Consumers warm to frozen

“As more and more consumers are turning to frozen food, the market continues to show positive growth. The most recent Kantar Worldpanel statistics, looking at the 52 weeks to 30 March 2014, have shown a 2.1% value growth year-on-year, bringing the industry’s value to almost £5.75bn ($9.6bn). In particular, consumers have continued to recognise the nutritional and financial benefits of frozen fruit and vegetables with the sector now worth almost £484m ($808.9m).

“Frozen food manufacturers and processors can take advantage of this market growth by continuing to offer innovative, new products whilst ensuring that they adhere to the quality and safety guidelines that apply across food manufacturing.”

Traceability is key

“Following the food fraud that affected the whole of the food industry in early 2013, consumers are now more concerned over the provenance of their food. According to Horizons’ latest consumer eating out survey, 56% of consumers considered the origin and provenance of their food to be important – a clear increase from just 34% two years ago.

“It is therefore vitally important that all food manufacturers and processors aim to achieve a fully traceable supply chain and ensure the highest safety and quality controls from field to fork. By doing so, food manufacturers appeal to these consumers and consequently increase sales.”

Consequences

“The consequences of poor quality control or lax safety management processes can be disastrous for the manufacturer, retailer and in the most extreme cases for the consumer. For example, one case of unsafe or below par products can write-off entire batches of product and leave the manufacturer thousands, if not millions of pounds, out of pocket in recall, legal and wastage costs not to mention potential reputation damage.

“Food manufacturers must employ stringent checks in their factories to ensure that their safety and quality reputations are upheld. For example, foreign body and other safety controls should take place at various points from raw materials through to finished goods.

“All of these procedures and regulations are of course not exclusive to frozen food manufacturers, it is important that the entire food manufacturing industry takes quality control and safety management seriously.”
Bühler’s all-new SORTEX S UltraVision™.
A giant leap forward in intelligent optical sorting for rice.

Bühler leads the way forward, with the introduction of its most sophisticated, highest-capacity optical rice sorter yet. The all-new SORTEX S UltraVision™ allows rice processors to define an exact level of quality for their rice, even with highly-contaminated input. Yield is not compromised, enabling processors to deliver increased value for money to their customers.

Processors face increased competition and greater pressure to meet demand for many rice quality standards, including export standard. “Rice processors have been forced to compromise between meeting customer specifications and minimising reject – until now. The SORTEX S UltraVision™ delivers both.” said Neil Dyer, Global Product Manager for Buhler Sortex.

The SORTEX S UltraVision™ has been designed from the ground up - packed with new, advanced technologies. With up to six modules, a high-capacity feed system and improved discrimination of defects, it is Bühler’s highest ever capacity rice sorter. Processors need no longer compromise on yield, in order to meet exacting customer requirements.
Intelligent modes hold the detailed characteristics of individual rice varieties and associated defects, allowing processors to target multiple defects, individually, as in-built intelligence decides which grain is acceptable to keep and which to reject. This groundbreaking functionality gives processors unprecedented control. They can now define the exact ‘accept’ levels necessary to meet their customers’ requirements - thus eliminating waste and boosting profit.

Consistency of sorting performance is further enhanced with Intelligent Automation. There is no need for manual intervention as the sorter will constantly scan passing rice and adjust itself automatically - operating at the optimum level until the end of every batch.

New Textured LED Lighting™ technology, together with proprietary-designed, multi-chromatic ‘Ultra’ cameras, can now detect defects almost imperceptible to the human eye. Plus, Bühler’s Crosshair Targeting™ technology improves the accuracy of ejection by firing just the right amount of air, removing fewer good grains with the reject.

The new user interface gives easy control, allowing swift changes from one rice product to another, or one quality standard to another, significantly reducing downtime.

The mechanical design of the SORTEX S UltraVision™ makes daily operation even easier. A simple release allows unprecedented access to key optical areas, allowing an operator to clean these crucial areas in seconds. Customers can further benefit from Bühler’s global support, enhanced by SORTEX AnywarePro™, giving customers access to online data for maximum product yield and sorting optimisation, fault alerts, and system statistics.

“The all-new SORTEX S UltraVision™ forms part of Bühler’s wider range of next-generation high capacity, energy efficient, “UltraLine” rice processing equipment, delivering outstanding productivity, coupled with lower running costs, to help rice processors improve the sustainability of their operations and maximise their revenue,” said Buhler Sortex Managing Director, Hamid Kefayati.
Bühler sows the seeds of success at Red River.

US-based Red River Commodities Inc, has raised the output quality of its sunflower seeds to near-perfect purity while simultaneously increasing yield by 50%, following their installation of Bühler’s innovative high capacity optical sorter, the SORTEX A ColorVision™ InGaAs.

The outstanding performance of the new SORTEX A ColorVision™ InGaAs marks a further milestone in Bühler’s continuing commitment to delivering yield, quality and food safety, in the most challenging of seed sorting applications.

Red River’s Operations and Engineering Manager, Todd Mondry, said: “Thanks to the SORTEX A, we’re able to demonstrate finished sunflower seed product quality of 99.99% purity. We’re also demonstrating higher capacities, with significantly higher recovery rates on our in-shell sunflower processing lines. Furthermore, because the SORTEX A allows us to do a multi-pass sort on our sunflower products on a single machine, set-up is much simpler and quicker, which also helps us to maximise our profits.

“We are accustomed to the easy set-up and precision sorting accuracy of SORTEX technology, from previous Bühler optical sorters, which we also use. However, the configuration flexibility offered by the SORTEX A for multi-pass sorting really does set it apart.”

Fitted with an enhanced inspection system, including four-wavelength technology [visible and infrared] and PROfile™ [shape] detection technology, able to identify defects not possible with RGB technologies.
The SORTEX A ColorVision™ InGaAs delivers exceptional yield through superior defect and foreign material (FM) detection. It excels in the most difficult of dry commodity food sorting applications, where the strictest levels of food quality and safety are non-negotiable. Red River’s commitment to food quality and safety is second to none, recognised by the American Institute of Baking for ‘Outstanding Excellence’.

As Mondry explained, customers now expect near perfect quality from every confectionery sunflower seed they buy. “Meeting that challenge wasn’t possible without adding SORTEX technology into our process flow. The confection sunflower hybrids produce seeds that are about one inch long. These large seeds have made it difficult for traditional grain-cleaning equipment to clean sunflowers reliably and efficiently, without excessive loss of good seeds. Adding SORTEX color sorters into our process really has put us at the cutting edge of seed-cleaning capability.”

Initially, Red River invested in several SORTEX Z+R sorters equipped with InGaAs and PROfile™ technology for its undecorticated sunflower applications and a SORTEX Z+B for decorticated sunflowers, before recently adding the SORTEX A.

Red River found Bühler’s InGaAs and PROfile™ technology to be the most effective solution for removing challenging foreign material, such as sticks, stems, stones, glass and importantly – sclerotia – a compact mass of hardened fungal mycelium (ie the vegetative part of a fungus).

Mondry added: “SORTEX machines are at the technological cutting edge of the grains color sorting industry. Specifically, being able to sort in the visible light spectrum and two separate infrared light spectrums, as well as shape-sort on a single machine, offers a distinct advantage.

“When sorting sunflower seeds we have to remove foreign material of varying shades of color, size and shape, including sunflower head patty, plant stalk, sticks, cockleburs, corn, sclerotia, soybeans and rocks, to name a few. These defects can be easily removed from the good seed with very high accuracy and very little loss of good seed.”

Being able to ensure higher quality sorted product enables Red River to maximise its profits by selling premium grade seeds of exceptional quality and safety.

Waste is minimised too, because even in-shell rejected seeds can be shelled and sold as perfectly safe kernels for human consumption, albeit for a lower net value.

The improved reject concentration delivered by SORTEX technology allows better conversions of in-shell sunflowers and higher volume of in-shell sales. As a result, the quality of Red River’s top grade output product has risen to a near-perfect 99.99%. Now with the installation of the SORTEX A, Red River can do this at much higher volumes maximising profitability.

Mondry was equally satisfied with the support he received. He added: “The responsiveness of the Team Total Care program and service group has been excellent, too. The online monitoring of our equipment has provided us with valuable real-time monitoring of our equipment performance.”

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Bühler takes the lead in reducing mycotoxins in challenging sort applications.

SORTEX A MultiVision™ is designed to deliver exceptional yield, through superior defect and foreign material detection. Available in three frame sizes and one to five modules.

SORTEX A podcast

New SORTEX A MultiVision™ optical sorter delivers exceptional food quality and safety through advanced defect inspection technology.

Equipped with industry-leading custom-designed MultiVision™ camera technology, the SORTEX A MultiVision™ is designed to deliver exceptional yield, through superior defect and foreign material detection. It excels in the most difficult of dry commodity food sorting applications, where the strictest levels of food quality and safety are demanded.

“Mycotoxicology is currently a subject of international importance. With the increasing incidence of mycotoxins in the food chain - toxic to humans and animals - processors of a wide variety of foods, all over the world, are seeking more reliable sorting solutions. They need to remove these defects cost-effectively so that their commodities will meet the safety standards demanded of them,” explains Buhler Sortex R&D director Matt Kelly.

“This is a major health issue for the consumer. So, in response to this need, we have invested heavily in the development of this advanced optical sorter – the SORTEX A MultiVision™ – which is suited to a wide variety of dry commodity applications, including nuts, seeds, coffee and grain. Blighted product from a range of foodstuffs can be targeted thus reducing mycotoxins levels in sunflower seeds (sclerotia), wheat (vomitoxin), barley (fusarium), rye (ergot), peanuts (aflatoxins), treenuts (aflatoxins) and in maize (aflatoxins).”
As Kelly explains, the optical sorter’s advanced MultiVision™ Inspection System is a key element, driving its phenomenal sorting performance. “This enhanced inspection system, with its four wavelength technology [visible and infrared] and PROfile™ [shape] detection technology, is able to identify defects not possible with RGB technologies.

Processors who seek ultra-precise sorting for high volume applications can benefit from Bühler’s state-of-the-art Enhanced InGaAs camera technology. This has been created specifically for high-speed optical sorting, enabling the SORTEX A MultiVision™ to identify the subtlest of colour defects, which means it can remove contaminated product and ‘same-colour’ foreign material with outstanding accuracy.

Matt Kelly continues, “Managing highly contaminated input product also becomes easier, thanks to a user interface with improved mapping technology and an enhanced background design that provides better detection of subtle colour variations, spot defects and foreign material. We expect businesses in many different sectors to see the benefits of the SORTEX A MultiVision™, because it delivers faster performance and finer sort qualities, for higher capacity processors.”

The five chute design provides processors with maximum sort configuration flexibility, providing both re-sort and simultaneous sort on the same machine. This delivers superior efficiency and productivity, with sort capacities of up to 15 tonnes per hour, dependent on the commodity and application.

Maintenance requirements are kept to a minimum. Sophisticated dust management, including sealed optical and control boxes protecting essential components from dust, minimise downtime and increase hourly capacity and yield. Low power and low air consumption, along with long-life, high-speed ejectors, further reduce operational and maintenance costs.

Kelly added: “Buhler Sortex will continue to lead the market in the supply of advanced, high-capacity optical sorters, for the most challenging of toxin and foreign material sorting applications, building on our heavy investment in new product development, expansion of proprietary camera technology and strategic partnerships with leading global food processors.”

Buhler Sortex managing director, Hamid Kefayati, said: “The introduction to the global market of our most advanced optical sorter for dry commodities, cements Bühler’s position as the leading optical sorting technology partner for food processors who are seeking to reduce the most challenging toxin defects from their yield.

“This demonstrates our continued investment and commitment to supporting innovation in this growing sector. It also highlights the critical role that Buhler Sortex optical sorters play in delivering maximum profitability in difficult mycotoxin applications and ensuring the highest levels of food safety standards,” he concluded.
The SORTEX B optical sorter.
Optimising conventional sorting to deliver enhanced sorting performance in mainstream applications.

SORTEX B podcast

Bühler’s new range of SORTEX B optical sorters have been designed to sort a range of products – pulses, nuts, seeds, grains, coffee and plastics – to maximise yield and productivity in mainstream day to day applications.

“Processors can choose from a range of technologies to suit their exact needs. The SORTEX B range include the SORTEX B, DualVision™ and ColorVision™ and various module sizes are available, offering processors a choice of powerful solutions for their specific capacity requirements,” explained Faisal Baig, Global Product Manager for Optical Sorting.

Featuring superior feed and vision systems with processing capabilities, the SORTEX B range is the first choice for processors who seek the assurance, functionality and trusted performance of the SORTEX brand for their mainstream applications.

Vision detection technology and high resolution serviceable ejectors provide a more even ejection rate across the modules whilst the simultaneous re-sort option also enables the recovery of good product, further improving the yield. Automated calibration and tracking ensures the sorting performance quality remains stable and consistent even when the input product varies. Maintenance requirements are kept to a minimum with features such as improved dust management.

Sealed optical and control boxes protect essential components from dust reducing the need for optical window wiping, thereby minimising downtime and increasing hourly capacity and yield. Low power and low air consumption along with the long-life, high-speed ejectors further reduce operational and maintenance costs.

Faisal Baig concludes, “Managing highly contaminated input product also becomes easier thanks to a user interface with improved mapping technology and enhanced background design that provides better detection of subtle colour variations, spot defects and foreign material. We expect many different types of business will see the benefits of using the SORTEX B, to help overcome food safety and quality challenges, with a process efficiency that ensures a high yield of consistent quality end-product.”

SORTEX B ColorVision™ optical sorter can offer between 1.5 to 8 tonnes per hour capacity per module depending on commodities.
Bühler’s high capacity SORTEX K2A sorts delicate fruit at Curt Maberry.

Soft landing kit ensures gentle handling of frozen raspberries and blueberries.

Based in Lynden, Washington, USA, Curt Maberry Farm produces a wide range of individual, quick-frozen fruit products and was looking to remove the foreign material and defects, such as mould in raspberries or stems in blueberries, colour blemishes or damaged items from its product, prior to packing. The company was also looking to automate this part of the process, in order to free up pickers on the line, for deployment elsewhere in the facility.

John Reneau, production manager at Curt Maberry Farm, turned to Bühler, who had installed its demonstration SORTEX E1D optical sorter at the plant, at the end of last year. Drawing on three powerful technologies; colour bichromatic cameras, Enhanced InGaAs and PROfile (shape) technology, the SORTEX E1D allowed Curt Maberry to detect and remove foreign materials, such as leaves, stems and mould, as well as over and undersized product.

“A major problem for frozen raspberry processors is the fragility of the product, once frozen,” said Stephen Jacobs, Bühler’s fruit and vegetable global product manager. “Depending on the variety,” he points out, “fruit breakage levels can be as high as 10%, going through standard sorting equipment.” Bühler has tackled this challenge with the development of a special soft landing kit, which, together with Bühler’s existing technologies, enables frozen fruit processors to achieve clean acceptable product, with breakage levels of less than 3%.

After the successful trials of the SORTEX E1D in plant, Mr Reneau opted to invest in a SORTEX K2A, in order to meet the high throughputs necessary at Curt Maberry. The SORTEX K2A is also equipped with the new soft landing system, ensuring that Curt Maberry’s fragile raspberries and blueberries remain intact, throughout the sorting process.

Operators at the plant have been fully trained on the SORTEX K2A’s easy to operate sensitivity controls; and the optical sorter which was delivered last June, was fully up and running - sorting raspberries – in time for the berry season.

“The SORTEX K2A is doing an excellent job on quality sorting and we are very pleased with its performance,” said Mr Reneau, who confirmed that the soft landing kit was working well, ensuring that the high quality, accurately sorted fruit is captured consistently and gently, ready for final packing.

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US-based CarbonLite, one of the world’s largest producers of food-grade recycled PET (rPET), has raised their output quality to near-perfect purity, following their installation of Bühler’s state-of-the-art SORTEX sorting technology.

Demand for rPET is outstripping supply, as consumers and brand owners alike continue to pursue ever more sustainable packaging options. To help meet this demand, Bühler has drawn on its many years of experience, to provide a solution that can sort colour and foreign material contaminants from post-consumer PET packaging, to help create a top quality end product.

Bühler has offered equipment dedicated to the production of PET since the 1970s and has long produced trusted optical sorting technology for the plastic industry.

With the advent of viable rPET for food grade packaging, Bühler has drawn on more than sixty years of successful optical sorting in the food industry to combine its sophisticated double-sided viewing capability, precise ejectors and Enhanced InGaAs technology, in a high capacity rPET solution. This delivers consistency, balance and performance, whilst maximising yield.

Luis Fernandez, Plastics Applications Specialist explained, “It is far more important to deliver a solution which meets requirements consistently, rather than exceed requirements inconsistently. Our experience prompts us to listen to the needs of individual plastics recyclers and produce a solution giving them the highest yield, compatible with consistent, balanced performance.”

CarbonLite selected Bühler technology for its ability to carry out simultaneous, multi-characteristic sorting of rPET flakes, including the removal of a wide range of foreign materials. Now, the company has the ability to sort incoming rPET flakes for colour, whilst simultaneously removing unwanted polymers such as PVC (polyvinyl Chloride), PE (polyethylene), PP (polypropylene), PA (polyamide) and PS (polystyrene), as well as aluminium and paper from the clear rPET.
The choice of sorting technology formed a vital part in CarbonLite's investment last year, in a new 220,000 square feet bottle-to-bottle plastic recycling plant in Riverside, California, which now allows the company to recover over two billion used plastic PET bottles annually. The incoming post-consumer PET is processed into rPET pellets that can be manufactured into new plastic beverage bottles, to the exacting standards of food industry customers such as Pepsico and Nestlé.

“CarbonLite is delighted with the Bühler’s SORTEX installation, especially the technical and service support we received during the installation phase,” said Chairman Leon Farahnick. Thanks to the dedicated SORTEX sorting technology, his company has been able to simplify the stringent recycling process required to produce food grade rPET. In turn, this has reduced the CarbonLite plant’s energy consumption and carbon footprint.

“We’re committed to being the leading bottle-to-bottle recycler, while we preserve resources and reduce the carbon footprint from PET bottle production.” concluded Farahnick.

Bühler’s partnership with CarbonLite, turning post-consumer PET bottles into new PET bottles, supports the plastic packaging industry’s commitment to preserving virgin resources, reduce the number of PET bottles destined for landfill and harness the energy already expended in making the original PET bottles.

The introduction of Bühler’s SORTEX technology for sorting plastics brings a long awaited solution that helps companies such as CarbonLite meet the demands of the food industry for high quality rPET. Nestlé has recently relaunched several of its water brands in new ReBorn bottles, made with fifty percent rPET and continues to support PET recycling initiatives. Yet more rPET is still needed. Bühler’s new solution for sorting plastics will go a long way to meeting this growing need.
Bühler extends its presence in China with a turnkey project at Hangzhou Wahaha Group for processing rice and beans.

Leading Chinese producer trusts Bühler expertise to improve quality and reduce costs with the installation of advanced cleaning and grading lines.

The Bühler Group has further strengthened its commitment to excellence in China with the completion of a turnkey installation at the Hangzhou Wahaha Group’s eight treasure porridge production plant in Haining. The new Bühler cleaning and grading plant has allowed Hangzhou Wahaha, one of China’s largest and most prestigious food and beverage manufacturers, to make dramatic improvements to the quality of its end product and reduce its costs.

Wahaha’s Eight treasure porridge is a popular favourite in China, made with pulses, such as red beans, cranberry beans, myotomin (Chinese barley) and oats, as well as sticky rice and black glutinous rice.

Replacing the existing, largely manual cleaning and sorting process, the Bühler installation involves two compact and advanced lines each of which can clean and grade the various raw materials.

Both lines incorporate Bühler’s MTSD De-stoners, MTRC Vibrosifters, metal detection equipment and SORTEX Z+ sorting machines. Currently, one line is dedicated to rice and the other to beans and pulses.

Bühler’s SORTEX optical sorters eliminate contaminants such as glass, stones, wood, sticks and soil blocks, as well as deformed or discoloured beans, and discoloured or unwanted varieties of rice; while the metal detector magnetically removes any residual pieces of metal.

“Our investment in Bühler’s advanced technology and custom-designed solutions has surpassed our expectations. It has drastically reduced our customer complaints about foreign body contamination; reduced our operating costs dramatically; and ensured us consistent quality,” said a spokesperson from Hangzhou Wahaha. “We trusted the Bühler team to deliver and the resulting solution fits our requirements exactly.”
Meeting customers’ critical business needs – a top priority.

The Bühler Group, established in 1860, is a global leader in innovative food processing solutions. Charith Gunawardena heads the Buhler Sortex optical sorting market segment, based in Bühler’s London optical sorting headquarters.

Charith, a technology expert, specialises in the development of new applications and market segments worldwide. He leads a team, committed to ensuring that Bühler’s optical sorters enable processors to achieve the highest quality standards, by reducing the levels of defects, foreign material and unwanted material from their product stream. We spoke with Charith about Buhler Sortex’s role in meeting customers’ needs.

At Buhler Sortex we have teams who specialise in different industry segments – such as rice, pulses, grains, seeds, nuts, coffee, fruits and vegetables, plastics and many more. Our product managers, application specialists and technologists work in partnership with our customers and are therefore able to guide our research and development teams to come up with the most innovative solutions for their needs.

The outcome of this collaboration is the extensive product portfolio, offered by Buhler Sortex and manufactured in the UK. The SORTEX A, SORTEX B, SORTEX E and SORTEX K range deliver the highest sorting efficiency and high yields, covering a wide range of capacities and commodities, with precise sorting requirements.

For global customers who seek high level performance but whose sorting requirements do not require the additional advanced technology features, we offer a variant of the SORTEX B range from Shenzen, China and Blumenau, Brazil.

Buhler Sortex also offers the YJT range of sorters, capable of effective and dependable gross defect sorting. The YJT sorters are produced at our facilities in Hefei, China and distributed regionally. They are subject to the same stringent quality standards implemented by Bühler globally.

Bühler were innovating over 150 years ago and today still have a reputation for being leaders in innovation. How does Bühler maintain its leadership?

Innovation is at the heart of our organisation and Bühler invests 4-5% of its total annual sales on basic research and applied development. Bühler’s own modern analytical laboratories set innovative standards, and our close collaboration with customers, research institutes and universities ensures that it retains its knowledge edge. This investment and on-going research has enabled us
to offer a very wide portfolio, which can precisely match our customers’ sorting needs – in terms of their budget, capacity or sorting efficiency.

**Food safety is a core theme of the Bühler Group, but how do you ensure you are aware of and staying ahead of all the issues?**

The Bühler Group has teams of researchers, networks and various research programmes for sharing information. One such programme is the food safety initiative, where colleagues from all business units look at ways of improving food safety, anywhere along the food value chain – all the way from seed to plate.

As part of this programme, Bühler works in many technical spheres, including in inactivation technologies e.g. pasteurisation, traceability solutions, research into hygienic mill and machine designs and so on.

This also involves working in close collaboration with our customers and key industry players to address key safety issues, so we can deliver innovative solutions and processes for enhancing their product quality and safety.

**What does increasing consumer concern for food safety mean for the optical sorting business?**

Without doubt, every new report of a food safety issue impacts consumer confidence, not only in that company and their products but in the industry as a whole. The damage caused to a brand, company and even food segment can lead to reduced sales and profits. It can take many months or years to recover and sometimes they will never fully regain the sales volumes they once enjoyed. It is not unheard of for a company to go out of business as a result.

Optical sorters play a major role in the food safety initiative. We will continue our research and development efforts to make sure the latest technologies are incorporated into our new machines and process solutions, so we are able to reduce toxins, foreign material, diseased and discoloured products from the entire food stream.

The increasing incidence of mycotoxins in the food chain is a major health issue for the consumer and processors of a wide variety of foods, all over the world. Processors are urgently seeking more reliable sorting solutions, to enable them to meet increasingly stringent safety standards.

I was recently invited to participate on the Food Safety Panel at the International Peanut Forum (IPF 2014). The IPF is an important event for the peanut industry and happens every other year. Attendees come from all over the world, from all sectors of the industry – from seed to plate.

There was a lot of interest in the solutions we have been developing, to enable peanut processors to achieve the highest quality standards, by reducing the levels of aflatoxins, foreign material and unwanted material from the product stream.

**For further information:**

- [Podcast interview with Charith](#)
- [Charith’s slot in the IPF food safety presentation](#)

Such industry events allow everyone, at every stage of the food manufacturing chain, to discuss food safety and other important issues and explore how we can all work collaboratively to address them.

**Bühler has established a reputation not only for quality leadership and innovation but as a reliable business partner too – what will you do to ensure it stays that way?**

Bühler will continue to focus on ensuring its customers’ profitability. By delivering high quality plant and equipment, services and technologies, we can help our customers to differentiate themselves successfully in the marketplace, which will enable them to generate higher added value in their enterprises.