Between 24 and 26 April, the great and the good of the ground support equipment community came together with ramp operators in Lisbon for the 2013 GSE Buyers’ & Ramp-Ops Conference.

EVA INTERNATIONAL – PUBLISHER of Airside International – organises the annual GSE Buyers’ Conference and, this year, it took the decision to include ramp operations in the event, reflecting the inextricable connections between GSE procurement and the vast array of activities that are carried out on the ramp.

Over the course of three days, senior figures within the GSE and ramp operations world came together in the Portuguese capital for an agenda that included presentations and panel discussions on all aspects of the GSE arena and the equipment’s role on the apron. A particular focus this year was on airport winter operations, adding to the topics covered in a varied and fascinating programme.

The Conference was chaired by two experienced operators, Peter Speck – head of corporate supply & GSE maintenance at Swissport International and a regular contributor to the pages of Airside International – and British Airways’ head of operational safety, David Anderson. They introduced the various speakers that took to the podium to give the audience the benefit of their experience and knowledge; amongst these industry leaders were representatives from big players of the GSE manufacturing, leasing and handling world such as Dnata, Fraport, HAVAS, JBT AeroTech, Menzies Aviation, TCR and The Specialist Hire Group.

Airports, too, were well represented amongst the speakers, namely Chicago Rockford, Copenhagen and Toronto, while there were also speakers from airlines including Aer Lingus, IAN Cargo and Spicejet.

Exhibiting alongside the Conference were numerous other GSE manufacturers, including Airside GSE,
This issue of Airside International leads with a review of April’s GSE Buyers’ & Ramp-Ops Conference in Lisbon, an annual event organised by the publisher of AI that brings together GSE buyers, suppliers, users and other interested parties. Once again, it was a big success, attracting numerous high-powered speakers and a large, often lively audience.

This issue also takes a look at the many challenges of airports in the booming Far East, some of which are fairly peculiar to operating in that part of the world. There is a distinct cargo theme to this issue, the magazine featuring an interview with Gerton Hulsman, managing director of warehouse handler Düsseldorf Cargo Logistics, and with Mike Duffy, CEO of freight handler Cargo Airport Services, while we offer an analysis of the changing face of cargo handling systems and equipment used around the world.

Plus, we look at specialist GSE including apron buses and tractors, as well as consider how GSE is maintained in various models, while offering some thoughts on just how airports manage their delicate financial dealings. We also talk to Maurizio Beni of Heathrow handler Azzurra about his company’s GSE fleet.

I hope you enjoy the issue.
AMSS, Charlotte Manutention, Conrac, Denge, Douglas Equipment, Goldhofer, Mallaghan, sister companies Sovam and Air Marrel, Timsan, TLD, TUG Technologies, Vuesen Bus and Vestergaard.

NOT ALL WORK AND NO PLAY
While the days were busy, the evening of the 25th brought a chance for those in Lisbon to enjoy themselves, as well as to continue to make the most of the networking opportunities that the Conference offers.

A sumptuous champagne reception and gala dinner in the Conference venue, the five-star Tivoli Hotel in the centre of Lisbon, proved a great way for speakers and delegates to unwind and let their hair down a little after what had been a long but enjoyable day, and before the Conference resumed once again on the Friday.

The Thursday had begun with a brief introduction from event organiser Eva’s publisher, Parveen Raja, and she was followed by chairmen Peter Speck’s and David Anderson’s opening remarks. Speck pointed out that, in the GSE sector: “Innovation has come largely through evolution.” Indeed, he said, aircraft are still being handled more or less as they were in the 1960s and by means of pretty much the same equipment. But, he added, we are now at a crossroads in so many areas of GSE, and tomorrow’s handling equipment may not look or operate like today’s.

The day’s first presentation was given by Kristaps Freimanis, quality manager for HAVAS Europe. Freimanis outlined how a handler such as HAVAS adheres to the procedures laid out in the International Air Transport Association’s ISAGO (IATA Safety Audit for Ground Operations) guidelines and suggested some technological developments that the industry might seek to adopt in order to ensure greater adherence to ISAGO protocols on an ongoing basis. Greater automation of some GSE equipment control functions might help in this regard, he pointed out and – while requiring some initial investment – it was noted that that outlay could soon be more than compensated for in terms of not only labour saving but also in lower rates of damage and/or injury on the ramp.

Freimanis also questioned the value of some of the procedures contained within ISAGO, although he has no doubt of the worth of the mechanism to the Turkish handler. One issue highlighted by a member of the audience was that technological developments introduced by GSE manufacturers might have made some of the ISAGO protocols somewhat obsolete already.

It was also mentioned that ISAGO is not compulsory for any handler and therefore there are no sanctions for non-compliance. Moreover, introduced to promote greater levels of consistency in handling safety standards and to reduce the need for carrier customers to audit their handlers, those goals have perhaps only been achieved to a limited extent.

DNATA LOOKS TO THE FUTURE
Next up to the podium was John Edmunds, business manager – central services at Dnata UK. Coming from a military background, he is keen to bring a fresh eye and some new ideas to handling and to GSE operations. According to Edmunds, some of the GSE in use is still “very agricultural” – quite old and relatively unsophisticated.

Yet, he sees cause for optimism: while certainly the GSE in use generally “needs to be more efficient, we are slowly catching up”, he said. Some of the priorities for handlers today analysing their GSE acquisition requirements, Edmunds considers, include looking at the whole-life costs of equipment, from acquisition right through to disposal – whatever form that may take. Recycling of obsolete equipment will become a much more common means of disposal, he notes, while as part of the move towards greater environmental consciousness hard choices will need to be made on what will power the GSE vehicles of the future – to be diesel, electric or hybrid?
Believing that there is a lot to be learnt from other industries and their technological advances, Edmunds suggested that equipping vehicles with options such as sophisticated automatic stop mechanisms, sensors and cameras may become much more common, as will telematics of all sorts to allow for vehicle self-diagnosis. The problem, he said, is that GSE is a niche industry and as such investment can be limited in scope and innovation therefore not always as quick as it might be.

Greater levels of communication between GSE manufacturers and airport operators would also be no bad thing. The willingness of many handlers to move to electrically powered equipment if only there was suitable charging infrastructure at the gateways at which they operate is a case in point here, Edmunds remarked.

LEASE VERSUS PURCHASE

Next to speak was Peter Cosgrove, chairman of The Specialist Hire Group - within which is Rushlift, the enterprise that recently acquired the GSE maintenance operation of American Airlines at London Heathrow but which he admits is a comparatively “new kid on the block” in terms of GSE provision.

He outlined what the company can offer its customer base (and the client list expanded significantly to take in more handlers as well as American Airlines with that recent acquisition), noting that while it remains at heart a specialist long-term equipment lessor, he also hopes to offer clients shorter term leasing alternatives. Geographically, while Heathrow will remain at the centre of the UK operation, Cosgrove is also certainly hoping to extend its footprint to airports elsewhere in the country.

Staying in the field of GSE leasing, Jorge Vellon, general manager of TCR Spain, talked of the many benefits of the GSE leasing model to customers. He pointed particularly to the financial constraints that can be circumvented – if a handler leases rather than purchases its GSE fleet, it can employ its capital in its core business. Plus, leasing also helps a handler mitigate operational challenges, such as seasonal ups and downs in equipment requirements.

According to Vellon, if TCR’s experiences and business performance are anything to go by, GSE leasing is a thriving market. He believes that with rental now accounting for about 30 percent of the GSE acquisition market, it is “a well accepted service, with a proven concept and track record”. The majority of GSE operators are now either leasing some of their equipment or at least considering doing so, Vellon said.

Murat Denge, Turkey-based GSE supplier Denge’s managing director, spoke next of just what his company can offer the market. He noted that Turkey is not only geographically central to the world’s aviation industry, but also has some of the fastest-growing airlines in the world – both Turkish Airlines and low-cost carrier Pegasus are ordering aircraft at an incredible rate, he observed, and these levels of expansion can only mean opportunities for GSE manufacturers.

Denge is certainly expanding its product line to exploit the opportunities on offer. Supplying GSE vehicles, baggage and cargo handling equipment, particular areas of focus at the moment include self-propelled GSE such as passenger stairs and its growing range of electrically powered vehicles.

TAXIBOT

Also on the subject of potential new GSE, Alexander Stern – managing director of Lufthansa Engineering and Operational Services (Lufthansa LEOS) – briefed the room on the situation regarding TaxiBot, the revolutionary new towbarless tractor being developed by a team bringing together Lufthansa LEOS with the likes of Israel Aircraft Industries (IAI) and TLD.

He confirmed that beta testing with three TaxiBots will begin in the summer at Frankfurt, the units to be employed with narrow-body Lufthansa aircraft at the German flag-carrier’s primary hub. While he readily confessed that TaxiBot is an expensive piece of equipment compared to existing push-back tractors and to be economically viable will require an extremely high rate of utilisation, he was also very quick to point out its many benefits – not least in terms of fuel cost savings and emissions reduction during taxiing.

Indeed, dispatch towing with TaxiBot may well become “the most important airport ground operations innovation of the 21st Century,” Stern commented.

CARRIERS AND AIRPORTS AIR THEIR VIEWS

Gonzalo Iglesias, ground operations director at LAN Cargo, outlined exactly what it is that a cargo airline is looking for from its ground handlers. “We put our aircraft in the handler’s hands,” he insisted, and with growing pressure on carriers caused by such factors as worsening airport congestion and ever-increasing regulatory and certificatory demands, the need for close co-operation with handlers is only getting more important.

The three key issues are safety, quality and efficiency, Iglesias suggested; all the elements of the relationship between the airline and its handlers must come together to optimise performance in these areas. “We need to establish a partnership, to work together as one,” he concluded.

Malene Thiele, corporate social responsibility adviser at Copenhagen Airport, and Andreas Eibensteiner, project manager for the advancement of the Fraport e-Fleet, discussed the aviation industry’s drive towards lessening its environmental impact. Thiele explained that corporate social responsibility is a key part of the overall strategy of “responsible growth” at Copenhagen Airport and that a crucial part of that strategy is minimising the environmental effect of any expansion.

The move towards electric vehicles is forming a big part of the Danish gateway’s environmental strategy, as it is at Frankfurt-Main International Airport, one of Europe’s busiest. Eibensteiner spoke of the increasing pressure on airports to accelerate their use of ‘e-vehicles’. Highlighting that as well as avoiding carbon dioxide emissions they also significantly improve air pollution and noise levels, he called for GSE manufacturers to work with airport operators such as Fraport on developing, testing and bringing to market new electronically powered GSE.

INDIAN POTENTIAL

Kamal Hingorani, senior vice president & head of ground services at Indian low-cost carrier SpiceJet, explained the massive potential for growth that exists – and is beginning to be fulfilled – in
the Indian aviation market. Currently the world’s ninth-largest, it will be the third-largest by 2020, he predicted, and the implications for GSE sales in the country are correspondingly massive.

While a lot of handling equipment currently employed in India as GSE is far from state-of-the-art, especially away from the nation’s big four or five gateways, the situation is changing. Joint ventures with Indian companies seem to be the way to go if a significant footprint in the country is to be achieved by a foreign equipment supplier, Hingorani said, while lamenting the impact of high national taxes on aspects of the industry that, he considers, is currently holding it back.

**WINTER OPERATIONS**

The last two presentations of the Conference concerned the challenges of snow clearance and a look at just some of the vehicles and equipment used by Toronto Pearson and Chicago Rockford International Airports to keep their runways, taxiways and ramp areas clear of snow and ice.

Paul Schenk, manager, apron maintenance facilities for Greater Toronto Airport Authority (GTAA), and Zach Oakley, airport operations manager at Rockford, talked a little of the increasing difficulties involved in handling winter operations, given the need to cope with ever-larger aircraft, more and more operations and a climate that is perhaps worsening as the years go by.

Both agreed that accurate weather forecasting is fundamental to their job, while the right vehicles and equipment together with tight-knit snow clearance teams are vital for ensuring that airports keep functioning in the worst of the winter weather.

**Safety on the ground**

Dimitrios Sanos, product manager airport & ground operations training for IATA, offered his thoughts on the absolute imperative of ensuring the highest possible levels of safety throughout the aircraft handling process. This, he said, relies on having the right equipment, the right procedures and the right execution.

With regard to the last of these, staff training is critical, Sanos emphasised. Experience sharing, staff ownership of their responsibilities and actions; complete awareness of safety issues; and teamwork are all part of what is required to maximise safety levels on the ramp, he insisted. “Safety should be an embedded priority” in all staff who have any connection to aviation operations, Sanos continued, right from the baggage handler and duty manager to the commercial manager and company CEO. It should be part of their genes, he insisted, with training to that end being both “available and relevant”.

Continuing on the theme of safety and minimising incidents on the ground, Nick Heemskirk, director of global product development, JBT AeroTech, spoke of the latest developments in GSE aircraft collision avoidance systems. These have been in use for many years, of course, and are especially useful when a GSE driver/operator has to multitask in his work, but new devices are now coming onto the market, based on radar, laser, ultrasonic, inductive and pressure-based technologies.

However, there are dangers here too, he warned. A reliance on sensors can lead to weakened enforcement of standard operating procedures (SOPs) for example, while sensor failure can lead to collisions. Differences between equipment types and various manufacturers’ offerings can also mean potential hazards – the new equipment must therefore be used to assist and enforce SOPs, Heemskirk insists, not to replace them.

His thoughts were reinforced by the next speaker, Menzies Aviation’s Paul Drever, who explained the numerous procedures this particular handler has in place to minimise aircraft damage caused by GSE collisions. Maintaining the highest possible standards set by Menzies across a worldwide network is no easy thing of course, and accidents cannot be avoided entirely. Consequently, Drever declared, the need to ensure that all damage to an aircraft is reported, not ignored, is absolutely vital.

**COMPOSITES: MORE OF THE SAME, OR NEW CHALLENGES?**

The subject of aircraft damage on the ground also formed part of the presentation by Rob Powell, ramp services manager for Aer Lingus. His emphasis was on the challenges of handling aircraft made in large part from new composite materials and, because Aer Lingus has nine of the new A350-900s on order, his focus was on that particular aircraft.

Aer Lingus self-handles at its Irish hubs in Dublin, Shannon and Cork and so the matter of more than just passing interest to the airline. Powell noted that composite aircraft are certainly not new, although with the Boeing 787 ‘Dreamliner’ and the A350 the proportion of composite material making up the new airframes has increased significantly. That percentage is only likely to increase yet further in the future, he observed.

Powell’s conclusion was that while the handling of such airframes does not require any revolutionary change in behaviour or equipment, there are significant points to note for any handler of these aircraft. Most pertinently, impact loads can cause serious damage to composite materials and such damage may not be visible to the naked eye. This makes it even more important that any damage sustained as a result of GSE collision on the ground is immediately reported. Powell insisted.

Moreover, he advised that handlers and operators should reconsider any equipment or training requirements associated with handling the aircraft. Rubber bumpers used on some items of GSE may not help in the case of collision with the A350, for example. They may simply cause potentially unreported – because it is not visible – damage to an airframe.
According to Andy Willis, transport manager at Manchester International Airport, Cobus has captured 80-85% of the market. “Cobus has the best piece of kit,” he insists. “It does what it says on the tin. Cobus buses are economical to run and have a 25-year life cycle. We had Neoplan buses before, but the bigger engine was too expensive to run. The Cobus uses 4.55 litres of fuel per hour; Neoplan buses use double that. We don’t need such a powerful engine on an airfield anyway, as buses can only go 20mph. Not only that, but if we ever have a problem, Cobus puts a fitter on the plane to Manchester the next day to sort it out.”

Manchester got its first six Cobus buses in 2000 and now has 18. Two Neoplan buses have been sold and the other four should be going shortly.

Fuel efficiency is a key requirement for airport bus purchasers. Miami International Airport has two Cobus 300 Airport Apron Drive buses, which carry 112 passengers each, as well as four regular 39-seat passenger buses. “The Cobus buses use just one gallon (3.78 litres) of fuel per hour, compared to four gallons (15.1 litres) of fuel used by the other buses,” notes a spokesman for the gateway.

ENVIRONMENTAL CONSIDERATIONS

Besides saving money, greater fuel efficiency brings environmental benefits too, since it leads to fewer carbon emissions. Cobus is bringing out a more environmentally friendly bus at the end of this year or early 2014 to meet the latest European emission standards.

Ground handler AeroGround, the 100% subsidiary of Munich International Airport operator Flughafen München, has just added 27 MAN buses – 19 articulated and eight “solo” – to its fleet, making 70 buses in all. Another 19 MAN buses are due for delivery in 2014. One reason for choosing MAN’s buses was their 235 kilowatt (320 horsepower) common rail diesel engine, which meets the stringent EU EEV (enhanced environmentally friendly vehicle) standards.

“The new MAN bus emits just 0.02 grammes of fine particulates per kilowatt hour, compared to 1.1 grammes for our older buses,” explains a spokesman for Munich Airport. “Nitrous oxide emissions are reduced from over 14 grammes per kilowatt hour to just two.”

Munich International Airport also runs a telemetric location system it calls TOFO, based on in-cab data communication. Airport staff can see where any bus is at any time, whether it is parked or moving, if the motor is running, how much fuel is in the tank, how much fuel it is consuming at the time, and so on. This helps the airport to monitor and improve bus efficiency.

So far, electric buses have been rejected because of their cost and capability. “Electric buses are not economic yet,” emphasises a Munich International Airport expert. “The technology is not far enough developed, either: the range
is too short. But we wait for future developments.”

Manchester International Airport also thinks the electric bus “can’t do the workload” of the diesel models but, according to Andreas Funk, head of sales at Conrac-Cobus, the price of batteries is the main deterrent. “A battery can cost up to £250,000 (US$380,000), depending on how long the user wants the bus to drive before needing a recharge, whether they want heating or air conditioning, etc,” he informs. However, Cobus is working on converting old buses into electric models, allowing them to be sold at the same price as a new diesel bus. Meanwhile, Van Hool’s new AP2375 – the biggest bus up to now on the market – is available as a hybrid diesel/electric model. In addition, Amsterdam Airport Schiphol, always concerned about environmental issues, will issue a European tender for 35 electric apron buses this year, intended for 2014 delivery – which it believes would make it the first airport in the world to go electric in this area of a gateway’s operations.

“We know the capital investment for electric buses is higher than for diesel,” a spokesman observes, “but we believe the total cost of ownership will be similar to that of the combustion engine bus. Of course, it is dependent on the operational processes in place, as apron passenger transport can differ in many ways, depending on average distance and other factors.” Schiphol has already leased 20 diesel airport buses, and expects to lease more – but the electric buses will be fully owned by the airport.

SIZE IS IMPORTANT

Size is a consideration when choosing apron buses, too. Manchester is limited in the size of bus it can use because the vehicles have to turn around underneath the terminal building. Others don’t have that restriction.

“The number of passengers that can be transported is critical,” emphasises a spokesman from Munich Airport. “The more passengers on the aircraft, the bigger the bus required. However, sometimes it is better to use two smaller buses, so that when the first one is full, it can leave, rather than delay passengers already on board.”

The introduction of the A380 has led to the creation of the biggest apron bus yet available. Van Hool, which makes all buses to order, developed the AP2375. This bus can carry 150 passengers, instead of the more common 100. “Some people are making buses that carry 112 passengers, or 120. But we’ve gone for a different model. This way, an aircraft with 300 passengers only needs two buses instead of three or four,” says Dany Deckers, export manager, Van Hool.

“Some people are making buses that carry 112 passengers, or 120. But we’ve gone for a different model”

Dany Deckers, export manager, Van Hool

“It may be enough to convince some passengers to view the airport bus as something more than a necessary evil. They might even take a seat.”

“SATA (the International Air Transport Association) rules that buses must have room for four standing passengers per square metre, but this is unreasonable, as people have more hand luggage now and most passengers won’t take seats on the bus, preferring to stand as close to the doors as possible. This means a 100-passenger bus can really only take 80 people before it is full.”

The first jumbo bus has gone to Algiers Airport, configured with six doors: one door in front, one at the rear and two on each side. However, Van Hool can configure them with one or three doors down one side, and with or without front or rear doors. Van Hool also claims it introduced the low floor bus, making it easier for passengers to get on and off the vehicle.

Cobus has three bus models: the 2500, which takes up to 67 passengers; the 3000 and 2700, both of which take up to 112 people; the 2700s, although still in use, is an old model no longer made. The 2700 is similar to the 3000, but 30cm narrower for use in congested airports, such as Heathrow. The 2700 and 3000 are developed on a Mercedes chassis, while the 2500 sits on Cobus’ own chassis. Buses can again be configured to suit the customer – and can even be altered to travel forward or backward, with a driver’s cab at each end.

“The two-direction bus was developed to negotiate the narrow roads in Mont St Michel, the tourist destination in Normandy,” Funk explains. “Buses can’t turn around there. But we are developing apron buses on the same principle. “Our buses last a long time. There is still one in use in Lisbon that was issued in 1978. But we will take back old buses, overhaul them, re-fit them and sell them as second-hand models.”

And while one might think the second-hand bus would be aimed at the developing world, Funk insists they are sold worldwide. Bus purchases are split between airports, airlines and handlers. Ground handlers are increasingly taking over, although often the handler is owned by the airport or airline anyway.

Emirates Airline, however, is probably unique in that it bought its own purpose-designed Cobus buses for first and business class passengers on the A380, but uses the airport’s fleet for economy fliers. And the buses it bought are certainly something special: they are fitted out to look like first and business class cabins.

“Emirates bought 15 Cobus 2500 buses with interiors resembling the A380 cabins as closely as possible,” Funk says. “They have luxury coach-type seats in beige leather with gold-plated holding bars and wooden trim on the ceiling, the same as the A380 does.

“We want to give our premium passengers the best experience throughout their journey,” says an Emirates spokesman. It may be enough to convince some passengers to view the airport bus as something more than a necessary evil. They might even take a seat. ■

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Some of the world’s biggest and busiest airports are in the Far East, no surprise given the booming aviation business in that part of the world. The handlers there and the gateways at which they are based face huge challenges, some of them fairly specific to the region.

**Far East round-up**

Three of the biggest gateways in the Far East, Bangkok Suvarnabhumi, Shanghai Pudong and Hong Kong International Airport, each process vast numbers of passengers and huge volumes of cargo each year. The handlers at these gateways have adopted various strategies for coping with this throughput – and Airside International has talked to some of them about how they go about their daily work, as well as speaking with Swissport, which handles at some of Japan’s big gateways.

**Japanese Presence**

Swissport carries out ramp, line maintenance and cargo handling at Japan’s Tokyo Narita and Osaka International Airports, while also undertaking full ground handling at Nagoya and line maintenance at Fukuoka. It has, therefore, a significant insight into the role and responsibilities of handling in one of Asia’s busiest aviation markets.

The importance of employing the latest equipment is vital in this market, confirms Peter Speck, vice president, head of corporate supply & GSE maintenance management. “The application of technology is essential in order to achieve cost leadership and to offer our customers reliable, quality services,” he explains.

That means making improvements where necessary. Michael Kilchherr, Swissport’s country manager Japan, adds: “We started to handle new low-cost carrier business in Japan (this product didn’t exist in the Japanese market previously) and we now use more technologies such as check-in kiosks, hand-helds and other simple boarding devices in order to keep costs down and to maximise efficiency.”

Given that Swissport claims to be the biggest handler of low-cost carriers in the world, the fact that Swissport Japan is the major player in this type of handling in Japan is especially pleasing, he considers.

Furthermore, Kilchherr says: “In cargo, we use Cargospot which delivers C2K [Cargo 2000] KPIs [key performance indicators], which is heavily required by airlines and forwarders in order to measure performance.”

The addition of low-cost carriers has also led to some change in Swissport’s use of GSE in Japan. Used to handling wide-bodies there, the company recently acquired more GSE capable of handling the narrow-body aircraft of Jetstar.

Swissport’s normal procurement strategy, which looks to GSE standardisation, is also applied in the Far East. Standardising on equipment and supplier helps to minimise costs associated with procurement, operation and maintenance, Speck notes, while also permitting a high level of flexibility in the redeployment of GSE across the global Swissport network. “This flexibility is vital in today’s dynamic market environment that results in challengingly short start-up times,” he highlights.

Diversification and the arrival of the giant A380 aircraft in the region have also meant changes. “We have started to purchase de-icing rigs in order to offer this service to our customers,” observes Kilchherr. “Most notably, we have purchased the only A380 rig in Japan and have now contracted with all the A380-operating airlines at Narita,” he says.

**Bangkok Flight Services Keeps Growing**

Stewart Sinclair is the managing director of Bangkok Flight Services (BFS), a handler at Bangkok’s Suvarnabhumi International Airport. BFS is a joint venture of global handler Worldwide Flight Services (WFS) and regional carrier Bangkok Airways, and Sinclair observes: “The nature of BFS has enabled us to benefit from the global purchasing power of WFS whilst at the same time we take advantage of local skills for GSE maintenance as we operate our own GSE maintenance facility.”

Asked about the changing technology being adopted by many handlers in the Far East and elsewhere, Sinclair remarks that, in recent times: “We have not experienced any greater dependency on high-tech GSE in Bangkok.” Currently, WFS boasts “a mixture of conventional and towbarless tractors for pushback and there are pros and cons for both. Towbarless ones are quicker to connect and disconnect but traditional tractors give you more flexibility if equipment breaks down.”

Plus: “As labour costs in Bangkok are relatively low, we don’t see any value in new devices such as ramp snakes, whereas in Europe the cost benefit would be significant,” he adds.

That is not to say that BFS has not invested, however. Sinclair points out: “We have developed our own in-house IT support systems, especially in terms of Enterprise Resource Management, (optimising) real-time resource allocation of both equipment and staff. Our systems are interfaced with our Automated Time and Attendance, training and accounting systems.”

BFS processes a wide range of aircraft types at Suvarnabhumi and needs the equipment to do it all. “All of our GSE was purchased from a single provider eight years ago and covers all equipment required to handle all types of aircraft including the A380 at one end of the scale and ATRs at the other,” he notes.

“We have a mixture of conventional and towbarless tractors, electric tug for the bag room and diesel tugs for freight running, GPUs (ground power units), ACUs (air-conditioning units), ARUs (air starter units), ambulift, passenger steps, lower deck and maindeck loaders, transporters, lavatory trucks, water trucks, passenger buses, dollies, carts, tailstands, golf carts, pick-ups.”

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As well as the many different aircraft types that all have to be handled, there are other challenges somewhat particular to the BFS operation in the Thai capital, Sinclair believes. For example, no de-icing is ever required but there is heavy use of ACU. Higher ambient temperatures drive the requirement for more brake cooling.

Moreover, very heavy electric storms during the summer months can close the ramp for up to an hour several times per week. Salaries are generally lower so automation is less cost-effective, he also explains. Cultural differences and particularly the lack of personal safety awareness mean that BFS spends a lot of time teaching safety.

Whatever the challenges, BFS is having a good deal of success. “We have grown by an average of 16% per annum over the last six years as we have grown our market share,” Sinclair enthuses. “We now have around 50% of available market share, so future growth is likely to be based on increased frequencies from existing clients and new airlines choosing to serve Bangkok – however, this is still expected to reflect growth of about 5% per annum.”

MODERNISATION AT SHANGHAI

Shanghai Pudong International Airport is one of the busiest in the world. It is Mainland China’s busiest air cargo gateway as well as counting among its three busiest passenger airports (not including the Special Administrative Region of Hong Kong).

At this enormous air hub – and it is one that is going to grow even larger in the near future – Shanghai Pudong International Airport Cargo Terminal Co Ltd (PACTL) handles the freight of 43 different airlines and provides 24/7 services including cargo and mail handling, document handling, ULD handling, consolidation, breakdown and Customs clearance.

It is active in three huge terminals – PACTL T1 has an annual handling capacity of a million tons, PACTL T2 can process 550,000 tons and PACTL West 2,500,000 tons. It is not operating on the ramp, but its warehouse handling equipment includes large numbers of forklifts, tugs for moving dollies within the terminals and ITVs (elevated transport vehicles) to serve its multi-storey warehouses.

That equipment is changing, informs Lutz Gregeorg, PACTL vice president. Perhaps most notably, the handler is switching from diesel forklifts to electrically powered equipment, a major transition given the amount of cargo PACTL handles each day and the equipment needed to move it all.
And one particular characteristic of operating in China is that the country has no ‘known shipper’ policy, so all Pudong freight must be x-rayed and palletised at one of the cargo terminals, he points out.

PACTL is investing in advanced computer systems, its IT being upgraded this year to allow better data management and improved planning. Furthermore, PACTL’s cool-chain facilities are being improved, Grzegorz observes, in order to cope with the increasing number of shipments of perishable – especially pharmaceutical – goods passing through Shanghai.

PACTL is also experimenting with volume scanners, which would automatically measure volumes of accepted goods shipments and free up manpower for other tasks.

All these changes will help PACTL to offer “reliable, best-in-class cargo handling”, he believes. And, while there are no plans to grow beyond the environs of Pudong, PACTL’s aim is certainly to grow there. “This is difficult enough in today’s environment,” Grzegorz notes, “but we strongly believe in the location”.

**HONG KONG’S CHALLENGES**

As well as being an extremely busy passenger gateway, Hong Kong International Airport (HKIA) is the busiest international air cargo hub in the world; in 2011 it handled 3.9 million tonnes of freight and last year this rose by 2.2 percent to reach 4 million tons.

Processing a large proportion of this freight throughput is Hong Kong Air Cargo Terminals Ltd (HACTL), and this particular handler has over its working life faced a number of challenges that are peculiar to the airport and consequently to its own business. In terms of operating at HKIA the sheer scale of the operation obviously represents its own challenges; last year, HACTL was handling approximately 100 carriers and about 80 percent of all commercial cargo moving through the gateway.

One unwanted aspect of HKIA’s freight throughput is how that cargo is presented to the handler – much of it is moved on large freighters, and more than half of it comes in the form of pre-build, palletised cargo. Hence there is a need for mechanised equipment and systems able to handle this sort of logistics.

Another characteristic of operating at HKIA is the weather. Most notably, the South China Sea is well known for its regular cyclones and Hong Kong experiences around 15 or so of these each year. According to HACTL director Kenneth Chan, HKIA’s exposed position means it is quite vulnerable to these occasionally highly destructive winds and, as a result, “We have to take special precautions such as ensuring empty ULDs and pallets are well secured and that loaded pallets are triple-wrapped to prevent water damage to cargo while it is transitting the ramp.”

HACTL’s most recent challenge has come not from the nature of freight throughput at HKIA or from the weather, but from competition. In February this year, Cathay Pacific began handling its own cargo at HKIA when it opened up its own freight terminal at the airport.

Chan is by no means subdued, however, insisting: “We intend to maintain our current workforce with an aim to further improve service standards. Cathay Pacific at its peak accounted for around 40% of our volumes (but) we have been actively developing new businesses and expanding our portfolio. And we have plans to redeploy spare space in our SuperTerminal 1 for new, higher-yield activities.”

He continues: “Hong Kong will also continue to grow, both as a gateway to and from China (as its population becomes more prosperous, this will generate more imports and traffic will become more balanced), and as a hub for all of Asia (our transshipment business is now rivalling imports, and is the strongest-growing segment). The third runway, when built, will further strengthen Hong Kong’s capabilities. So organic growth will also help to soak up the capacity released.”

Chan has ambitious growth plans despite the apparent setback of Cathay Pacific getting involved in the handling business, and knows that there are certain opportunities for an established handler beyond airside operations. “Expansion will come largely from our HACIS (Hong Kong Air Cargo Industry Services) subsidiary, whose main activities are express road feeders to and from China, and local collections.”
deliveries throughout Hong Kong. There is particular potential to grow the road feeder business to provide airlines serving Hong Kong with easy, efficient and economical access to a much wider catchment. This means they will generate more revenue on their flights, and we will generate more handling business.

“We will also put our focus on the development of HACTL Development Holdings Limited (HDHL), our newly-established marketing arm, to provide air cargo terminals operating at different levels of throughput and complexity with a wide range of professional services, including COSAC-Plus (HACTL’s new-generation cargo management technology), system development, human resources and training,” he concludes.

HANDLING THE COMPETITION
HACTL is certainly not the only handler at HKIA. Aside from other, previous competitors, Cathay Pacific Cargo began its own freight handling at the airport in February. It may not be the best news for HACTL, which used to handle the cargo of the home-based airline, but the additional processing capacity has been welcomed by Airport Authority Hong Kong (AA). According to AA: “The designed capacity of 2.6 million tonnes per annum of the Cathay Pacific Cargo Terminal (CPCT) could raise HKIA’s cargo handling capacity by 50% to 7.4 million tonnes. AA will closely co-operate with different business partners to ensure smooth and efficient cargo operations at HKIA.”

Cathay Pacific Services Ltd (CPSL), the wholly-owned Cathay Pacific subsidiary that was awarded a 20-year franchise to design, build and operate the facility, was, unsurprisingly, delighted with the inauguration of operations at its HK$5.7 billion (US$735 million) terminal earlier this year.

Algernon Tau, CEO of CPSL, commented when the terminal handled its first cargo that “a new chapter in Hong Kong’s role as a leading international air cargo hub” had begun. He added that “we will be working tirelessly to enhance Hong Kong’s position as the hub of choice”.

In the first phase, CPSL will be handling valuable cargo, transit civil mail and interface transfer transshipments for its launch customers, Cathay Pacific and sister carrier Dragonair. Stage two operations due to commence this summer will see the facility process all transshipments, import cargo and empty ULD release. The complete range of handling for its launch customers is expected to be achieved by the end of 2013.

GSE SUPPORT
Away from cargo handling in the warehouse – whether it be by HACTL, CPSL or Asia Airfreight Terminals (AAT), another handler at Hong Kong airport – AA points to the fact that the gateway hosts a number of “efficient and reliable service providers”. These incorporate Dah Chong Hong – Dragonair Airport GSE Service (a joint venture of Dah Chong Hong (Motor Service Centre) and Hong Kong Dragon Airlines Ltd) and Ground Support Engineering Limited (GSEL), and provide repair and maintenance services to all types of unit load devices and more than 8,300 units of ground support equipment and vehicles.

PROS AND CONS
Clearly, at a huge hub like HKIA – as at Japan’s big gateways, at Shanghai Pudong and, to a slightly lesser extent, at Bangkok Suvarnabhumi – there are huge ground service support operations that provide massive opportunities for handlers.

Of course, not everything is as perfect as it might be. For example, one handler told Airside: “The Far East as a region has in my point of view been lagging behind Europe and North America in terms of ground handling and cargo services. Regulations have been implemented to prevent independent ground handlers from entering markets and it is quite difficult for foreign companies to offer services, since restrictions favour local companies (such as major airlines and/or their ground handler subsidiaries).”

But the range of handling options and the vast inventory of high-tech GSE on offer at massive airports such as those described above goes some way to explaining just how these gateways can accommodate the enormous volume of traffic that they do, and why the Far East is such a booming region for the aviation industry.

The first shipment of cargo handled at the Cathay Pacific Cargo Terminal (CPCT) arrived on 21 February on a Cathay Pacific flight from Sydney.
“Maintenance is part of our leasing package,” explains Marc Delvaux, CEO at Brussels Airport-headquartered GSE provider TCR. “The customer gets a one-stop-shop service: GSE acquisition and financing, repair and maintenance and fleet management. The service always includes preventive maintenance schedules and the cost is included in the rental fee.”

The maintenance component of TCR’s full service rental offering is built on defined maintenance processes, accurate bill of materials, spare parts availability, trained technicians, state-of-the-art workshops and follow-up ICT systems.

Spare parts management is largely automated at TCR, with a real-time stock management system. Special attention is given to the most critical spare parts and the firm has developed a network of preferred spare parts suppliers that allows rapid delivery when necessary. TCR’s extended workshop network throughout Europe makes rapid shipments possible should the need arise.

But according to Yves Crespel, director of customer service at France-headquartered GSE manufacturer TLD Group, the availability of spare parts needed to ensure that maintenance schedules are met represents a significant challenge in GSE maintenance these days – at least in some areas of the world. “In Europe or in the USA, it is easy to deliver parts within 24 or 48 hours because there are no Customs constraints. In other parts of the world, though, it can be difficult: you can send something out and when it arrives it can sit with Customs for several days or even weeks before being delivered.

“This links back to a bigger challenge – customers need to consider maintenance not just as a pure cost but rather as an opportunity for better equipment availability,” Crespel continues. “It’s a question of investing in existing equipment, using quality spare parts and maintaining it regularly, instead of buying or leasing two or three times more equipment than is really necessary.”

TLD Group supports its customers throughout the life cycle of its products, offering expertise and technical support beyond the warranty period – 365 days a year, 24/7. It has over 25 sales and service offices around the world, several spare parts hubs on all continents and strong relationships with parts suppliers.

Meanwhile, as well as offering GSE maintenance services to its own lessees, TCR is also able to assist those requiring maintenance services only. According to Delvaux: “Our priority is to serve our leasing customers to guarantee them at all times GSE availability and performance. However, when there is demand from a customer for maintenance only and in case of free capacity in our maintenance resources, we also provide maintenance for GSE not leased by TCR when possible.”

This is the case, for instance, for catering trucks at London Heathrow in keeping up with the customer.

Users of GSE need it to be as reliable and efficient as possible at all times, whether that equipment is owned or leased. There is a growing tendency for users to outsource their GSE maintenance, while another trend – the drive for ‘greener’ operations – is changing the nature of the business. Megan Ramsay explains:

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Dewey Kulzer, director of Texas-based Elite Line Services (ELS – part of material handling company Daifuku Webb), considers: “Outsourcing of GSE maintenance services was around before the events of 11 September 2001 in New York, but 9/11 drove it hard, and really pushed our growth. We’re not seeing any tendency to bring it in-house at all. It’s not impossible for an airline to have its own efficient maintenance department but it’s not their core business, and it’s not easy to do.”

Ground handlers, too, are under constant cost pressure, so they want to focus on their core activity and outsource GSE maintenance to ease that pressure. Plus, Crespel points out that “it may be that ground handling agents are more concerned with making sure everything is done as per the specifications and legal documents, in order to qualify for ISAGO (the International Air Transport Association’s Safety Audit for Ground Operations) certification.”

In addition, providers of GSE maintenance services themselves face increasing demands to ensure reliability, safety, performance, flexibility, traceability and cost reduction for their customers. As Delvaux remarks: “On-time performance is a very important KPI (key performance indicator) for an airline. This, linked to continuous cost optimisation, puts a lot of pressure on the maintenance of GSE. There is in fact less GSE for the same availability rate expectation. Maintenance performance needs to be at its best in order to be able to answer today’s tough economical and operational requirements.”

With 15 years of experience and a network of 25 workshops, TCR claims to achieve a high level of GSE maintenance performance. This, according to Delvaux, is the result not only of the company’s experience but also of its awareness that the industry requires “significant investments, constant modernisation and compliance with rapid technological changes, local specifications and stringent regulations”.

As always GSE maintenance is a changing industry and a continual challenge. To describe it as dynamic is an understatement,” comments Kulzer.

THE OUTSOURCING MODEL

Nowadays, there are far fewer ground handlers or airlines than before that manage their own GSE maintenance workshop. Delvaux notes that estimates suggest that throughout Europe only about 20% of ground support equipment is now rented through operational leasing agreements; this volume of equipment was probably self-maintained in the past, he believes. In addition, some of the big airlines have largely outsourced their maintenance in the last 15 years to independent parties.

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THE DRIVE FOR GREENER POWER

Besides these factors, environmental performance is also increasingly high on the agenda in GSE maintenance – as in pretty much any other industry these days.

Says Kulzer: “The alternative fuel drive was derailed by 9/11 but it’s starting – slowly – to get back on track now. People are buying electric, but there has been very little capital outlay until now. For example, at Seattle the airport has a drive to be as green as possible; but it’s a matter of cost, and deciding who’s going to pay for it. The new equipment we’re seeing is primarily electric; propane is also out there but people find that it’s very clean while the equipment is in a perfect state of maintenance, but if not it gets quite dirty.”

He goes on: “The biggest issue for us in this area is training our people. We have to make sure they are as technically able as possible so that they can switch from working on traditional equipment to electric equipment. We work with the manufacturers to develop training programmes.”

Among those switching to electric GSE is US carrier Spirit Airlines, which in March this year ordered 21 CorPower lithium-electric GSE retrofit kits for its Fort Lauderdale operations from lithium-ion battery manufacturer Corvus Energy.

The units will be supplied by Corvus’s North American distributor, Aviation GSE America, and will be used to convert the carrier’s entire fleet of baggage tractors at Fort Lauderdale – saving Spirit Airlines 25,000 gallons of gasoline a year and reducing carbon emissions by around 243 tons. Nitrous oxide and particulate emissions will also be eliminated.

Spirit chief operating officer Tony Lefebvre points to the expected environmental benefits of the switch, but also notes: “At the same time, the Corvus product allows us to reduce our ground support costs by eliminating our fuel expense and reducing our maintenance expense on these tractors. The capital outlay is significantly less than going with new lead-acid electric tractors and the lithium charging infrastructure is less demanding on airport electrical infrastructure.”

Corvus says its batteries are “completely maintenance free”, and that the

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Kulzer admitted that there is usually a lower requirement for maintenance with electrically powered equipment as opposed to diesel. “Manufacturers all say the requirement is about 60 percent but I’d say it’s more like 80 to 90 percent. I’m not worried about our business shrinking, though – our name, Elite Line Services, reflects the fact that we are about providing top quality service and this will ensure our growth,” he affirms.

Electric equipment is easier to maintain because it does not use the fluids that conventional equipment uses. Therefore, it has a lighter maintenance schedule and the equipment is less costly to maintain. “We’re very well aware of this at TLD,” says Crespel. “We offer a full range of electric equipment, from hi-loaders to baggage tractors. This equipment requires different expertise but it doesn’t mean there will be no business for maintenance providers – it’s not maintenance-free. It just involves a shift in the competencies of technicians, and adequate training of staff,” he believes, echoing Kulzer.

CHANGING DEMANDS

As users seek to protect and improve their bottom line, GSE maintenance is changing. It is becoming “increasingly professional because it is a way to protect large investment value, to streamline operational reliability, to reduce overall costs and to build trust in the whole chain”, outlines Delvaux. “Indeed, good quality and well-maintained GSE is a key component of the value-added chain in the air transportation industry. TCR’s view is that the trend will increasingly move towards outsourcing of maintenance and fleet management in general to specialised GSE managers, which allows ground handlers to keep their focus, means and investment on the handling business and operations at all times, and not the technicalities of their production tools, the GSE. This is following the trend that is apparent in most other industries (such as construction, ICT, transport or real estate, for example).”

In addition, “GSE maintenance as a stand-alone service will no longer be compliant to our customers’ needs in the future – the customer’s expectations also include fleet management and capital expenditure on GSE,” says TCR chief operating officer Donald Meulebroek.

Other developments include an increasing demand for GSE that incorporates tracking systems – chips on equipment that can pinpoint its location and transmit data such as when it is due for a service – and a growing tendency for users to rely on maintenance software to follow up on their fleet and to plan maintenance or spare parts purchasing.

Plus, competition is increasing. Kulzer considers: “ELS has always been mainly in the aviation industry. Since 9/11 we’ve gone from seeing five bids for a tender to 20 bids. People from outside the industry are expanding into GSE maintenance, as are GSE manufacturers.” While Kulzer remains confident of ELS’s survival and prosperity, the company is not complacent; it is currently looking outside the US to expand into new markets.

TCR, meanwhile, has already been expanding. In 2012, the company achieved important steps in Europe – more specifically, in Norway, Germany and Italy.

Its Norwegian operations started on 1 October 2012, when TCR set about renting all Oslo International Airport GSE to Aviator via a sale and rent-back system. The Norwegian operation has six full-time employees and is looking to expand further. The Scandinavian market already represents 5% of TCR Group’s activities and the company is seeing further potential within the region.

March 2012 saw the beginning of a sale and rent-back operation in Germany, at Düsseldorf International Airport, with Aviapartner. Going forward, the company has also been supplying additional equipment to Aviapartner in order to keep up with the airport’s growth. Delvaux reveals: “The company’s presence at the airport has led to the interest of a second ground handling partner, Düsseldorf Airport Ground Handling. TCR was also able to gain the sale and rent-back contract for this handler.”

Though new, the German operations make up 10% of TCR’s activities with a fleet of 2,000 GSE units. The company sees more potential there and has its eye on opportunities to expand into other airports across the country.

TCR has also branched into Italy recently, recognising the presence of a fast-growing market and high level of competition. To date, TCR is operating at airports in Naples, Rome and Milan.

“Customers need to consider maintenance ... as an opportunity for better equipment availability”

Yves Crespel, TLD

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TCR’s Marc Delvaux
A number of reported incidents involving towbarless (TBL) tractors have raised awareness of the need to develop common best practices for TBL operations worldwide. Generally, airport operators, airlines, and ground service providers have developed standards specific to their own operation of TBLs. Indeed, a recent study by aviation consultants Ricondo & Associates shows that no common standards exist for the use of TBLs.

The popularity of TBLs is generally based on their superior maneuverability compared to traditional tow tractors. They scoop up the nose wheel and lift it off the ground, allowing the tug to maneuver the aircraft; this allows for better control of the aircraft and for operation at higher speeds.

Despite the significant advantages of TBLs compared to conventional tug tractors, those incidents that have been reported involving TBLs have created concern. An interesting example involved a British Airways (BA) A320-200 (G-EUUF) operating at London Heathrow a few years ago. A final report published by the UK Air Accidents Investigation Branch (AAIB) indicates that after an uneventful pushback from stand 39 at the gateway, the tractor was disconnected from the aircraft. Having received taxi clearance from air traffic control (ATC), G-EUUF started moving under its own power. Shortly afterwards, it collided with the TBL that had just performed the pushback, damaging the aircraft's right engine and the tractor.

The report further states that the headset operator had given the ‘all clear’ signal to the flight crew before the tractor had been repositioned to a safe distance from the aircraft. The co-pilot did not see the tractor and a defect prevented the tractor from being driven away before the aircraft began to move.

The main cause of the accident was seen as the headset operator giving the ‘all clear’ signal to the flight crew before the tractor had been repositioned to a safe distance from the aircraft. Contributory factors were the co-pilot failing to see the tractor and a defect that prevented the tractor from being driven away prior to the aircraft beginning to taxi.

VARYING PROCEDURES

Thomas Kramer, sales director at Goldhofer, agrees that different airports, airlines and ground handlers have different procedures for handling the aircraft on the tarmac. “Goldhofer tractors are designed to make sure all possible procedures can be secured. In terms of towing or pushing an aircraft, the Goldhofer TBL is probably the easiest way to handle an aircraft. If a standardised guideline is requested by the end-user, then we will be happy to assist, of course,” he affirms. It’s worth noting that organisations such as the USA’s Federal Aviation Administration (FAA) have rules and regulations, there are advisory circulars, and...
Azzurra is undertaking a full ramp and passenger handling services at Terminal 4 for numerous carriers and, amongst its considerable GSE inventory, of which more can be learned later in this issue in the GSE Buyer section – three LBTC T80 tractors are proving themselves “very efficient” and “very robust”, says Azzurra’s commercial manager Maurizio Beni.

He is full of praise for the performance of the LBTC tractors, describing them as “properly made and mechanically very reliable”. These tractors have been leased by Azzurra for about three years now, Beni notes, during which time he has had absolutely no cause for complaint.

“Conventional tractors still pull their weight”

Of course, conventional towbar equipped tractors continue to do a great job for numerous handlers at gateways all around the world. One such is the T80 towing/pushback tractor that is offered by The Little Big Tug Company (LBTC) of Worcester in the UK.

This tractor is doing sterling service at London Heathrow International Airport in the hands of Azzurra Ground Handling Services, a commercial handler that forms part of the wider GH Italia Group. Azzurra is undertaking a full range of ramp and passenger handling services at Terminal 4 for numerous carriers and, amongst its considerable GSE inventory, of which more can be learned later in this issue in the GSE Buyer section – three LBTC T80 tractors are proving themselves “very efficient” and “very robust”, says Azzurra’s commercial manager Maurizio Beni.

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Thomas Kramer, sales director at Goldhofer

COST SAVINGS

Today, airlines are achieving savings in operating costs when using TBLs. However, they represent a large up-front capital cost. “The initial investment might be a bit higher than for conventional tractors but the possibility of being able to use these units for towing and push-back makes it more attractive than ever,” Kramer considers.

“One reason for the increasing number of TBLs is simply because of the return on investment as you need fewer TBLs than conventional tractors for the same number of aircraft, and therefore it’s a smart way to reduce the costs for the handling company. “High-speed maintenance and operational towing combined with the possibility of using the TBL for push-back is a huge advantage,” he goes on.

Technological improvements and new standards of use are to be expected in the coming years as TBL equipment evolves. Goldhofer is well known as a highly sophisticated engineering company and Kramer stresses that Goldhofer TBLs have always been at the technological forefront. “There is continuous development and improvement going on. Investing in a Goldhofer has been and will be an investment in future technology,” he insists.

TAXIBOT

Another key player in the field of TBLs is GSE manufacturer TLD. This year the spotlight will be on its new TaxiBot TBL, as operators – including several airlines – complete their testing of the new product. Lufthansa plans to deploy three beta-version TaxiBots for its Boeing 737 operations in Frankfurt during a six-month trial launching in mid-2013, when certification is intended. Regular service will follow in early 2014.

The TaxiBot is a semi-robotic TBL designed for dispatch towing from gate to runway, allowing taxi with jet engines stopped. During tests at the end of 2012, pilots from more than 10 airlines confirmed the stated objectives of the design as offering the same convenience and safety during taxing with TaxiBot as under the aircraft’s own power.

Ulrich Pade, head of Lufthansa’s Boeing 737 fleet, summarised his impressions after his TaxiBot trial run, when at the controls of an A320, by saying that the system is a “technically fascinating solution that is easy to operate”. Representatives of Chinese airlines who participated in the TaxiBot demonstration showed a strong interest in the vehicle’s environmental benefits. This new aircraft towing vehicle is controlled by pilots in the cockpit for the entire ground taxi distance between ramp and runway, thereby saving fuel and significantly cutting down on carbon dioxide emissions and noise pollution.
Managing the cash

Airside International looks at how airports are managing their finances and how priorities have changed as a result of privatisation. David Smith reports

The major trend among airports today is towards privatisation, according to Rafael Echevarne, director of economics and programme development at Airports Council International (ACI) World Headquarters in Montreal, Canada.

The frequency of privatisations has increased of late, but they are a surprisingly recent phenomenon. The first airport privatisation was in 1987 when the former British Airways Authority (now Heathrow Airport Holdings, which runs four airports) was floated on the London Stock Exchange.

Echevarne notes: “Privatisation has changed the dynamics of the airport industry. Now you have shareholders looking for a return. Privatisations are occurring because governments are too tied up with other business, such as building roads, schools and hospitals, to look after airports. In the UK now, nearly all the airports are private and China has the highest number of private airports listed on the stock exchange. The major exception to the rule is the US, where no major airports are private, although Chicago Midway is planning to become private soon.”

Switzerland’s Zurich International Airport is a good example of a successful privatisation. Europe’s 15th-busiest air gateway, it adopted a public-private partnership structure in 2000. The airport is owned by Flughafen Zürich AG, a company quoted on the SIX Swiss Exchange.

“Privatisations are occurring because governments are too tied up with other business, such as building roads, schools and hospitals, to look after airports”, Rafael Echevarne to ACI’s director of economics and programme development

FINANCIAL PRIORITIES

The financial pressures on airports, whether they are private and listed on a stock exchange like Zurich, or public like Orlando, have led to a number of trends in airport economics, according to Echevarne. The first characteristic of modern airport economics, he says, is a heavy requirement for capital investment.

“The need to invest is never-ending. Look at Heathrow Airport, in London, which is always a construction site. Not only do airports need to provide greater capacity, with new runways and terminals, but they also have to update infrastructure to keep up with the times. This investment is very different to airline investments, as aeroplanes can be used on different routes, whereas airport infrastructure is an immovable asset.”

The second characteristic of modern airport economics, Echevarne believes, is the increasing importance of non-aeronautical revenue. Research carried out by ACI in 2012 revealed that non-aeronautical revenue makes up 44% of airport income globally. In North America, the figure was 47% and in Asia-Pacific it was 51%.

In the US, a high proportion of non-aeronautical income comes from car parking and car rentals. For car parking, the US figure was 39%, com-
paved with 19% globally. For car rentals, the US figure was 16.8% compared with 6.1% globally.

Orlando International Airport is even more dependent on non-airport income than most US airports. It derives 75% of its income from non-airline business. In 2012, Orlando earned $40 million from hire cars alone, as to be expected from a tourist destination. Its largest revenue payer was Enterprise Rent-A-Car, which provided $29 million. The second-biggest source of revenue was Avis Budget Car rental with $19 million. Trailng in third place was Southwest Airlines, with a contribution of $17 million.

Zurich Airport’s non-aeronautical sources were also significant, though less so than for Orlando. Out of a total of $998 million, around $570 million was aviation revenue and $352 million was accounted for by non-aviation revenue. Of the aviation revenue, a high percentage was business-related. Around 60% of flights were for business and 40% were for leisure. The proximity of the financial district, which is 12 minutes away by train, is a great advantage for the airport. However, Zurich is investing heavily in its non-aviation infrastructure in order to further grow this side of the business.

**COMPETITION**

The third characteristic of modern airport economics, Echevarne says, is the increasing competition between airports. “If, for example, I live in Newcastle in the north of England and I want to fly to China, I need to first fly to an intermediate point. It could be Amsterdam, Heathrow, Frankfurt, or Dubai. So, those airports compete for that business. This type of competition didn’t happen until recently because the bilateral air service regulatory structure didn’t allow airports to commence flights as freely as they can today. It’s up to the airports to attract business, hence the emergence of airport marketing as an important financial tool.”

Zurich and Orlando face intense competition, but it comes from slightly different sources. Zurich faces limited competition for point-to-point traffic. “There is some competition from airports in Basel, Geneva, Friedrichshafen and Stuttgart, but the Swiss are not in the habit of travelling 90 minutes by car to save a few francs, which may be different to customers in other countries,” says Schmucki.

Nevertheless, Zurich must compete with other airports for hub traffic. “We’re in direct competition with major European hubs, such as Frankfurt, Vienna, or Munich, but we don’t incentivise airlines to fly here by subsidising them. At the end of the day, the market mechanism has to function and they can either achieve the ticket prices which make them attractive enough or they leave the destination.”

In marketing itself as a transfer hub, Zurich has several competitive advantages, according to Schmucki. The airport has repeatedly won awards as one of the world’s best transport hubs and, like most Swiss airports, it competes well on price. It also has plenty of space: terminal capacity is for 35 million passengers, far more than the 24.8 million passengers it notched up last year.

Orlando does not face the same stiff competition for hub business because it is almost exclusively an origin and destination airport. Traffic is driven mainly by Florida’s tourist attractions. “Families fly in to see Disney World, Universal Studios, SeaWorld Orlando and Legoland. The great thing for us is that they’re all investing millions of dollars in expanding their offers,” Brown enthuses.

“Disney is revamping Fantasyland, SeaWorld is doing an attraction called Antarctica and Universal is developing the Wizarding World of Harry Potter. They’re doing the marketing and publicity and driving traffic to Orlando Airport.”

Orlando’s traffic is not all driven by tourism, however. The airport also feeds off a burgeoning simulation industry. The US carrier JetBlue does a lot of aircraft simulations at the nearby JetBlue University and a company called Flight Safety offers flight training for pilots.

And the city of Orlando has an array of medical facilities, including the Nicholson Center, which offers training on da Vinci robot’s and Lake Nona’s Medical City. Orlando has a medical school, boasts a diabetes research unit and is constructing a veterans’ administration hospital. “The confluence of all those activities means there’s a real opportunity for medical training and education, which all triggers off passenger activity,” Brown informs.

**LONG-TERM PLANNING**

Both Orlando and Zurich want to expand operations to increase revenue, which brings us to Echevarne’s fourth and final point about the forces impacting on modern airports. Financial pressure, he says, necessitates long-term strategy.

“Modern airport economics requires long-term planning. No one guarantees traffic in the future. Airlines go bust and change strategy. If they are not careful, airports can be left with brand-new infrastructure which serves no purpose. This has happened at quite a few airports in the US. When airports decide to invest, they’d better be sure that the airlines will use the new facilities.”

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“The Swiss are not in the habit of travelling 90 minutes by car to save a few francs, which may be different to customers in other countries”

donald Schmucki, chief financial officer at Zurich International Airport

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Zurich almost fell foul of Echevarne’s principle when it decided to build a large new commercial facility following the gateway’s privatisation in 2000. The expansion began at the height of the economic boom, when the airport was spending approximately $9 million a day. But then the airport’s hub carrier Swissair, the Swiss national airline, went bankrupt.

“The timing could not have been worse, so we had to decide whether or not to proceed with the $2.5 billion investment project. We made the right decision to face the challenges and to continue with the development. After all, everything we do is for the long-term future. We typically plan 10-20 years in advance.

“Looking back, we were absolutely right to proceed. For one thing, Zurich Airport has a hub carrier again. Swiss International Air Lines is now owned by Lufthansa and is one of the world’s most profitable airlines,” Schmucki says.

Zurich’s focus is now on real-estate development in order to increase its non-aviation revenue. “We are planning up to 2030 and ready to become a ‘third-generation airport’. This means it will be developed as a service destination in its own right.”

Zurich’s plans are on a grand scale. A new $1 billion 200,000 square metre complex scheduled to open in 2017 is the largest construction project in Switzerland. ‘The Circle’ is to be located within walking distance of the airport terminals. The Circle will be operated by Flughafen Zürich but will have different tenants and service providers. The Hyatt Hotel group is already on-board – there are to be two Hyatt hotels with conference and event facilities occupying 25 percent of the development’s space. Half the area of the Circle is to be taken up by offices while an additional five ‘synergistic’ modules will occupy the remainder of the available space.

“The Circle represents the next step in our evolution. In terms of turn-over, we are already the third-largest shopping centre in Switzerland and last year we turned over more than half a billion Swiss francs in commercial revenues. But to become a service destination, we need additional hotels, event facilities, office space and other services,” Schmucki notes.

Orlando’s expansion plans involve attracting more international traffic. The domestic market in the US has been relatively flat and airlines have been managing their profitability by restricting seat numbers. “As a result, our focus has been on foreign carriers wanting to come to Orlando, such as Virgin Atlantic, British Airways and Lufthansa,” Brown says. At current rates of expansion, he believes the airport will need to build another terminal in the next five to seven years. The gateway is evaluating a plan to expand to a new terminal in the south of the airport that would have about 16 gates.

But before starting on the new project, Orlando would need to achieve certain passenger thresholds. “Since we are very capital-intensive and these projects have a long-term planning process, we need to get the maximum out of the existing facilities before we expand,” he highlights.

Orlando would need to see between 2 and 2.5 million passengers passing through its federal inspection area, or a total of 40 million passengers through its doors, to warrant that investment. Right now, it has about 1.7 million passengers travelling internationally and an aggregate number of 35 million passengers. “Based on our forecasts using the Monte Carlo simulation method, we expect to reach those (target) figures in 2016-17. A new terminal would give us lots of opportunities to drive traffic internationally,” Brown concludes.
At the start of this year, GSE supplier Goldhofer acquired another major player in the ground support equipment field, fellow German company Schopf. That move was just one aspect of Goldhofer’s plans for expansion. Megan Ramsay investigates

The deal was signed on 1 January after about six months of negotiation between Memmingen-based Goldhofer and Ostfildern-headquartered Schopf, which includes Schopf Maschinenbau and Schopf Rofan and has a total workforce of about 160 employees.

Stefan Fuchs, CEO at Goldhofer, explains: “There were two reasons for our acquisition of Schopf: first, from our side, we had made a strategic decision to grow in the aviation market. Second, we produce towbarless tractors but these are not always the best solution – sometimes a towbar is better, and vice versa. With Schopf we are able to offer a complete programme – it’s one-stop-shopping for all our customers.”

And there are other benefits, too. Fuchs expects that Goldhofer’s performance in the market will improve due to its expanded sales force – now almost doubled with the addition of the Schopf team.

Furthermore, the acquisition will open up new markets for Goldhofer, since Schopf has made deliveries to customers in about 160 countries around the world. “Goldhofer now has a foot in the door in those countries and if those customers want to innovate their GSE fleet they can easily do so,” he notes, referring to the combined offering of both companies’ equipment.

**SUNRISE**

According to Fuchs, employees at both companies have been “full of energy” since Goldhofer’s ‘Sunrise’ integration project began. The plan is to take the best of each company and move forward, resulting in an enterprise that is greater than the sum of its parts. One reason this is going so smoothly is that both companies speak the same language, come from the same culture and are located close to each other geographically, Fuchs points out.

Another bonus is that the management at Schopf is completely on board with the take-over – which was the choice of retiring managing director and former majority shareholder Hermann Brüggemann – and is continuing to run that business as usual. “This means that there is no pressure for us to make changes in a hurry or send our own people in; we can integrate with patience and concentration on the things that matter, in an intelligent way.”

Fuchs continues: “We’re proud that a German company has been bought by another German company. I think about 80 per cent of all deals to buy companies are opportunities. If another opportunity comes up we will check it out and if it looks good we will go for it, but we’re not actively looking yet because we want to integrate Schopf first.

“You have to move step by step and we’re not big enough yet to handle more. Communication is important for us so we could consider another German or English-speaking company, but for example a Chinese company would be more difficult – you have to have a translator you trust.”

Regardless of how quickly or slowly the company expands, Fuchs is confident that Goldhofer will enjoy a positive position in the market in years to come. Observing that the GSE market fluctuates constantly, with investment in aviation equipment drying up in the bad times, he says: “I still see it as a growing market – but you have to be able to handle the ups and downs. You need to have enough money in the bank to handle a crisis. If you’re a very big company you can see it as a growing market – but you have to be able to handle the ups and downs. You need to have enough money in the bank to handle a crisis. If you’re a very big company you can

**GSE market**

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Düsseldorf handles the challenges

Düsseldorf International Airport has a somewhat unusual model, at least by Western European standards – its primary airside warehouse operator is a wholly-owned subsidiary of the gateway’s operator. Airside International looks at the plans of the German airport’s logistics specialist.

Although Düsseldorf International Airport is perhaps Germany’s third-biggest air gateway and sits at the heart of a heavily industrialised area, it has always been regarded as a passenger rather than a freight hub. Nevertheless, the airport’s primary warehouse operator handled 102,000 tonnes of cargo last year and is planning for further expansion.

Flughafen Düsseldorf Cargo GmbH (FDCG), also known as DUS Cargo Logistics, is a 100 percent subsidiary of the airport operator, Flughafen Düsseldorf GmbH (FDG), as is its counterpart handler on the ramp – Flughafen Düsseldorf Ground Handling. Though there is competition in the form of a small airside warehouse operation called Cargo Charter Services (CCS) that is used by Swissport – which also has a bigger terminal off-airport – the vast majority of Düsseldorf’s airside cargo moves through the 12,600 square metre warehouse operated by DUS Cargo Logistics. Indeed, the company handles a large part of the airport’s cargo and processes the freight of more than 30 international airlines, including the regular flights of such giants as Etihad, Emirates, Delta, Air China, Lufthansa, airberlin and Turkish.

Quality is at the top of the priority list of DUS Cargo Logistics’ managing director, Gerton Hulsman. Training of staff in both warehouse operation and document handling is a continuous theme, he notes. Hulsman’s mind is also on the future. The existing warehouse has the capacity to handle perhaps 20,000 or 30,000 more tonnes of cargo a year than it did in 2012, but throughput is growing fast – indeed, during the three months of the recent December 2012 – February 2013 quarter, DUS Cargo Logistics handled more freight than ever before in the same period of previous years.

The German economy has proven itself stronger than just about all its European counterparts during the financial crisis, he points out, while the surrounding North-Rhine Westphalia state’s prodigious output of exports including automobiles, electronic goods and pharmaceuticals has ensured that demand for cargo services has remained strong.

While growth is certainly going to create challenges, Hulsman has no doubt that these obstacles can be met and overcome. He continues to examine any way possible to attract further cargo. For example, he is advising those who do pallet break-downs at the congested Frankfurt-Main gateway to consider trucking to Düsseldorf and doing it there. He already has an arrangement in place with a trucking syndicate, RunAir, which links many of the bigger German airports with road feeder connections.

MODERNISATION

As to equipment in the warehouse, cost efficiencies remain paramount but Hulsman has looked to upgrade wherever possible. Thus, for example, last year saw DUS Cargo Logistics switch its entire fleet of forklifts to high-quality, environmentally-friendly Linde equipment. The handler is also hoping to open a new border inspection post by the autumn that will be able to handle products fit for human and non-human consumption.

With its comprehensive range of forklifts and ready access to leased cranes if required, DUS Cargo Logistics is able to handle all types of cargo, he insists. It recently bought new explosive detection equipment and has ordered a second x-ray machine as well, improving its capability to process dangerous goods as well as pharmaceuticals and other specialised shipments.

The future is not going to be without its challenges, but Hulsman and DUS Cargo Logistics will be ready come what may, it seems.
GSE buyer interviews

Cargo Airport Services

Cargo Airport Services (CAS) offers cargo handling at some of the US’s biggest air gateways – New York JFK, Dallas/Fort Worth, George Bush Intercontinental in Houston, Miami and Newark amongst them. In fact, claiming to be the largest ground handler in North America, it needs a GSE inventory to match.

CAS’s GSE has to handle the freight of some of the world’s biggest cargo airlines, including Air France and Martinair, Cargolux, China Airlines, EVA and Korean Air. In fact, it serves over 80 carriers in about 30 facilities at 14 North American international airports. As such, notes CAS’s CEO, Mike Duffy, it operates a wide range of equipment suitable for wide-bodied aircraft, including maindeck loaders, lower deck loaders, push-back tractors, tugs, dollies, forklifts and so on.

Moreover, he confirms, as CAS expands, so it expects to acquire more GSE. He and his colleagues consider their ground support equipment and other procurement needs at least as frequently as annually, Duffy points out, “but if a business opportunity exists we will evaluate our inventory to see if we have spare equipment and – if not – we will begin the procurement process.”

Expansion may come in the form of opening up at a new station, or it may mean that new business has been gained at an existing station either with a current carrier customer or with an entirely new airline client. Or, it may come through acquisition – for example, CAS acquired Cargo Services and PHS, two Florida-based ground handlers, just last year.

In addition to requiring new GSE for organic and inorganic company growth, Duffy notes: “As equipment ages, we need a replacement plan as well.

“JBT AeroTech is our preferred manufacturer but (we) may look elsewhere as pricing, availability and issues of transportation will also come into play,” he explains. One particular priority, as for so many handlers of late, has been minimising the company’s environmental footprint. Not only is this a good thing from his point of view, but there is also increasing pressure from external sources to be more eco-friendly. Indeed, “certain airports are requiring our GSE to be more green in the future”, Duffy confirms.

Azzurra Ground Handling Services

Azzurra Ground Handling Services is a ramp and passenger handler based at London Heathrow’s Terminal 4. A new company forming part of the wider GH Italia concern, it was previously part of the Alitalia set-up. Handling 10 carriers at LHR, including Alitalia, Malaysia Airlines and Gulf Air, it is looking to grow yet further.

Maurizio Beni, Azzurra’s commercial manager, notes the comprehensiveness of the handler’s current offering: “We provide all passenger handling services, right from check-in, while our ramp handling includes loading and unloading, weight and balances, push-back and towing. In fact, we handle everything except cleaning and de-icing,” he informs.

Azzurra is the only T4-based handler to look after the A380 giant – which it does for Malaysia Airlines. With its client carriers’ aircraft ranging from small narrow-bodies right up to the A380 superjumbo, it has to employ a comprehensive range of GSE encompassing tractors and other vehicles. These come from sources such as The Little Big Tug Company (LBTC, from which it rents three T80 tractors, one of them used to handle the MAS A380), TCR, Douglas and Charlatte, and include both rented and owned equipment.

It also uses a wide array of belt loaders, dollies, trucks and ULD carriers of many different sorts. Some of its vehicle fleet is electrically powered, not only good for the environment but also cost-efficient, Beni considers.

Already perhaps the fifth-biggest handler at the UK’s largest and busiest air gateway, Beni and his colleagues are looking to grow the company yet further. “We want to take on more customers, perhaps even look at handling cargo,” he informs. Although keen not to grow too quickly, expansion will come in phases, Beni says, while all the time Azzurra will offer “a unique style of service” to its customer airlines.

Thus, as well as the usual rounds of GSE refurbishment and replacement for a motorised fleet of GSE that may number up to 70 vehicles, new purchases might also be on the cards.
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It may be stating the obvious, but a lot of air cargo is big and heavy. That factor, more than any other, has influenced the design of ground support equipment and, as weights and sizes continue to grow, cargo equipment is becoming more and more specialised in many airports. The extreme demands also mean that, while other sectors of the GSE market increasingly switch to battery-electric operation, good old diesel will probably remain the motive power of choice for many years to come. Still, diesel equipment manufacturers are making efforts to clean up their environmental act. Chris Lewis explains

TBD Owen Holland, one of the UK’s leading manufacturers of ground support equipment – based in Bridgend, South Wales – sells dollies, trailers and cargo handling systems all over the world. Technical director Phil Summers explains: “We do anything from simple roller beds to powered lines, though not big automated storage facilities, for both civilian and military users.”

Besides the UK, major markets include the Middle and Far East, as well as Africa and Europe, and the company has also signed a major tie-up with North American scissor lift supplier Tesco Equipment (no connection with the similarly-named retailer).

Plus, TBD Owen Holland manufactures a range of baggage, maintenance and catering handling equipment, although Summers notes that these days there isn’t that much of a crossover between these segments of the GSE market and cargo equipment. Whereas non-cargo users often specify integrated, powered lift vehicles, “the vast majority of cargo users, including the airlines and courier companies, use pallet dollies (pulled by tugs). Only if they move to off-airport locations do they think about self-contained vehicles.”

The heavy weights and large unit sizes encountered in cargo handling, together with the fact that most building up and breaking down of cargo pallets and containers is performed airside, mean that unpowered dollies are usually the most flexible and cost-effective option. Also, self-contained trucks tend to be the wrong height for many cargo handling operations, for which a 20-inch maindeck height is favoured.

Summers has noticed a discernible trend toward higher speed dollies, as airports have got bigger – the term ‘higher speed’ is relative, 20km/h as opposed to 10km/h. Also, when operators need to turn the load – frequently the case when the unit is transported on the dolly narrow-end first and also
“The vast majority of cargo users, including the airlines and courier companies, use pallet dollies (pulled by tugs)”  
  Phil Summers, technical director at TBD

**GREENER DIESEL IN HONG KONG**

Kenneth Chan, director of Hong Kong Air Cargo Terminals Limited (HACTL) – one of the handlers at Hong Kong International Airport – says that new environmental standards are increasingly making their presence felt in GSE acquisition. He explains: “Up until this year, diesel-engined equipment such as hi-loaders, motorised passenger steps and belt loaders were required to meet EURO Stage IIIA standards. “From this year, Airport Authority Hong Kong (AAHK) has stipulated EURO Stage IIIB or Stage IV standards as a minimum.” The new engines required are, naturally, more expensive than those built to the previous standard, he adds. Chan expects to be given a date by which all existing equipment must comply, but this has not yet been specified.

**LIVING IN ELECTRIC DREAMS**

Electrification of cargo handling equipment is a holy grail for handling companies but it is an elusive one. Wietske Wassenaar, procurement and fleet manager at handler Aviapartner Netherlands, explains: “We would like to try and electrify as much as possible but on cargo you cannot do very much at the moment.”

If and when it appears, the A380 freighter may require new-design hi-loaders that can access increased heights. But, for now, new aircraft such as the B747-8F can still be served by current equipment. The traffic profile also plays a part, he continues. “Unlike many airports, Hong Kong handles a high proportion of ‘shipper-built’ (or agent-built) units; they account for 55% of our tonnages. While this removes some of the onus on HACTL to build and breakdown units on airport, it also means we are moving heavy palletised loads of up to 30 tonnes, while the maximum loading for single 10-feet pallets is 6.8 tonnes. It means we need highly mechanised equipment and systems that can accommodate this kind of traffic, and provide short-term storage. It’s more terminal operations than a ramp issue. But volumes, and the staff and equipment required to process them, put considerable pressure on our ramp-operations. We also handle a large proportion of wide-body freighters,” Chan adds.

While HACTL wants to obtain cost-effective, electrically powered or battery-powered ramp equipment such as belt loaders and lower deck loaders, these are not yet available. But, just to show willing, in late 2012 HACTL did purchase its first five-seater electric vehicle (a Nissan Leaf) for ramp transportation of staff and documents. HACTL is meanwhile in the process of acquiring a new maindeck loader, a new lower deck loader, a belt conveyor (for passenger aircraft bulk loading), more pallet/container dollies and a tow tractor to cope with increasing operational needs.

As well as being physically equal to the task (in terms of weight capacity or lift height, for example), “reliability and the availability of local maintenance and spare parts support are critically important to HACTL, because of the scale and intensity of our operations. Initial costs are also important, but secondary to build quality, specification and reliability.”

Hong Kong is very different to almost every other airport in the world. For starters, it handles huge volumes, processing in one month what many gateways handle in a year. Chan says: “This equates to 24-hour operations, large numbers of vehicle movements on the ramp, large fleets of tractors, scissor lifts and pallet dollies, and a large workforce (2,700 in total, 230 of whom work on the ramp).”

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On-apron charging facilities at Amsterdam Airport Schiphol are currently limited and, while the airport authority is looking into rectifying this, there are other issues to consider. Charging time with current battery technology is one; if units are spending hours at a time being charged, that would mean increasing the fleet size, which would push up costs; plus, space would have to be found for idle machines in the middle of a busy operation.

Swap-outs of batteries, currently practised on lighter equipment such as forklifts, might be a possibility, but it would be hard to achieve with the weights of battery that heavy-duty loading equipment would need. The best prospect for electrification in the short term, says Wassenaar, is lighter duty kit like lower deck loaders.

Other factors for her to consider are the long distances at Schiphol – runs of 5km or more are routine – and the unpredictability of freighter aircraft schedules compared with passenger services, meaning that duty cycles are longer. And there is also the cost of electric equipment to bear in mind.

All in all, it is very tempting to continue to use diesel equipment for the time being and wait for battery technology to improve. There are promising developments in lithium-ion battery technology – already being trialled in some forklifts – that could dramatically improve charging times, perhaps by 100% or more. But it is likely to be a long time before a battery version of a 35-tonne maindeck loader becomes viable.

In the meantime, there is much that can be done to improve the efficiency of diesel equipment, Wassenaar continues. “One plan we have is to standardise equipment as far as possible within each station and among the different stations,” she says. This should improve spares availability, make it more viable for suppliers to keep specific spares in stock and improve up-times. But again, there are limits. “In some countries, it might be hard to get spares for machines that are not made locally. Also, we don’t want to be dependent on just one supplier. But we would like to standardise as much as possible within those limits.”

Diesel technology itself continues to evolve in terms of emissions and fuel consumption, and each new piece of equipment is a step-change on what was available before, especially as most equipment typically has a life of between 10 and 12 years or so. High diesel prices are an incentive to upgrade and modernise. But set against that is the high cost of new equipment in what is still a very specialised market.

A CURE FOR RAMP RASH

New aircraft types are of course one of the primary drivers in the development of ground support equipment, says Mike Melander, loader product engineering manager at US-based equipment maker JBT AeroTech.

With new composite-bodied B787 and A350 aircraft coming into service, “a lot of attention has been focused on protecting the aircraft from ‘ramp rash’ caused by cargo loaders coming into contact with the aircraft,” he says. Unlike aluminium-bodied aircraft that incur clearly visible scratches, dents or holes when hit, composite bodies by design are resilient and return back to their original shape following impact, often leaving no visible marks to the exterior surface. But a big concern is possible internal structural damage invisible from the outside.

One solution for protecting the B787 and A350 from accidents is the Aircraft Proximity Detection (APD) system developed by JBT AeroTech for its Commander family of cargo loaders. According to Mike Melander: “The APD system is designed to assist loader operators in following correct operating procedures when interfacing and backing away from the aircraft. It features a base system, which includes a programmable logic controller (PLC), radar and hand throttle control providing safe driving speed during interface with the aircraft cargo door. “The PLC allows the customer to make changes to the configuration after the loader has been put into service. For example, if the original configuration radar range is set at 6 metres but the customer discovers that this is too far, they can easily reset the range to 4.5 metres via the PLC. Options that can be easily added to the system include sensed handrails, sensed front bumpers, drive wheel alignment and side proximity sensors.”
The APD system can be adapted to meet the requirements of different customers’ operations and is available as a field kit for older model Commander 15/30 and ‘T’ series loaders, Melander informs. “We purposely designed the APD system to enforce adherence to the correct procedures, but not to fully automate them – to maintain the loader operator’s diligence.”

Another trend is towards lower operating costs, driven primarily by the high cost of diesel fuel. There has been a lot of interest in the Commander 15i electric loader whose efficient power system provides hours of uninterrupted service even in frigid operating conditions. The longer duty cycle between recharging is partly due to the Commander 15i’s efficient hydraulic system, which only requires high power during driving and lifting, with minimum power needed for conveying and lowering.

A further factor in favour of the electric model is the lower operating hours compared to diesel, because power is on-demand and non-operational idling is eliminated – which can reduce operating hours by up to 70%. This translates to reduced wear and tear and extends the time between preventative maintenance schedules.

SIZE IS (ALMOST) EVERYTHING

David Henderson, chief operating officer at Middle Eastern handler National Aviation Services (NAS), says that the biggest driver of change is the need for larger and heavier equipment capable of hoisting loads of up to 30 tonnes to main-deck height. In fact, in the oil and gas and military markets in which NAS specialises, single pieces of 80 tonnes are quite routine now, although these are usually handled by bringing in conventional cranes or using the roll-on, roll-off capability of the larger Russian cargo aircraft.

“The 30-tonne maindeck lifter is very much our weapon of choice,” he says. “It used to be that we would have perhaps one in each fleet, but now they are quite common.”

There is a reasonable choice of suitable lifters available, although they are naturally more expensive than their light-weight counterparts. In the Middle East market, where it is still possible to fill up a 5-litre car for less than US$10, alternative energy isn’t really an issue and given the very low gas prices, the price just wouldn’t be attractive for operators, Henderson adds.

He has seen the Far East-based manufacturers make more inroads into the Middle East handling market. “Singapore, Chinese and Australian firms are all making increasingly impressive products. Five to seven years ago we would have stuck to proven US and European manufacturers, but nowadays they are offering machines that are virtually identical but at very different price points.”

The one factor that has kept the Western manufacturers in the game is their after-sales service, which is partly a function of market size. The larger the local fleet operated by a particular manufacturer, the more likely it is to have an engineer in the region and on call to sort out any problems with mission-critical equipment. “It is a little bit chicken and egg,” Henderson states. Nevertheless, the Far Eastern manufacturers are gaining ground, he believes.

The other trend that he is seeing is a move to wide-bodied aircraft, especially in the freighter segment. It is possible to use equipment designed for wide-bodies on narrow-body aircraft, although not always. “We operate in 20 airports now and we regularly move equipment between them to accommodate growth or changes in the mix of traffic. This is in fact a major part of our equipment planning these days,” Henderson remarks.

SMALL IS BEAUTIFUL

But not all handlers deal in heavy freight. Paris Charles de Gaulle-based Sodexi, for instance, uses no conventional handling equipment because it specialises in small parcels and mail bags handling. “Our technology is closer to baggage handling than cargo handling,” explains the company, and it operates similar transit times. It has also opened a new sorting centre very close to the parking stands and passenger terminal, notes CEO Jean-François Bouilhaguet.

On the ramp Sodexi uses dedicated Fourmi tractors for fast transfer of containers, one of the few cargo handlers in Paris to do so. One development that has revolutionised the control of all handling equipment in Paris is the new XOPS IT monitoring system. Busy drivers of baggage tractors, cargo trucks and loaders cannot be expected to log all their movements by phone, radio or a PDA, but XOPS automatically monitors all operations in real time, without the driver having to take action. Up till now, XOPS has been seen as more crucial to baggage handling or catering and fuel dollsies, but it is now being rolled out to cargo equipment too.

The system will soon be synchronised with the Charles de Gaulle International Airport video system. Not only will it show up any problems with GSE equipment but it will also be possible to interrogate XOPS memory to resolve disputes over late deliveries and similar issues.

SCANNING FOR SECURITY

There are many other influences on the changing nature of today’s cargo systems and equipment. For example, government and – in particular – security regulations are having an increasing impact, says Anne Smirr, sales-marketing manager at Fraport Cargo Services (FCS), which provides cargo services at Frankfurt/Main, Germany’s biggest airport.

She explains: “As legislation imposes new regulations concerning security, FCS has already reacted by installing a brand-new x-ray scanning system. The HI-SCAN 180180-300KV-2ix x-ray-control system, developed by Smiths Detection, is constructed to control bulky freight with excellent and precise imaging due to optimal x-ray geometry, while the HiTrAX electronics and Hi-Mat technology make for better material distinction.”

Smirr adds that checks are more reliable and inspection times and effectiveness are improved. “We are proud to provide our customers with faster handling, an improvement in processes and our employees with a modern workstation. FCS has also installed a new device for volume measuring which in connection with a weighing forklift truck generates the exact freight data for AWBs, delivery notes and tracking. It also has the benefit that it can detect freight whose weight has been under-declared.”

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CAVOTEC INKS GSE DEALS

THIS SPRING SAW engineering group Cavotec announce a number of contract wins worth a total of 10 million euros (US$13 million) that will see it supply various GSE systems to Phoenix International Airport, Newark International Airport and Rome’s Fiumicino International Airport.

The equipment to be supplied includes electrical power systems, air supply systems and fuel supply systems and – according to Bill Hood, vice president of US-headquartered Cavotec Inet – the deals “underscore Cavotec’s extensive experience as a leading systems integrator in the airports sector.”

The largest of the contracts involves the provision of Pre-Conditioned Air (PCA) systems for installation of approximately 40 US Airways-operated airbridges at Phoenix. The equipment allows aircraft to turn off their aircraft auxiliary engines shortly after docking at the gate, instead making use of the airport infrastructure for both heated and cooled air.

The Newark deal will see Cavotec supply a PCA system, as well as an electrical power supply system for installation at one of the gateway’s hangars.

Finally, at Fiumicino, the company is to supply more than 100 hydrant valve and under hydrant valve assemblies for installation within the gateway’s existing fuel-pit systems.

VESTERGAARD TRUMPETS THE ELEPHANT

AFTER THE LAUNCH of Vestergaard Company’s Elephant® Beta NG de-icer in 2012, a significant number of airlines, airports and handlers have received and begun operating their Next Generation aircraft de-icers, explains Vestergaard’s manager technical sales Jan Pojezny.

New features include a 12m telescopic spray boom that offers enhanced reach; a more comfortable and ergonomically attractive cabin; and reduced fuel consumption.

The Beta NG nozzle can be kept within a metre of the aircraft surface throughout de-icing operations, for virtually any aircraft. The length of the spray boom means less manoeuvring around aircraft, thereby saving time and de-icing fluid while also benefiting operational safety, Pojezny notes.

Sales of the Elephant® Beta NG have primarily been to customers in the ‘classical’ winter regions, such as Germany, Switzerland, UK, Russia/CIS and Scandinavia. But Vestergaard reports additional sales to the US and Canada, and also worth mentioning are the orders received for Elephant® Beta NGs to be operated in Beijing, China.

Furthermore, a number of customers have opted to acquire the training simulator that has been available for the Elephant® Beta de-icer for almost a decade. This useful training tool is also readily available for the Elephant® Beta NG.
UK AIRPORT DEVELOPMENT ARGUMENT RUMBLES ON

At the end of March, Heathrow Airport Limited released its latest notice to the world calling for the opportunity to develop its own hub status, also taking the chance — at least by implication — to rail against any idea to build a new national air gateway somewhere in the south-east of the UK.

Heathrow said that it supports the UK Government’s vision for ‘dynamic, sustainable transport that drives economic growth and competitiveness’ and that it welcomes the opportunity to contribute to the Airports Commission’s ongoing work to identify how to maintain the UK’s position as Europe’s most important aviation hub.

The operator added that Heathrow is “the UK’s only international hub airport, a national asset, providing the connectivity that has supported the UK’s leading position in the world economy”.

However, it continued: “Heathrow is already operating at its permitted capacity. More hub capacity is urgently needed and whilst longer term demand forecasts are inherently uncertain, the more immediate demand case for a three runway hub is very clear.”

EXPANSION ALREADY DECIDED ELSEWHERE

Away from the intricacies of the UK’s airport capacity constraints and ambitions to get round that particular knotty problem, many gateways around the world have been busy either opening new facilities or announcing their own plans for expansion.

At Los Angeles World Airport, for example, a new north concourse and three gates of the new Tom Bradley International Terminal (New TBIT) were unveiled in March. The gates are the first of 18 to be built at New TBIT, none of which will be able to accommodate the Airbus-Altus, noted operator Los Angeles World Airports (LAWA) will offer state-of-the-art, laser-based, docking guidance systems. Computerised passenger boarding bridges will also automate operations between the terminal and aircraft doors.

For the Far East, Taiwan Taoyuan International Airport (TTIA) operator Taiwan Airport Company has awarded a 33 million euro (US$42.5 million) contract for the development of its Terminal 3 area to a joint venture led by NACO, Netherlands Airport Consultants BV.

TTIA currently handles 25 million passengers a year but is expecting that figure to rise to as much as 50 million a year by 2030. The new Terminal 3 will be connected to Terminal 2 and the area in between will be developed to accommodate a ground transportation centre, parking and commercial real estate.

And in the Middle East, architectural practice OMA has been announced as the “masterplanners” for Qatar’s Airport City, a new 10 square kilometre development in which 200,000 people will live and work that will link the new Hamad International Airport with the city of Doha.

OMA’s vision incorporates a series of four circular districts along a spine parallel to the HIA runways, intended to create a strong visual identity and districts with unique identities. Phase One of the 30-year plan, which links airside and landside developments for business, logistics, retail, hotels and residences, will be mostly complete in time for the 2022 World Cup, hosted by Qatar.

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