NATA and Euro Jet Form Strategic Training Partnership

The National Air Transportation Association (NATA) and Euro Jet Intercontinental announce the formation of a strategic training partnership. Euro Jet is teaming up with NATA to help fulfill Euro Jet's goal of offering a high standard of service by utilizing NATA's Safety 1st training in its ground handling agent network.

VAS Aero Services Acquired by America Aero Group, LLC

America Aero Group, LLC, a company specializing in the acquisition of aftermar-

ket aircraft and inventory, has purchased a majority stake in VAS Aero Services.

Aeromexico and Amadeus Extend Full Content Agreement

Aeromexico and Amadeus have renewed a long-term Full Content Agreement (FCA) in which Aeromexico uses Amadeus' global network of travel agencies. Amadeus subscribers will continue to access the full range of Aeromexico fares, availability and schedules under the same terms as the airline's website, call centers and ticket offices.

Cla-Val Forms Partnership with Parker Velcon for Commercial Ground Fueling Product Sales

Cla-Val has entered into an exclusive sales agreement to provide aviation ground fueling equipment to commercial airports worldwide through Parker Velcon's global distributor partners. The sales and support of commercial aviation fueling system valves will remain the exclusive responsibility of Cla-Val.

National Aviation Services (NAS) and Ariana Afghan Airlines Expand Ground Services Partnership

Ariana-NAS, a joint venture between National Aviation Services (NAS) and Ariana Afghan Airlines launched ground handling services in Herat and Kandahar International Airports. This new initiative will facilitate integration of Afghanistan into the wider global economy.

ViaSat Signs Agreement with Boeing to Offer Fastest In-Flight Wi-Fi

ViaSat Inc. announced a new technical agreement with The Boeing Company to make the ViaSat in-flight Wi-Fi® connectivity system an option on new Boeing aircraft. The agreement initiates the evaluation process for airlines to specify installation of the ViaSat system which offers speeds in the range of 8-to-10 times faster than alternatives.

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Paint the Sky GREEN

by Alex Wendland

In June, United Airlines purchased a \$30 million stake in biofuel developer and producer Fulcrum BioEnergy Inc., but how are airports and airlines adapting to alternative fuels and is the industry doing enough to “greenify” their business?

The United investment was the single largest of its kind by a United States-based airline in alternative fuels. The Chicago-based airline has been making investments in alternative biofuels since 2009 when United performed its first test flight. The Fulcrum investment is part of United’s Eco-Skies program which, in addition to biofuel development and efficiency, includes carbon offsets, eco-friendly terminals and a recycling program.



THE ECO-SKIES EFFECT

United, through their Eco-Skies program, has increased their fleet's fuel efficiency by 33 percent since 1994. In 2014, the company beat their own fuel consumption goals by purchasing new aircraft that are 15 to 20 percent more efficient single engine taxiing, continuous descent approaches and flying polar routes, here's how that stacks up, by the numbers:

110,000,000
gallons of jet
fuel saved

=

1,000,000
metric tons
of CO₂
emissions

or

225,000
cars off the
roads

"United's Eco-Skies program is our commitment to creating a more sustainable travel experience for our customers throughout their journey," Angela Foster-Rice, managing director of environmental affairs and sustainability at United, says.

In addition to the Fulcrum investment, United has also been purchasing biofuels from AltAir Fuels since 2013. Both companies make sustainable, low-carbon fuels, but from very different processes. AltAir uses non-edible natural oils and agricultural waste to produce fuel through a technology developed by Honeywell's UOP.

"We know alternative fuels is an emerging industry that is vital to the future of aviation and this is just one of our initiatives to help make these fuels saleable and scalable," Brett Hart, United's executive vice president and general counsel said in the release for United's investment in Fulcrum. "Invest-

ing in alternative fuels is not only good for the environment, it's a smart move for our company as biofuels have the potential to hedge against future oil price volatility and carbon regulations."

Fulcrum collects trash that would otherwise end up in a landfill – known in the trash business as municipal solid waste (MSW) – and has developed a process to convert it into biofuel. Fulcrum's trash-based fuel process reduces lifecycle carbon emissions by more than 80 percent compared to petroleum based fuels.

"This diversion reduces methane emissions from landfills that also contribute to climate change," Foster-Rice says.

The other benefit of Fulcrum's technology is obviously a nearly unlimited supply – no one has ever doubted our ability as a nation to produce trash.

Still, biofuel production is literally a drop



in the barrel compared to petroleum-based production, but to change that airlines and fueling companies need to invest time, energy and, yes, money into alternative power sources. Biofuel production, according to Foster-Rice, is in its infancy and thus supply is small. Pricing, however, is already competitive to traditional aviation fuels and investments like the one in Fulcrum will continue to shape the future of aviation fueling.

Regulating Emissions

As of July 1, the EPA started the process to establish emission standards for aircraft in the United States through the Clean Air Act of 1963. The EPA, in their call for comments, proposes that “greenhouse gas (GHG) emissions from engines used in U.S. subsonic jet aircraft with a maximum takeoff mass (MTOM) greater than 5,700 kilograms (approximately 12,566 pounds) and in subsonic propeller driven (e.g., turboprop) aircraft with a MTOM greater than 8,618 kilograms (approximately 19,000 pounds).”

The EPA has called for comments relating to both an effective date and stringency level for GHG (mostly carbon dioxide) emissions from aircraft, as well as whether or not “international standards should apply to new in-production aircraft as well as new aircraft types.”

While the EPA’s proposed standard hasn’t been announced yet, United claims to have increased their fuel efficiency by 33 percent – a savings equivalent to removing 225,000 cars from the roads – since 1994. At the same time, 21 years is a long time to advance fueling technology by one-third. A new EPA regulation should be considerably more aggressive than 1.5 percent per year.

Implementing Improvements

At the forefront of challenges to most environmentally-motivated changes are the infrastructure investments that stakeholders insist will turn their company from a profitable powerhouse into an immediate money loser. That well has gone dry – pun intended. The biofuel developed by both Fulcrum and AltAir are drop-in fuels, according to Foster-Rice, and can be stored in the same tanks and burned in the same engines as



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- Single acting, double acting and 2-stage configurations



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traditional jet fuel.

“Our biofuel will meet the same stringent international fuel certification as conventional jet fuel and the FAA has approved it for use,” Foster-Rice says. “It is molecularly identical to traditional jet fuel.”

While United’s ground support “greenification” lags behind their jet engine efforts, Foster-Rice says the company plans to move their GSE to electric power over time, and the process has already started. In some instances, she says, United may attempt to move GSE onto fuels made from MSW like those produced by Fulcrum.

“We’ll be adding new units at some airports in our network as well as evaluating opportunities to introduce renewable diesel into our operations,” she says.

United won the Global Business Travel Association Foundation’s Sustainability Outstanding Achievement Award and the ICARUS Gold Award for Sustainability Excellence in 2014. IN addition to receiving awards, United lunched the Eco-Skies Community Grant Program in 2012 to promote sustainability-based projects across the country.

Fulcrum **collects trash** that would otherwise **end up in a landfill** – known in the trash business as **municipal solid waste** (MSW) – and has developed a process to **convert** it into **biofuel**.

In 2013, we were recognized for our environmental accomplishments and named Air Transport World magazine’s Eco-Aviation “Airline of the Year” Gold Winner, and in 2014, we received the Global Business Travel Association Foundation’s Sustainability Outstanding Achievement Award as well as the ICARUS Gold Award for Sustainability Excellence.

“As a part of our commitment to environmental responsibility, we want to continue to champion those dedicated to advancing the research in alternative fuels for aviation and encourage those organizations to work to commercialize the industry,” Foster-Rice

says. “United Eco-Skies has supported the Clean Energy Trust and the Clean Energy Challenge for the last three years because of their work to fund and mentor start-up businesses working on clean energy technology.” **GSW**

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LOSAs Pave The Way For Safety Best Practices on The Ramp

Because of the emergence of safety management systems (SMSs) in aviation, service providers are increasingly required to equip themselves with predictive analytical tools supporting the practice of safety management in a data-driven fashion.

By Mario Pierobon

▼ **A crewman performs a pre-flight inspection on an Airbus A320.**
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Service providers often believe that safety data collection is limited to implementing a safety reporting system for employees to report hazardous events and/or accident outcomes to identify the areas of operation that are more prone to hazards. While a functional safety reporting system is an important component of a credible SMS, data collection is not meant to be limited to safety reporting.

Monitoring for engine trends and flight data are other means for safety data collection and analysis that are suitable for organisations specifically

involved in aircraft operations. The line operations safety assessment (LOSA) is a safety data collection and analysis program that can be implemented by all sorts of aeronautical service providers, and has been implemented in the domain of aircraft ground handling. Ramp LOSAs (R-LOSAs) are revealing additional pieces of information supporting safety performance management at ground handling companies.

What are LOSAs?

Re-elaborating a definition reported in the International Civil Aviation Organisation (ICAO) document 9803, LOSAs use highly trained observers to collect data about line operators' behaviour and situational factors during "normal" operations. The observations are conducted under strict no-jeopardy conditions; line operators are not held accountable for their actions and errors that are observed. Throughout the duration of operations, observers record and code potential threats to safety, how the threats are addressed, the errors such threats generate, how line operators manage these errors and specific behaviours that are known to be associated with accidents and incidents.

The LOSA concept was developed similarly to flight operations and is closely linked with crew resource management (CRM) training.

Threat and Error Management

Threat and error management (TEM) models provide theoretical framework for data collection through LOSAs. "The TEM model allows LOSA observers to capture the interaction between people and the operational context by recording how frontline employees manage these situations to maintain safety," researchers Maggie Ma and William Rankin of Boeing Commercial Airplanes



SAFETY MANAGEMENT IN AFRICA

Despite a developing aviation industry, the challenges of implementing schemes like LOSAs in South Africa likely ring true to managers looking to improve quality assurance processes around the world.

“As with all systems, the problem for most organizations is shifting its structure to integrate a new system in its entirety,” Zachary Steglin, network performance manager at Global Load Control (GLC) of South Africa says.

Steglin says that breaking down safety management into components makes implementing safety program easier and more successful. “By phasing in these components, we were able to manage costs and promote understanding without stressing our production,” he says.

Steglin describes cost as a main hurdle. Do customers realize the necessity for safe practices when they can have the same service provided more cheaply elsewhere, but without the same precautions taken? And how can GLC convey to their customers that they need these measures?

“We also found that the cultural adoption by the organisation is a continuous process and to avoid undermining that it be lived, constant dialogue is promoted around how our actions drive the process integration,” Steglin says.

“That being said, the ideal for us as a company is that all employees are aware of the importance of various safety initiatives and continuously balance the disparity between effectiveness (safety) and efficiency (productivity) with the goal being to be productive enough to remain financially sustainable.”

say in a report of the US FAA office of aerospace medicine entitled “Implementation Guideline for Maintenance Line Operations Safety Assessment (M-LOSA) and Ramp LOSA (R-LOSA) Programs.”

Ma and Rankin highlight three basic components in the TEM framework – threats, errors, and undesired operational states :

“Threats are considered routine events that must be managed to ensure safety. A threat is any condition that increases complexity of the operations that demands crew attention...

“An error is defined as a crew action or inaction that leads to a deviation from organizational intentions or expectations... Errors normally occur when threats are mismanaged. However...errors can be spontaneous without direct linkage to threats (e.g., maintenance technician failing to give a required callout when there is no distraction in the hangar)...

“Error outcomes can be of three types. Outcomes of errors can be inconsequential (i.e., no effect on safety), an undesired operational state (a risky or unsafe condition for the aircraft, equipment, and/or personnel), or additional error(s) linked together across time. Managing an undesired operational state can be considered the last opportunity to avoid an incident or accident,” Ma and Rankin say.

As a result, ramp employees must stay vigilant and react quickly to curb all three issues. Ma and Rankin recommend that errors be resolved through a two-step process: resist and resolve. “Resist refers to the variety of safety interventions and work procedures already in place that form defenses in the system such as standard operating procedures (SOPs), checklists, quality control (QC) inspections, and automation. Resolve refers to the maintenance technician or ramp staff realizing that they had made an error and then correcting it,” Ma and Rankin say in their report.

LOSA in ground handling: R-LOSA

On the western side of the Atlantic Ocean, LOSA is particularly popular and has been long used as a safety management program by a variety of North American airlines. “A

few years ago the FAA endorsed the creation of an industry working group with the participation of several airlines to develop industry LOSA programs for the maintenance and ramp environments (M-LOSA and R-LOSA). The working group developed an observation form with a list of items to observe during R-LOSAs which was subsequently tested by means of multiple observations with FedEx, UPS and Southwest Airlines. As a result of this testing standard threat and error codes were developed for R-LOSA programs” Kevin Crowley, senior analyst for ground safety programs at JetBlue Airways, says.

Statistical Significance

One thing an organisation needs to know before implementing R-LOSAs is how many observations are needed, both per station and throughout the whole organisation, in order to derive meaningful data. Lisa Crocket, senior manager of quality assurance (LOSA) at United, which has been performing R-LOSAs since 2009, says that United looks for “a minimum of 35 data points before considering any data.”

“Regarding data collection we ask locations to consider conducting LOSAs at a rate of 3% of their departures, provided they have the resources to do so,” Crocket says. “However, we stress more for consistency than actual numbers.”

While some LOSA programs at United are periodic (flight operations, dispatch, load planning), R-LOSAs are among the programs performed on an on-going basis, together with maintenance and customer service, says Crocket.

At JetBlue, R-LOSAs are conducted periodically, not daily, at the carrier’s seven hub cities where more 100 flights are handled every day. R-LOSAs are performed every 3–4 months, for a period of approximately two weeks, during which a total number of around 200 single observations are accomplished, say Crowley.

Implementing R-LOSAs

United has been implementing R-LOSAs as part of a wider LOSA program focussing on all safety sensitive operational domains. “We have well over a million individual observations in our database,” Crocket says. “We

trained over 500 observers worldwide. Beginning in 2015, we re-qualified observers, and are in the process of recalibration. We expect to grow LOSA activity in 2015. The growth includes our Network Opera-

tions group who reached out to us requesting LOSAs in the areas of Crew Scheduling, Central Load Planning, and Ramp Tower operations for example, in addition to Dispatch Operations. Completion of these peri-

odic LOSAs and others will take us from 4 LOSA programs to 9 in 2015." says Crocket.

A frequent challenge in LOSA implementation is that line operators may not be very enthusiastic about being observed. "There was initial resistance and hesitation however over time there was a natural progression to normal behaviors and resistance disappeared," Crocket says.

According to Zachary Steglin, network performance manager at Global Load Control (GLC) of South Africa, R-LOSA is an intriguing tool that should holistically address the surveillance and implementation needs of an organisation operating in a safety environment in the aviation sector.

Steglin points out that, ideally, all aviation services companies have a similar culture towards improvement. Yet the sad reality is that many are hampered by access to a certain caliber of staff who can implement that culture; infrastructural or cost limitations and bottlenecked projects take priority in achieving certification for operational reasons, even more so in Africa.

"At GLC, although the model is not R-LOSA, the safety management activities all function towards the same logic of continuous improvement and self-reporting practices," Steglin says. "Where we are still developing is the ability to monitor and analyse the various operational activities, in relation to which - due to internal and external causes - we depart from the process to address a non-conformance or reportable incident."

Ground service providers contemplating R-LOSAs need to think about the observation checklists and the coding system for threats and errors to be used during line observations for data collection purposes.

The FAA has made some pre-determined lists of codes and errors and R-LOSA observation forms which any ground service provider can directly access on its website. Individual organisations may opt to customise documentation to their needs; this has been the case at United.

"While the initial checklist included close to 100 questions we reduced the checklist to 55 questions in June 2015 in order to focus data collection of higher risk items," Crocket says. "In order to trim the checklist we removed vendor and non-ramp related

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questions. Historical data and risk ranking combined were also used to condense the checklist. We acknowledge that vendor and non-ramp data is important to collect and expect to either add questions back or perhaps replace current questions as compliance reaches an expected level with vendor or non-ramp questions.”

R-LOSAs allow the identification of areas for improvement in the ground handling system on a factual basis and with statistical confidence. “Early data revealed lower compliance in personal protection such as seat belt usage and hearing protection, and belt-loader safety handrail usage as well as some receipt and dispatch procedures” says Crocket.

Managing change

In the same way the identification of safety issues in the ground handling environment can be performed on a factual, easier to justify, way through R-LOSAs, so too can the request for budget to implement the changes needed for safety improvement.

“Systemic data is reviewed at the corporate level on a monthly basis,” Crocket says. “Systemic changes to receipt and dispatch of aircraft and procedural changes/improvements occurred as a result of data. Additionally, stations are expected to review their data regularly and have been provided easy-to-use tools to accomplish this, including leading-edge data visualization tools that identify compliance and threats by location on the airport property.”

Crocket also stresses that audit results should be communicated to front-line employees and not only to leadership. “It makes them mindful of the conditions and compliance beyond their individual performance and heightens awareness of threats in their performance,” says Crocket.

Looking Forward

R-LOSA has recently been the focus of attention from representatives of Japan’s aviation industry. “At JetBlue we have recently hosted a delegation from All Nippon Airways, Japan Airlines and the Japanese civil aviation authority in New York to illustrate them the use of LOSA for ground handling safety and they were very positively impressed,” says Crowley. **GSW**



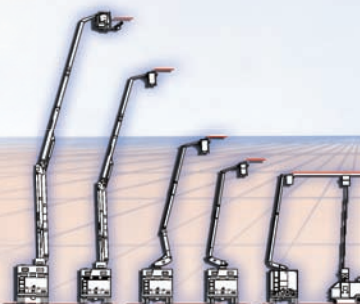
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Mario Pierobon holds a Master’s Degree in Air Transport Management from City University London and works in business development and project support at Great Circle Services in Lucerne, Switzerland. Mario regularly writes about aviation safety and his main professional and research interests are in the areas of air-side safety.

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It Might Be Easy **Being Green**

A new way of looking at “green” products can help ground handlers to choose GSE that will reduce environmental impact and expenses.

By Kevin Hanson

Aviation and air cargo companies face major challenges as industry rules change to reduce environmental impact. Regulations on manufacturing and emissions, along with product and chemical disposal, keep getting stricter. But meeting the new rules doesn't need to be challenging or expensive.

Sourcing equipment from environmentally conscious manufacturers provides a strategic solution. When it comes to ground support equipment, which can amount to thousands of pieces at a single location, small changes can make a

big difference. From manufacturing processes to shipping to the lifelong impact of the equipment, little changes go a long way in savings – both for Mother Nature and a company's budget.

“We've focused on making the best, long-lasting GSE in the industry since 1979,” said DeWayne Nelson, FAST vice president of sales and marketing. “Their long service lives give customers the best return on investment as well as reduces the waste that comes from disposing dollies, for example, that don't last more than a few years.”

Nelson expressed how FAST is in the market to produce a quality product that should last a minimum of 15 to 20 years.

“I just saw some FAST products that were 32 years old that were just finally being turned over to the recycler,” Nelson said. “The customer said, ‘They're still a good dolly, they just won't haul all of the configurations we need them to.’”

GSE's life expectancy plays just a small role in greening the tarmac. Take a look at other factors that make a difference.

Consider the average **lifespan** of GSE, too. The **longer** it lasts, the **less** energy, water and **material waste** it creates.



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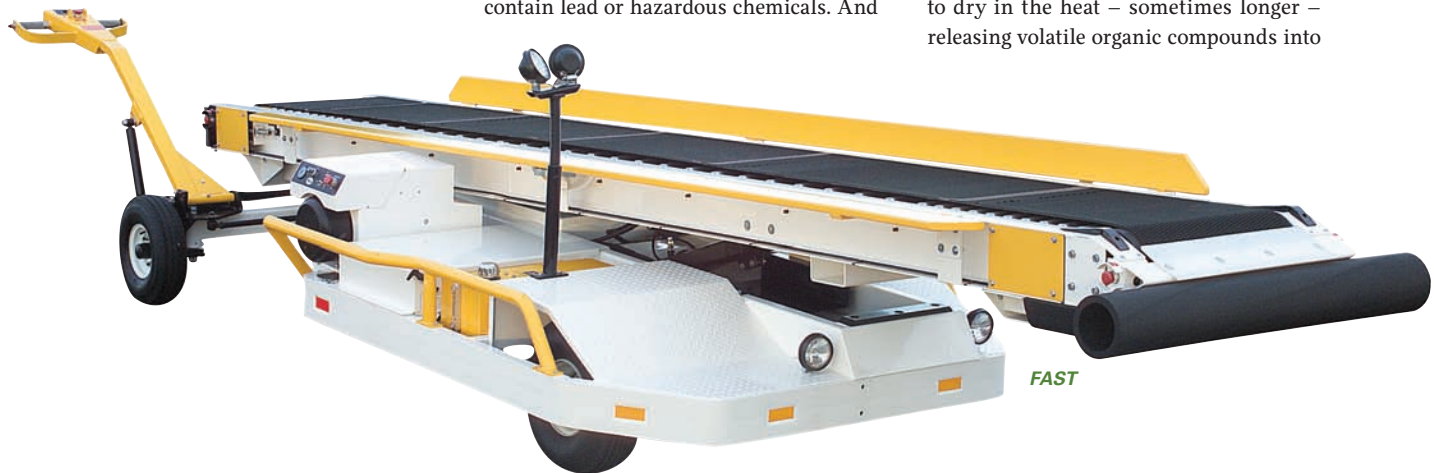
Lessening environmental impact starts with the GSE manufacturing process. Look for a manufacturer committed to policies and

practices that eliminate or minimize waste and emissions.

Powder coating is a key zero waste practice. This painting method eliminates hazardous waste disposal of liquid paint drums and cans of paint thinner. Plus, it doesn't contain lead or hazardous chemicals. And

powder coating is simply re-sprayed to fix mistakes, unlike liquid paint that needs to be scraped off and disposed of once dried.

Powder coating also reduces air pollution, another environmental concern. Typically, liquid-painted GSE requires 24 to 48 hours to dry in the heat – sometimes longer – releasing volatile organic compounds into



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the air. Powder coating eliminates that risk with a 20-minute pass through a 425- to 475-degree oven.

“At FAST, we use a state-of-the-art powder coating line that moves components of all sizes through each step of the process for maximum efficiency,” Nelson said. “It helps us not only be more environmentally friendly, but also more productive.”

Other zero-waste manufacturing methods, such as bead blasting, offer a greener alternative to pressure washing. Bead blasting uses steel beads to prepare a component for maximum paint adhesion. The beads circulate through an auger system until they’re too small to be effective and get filtered out for recycling. Pressure washing sends water through a recirculating system, and captured wastewater must be neutralized and disposed of by an outside company.

Ship More For Less

Beyond the manufacturing process, consider the environmental impact of shipping methods. Some manufacturers design equipment that can be minimized, lightened or taken apart to maximize shipping space. This not only cuts transportation costs but also contributes to low emissions since haulers can transport more equipment in fewer loads.

“We look for ways to reduce the environmental and financial impact of shipping as we develop GSE for customers around the globe,” Nelson said. “For instance, our knockdown cart folds down to one-fifth its size to stack several high on a trailer bed or inside a container for overseas shipping. Also, our New Standard Dolly features a versatile configuration that allows stacking without crating for less expensive shipping, and our walk-behind belt loader weighs



▲ Reducing waste on GSE production benefits the manufacturer, the customer and the environment. FAST

hundreds of pounds less than drivable units, which also reduces costs and environmental impacts.”

FAST also works directly with customers to meet equipment weight requirements without sacrificing quality and structural integrity. Eliminating a few hundred pounds from a unit results in more units fitting on a trailer or fewer trucks needed for over-the-road hauling.

Durability For The Long Haul

Consider the average lifespan of GSE, too. The longer it lasts, the less energy, water and material waste it creates when compared to poorly made units that must be continually replaced.

How manufacturers weld equipment is a good indicator of long-lasting strength.

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▲ **Finding efficient, long lasting GSE isn't just good business, it's sustainable business. FAST**

Signs of durability include strong bonds by certified welders or a robotic welding machine, powder coating rather than other paint methods, and zinc hardware instead of carbon steel.

Choosing GSE that has few mechanical components, such as a walk-behind belt loader rather than a drivable belt loader, also adds to longevity while minimizing hazardous fluid risks. Drivable belt loaders, for example, need routine oil changes and occasionally require adding transmission, brake and power steering fluid. Each of these chemicals has a set of disposal guidelines, which should not be taken lightly because hazardous liquid leaks can be expensive to clean up, including the labor and downtime to get it done. The risk of fluid leaks increases with a greater amount of liquids, so choosing simpler, non-drivable units when possible will limit the risk further.

Non-powered or minimally powered GSE also positively impacts the environment because less exhaust is released into the air from fuel exhaust. Plus, ground handling crews will spend more time moving cargo and baggage rather than filling the gas tank.

Take The Next Steps

Selecting environmentally friendly GSE reduces the potential for air and waste pollution while increasing long-term equipment savings. Remember to look for

manufacturers that use innovative processes to minimize the carbon footprint, from creation through the entire life of the unit. Thoroughly researching the manufacturer before purchasing GSE pays for itself in many ways for years to come.

Few breakdowns, long-lasting units, fuel efficiency and optimized shipping methods all contribute to a greener planet along with additional uptime and increased profits. With strategic choices, everybody wins. **GSW**



▶ ABOUT THE AUTHOR:

Kevin Hanson is the senior account executive for FAST Global Solutions. He has more than 34 years of experience in ground support equipment manufacturing and sales. He joined WASP, now FAST, an employee-owned company based in Glenwood, Minnesota, as a welder. Now, he works with customers around the globe to forecast their equipment needs and ensure they receive quality equipment quickly.

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Turning to Technology to Meet the Technician Challenge, Part 2

As explained in Part 1 of this article in the previous edition of *Ground Support Worldwide*, maintenance related industry sectors in the United States are becoming increasingly challenged to hire and retain competent and motivated technicians, this is the “Technician Challenge.” In this article we will explore how technology can eventually be deployed to meet this challenge.

By Will Ryder

Research shows that currently there are insignificant numbers of entrants from the military or trade schools getting into medium and heavy-duty truck maintenance positions, these are industry sectors in which a lot of existing GSE technicians began their careers. That factor, coupled with the fact that over the coming decade we will see a steady decrease in the numbers of experienced technicians in GSE workshops due to the retirement of Baby Boomers.

GSE maintenance managers that I know are either struggling to find “the right” candidates for vacant positions, or express concerns about the

motivation and competency level of technicians they employ. Given the nature of our work environment, you don’t want to guess about a technician’s ability to manage a problem with a piece of ground support equipment on an active ramp.

The outlook seems bleak for GSE maintenance service providers and airlines alike. Traditional thinking and resulting efforts

have produced negligible results. Furthermore, no one has come forward with a solution that can be employed across all maintenance related industry sectors.

Perhaps what’s required is some creative think-

ing for an innovative approach to cope with the Technician Challenge? Ruth Noller, a distinguished Professor of Creative Studies at Buffalo State College notes that practicing professionals often are seen as “having a great deal of knowledge and evaluative strength but as needing help with imagination.”

“I believe that creative thinking and innovation and adaptation of existing technology will be essential to meeting the technician challenge,” Noller says.

Augmented reality (AR) is a prime example. AR is the integration of digital information with live video and the user’s environment in real time. Devices used for AR are commonly those of a computer, a camera, a processor and a screen. A great explanation of augmented reality originates from the firm Engine Creative “Put simply, AR is the term used to describe an enhanced view of real life by overlaying computer-generated content. This computer-generated ‘virtual content’ can be almost anything – video, 3D models, dynamic web content – and it can be triggered by an image, a location or a combination of the two.”

Perceived as the technology of the future, AR is making its way in the market place.

“I don’t see how modern fleets can avoid the use of this technology especially given the reduction of support for items such as training, part failure analysis, remote management, and the list just goes on,” Jimmy Mathis, director of global vehicles at FedEx Express, says from the maintenance perspective.

Imagine a time in the not-to-distant future where a newly hired technician is virtually connected to a seasoned technician.



▲ **Augmented reality apps, like Bosch’s iPad app seen here, make engine repair and documentation accessible anywhere. Bosch**

Adapting and innovating AR to the airline industry sector, particularly GSE maintenance, may seem futuristic and far-fetched, however examples of AR hardware and interrelated software applications use for maintenance and service of vehicles can be seen today online; you can find demos of apps that act as a virtual instructor for everyday maintenance to vehicles on YouTube. For the benefit of the layperson, not only do apps track and virtually label the most important engine compartment components in real-time, they also include animated demonstrations of where you check the oil on the engine how to top up fluid levels. Some of these demonstrations even go as far as to display how AR provides instruction to mechanics for the dismantling and reassembly of components of the vehicle's engine compartment in order to replace a part or complete a higher level of service to the vehicle.

If you think the cost of AR technology is beyond the reach of most organizations, think again. There are firms right now (some funded by a grants from defense

Given the nature of our work environment, you **don't want to guess** about a technician's **ability to manage** a problem with a piece of ground support equipment on an **active ramp**.

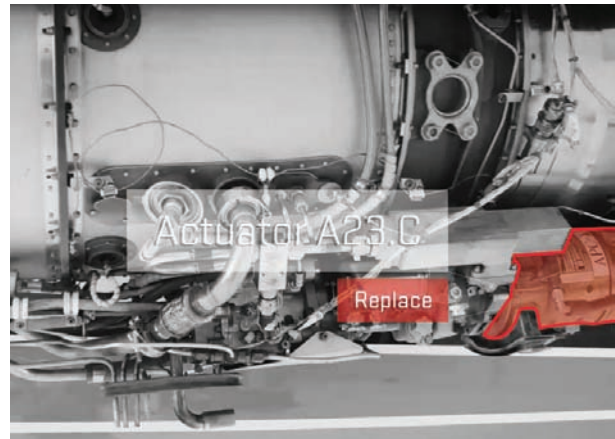
agencies) that are developing the AR technology concept for the market place that runs on iPads, iPhone as well as an open-source head-mounted displays (HMD). This technology is available today and the costs are reasonable; I'm talking hundreds, not thousands of dollars for the HDM hardware.

It won't take long for that technology to be further innovated for full-blown diagnosing and repairs. I envision numerous applica-

tions emerging from the steady development of ground-breaking AR for maintenance related industry sectors. This will transform the way technicians see, engage and learn from their surroundings. Perhaps it will even change the way a technician feels about his/her work; studies show that this technology can increase engagement by merging task to media.

Augmented reality holds promising potential to quickly expand into all maintenance industry sectors. I can envision AR as a means to attract, teach, empower, motivate and even retain GSE technicians who would otherwise be considering retirement. Ideas have been suggested to me by industry colleagues/professionals on how to best achieve these goals once specialization of augmented reality to GSE maintenance occurs.

To inexperienced GSE technicians and their managers, this technology is like having a genie in a bottle. And it also has the potential to revolutionize companies' business models. One of the more ambitious concepts for adapting the technology details a plan for maintenance organizations to lower their operating costs, offers to extend the careers of a limited number of highly skilled and experienced technicians (that would otherwise be considering retirement), while also improving team [technician] efficiency, productivity and extent their impact in the workshop and on the ramp. With this scheme, as attrition of headcount occurs as a result of the Technicians Challenge, vacancies are filled by mostly entrants or "recycled" technicians at a substantially initial lower wage. A small number of semi-retired GSE Maintenance experts are employed at half-



▲ **A heads-up display (HUD) can make identifying problems easier in training and bring engine maintenance into the 21st century.**
Daqri

wage and full medical benefits to supplement the team. The experts can be made available on demand to act as virtual "tech support", even from the comfort of porch swing. In effect, this creative approach allows an organization to maintain much of its bench strength even though "newbies" are filling its ranks. These experts will have the ability to virtually communicate to technicians who may otherwise struggle to diagnose and repairing ground support equipment. They can also help newbies better understand their surroundings while operating in an unfamiliar ramp environment.

Imagine the possibilities of these type resources existing in vehicle/GSE maintenance. If developed to the full potential by using creative thinking this technology could completely change the face of GSE maintenance as we know it, allowing maintenance organization to thrive despite the Technician Challenge. All it will take is interest from major key players in the airline industry and innovation by some developers before AR technology in GSE maintenance can finally take off. **GSW**



► **ABOUT THE AUTHOR:**

Will Ryder is Director of Strategic Initiatives and Support Services at Global Aviation Services, LLC and has worked over 25 years in fleet maintenance, including international experience. He now reports to the President of his company and is responsible for developing, overseeing and helping to implement programs and projects. Additionally he oversees the Quality Management System as well as the Support Services functions.

A Phoenix Rises from inter airport Europe

The German GSE giants tout the new AST-2P/X tractor's speed, safety and traction in their first fully-joint venture since Goldhofer acquired Schopf in January 2015.

by Alex Wendland

Goldhofer and Schopf announced on October 6 that they would be jointly releasing the fourth generation of the AST-2 tractor, the AST-2P/X, codenamed Phoenix. The company, formed when Goldhofer purchased Schopf in January 2015, is offering two versions of the tractor, the base model and an extended version featuring additional horsepower for more acceleration and a higher towing speed.

"We took a blank sheet of paper and designed the next generation from scratch," Hubert Schaller, Goldhofer's chief operating officer says in a release at inter airport Europe.

Goldhofer is touting the efficiency of working with the Phoenix tractor as well as the safety that comes with a differential lock to improve handling and traction in poor weather, specifically winter months.

"Our proven hydrostatic drive system, now combined with a differential lock, offers a new level of maneuverability," Schaller says.

Aircraft pickup takes less than one minute,

according to the company, and the driver's cab sits higher than previous models, allowing the driver to see and handle all obstacles. Of course, the cab can be raised and lowered as needed for underbelly pushing or towing.

One of Goldhofer's selling points on the Phoenix tractor is increased efficiency. A start-stop system in the engine reduces idling time on the ramp and "significantly reduces diesel consumption," according to Goldhofer's release. Additionally, the decrease in operating hours, since the engine is turned off, reduces maintenance costs as operating hour intervals are spread further apart.

When you inevitably have to perform maintenance, however, Goldhofer and Schopf built the Phoenix on the "one-shift principle," meaning that any and all standard maintenance can be handled by one person in one shift. The result for the ramp is less downtime and little to no maintenance planning since maintenance points are labeled and accessible from the outside of the unit. In case of any maintenance or repair issues, Goldhofer





and Schopf will schedule a remote access appointment with the customer through GPRS, wi-fi or LAN communications.

The Phoenix tractor does not come equipped with a GPU as standard, but both the regular and extended models can be retrofitted to include the unit.

“Goldhofer and Schopf are presenting their first mutual ‘baby,” Schaller says. “However the merger goes far beyond this innovation and also means a tremendous

boost in terms of engineering, testing know-how, capacity, experience, service and assistance.”

Ground crews can rely on the Phoenix to pull jets as small as the Embraer 175 to those as large as the Boeing B777-300ER.

There’s no word yet on what, exactly, the new Phoenix tractor is rising from the ashes of, but Goldhofer also showcased their stable of tractors at inter airport Europe including a number of hybrid and electric models.

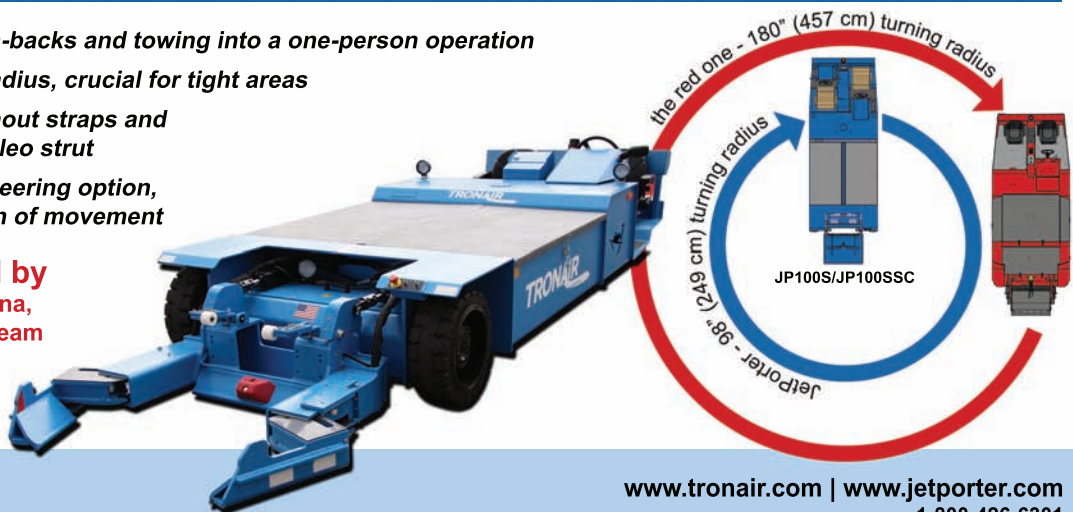
The rest of Goldhofer and Schopf’s portfolio includes the F70, a 16-foot tractor that can pull aircraft as large as the B767 class and the emission-free F110e, the world’s best-selling tow tractor, according to Goldhofer and Schopf. The future of the rest of the lineup has not been addressed in the wake of the announcement at inter airport Europe. **GSW**

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Green GSE Isn't Just About Buzzwords

When you remove the political partisanship and marketing buzzwords from environmental-considerate GSE, you're left with long lasting, strong equipment that also happens to be sustainably sourced and manufactured.

Our theme this month is "alternative power." We end up covering energy-efficient alternatives more and more in *Ground Support Worldwide* as fossil fuels rise in price and climate change concerns morph from theoretical issues to becoming part of our every day lives. Let's remove the political partisanship and marketing buzzwords for a minute, though. Are enough companies considering the benefits, both ecological and economical, of green GSE?

You could replace the word "green" with "properly made" or "optimized" and end up with the same GSE in almost every way.

Green GSE uses less fuel, or often cheaper fuel.

Green GSE takes up less space. That space savings is reaped in both shipping and ramp space.

Green GSE manufacturing creates less waste, or preferably no waste.

Green GSE minimizes moving components. The fewer moving parts, the more you save on maintenance and downtime for broken equipment.

These principles aren't unique to Toyota Prius drivers and they aren't new ideas.

Last month we profiled Verde GSE, a PCA company born from a partnership between a GSE industry veteran and an engineering firm specializing in sustainable refrigeration and air quality. One of the issues we talked about was the resistance to new technology in the form of requirements that

insist companies have delivered "similar units" for years prior. A policy that stifles innovation and creates artificial barriers to entry for the next generation of GSE.

On top of that, the main purchasing metric continues to be upfront pricing - there's little concern for long term investment and return on investment.

All of the traits listed in this column have nothing to do with buzzwords or the depletion of the ozone layer over Chile. They're smart decisions that will save you and your company money over decades. There are dozens of great companies making great products that meet any and all of those traits, and, thankfully, many of them are found in our magazine.

As we all know, we don't get the opportunity for new GSE every day - make your decisions count.

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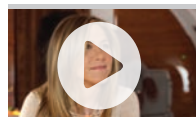


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