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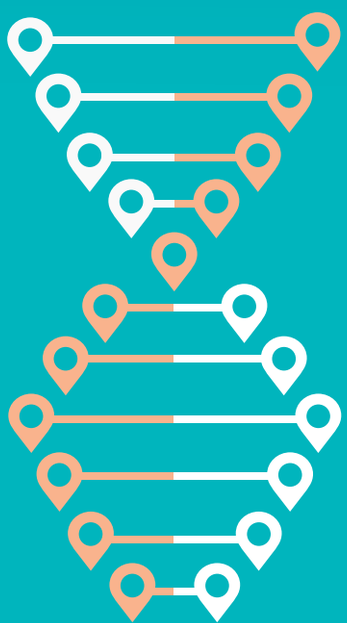
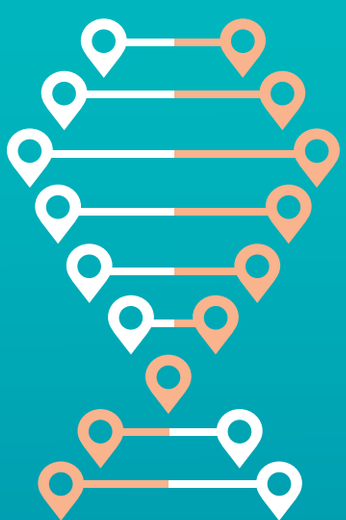
Airline CARGO Management

Connecting the air freight community



Go with the flow

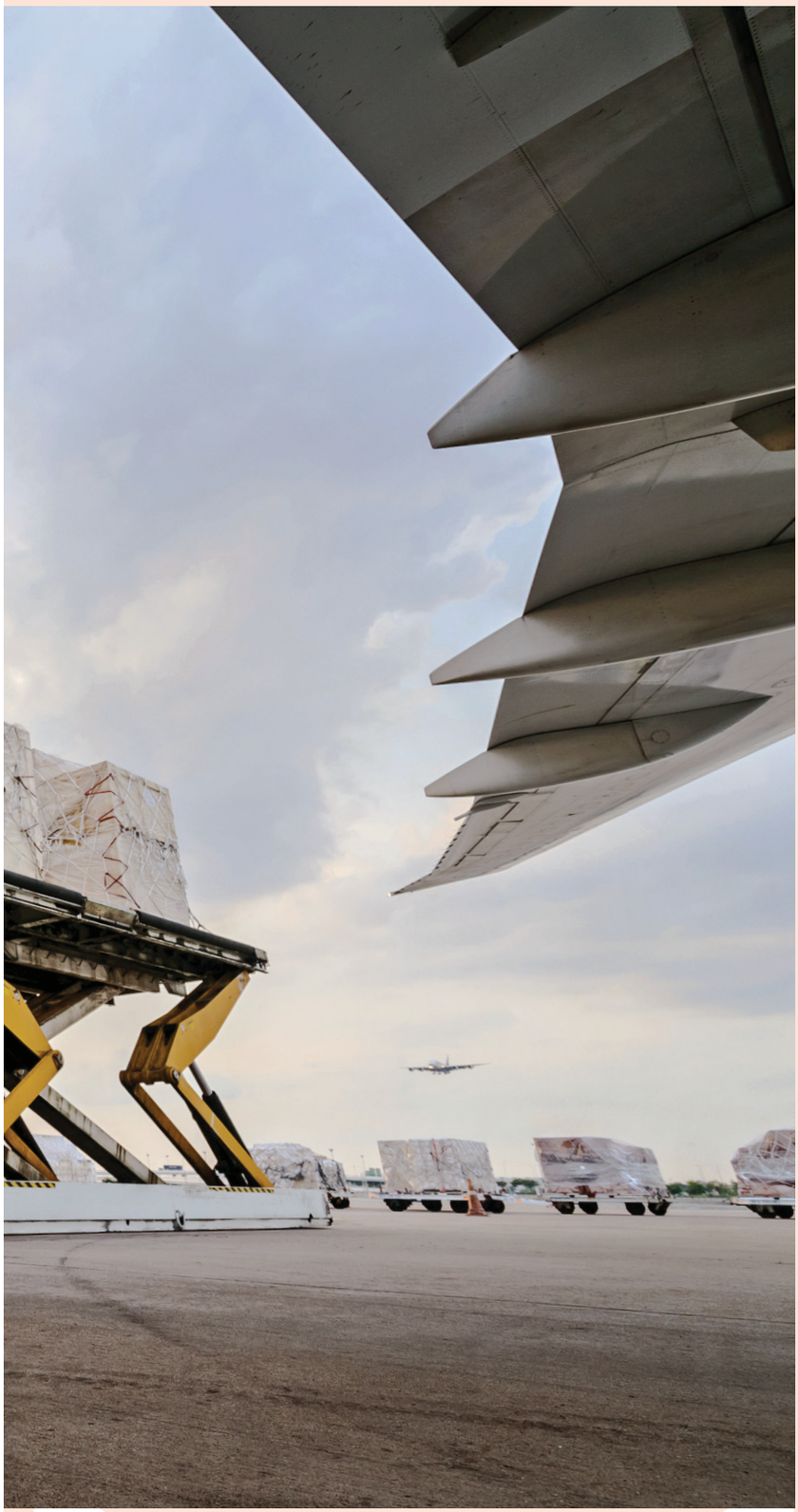
How logistics is evolving



INDUSTRY VOICES
TIACA's Glyn Hughes on the post-pandemic landscape

FULL SUPPORT
Innovative loading and ground equipment solutions

HEALTH CHECK
Learning lessons from Covid-19 vaccine transport operations



Left: Electrification, autonomous loading and AI could all change the loading and ground support systems environment

Innovative loading and ground support equipment solutions are helping to both reduce aircraft ground damage and forge a much more environmentally friendly future, as ***Mario Pierobon*** discovers

As the aviation industry begins to recover from the Covid-19 pandemic and looks to reintroduce personnel to the apron environment, extra strain on resources, time pressure, loss of employee expertise, high turnover of staff and many other factors can increase the chance of aircraft ground damage.

"We are hearing from our customers at an increasing rate that aircraft damage is a growing concern," reports Richard Reno, chief executive officer at ground support equipment (GSE) supplier TLD USA. "We recognised early on the importance of safety for both personnel and aircraft, and we have been providing simple and innovative solutions including, but not limited to, aircraft safe docking systems (ASDs)."

Aircraft ground damage is indeed a major issue where the airport is a time limited operational area. "Any ground damage to aircraft has costly consequences to airlines and ground handlers," says Gül Denge, sales director at Turkey-headquartered airport equipment company Denge. "GSE manufacturers develop equipment as per international standards, IATA recommendations, customer enquiries and their years of experience. An efficient purchase of equipment with correct features avoids many risks on the apron side. However, every feature related to safety adds on equipment prices for buyers."

As ground damage can be very costly, the use of innovative technology and the focus on training of ground personnel can help avoid these costs. For instance, in terms of ramp safety technology, the extendable belt loader system 'Rollertrack Conveyor' from Denmark-headquartered baggage and cargo handling systems solutions provider

Left: Ground support equipment manufacturer Denge is headquartered in an industrial zone 10 minutes away from Istanbul Atatürk Airport
Below: Power Stow was established in 2003 just outside Copenhagen, Denmark

Power Stow "has several safety features designed to optimise safety, protect against pinch points and prevent aircraft damage", according to the company's international sales manager Thomas Warming.

The system reaches inside the bulk hold of the aircraft and makes 90° turns, delivering cargo to the ramp agent into and out of the aircraft, maintaining constant clearance height to protect the aircraft and prevent door damage. "It was developed in order to reduce injuries of operators, minimise damage to cargo/baggage, and the interior of cargo hold, as well as to improve efficiency," says Warming.

"Our semi-automatic system eliminates the contact between the floor and the baggage/cargo. And since there is no longer a need for manual carrying of the baggage/cargo inside the hold, the Rollertrack Conveyor drastically reduces wear-and-tear of the interior of the aircraft. An auto-levelling mechanism automatically adjusts to the changing height of the aircraft door sill to accommodate vertical movements of the aircraft during cargo and passenger operations."

With conventional belt loaders, the ramp agents must manually control the distance and height between the aircraft and the belt loader, Warming notes. "The Rollertrack Conveyor is an intuitive system, but solid training of staff is key to a successful implementation into any ground handler operation. Therefore we pay attention to continuous training of ramp agents. It is a priority for us that the operators are familiar with even the smallest detail so that they can ensure smooth and efficient operations. We offer brush-up training sessions for our customers around the world.

"A number of safety features are embedded to prevent damage and injuries, many of which were developed based on input from users and other professionals in the ground handling industry. Higher productivity with less sick leave as well as less stress and risk of errors will automatically reduce the number of accidents."

Good quality, reliably maintained equipment is the starting point in the use of GSE technology, along with training for equipment operators, agrees TLD USA's Reno. "We have been supporting our equipment and our customers globally on several fronts," he says. "In terms of safety features embedded in equipment, ASD has become standard for many customers and we are continuing to evolve that platform with additional features. We now offer it as a retrofit solution, including for non TLD equipment. Additionally, more and more customers are recognising that fleet management systems such as TLD's 'Link' are a powerful tool for not only productivity, but safety as well."

Denge observes that no-touch operations have been the base solution for years and that in recent years aircraft proximity detection systems which slow down and stop the equipment within certain distances to the aircraft have become part of international GSE standards. "Before this new standard, GSE requirements only included visual and audio alarms, turtle speeds and extending edges with touch sensors and so on," she says. "Proximity detection retrofit is available but cost-wise it might not be affordable for buyers for every piece of equipment they own."

Warming observes that there is also a focus on developing autonomous systems in the industry, which can prevent human failure during ground handling operations. "Following IATA (International Air Transport Association) recommendations, we anticipate the launch of our 'Assisted Docking' system later in 2021," he reports.

1,000

Depending on their complexity, onboard aircraft loading systems can add well over 1,000kg to the maximum takeoff weight (MTOW) of a single narrowbody aircraft

Left: The Rollertrack Conveyor system improves efficiency
Below: Good quality, reliably maintained equipment is the starting point in the use of GSE technology

Electric loading equipment

A new trend in the sector is electricity powered GSE, observes Denge. "Battery disposal solutions are not there yet, but electric equipment will be widely used in the mid-term on aprons," she says. "The reason why there will be increasingly more pieces of electric loading equipment compared to the past is that they have low maintenance cost and come with less noise and less dirt."

It should be noted that the majority of current loading equipment is still non-electric from a global perspective, according to Warming. "The airport infrastructures have a major role in this, as there is still a lack of electric infrastructure to support the implementation of electric GSE," he says. "Our model has always been to let our customers choose the brand of belt loader chassis and power source (gas, diesel or electric) so our supply simply follows our customers' needs.

"However, electric belt loaders are becoming more and more in demand as the industry is moving towards a greener and CO_2-neutral future. Due to the fast-growing demand for this type of GSE, we have produced electrical units for many years. The majority of sold units in Europe and Asia has been electric in the past years and, indeed, going electric with no exposure to exhaust fumes, also benefits the health of ground handling personnel."

Reno highlights that electric loading equipment is rapidly becoming the norm for both commercial and cargo companies. "While we offer our customers a choice of lead acid, Li-Ion and H2 fuel cells in most of our product lines, our iBS Li-Ion solution is the strongest seller," he reports. "We recognise our shared responsibility to protect our planet and we are committed to providing our customers with options to help aviation become leaner and greener, and we believe electric GSE drives both.

"With the exception of some bespoke military applications, we are proud to offer all of our product lines in an electric variant. The life cycle cost advantage of electric GSE is becoming more widely recognised as well as the inherent safety advantages of controllability and ramp noise reduction."

50%

The use of the right GSE can influence a company's bottom line, and many of Power Stow's clients have been able to reduce body injuries by up to 50 per cent

Next developments and innovations

Assessing how the requirements of handling companies and airlines are developing, Denge affirms that the cost of investment remains an import factor. "Nevertheless, autonomous loading equipment interconnected to a warehouse system and furnished not only with sensors but also with artificial intelligence are the next needed developments and innovations in the area of loading equipment," she says.

Warming affirms that for airlines the reduction of overall aircraft weight to an operational minimum is key to cost reductions, higher profitability and securing a greener future. "Depending on their complexity, onboard aircraft loading systems can add well over 1,000kg to the maximum takeoff weight (MTOW) of a single narrowbody aircraft," he says.

"The Rollertrack Conveyor is ground-based and therefore eliminates the cost of additional fuel burn and aircraft maintenance. Furthermore, customers can maximise the aircraft's bulk capacity, as every single cubic meter adds value to their business."

Reno believes in the potential of electric GSE but notes that the biggest constraint to wider implementation – airport infrastructure – must be overcome. "Further developments to address the physical and capital constraints in this area will facilitate faster adoption of electric GSE which will in turn unleash improved safety, productivity and CO_2 emission reduction," he concludes.