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Programmed for Success

Unveiling Qatalum's
Digital transformation initiatives

Technological 'Leadership'

A dialogue with Qatalum's CTO, Yousuf Al-Ejji on driving innovation, navigating industry trends, and ensuring operational excellence.

AI Powered Revolution

Transforming the aluminium industry from mining to extrusion.

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Qatalum

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An AI Powered Revolution

As we enter the era of AI-driven evolution, the convergence of this cutting-edge technology and aluminium manufacturing promises a profound leap forward, revolutionising the industry from mining to extrusion.

Mr. Khalid Mohamed Laram,
Qatalum CEO

Dear colleagues,

We stand on the brink of a new year, and looking back at the journey that unfolded in 2023 fills me with pride and excitement. Our collective resilience and innovative spirit have not only guided us through challenges but have also positioned Qatalum as a trailblazer in the aluminium industry.

At Qatalum, the integration of AI technologies has profoundly impacted employee development and productivity. Utilising AI based solutions for coaching, training, data analysis and information retrieval; streamlines business processes, significantly reducing the time employees spend on various tasks and empowering them to focus on core operational responsibilities.

Moreover, our commitment to sustainability continued to be a focal point throughout 2023. Initiatives ranging from reducing our carbon footprint to embracing eco-friendly practices reflect our dedication to environmental stewardship. Aligned with Qatar Energy's decarbonisation vision, we're resolute in our target to reduce emissions.

Scrap recycling, a cornerstone of our responsibility to the environment, is set to double its impact, aiming to reach 15,000 tons annually by 2026 – a strategic leap towards a circular economy.

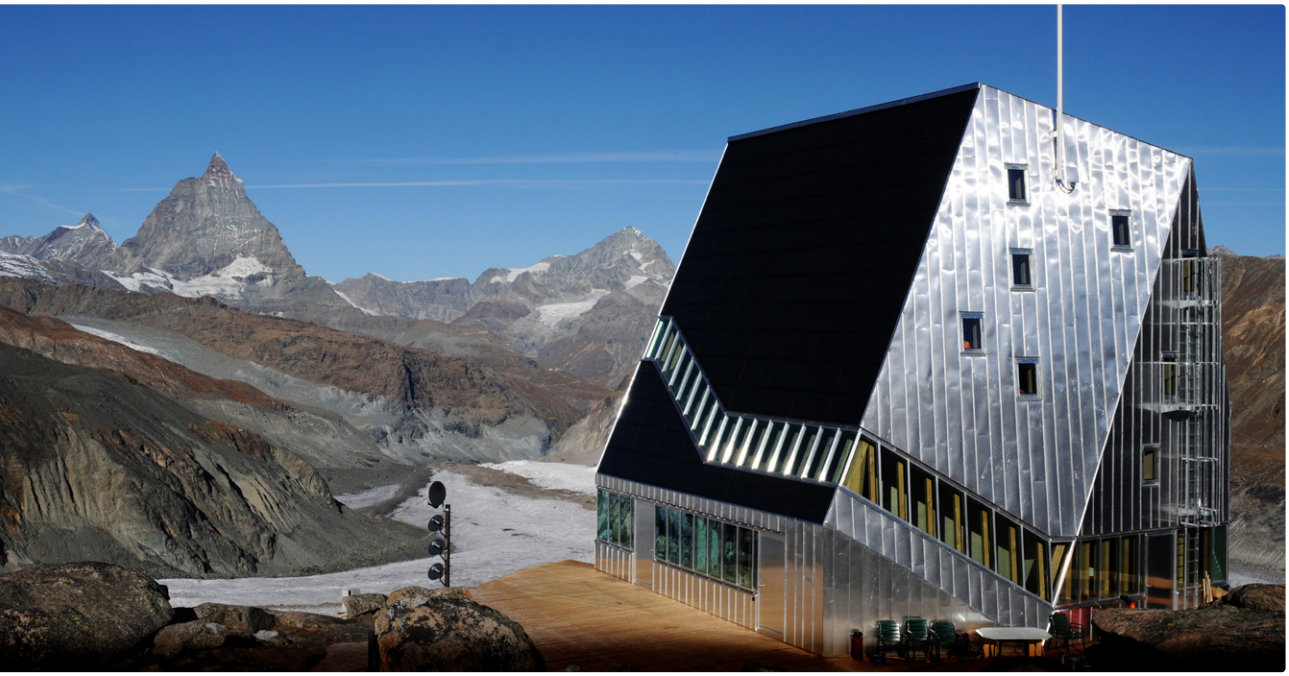
This commitment is not only about meeting targets but about shaping a future where sustainability is ingrained in every aspect of our operations, contributing to a healthier planet for generations to come. The momentum of progress shows no sign of slowing.

Simultaneously, we reinforce our commitment to your health, safety and growth through robust staff training programs and the exploration of new partnerships. Together, with our partners, we continue to shape the future of aluminium production, setting new benchmarks in technological advancement and reinforcing our position as a leader in the industry.

I extend my heartfelt gratitude to each member of the Qatalum family. Your relentless pursuit of excellence defines us. Together, we are not just shaping the future of aluminium; we are contributing to a narrative that defines the future of responsible industry leadership

Strength, Versatality and Sustainability

From transformative breakthroughs to innovative applications — unveiling the enduring impact of aluminium in modern building practices.



Aluminium building systems in Monte Rosa Hut, Switzerland.
Solar panels provide energy for the Monte Rosa Hut in Switzerland, which was also constructed with other aluminium building systems from Hydro's Wicona brand.

More than two centuries ago, the discovery of aluminium marked the beginning of a transformative journey in construction. Nevertheless, in the early 20th century, aluminium still only found limited use in civil engineering due to its exorbitant co-stand inadequate production volumes.

The transformative shift occurred in the 1920s with the introduction of the electrolysis process, leading to an 80% reduction in the cost of aluminium. This breakthrough propelled the metal into the limelight, making it a preferred choice for finishing roofs, domes, drains and wall panels, as well as for decorative purposes.

Fast forward to today and aluminium stands as the second most widely used metal in the global building industry, playing a pivotal role in reshaping modern construction practices across commercial buildings and residential homes alike.

The Versatile Marvel

Aluminium's prominence in construction arises from its remarkable properties and versatile applications. Globally, it is a cornerstone in commercial structures and domestic dwellings, with the 5000 series work-hardened magnesium alloys and th heattreatable magnesium silicone alloys dominating the construction landscape. This combination offers a harmonious blend of malleability, low density, high thermal conductivity, and excellent forming and joining characteristics.

Aluminium's exceptional strength-to-weight ratio, with a density of only 2.7g/cm² and being 66% lighter than steel, plays a pivotal role in its widespread use in construction. This remarkable feature streamlines construction processes, allowing for easier transportation and installation. It aligns seamlessly with the push for innovative and sustainable building practices by reducing environmental impact, transportation costs, and energy consumption. Additionally, the lightweight nature of aluminium opens the door to creative architectural designs that balance functionality and aesthetics in the evolving landscape of modern construction.

Low Maintenance Durability and Fast-Track Construction

In places with challenging environmental conditions such as Qatar, where high temperatures and salt-laden air accelerate material deterioration, aluminium's corrosion resistance becomes crucial. Apart from its remarkable strength, aluminium's inherent durability is fortified by a natural oxide layer. Additional treatments, like anodisation, not only enhance corrosion resistance but also provide diverse finishes, from silvery tones to luxurious gold and bronze. With low maintenance requirements, aluminium stands as an appealing choice for architects and builders, ensuring structures withstand the test of time in adverse climates.

Aluminium's compatibility with fast-track techniques and just-in-time ordering has become invaluable in the dynamic landscape of the construction industry. The precision of factory-finished sections allows for rapid on-site erection, resulting in earlier occupancy and increased profit margins. This adaptability extends across various applications, from curtain walling to window systems and door assemblies. Computer-controlled machining ensures precise tolerances, highlighting aluminium's role in expediting construction processes.

Aluminium's Sustainability Journey

Addressing concerns about sustainability, aluminium has emerged as a highly recyclable material. Approximately 70% of aluminium used in building construction can be recycled without significant degradation, presenting a substantial environmental advantage.

Recycling aluminium not only reduces energy consumption, requiring only 5% of the energy needed for primary smelting but also contributes to minimising its environmental impact. This sustainability factor adds a crucial dimension to the appeal of aluminium in modern construction.

Diverse Applications Across Sectors

Beyond its foundational role in structural elements, aluminium seamlessly integrates into various sectors, showcasing its adaptability and unique attributes. In the healthcare industry, its antimicrobial properties and corrosion resistance make it a preferred choice for constructing modular wall systems and specialised medical equipment, ensuring both sterility and longevity in critical environments.

Similarly, in museum architecture, aluminium's strength is harnessed to support framing systems for windows and skylights, aligning with sustainable design principles. This application not only provides robust structural support but also allows for the creation of expansive, energy-efficient spaces that embrace natural lighting, reducing the environmental footprint of museum structures.

Shifting gears to the realm of stadiums, aluminium stands as an exemplar of both aesthetic and functional prowess. Take, for instance, Zaha Hadid Architect's Al Janoub Stadium in Qatar, where the façade's design incorporates white aluminium panels to reflect sunlight. This not only showcases aluminium's adaptability to environmental considerations but also highlights its role in creating visually striking structures that harmonize with the surrounding landscape.

In essence, whether contributing to sterile healthcare environments, supporting sustainable museum design, or gracing the facades of iconic stadiums and events, aluminium seamlessly weaves into diverse industries, leaving an indelible mark on both functionality and aesthetics

Aluminium in Mont Cenis Herne, Germany.
Aluminium is widely used in frames for doors, windows, facades, solar panels, shutters and more. It is used here in the facade of Mont Cenis Herne in Germany.

> In museum architecture, aluminium's strength is harnessed to support framing systems for windows and skylights, aligning with sustainable design principles.

Technological Leadership

A dialogue with Qatalum's Chief technical Officer (CTO), Yousuf Al-Ejji on driving innovation, navigating industry trends and ensuring operational excellence.

CTO Yousuf Al-Ejji at Qatalum has an illustrious career in technology leadership and has played a pivotal role in steering Qatalum towards innovation and excellence.

In this exclusive interview, he shares insights into Qatalum's technological advancements, its strategies for staying at the forefront of the aluminium industry, and the balance between cutting-edge technologies and operational stability.

As the CTO of Qatalum, what is your role in driving technological innovation and ensuring that the company remains competitive in the global aluminium industry?

As CTO of Qatalum, my role in driving technological innovation involves staying abreast of cutting-edge advancements in business and manufacturing processes.

I spearhead strategic initiatives that integrate sustainable and efficient technologies, optimising our production capabilities. By fostering a culture of continuous improvement, we aim to bolster our competitive edge globally.

My focus is on aligning our technology roadmap with business goals, ensuring agility in our operations, and investing in talent development to meet the evolving demands of the aluminium industry.

Qatalum has been at the forefront of innovation, integrating AI technologies into its operations. Could you tell us more about how these AI technologies have impacted your processes and productivity?

Integrating AI technologies has had a transformative impact on employee development, employee performance and collective productivity.

Using AI-based solutions for coaching and training, data analysis, information retrieval streamlines various business processes, significantly reducing the time employees spend carrying out various tasks.

This efficiency gain means our workforce can focus more on core operational tasks, enhancing overall productivity.

Collaboration and partnerships often play a critical role in technology development. Could you share some examples of successful collaborations that have contributed to Qatalum's technological advancements?

At Qatalum, we've engaged in several strategic partnerships that have catalysed our technological growth.

Collaborating with academic institutions like Qatar University for research, Gulf Aluminium Council to frequently discuss and share the knowledge, and technology companies to evaluate latest offerings has allowed us to tap into new research, learn from each other, and deploy innovative solutions within the organisation.

These collaborations not only fuel our technological progress but also strengthen the broader ecosystem, fostering innovation that benefits the entire industry, more on core operational tasks, enhancing overall productivity.

Given the fast-paced evolution of technology, how does Qatalum stay ahead in adopting and integrating new technologies into its operations?

Staying ahead in the fast-evolving technological landscape requires a proactive and strategic approach. At Qatalum, we prioritise continuous learning and adaptability. We have established a dynamic strategic plan up to 2030 that includes and focuses on digitalisation, automation based on Industry 4.0 and 5.0 concepts. Innovation task force teams scan for emerging technologies and assess their applicability to our operations. This task force is supported by executive management and a culture that encourages experimentation and risk-taking.

With the rise of Industry 4.0 and the Industrial Internet of Things (IIoT), how is Qatalum embracing digitalization and data analytics to enhance its manufacturing processes and decision-making?

Qatalum is fully embracing the opportunities presented by Industry 4.0 and IIoT by integrating digitalization and advanced data analytics into our core manufacturing processes. With a long-term strategy, we will continue to deploy a network of sensors throughout our production facilities to collect vast amounts of data in real-time, feeding into our advanced analytics platforms. This will enable us to gain deep insights into every aspect of our operations, optimising production processes for maximum efficiency, predictive maintenance, and minimised downtime. By embracing these digital tools, current operations are being improved, and we are also building a resilient foundation for future innovation.

Safety is of paramount concern in the aluminium industry. Can you explain how technology and innovation have played a role in maintaining Qatalum's exceptional safety record?

To maintain our safety record, we consider technology as an integral aspect at Qatalum. We are continuously looking for ways where technology can be implemented for monitoring systems that provide real-time data on operational conditions, enabling us to anticipate and mitigate potential safety hazards.

We have explored wearable tech for various use cases. Also, we have deployed software for all employees that help us improve workplace ergonomics. Robotics and automated guided vehicles have the potential to eliminate human exposure to high-risk environments, while AI-driven safety analytics help us understand patterns and predict where accidents might occur, allowing us to proactively address safety concerns. By continuously investing in and updating our technology stack, we will not only adhere to but often exceed industry safety standards, ensuring a secure workplace for all our employees.

With the recent adoption of RealWear's Assisted Reality (aR) headwear solution, how do you envision this technology supporting and enhancing your business processes in the future?

The adoption of RealWear's Assisted Reality headwear is helping Qatalum in enhancing our business processes. This technology enables hands-free operation, which is critical in an environment where safety and efficiency are paramount.

I envision our field technicians and engineers utilising this aR solution for remote assistance, receiving guidance and support from experts worldwide without the delay of travel. Additionally, the integration of this technology will enhance training and skill development, allowing our workforce to perform complex tasks with an overlay of digital instructions. This will not only reduce error rates but also accelerate the learning curve for new employees. In the long term, such aR solutions will streamline our maintenance processes, enhance quality control, and provide a wealth of data to further refine our operations, ultimately leading to increased productivity and better decision-making.

Cyber-crime prevention is a significant concern in today's digital landscape. How has Qatalum implemented cybersecurity measures to ensure the safety and security of its operations and data?

At Qatalum, cybersecurity is a top priority, given the critical nature of our operations and the sensitivity of our data. We have implemented a multi-layered security strategy that encompasses both hardware and software defences. Our approach includes advanced firewalls, intrusion detection systems, and regular assessments to identify and address vulnerabilities. We employ data classification and leak prevention techniques, ensuring that our operational and proprietary information is secure. Employee training is also a key component of our cybersecurity measures; we conduct regular workshops to keep our staff informed about the latest cybersecurity trends.

The introduction of AI chatbots, such as Molhem and ANDRO, represents an exciting development. How have these chatbots transformed the customer experience and improved internal processes at Qatalum?

MOLHEM, with its ICF framework-based coaching abilities, offers personalised guidance and support to employees. Molhem partners with the employees to unleash their full potential, both personally and professionally. This process involves thought-provoking conversations that inspire the employees to discover their own strategies, goals, and solutions. It encourages self-discovery, self-awareness, and accountability. This transformative journey helps employees enhance their outlook on work and life, develop their leadership skills, and unlock their innate abilities, leading to significant personal and professional growth.

ANDRO, our enterprise-level assistant, is a great chatbot in the making that will help streamline our internal operations. With its access to policies, procedures, and process information, it serves as an on-demand knowledge repository for our employees. This immediate access to information accelerates decision-making and problem-solving, reduces the time spent searching for information, and improves overall productivity.

Looking to the future, what technological trends or developments do you see as most promising for the aluminium manufacturing industry, and how is Qatalum preparing to embrace them?

Advancement in robotics and automation, AI and ML, digital twins and advanced simulation technologies, and robots are some of the technological developments that are promising for our industry.

In your role, what is the balance between adopting cutting-edge technologies and ensuring the reliability and stability of Qatalum's manufacturing processes?

Striking the right balance between innovation and operational stability is a critical aspect of my role as CTO. At Qatalum, while we are committed to adopting cutting-edge technologies to stay at the forefront of the aluminium industry, we also understand the importance of maintaining the reliability and stability of our manufacturing processes. To achieve this balance, we adopt a phased approach to technology integration, where new solutions are thoroughly tested and validated before full-scale deployment. We also invest in staff training to ensure that our team is adept at managing new technologies effectively. Furthermore, we maintain a robust risk management framework that helps us assess the potential impacts of new technologies on our existing systems. By prioritising technologies that offer the most significant benefits with the least disruption, we ensure that innovation enhances rather than compromises our operational integrity

An AI-Powered Revolution: Transforming the Aluminium Industry from Mining to Extrusion

Pioneering initiatives and industry-wide innovations in AI guide the transformation from mines to markets in the aluminium industry.

As we enter the era of AI-driven evolution, the convergence of this cuttingedge technology and aluminium manufacturing promises a profound leap forward, revolutionising the industry from mining to extrusion.By acting as a transformative force, AI is strategically enhancing the efficiency, safety, and sustainability of aluminium production.

The pervasive integration of AI reflects the aluminium sector's forward-thinking ethos, surpassing conventional automation to establish a harmonious synergy between human ingenuity and artificial intelligence. As the industry pioneers new frontiers in alloy manufacturing, extrusion, and quality control, AI becomes an invaluable ally, reshaping possibilities through collaborative innovation.

This technological renaissance is not merely about streamlined processes but also signifies a commitment to sustainability. AI-optimised resource usage and the adoption of eco-friendly practices redefine the industry's environmental impact.

Upstream

Enhancing Safety, Efficiency, and Sustainability

In the upstream sector of aluminium manufacturing, where mining and refining processes shape the raw materials, AI-driven automation is reforming mining operations and
redefining safety standards and operational efficiency. Autonomous vehicles, equipped with AI systems, navigate complex mining environments, reducing the risk of accidents and heightening material extraction precision.

Some of the most notable examples of automation include Saudi Arabian Mining Company's (Ma'aden) Robot Miners, and Emirates Global Aluminium's (EGA) Automated Cranes. Ma'aden has entered into a partnership with OffWorld, a leading global innovator in Artificial Intelligence (AI)-driven industrial swarm robotic mining systems. This collaboration aims to delve deeper into the possibilities of integrating intelligent robotic technology within Ma'aden's mining operations. While in Jebel Ali, EGA has implemented highly automated overhead cranes, with the ultimate vision of transitioning to fully automated cranes for reduction cell tending. The installation of 14 new models is set to replace 16 older cranes, boasting auto-positioning and advanced sensory capabilities. This upgrade is anticipated to enhance safety, reliability, and efficiency.

On the sustainability side of things, the aluminium industry is leveraging AI to minimise the environmental impact of its operations. Advanced algorithms analyse data related to water usage, energy consumption, and emissions, allowing companies to implement eco-friendly practices.

One such initiative comes from Vedanta Aluminium, situated in Jharsuguda, India. The company integrated IoT technology to analyse and decrease water consumption at its power facilities.

The technology recommends optimal water quality parameters, enhancing the reuse of cooling water and augmenting plant efficiency. This has led to elevated water quality, reduced scaling and corrosion, and overall improvements in operational factors.

Furthermore, Vedanta Aluminium has implemented Industrial Internet of Things (IIoT) in fabric filters within its 2400 MW Thermal Power Plant, enabling meticulous monitoring of carbon emissions.
Ensuring the safety of workers in mining operations is paramount for responsible producers. The industry's commitment to safety is exemplified by the implementation of AI systems capable of real-time monitoring of work environments. These systems identify potential hazards and promptly alert workers and supervisors to take corrective actions. A notable illustration of this dedication to safety is observed in BALCO's AI for Workplace Safety using the T-Pulse HSSE Monitoring System. This AI-driven monitoring tool encompasses workplace behaviour, vehicle safety, personal protective equipment usage and work at height, contributing significantly to advanced safety protocols and regulatory compliance.

Beyond the confines of individual operations, AI is reshaping the broader aluminium supply chain. Predictive algorithms, powered by AI, analyse global economic trends, geopolitical factors, and even climate patterns. This comprehensive analysis allows the industry to anticipate disruptions and enables agile adjustments within the supply chain.

The conventional methods of exploring potential mining sites and managing resources are witnessing a revolution with the advent of AI.

Machine learning algorithms can now analyse geological data more efficiently, predicting optimal locations for mining operations and minimizing ecological impact.

AI-driven exploration techniques enable a more efficient analysis of geological data, helping in the selection of optimal mining locations. This not only enhances resource utilisation but also aligns with environmentally responsible mining practices.

AI is also transforming maintenance practices by enabling predictive maintenance, with companies like Alcoa investing in smart maintenance systems. Sensors and AI algorithms monitor equipment conditions in real-time, predicting when maintenance is required to prevent breakdowns. This not only reduces downtime but also enhances the overall efficiency of the aluminium manufacturing process.

Downstream

AI's Role in Alloy Manufacturing, Extrusion, and Quality Control

In the downstream manufacturing processes of aluminium, AI is influencing alloy innovation, streamlining operations, optimising casting and forming procedures, and revolutionising the design phase through generative design. Traditional methods of aluminium alloy evolution, known for their slow, sequential iterations, are now accelerated by AI, particularly through machine learning (ML). ML predicts the properties of unknown alloys based on existing data from aluminium alloy databases, exemplified by the materials informatics technique developed by Japan's National Institute for Materials Science in collaboration with Toyota Motor Corporation. This technique involves feeding established data into a machine learning model, enabling it to recognise connections between alloys' mechanical properties, constituent elements, and heat treatment during manufacturing, ultimately predicting the requirements for crafting new alloys with specific mechanical properties.

AI's transformative influence extends to extrusion processes, where machine learning models develop algorithms for optimal parameter selection and die layout. This innovative approach allows engineers to explore exponentially more design options through generative design, surpassing conventional methods. Additionally, AI-driven quality control systems, equipped with advanced sensors and cameras, detect defects and irregularities in extruded aluminium products with unparalleled accuracy, ensuring precision and quality. Products like CYRUS, the flagship offering from Greek company D-Cube, are actively addressing these kind of manufacturing challenges. Positioned just a few meters from the extrusion press, the CYRUS smart cage utilises mounted cameras and D-Cube's algorithms to detect surface defects in the extruded profile in less than 50 microseconds. Upon detecting defects, the press operator promptly receives an alert with instructions to adapt press parameters, showcasing how AI is enhancing real-time decision-making and quality control in the aluminium extrusion process.

Moreover, AI is increasingly finding applications in casting and forming processes, contributing to the shaping of aluminium into various components. The predictive casting models, exemplified by companies like Novelis, leverage AI to simulate the casting process, enabling real-time adjustments for the production of high-quality aluminium components. The use of AI in predicting the behaviour of molten aluminium during casting enhances precision, quality, and efficiency throughout the manufacturing journey, reaffirming AI's integral role in the evolution of the aluminium industry.

Generative design, fuelled by AI algorithms, is now at the forefront of transforming the design phase by optimizing shapes and structures for maximum efficiency and performance. This becomes particularly relevant in applications where weight reduction and structural integrity are crucial factors. AI-driven design tools empower engineers to input specific requirements, such as load-bearing capacity or weight constraints, and explore countless design iterations. The outcome is a plethora of innovative and efficient designs that might not be immediately apparent through traditional design processes, reinforcing AI's pivotal role in shaping the future of aluminium manufacturing.

Qatalum's Drive for Sustainable Aluminium Production

Amid a global commitment to emission reduction, strategic initiatives, regulatory compliance and technical innovations propel Qatalum's environmental leadership.

Aluminium producers worldwide are responding to the pressing need for sustainability in alignment with the Paris Agreement's climate goals. Qatalum, a key player in the industry, has set ambitious targets; aiming for a substantial reduction in its greenhouse gas footprint from 7.5 tCO2/tAl to 6.3 tCO2/tAl by 2030.

To underscore its commitment, Qatalum has undertaken decisive measures; participating in environmental campaigns, adopting an Environmental, Social, and Governance (ESG) approach, and joining key initiatives like the Aluminium Stewardship Initiative (ASI). Engaging in International Aluminium Institute (IAI) workshops, the company remains at the forefront of environmentally friendly aluminium production, acknowledging the growing demand from customers for eco-conscious products.

Customer preferences are shaping the industry, with a heightened emphasis on environmentally responsible practices. Qatalum recognises the competitive edge gained by actively reducing its carbon footprint, ensuring it aligns with evolving customer expectations and maintains a strong market presence.

On the regulatory front, the EU's Carbon Border Adjustment Mechanism (CBAM) serves as a pivotal motivator for global aluminium producers.

Qatalum proactively lowering **CBAM taxes by:**

1
DECARBONISING
Export volume by **120,000Mt.**

2
REDUCTION
In initial targets by **9% in CO_2 emissions** by 2026

3
REDUCTION
In CO_2 emissions to Qatar Energy's target by **16% by 2030.**

Driving Change through Action

Using the Qatalum Production System, the company has initiated A3 projects, organising regular multidisciplinary meetings to address technical challenges. Emphasising teamwork and collective involvement, these efforts aim to tackle climate change collectively.

Specific actions include meticulous monitoring of anode covering material chemistry, daily analysis of primary alumina for property adjustments, continuous tracking of net bath generation and average bath level of potlines, and identification and repair/replacement of faulty breakers and feeders. Qatalum's dedication has already shown positive results, with a 5.66% reduction in CO_2 emissions achieved in FY 2022. The carbon intensity decreased from 1.60 tCO_2e/tAl in FY 2021 to 1.51 tCO_2e/tAl.

These ongoing efforts reinforce Qatalum's position as a sustainable leader, contributing to the broader transformation of the aluminum industry.

Tackling HF Emissions for a Greener Tomorrow

Qatalum's groundbreaking move is pioneering real-time solutions in aluminium smelting.

Amid the global pursuit of sustainable practices, aluminium smelters grapple with the challenge of minimising emissions, notably hydrogen fluoride (HF), acknowledged for its environmental and health repercussions. Qatalum has taken a pioneering role, achieving substantial progress through the integration of real-time hydrogen fluoride measurement systems.

Reducing HF emissions extends beyond regulatory compliance; it represents a moral duty to protect the environment and communities. Emissions from aluminium smelting processes, including HF, contribute to air pollution, posing risks to health and ecosystems. The aluminium smelting industry, committed to technological advancements and sustainability, witnessed Qatalum's significant investment of USD 600,000 in HF analysers in 2019. These analysers offer real-time monitoring across pot lines, ensuring compliance with environmental regulations.

Key achievements and benefits of the **Initiative:**

1

IDENTIFICATION
of Abnormal Emissions, enabling immediate corrective actions

2

IN-DEPTH ANALYSIS
supporting Proactive Measures for specific emission-contribuing activities.

3

CONCERTED EFFORTS
of various teams, encompassing Engineering, Process, Environment, and IS/IT.

Daily management responsibilities are distributed among Reduction Operations, Support, and Process teams, with Maintenance overseen by Reduction Maintenance and IS/IT teams.

Qatalum's focus on reducing HF emissions exemplifies a praiseworthy commitment to environmental responsibility and sustainability. The real-time measurement system not only furnishes accurate data and proactive measures but also ensures adherence to environmental limits, marking a significant milestone in the global endeavour for a cleaner, sustainable aluminium industry

Pioneering Potline Management

Ben Benkahla
Potline Process Manager

Ben Benkahla, a seasoned Potline Process Manager, delves into the world of technological advancements and innovation within the smelting industry. He examines the profound impact that investing in advanced technologies and fostering an internal culture of innovation can have on efficiency, energy consumption, and production costs.

In your experience, how have technological advancements influenced smelting processes?

Technological advancements have brought remarkable transformations to the aluminium smelting industry. Over the years, I've been involved in various technology developments, including pots operating well above 500 kA, and including advanced anode technology. The aluminum smelting industry has greatly improved productivity over the last half-century while reducing its environmental impact per ton of aluminum produced. Pot amperage has surged by a factor of 100 during the last century thanks to advancements in thermal insulation techniques, new refractory materials and insulating bricks. Initial thermal models also contributed to this acceleration.

In the 70s, magneto hydrodynamics control (MHD) played a significant role in further advancements. Although specific power consumption was halved during the last century, it has remained relatively constant since the 80s, prompting sustainability concerns. Despite this, there are unexplored areas awaiting discovery. These achievements are a result of a strong drive for innovation in various domains, including magneto hydrodynamics, thermal control, material science and process optimisations, ushering in a new era of efficiency and sustainability.

Can you provide examples of successful internal innovations that have positively impacted smelting processes?

Certainly. Our process department has received prestigious awards for our innovative contributions. In 2021, we received the Hydro President Innovation Award for our 'Power Outage Control Task', a collaborative effort between Qatalum and Primary Technology.

This project not only showcased our ability to manage power outages effectively but also highlighted our commitment to pushing the boundaries of what's achievable in our industry. Such recognition motivates our team to continue pursuing innovative solutions. Another example is the proprietary tool we developed to identify specific impurities in our pots that could impact performance. This tool received the 2022 CEO Innovation Award of Qatalum.

How do you balance the need for innovation with the associated risks and costs?

Balancing innovation with risks and costs is a delicate task. While innovation is crucial for staying competitive and efficient, it can be costly, and not all experiments lead to immediate success. To mitigate risks, we approach innovation systematically, starting with small-scale pilot projects to test new ideas before implementing them on a larger scale.

Regarding costs, innovation must be seen as an investment in our long-term success. While there are upfront expenses, the return on investment often surpasses these costs over time, thanks to improved efficiency and reduced production expenses. Open communication within our organisation plays a significant role here.

Employees at all levels are encouraged to share their ideas, and we establish clear feedback loops to learn from both successes and failures.

What advice would you give to organisations considering investments in advanced smelting technologies and innovation?

I would offer three pieces of advice.

First, understand your specific operational challenges and opportunities. Don't adopt a one-size-fits-all approach. Tailor your innovation strategy to address your unique needs.

Second, invest in employee training and development. An innovative culture is only as strong as the skills and knowledge of your workforce. Training programs and knowledge-sharing initiatives can help employees embrace and drive innovation.

Lastly, don't underestimate the power of collaboration. Engage with technology providers, research institutions, and your own team to tap into collective intelligence. Innovative solutions often emerge from diverse perspectives and expertise.

In summary, the insights shared by Ben Benkahla shed light on the crucial impact of technological advancements and internal innovation in the smelting industry. The integration of advanced technologies and the cultivation of an innovative culture have not only improved efficiency and lowered production costs but have also positioned Qatalum for enduring success and sustainability.

As the smelting industry progresses, it becomes evident that those embracing innovation are poised to guide the sector towards a more efficient and environmentally conscious future

A Senior Buyer's Journey At Qatalum

Latifa Al Darwish shares her unique perspectives and triumphs as a Qatari professional in procurement.

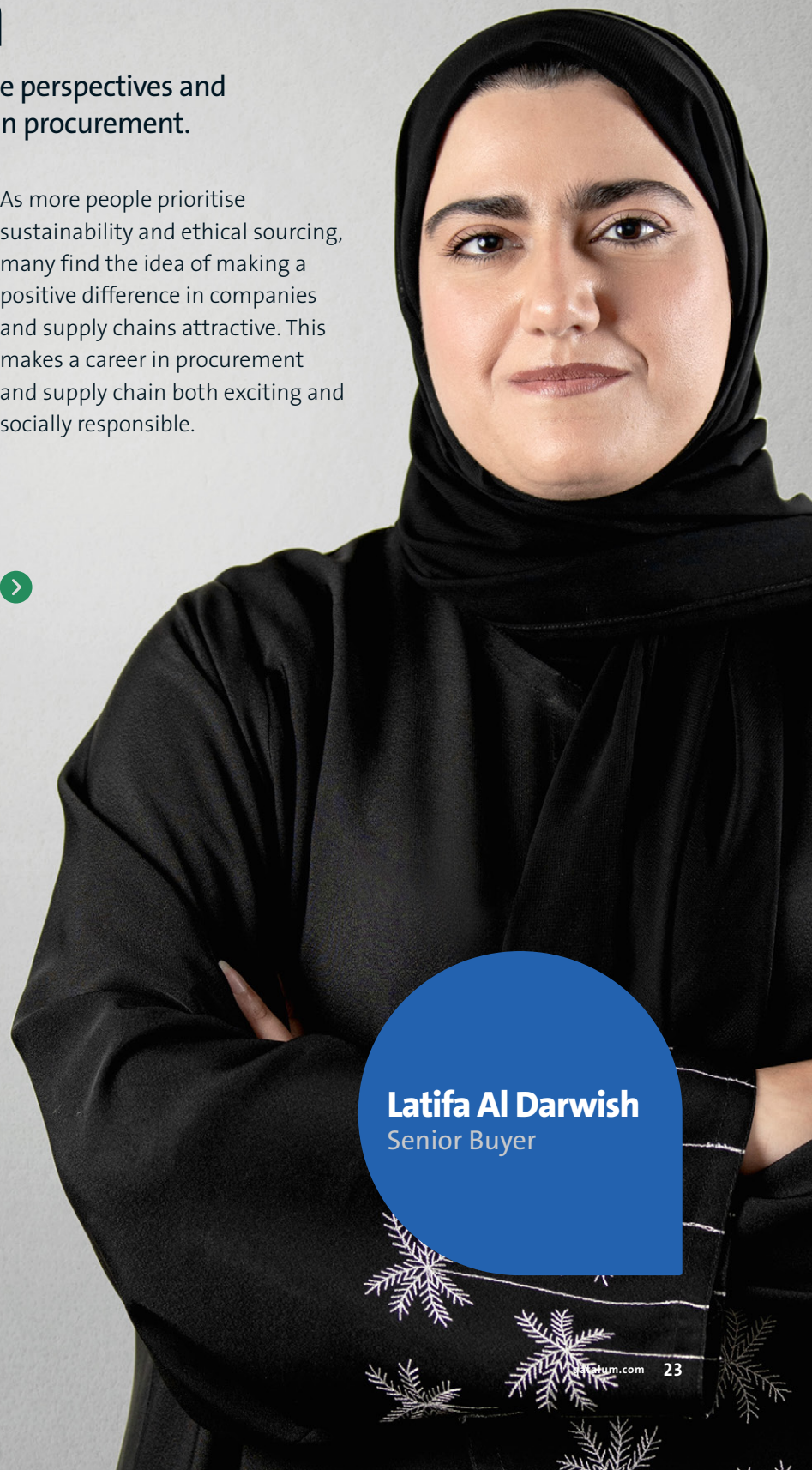
Could you share your educational background and the path that led you to become a senior buyer at Qatalum?

I graduated from Qatar University in 2011, with a degree in Marketing and International Business from the college of Business and Economics. After graduating, I was keen on submitting my resume at the career fair. I applied to various places and received a call from Qatalum for a personal interview. At that time, I had no knowledge about the company, so I did some research and learned more about it. Thankfully, I was accepted into the procurement department.

What initially sparked your interest in the field of procurement and supply chain management?

Procurement and supply chain management skills are needed worldwide, as they play a critical role in global business operations. The intrigue often begins with an understanding of the field's significance in ensuring the efficient flow of goods and services. The opportunity to collaborate with diverse suppliers, negotiate with contractors, and solve complicated logistical difficulties appealed to me.

As more people prioritise sustainability and ethical sourcing, many find the idea of making a positive difference in companies and supply chains attractive. This makes a career in procurement and supply chain both exciting and socially responsible.



Latifa Al Darwish
Senior Buyer

How have your studies and qualifications contributed to your success in your current role at Qatalum?

My studies enhance my ability to excel in my current role in purchasing by providing me with valuable insights into consumer behaviour, market trends, and global trade dynamics, allowing me to make informed procurement decisions and expand Qatalum's reach.

What challenges have you faced in your professional journey, and how have you overcome them?

My work placement reinforced my interest in the areas of negotiation and decision making. I discovered within me, a thirst for knowledge and quick learning, resulting in achieving challenging tasks within deadlines.

One of my main role responsibilities is to purchase Qatalum's pot relining materials within the framework, of buying certain quantities from specific suppliers. Relining is a cyclic part of regular operations and requires long-term agreements.

I was given this responsibility from 2015. During a challenging General Tender Committee meeting, I faced resistance in convincing the committee to approve the tendering process and subsequent distribution of cathode blocks due to the concerns of the new distribution strategy and costs. To overcome this, I presented a comprehensive cost benefit analysis, highlighted the long-term value and potential savings the agreements offered.

Additionally, I addressed member concerns and demonstrated how the purchase aligned with our strategic goals, ultimately securing their approval and trust in the decision.

Other significant challenges I faced mainly during the COVID-19 pandemic were due to severe disruptions in the supply chain, with many suppliers facing closures and delays. To overcome this, I had to diversify our supplier base, identify alternative sources, and establish clear communication channels to stay informed about the evolving situation.

This proactive approach allowed me to quickly adapt to change, maintain essential supplies, and minimise the impact of disruption on our operation.

As a Qatari professional, what unique perspectives or insights do you bring to the industry, particularly in the context of the Qatari market?

As a Qatari lady, I bring a unique perspective by leveraging local insights and understanding of the Qatari market's specific demands and regulations. This can lead to tailored strategies that effectively address the need of the domestic market to be more competitive and self-sufficient while contributing to the industry's growth and sustainability aligning with **Qatar National Vision 2030.**

How does Qatalum support and promote the growth of local talent, and how has this impacted your career?

Qatalum places a strong emphasis on the development of Qataris by providing them with opportunities to attend training courses, and to continuously improve through daily practice. This approach allows us to learn from our mistakes and work towards the department's KPIs. Consequently, this investment in our growth translates into employees who are not only skilled and experienced but who also possess a strong work ethic and a collaborative spirit, contributing to company's overall success.

Qatalum allows me to be ambitious and focus on my career path. By creating a structured career plan that prepares me for a promotion to a higher managerial position, I am gaining the authority to make changes, improvements, and manage growth.

What advice would you give to young Qatari students who are considering a career in procurement and supply chain management?

They need to focus on developing strong analytical and negotiation skills, stay updated on industry trends, and network within the field to gain valuable insights and connections.

How do you stay updated with the latest industry trends and advancements in procurement practices?

Staying updated is crucial for professional growth and success in the field. I subscribe to trade publications, attend procurement conferences and webinars, join professional associations, and engage in online research and networking.

Could you share any significant achievements or milestones you've accomplished during your time at Qatalum?

During my time working in the purchasing section, I successfully implemented a strategic sourcing initiative that resulted in a substantial cost reduction for the organisation. Through meticulous supplier evaluation and negotiation, I secured more favourable purchase orders for essential materials, resulting in a significant reduction in operational expenses.

What are some key lessons you've learned throughout your career that have significantly influenced your professional approach and outlook.

Throughout my career as a Senior Buyer, I have learned that effective communication and relationship
building with suppliers are paramount for successful procurement. Maintaining open, honest and collaborative partnerships lead to better negotiation outcomes and a more reliable supply chain.

Additionally, I have come to appreciate the importance of staying adaptable and informed about market dynamics, as they're essential to pivot procurement strategies to align with evolving industry trends and challenges

A Remarkable Career Odyssey

Khalil Abdel Kareem shares his tale guiding immigration, contributing to success, and embracing core values during his 16- year career at Qatalum.

Khalil Abdel Kareem
General Services Foreman

What motivated you to join Qatalum, and how has your journey been over the last 15 years?

I was working with a diplomatic mission in Qatar when I learned about the new Aluminium company under QP. They needed a PRO for immigration, so I applied for the position in October 2007. My journey with Qatalum began in January 2008. I contributed to transfer of the sponsorship name from Hydro Aluminium to Qatar Aluminium Ltd. I have been part of Qatalum since the project phase. I consider myself lucky to be part of the team that built the greatest, most modern and sophisticated aluminium factory in the region and the world.

How has your role evolved during your time at Qatalum, especially in the context of assisting with immigration-related matters?

My role as Immigration Supervisor involves assisting HR in processing working visas and initiating immigration processes such as resident permits for all employees and their families, including driving licenses.

I've assisted Qatalum employees with immigration or government-related matters, bridging language gaps with authorities. I remember the early days, when employees faced issues with the police department or any other government authority, they would call me to help them speak in Arabic with authorities.

Could you share some memorable experiences or challenges you encountered in your career at the company?

I have a lot of memorable experiences. They include helping employees with last-minute exit permits because many a time employees forget to apply for the exit permit until they get to the airport and are denied exit. They call me all flustered to help them catch their flights, which I do. I have also assisted in more complex situations such as liaising with many governmental authorities in case of an employee's death, if the body needs to be transported to their home country.

What significant changes have you witnessed in the company's approach to immigration and employment matters over the years?

Qatalum has organically evolved like any other organisation. New minds, new leaders have joined the organisation and brought in lots of experience and flexibility.

Visa restrictions have also been eased by the government that has brought about lots of changes in processes.

The shift from manual to automated working styles, and management support for improvement ideas and suggestions have been notable.

How has your role contributed to the overall functioning and success of Qatalum?

The Government Affairs section plays a vital role in the HR department. We ensure visas, family visas, and licenses are available for new employees. Without these essentials, employees cannot start working, directly impacting operations and production.

> Qatalum Management provided an environment of creativity and freedom where I could use my previous knowledge, experience, and connections to get the job done effectively and on time.

What advice would you give to new employees joining the company, based on your extensive experience and knowledge of the company?

My advice to my new brother employees is that they are lucky and blessed to be selected to work with Qatalum. The work culture and philosophy is that of one family from top level management level to the lower levels and the new employees. Embrace this philosophy, and you'll fulfil your dreams.

How has Qatalum supported your professional growth and development during your tenure?

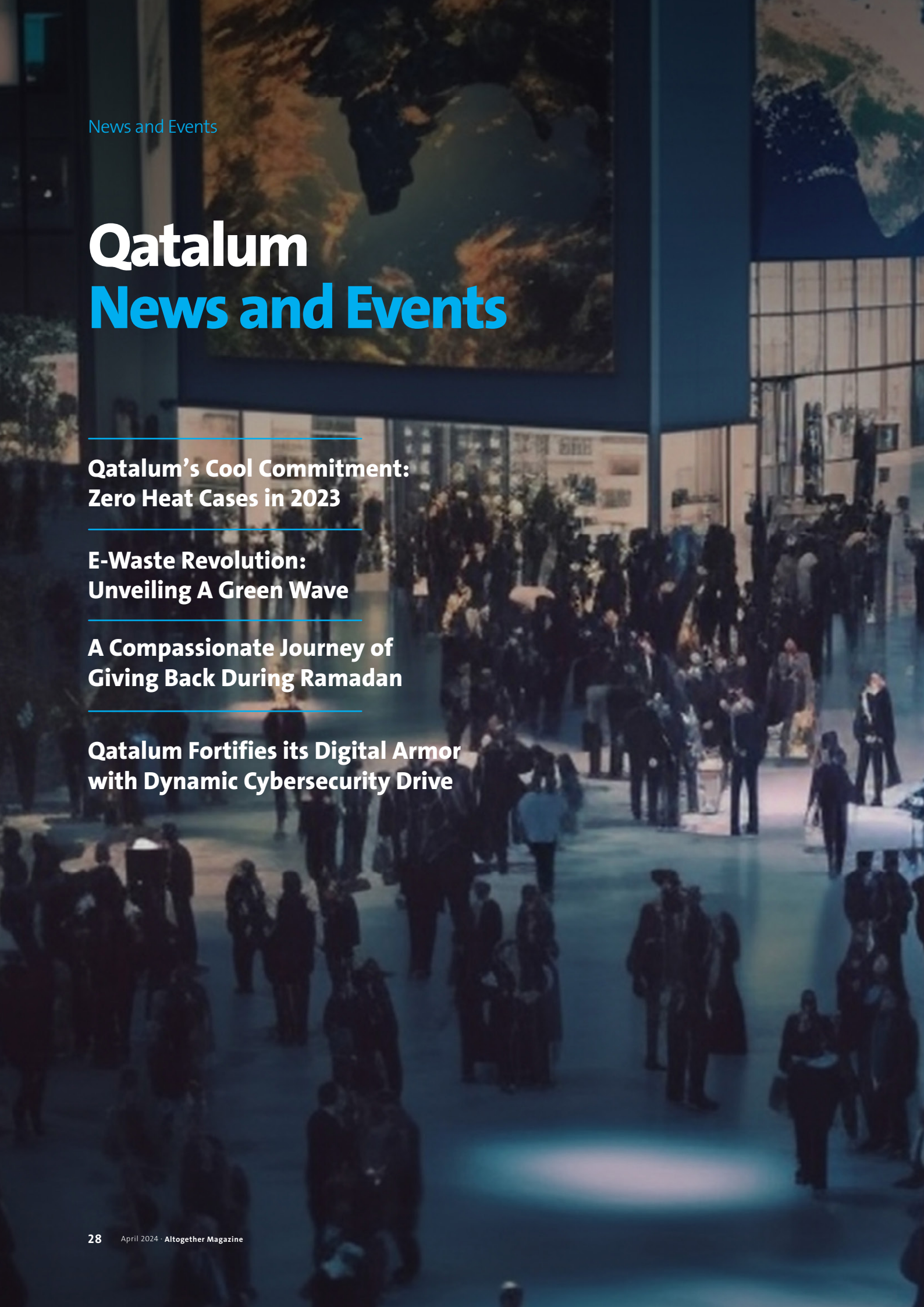
Qatalum Management provided an environment of creativity and freedom where I could use my previous knowledge, experience, and connections to get the job done effectively and on time.

My supervisors have always shown their trust in me and have not left any stone unturned, helping me achieve excellence in my work.

What are some of the key values and principles that you believe have contributed to your long and successful service with Qatalum?

The main value and principle that I believe in is trustworthiness. Without trust you cannot work honestly. In life, if you build on trust and honesty, you will succeed, and at Qatalum we have that. The Qatalum Way is built on trust and zero harm

Qatalum
News and Events



Qatalum's Cool Commitment: Zero Heat Cases in 2023

E-Waste Revolution: Unveiling A Green Wave

A Compassionate Journey of Giving Back During Ramadan

Qatalum Fortifies its Digital Armor with Dynamic Cybersecurity Drive

Qatalum's Cool Commitment: Zero Heat Cases in 2023

Qatalum prioritizes the health, safety, and well-being of its employees and contractors, evident in its robust Heat Stress Prevention Campaign. With the theme "ZERO Heat Related Case in 2023," the campaign aimed to surpass the success of the previous year.

In March 2023, the HSSE department, a crucial support unit, ensured readiness for the upcoming months. A notable milestone was the formation of the Contractor Heat Stress Prevention Committee, led by Humberto Dornelas, HSSE Manager. Comprising mainly contractor representatives, the committee addressed programs, key activities, and challenges related to Heat Stress Management.

Readiness Assessments were conducted, inspecting cool booths, drinking stations, use of cooling vests, and the availability of the Work and Rest Recovery Cycle Board in work areas. Heat Index Monitoring and SMS Notifications were initiated, adding another layer to the proactive approach. As Qatalum continues to beat the heat, the collective effort aims for a realistic and achievable goal: ZERO Heat Related Cases.

E-Waste Revolution: Unveiling A Green Wave

Qatalum initiated a groundbreaking E-Waste Campaign, marking a significant stride towards a greener future. In alignment with World Environment Day 2023 the campaign, spanning various phases, aimed to spotlight e-waste awareness and encourage responsible disposal practices among its staff.

Initiating the campaign with an informative webinar featuring Venu Gopal, General Manager of Al Haya Waste Management, Qatalum enlightened its workforce on the environmental impact of e-waste. This educational phase laid the groundwork for the interactive event that followed, where employees actively participated in the responsible disposal of unused electronic devices, resulting in an impressive collection of 160 kg of e-waste.

The campaign's third phase, under the "Did You Know That" sub-campaign, continued to foster awareness by sharing intriguing facts about e-waste through screensavers across the organization. This internal communication not only educated employees but also encouraged them to contribute to a sustainable future by recycling responsibly, repairing devices, and staying informed about e-waste issues.

Adding an element of excitement, an online quiz titled "Test your E-waste Knowledge" engaged participants and provided a chance to win valuable prizes through a random raffle draw. On July 17, the campaign concluded with the announcement of three fortunate winners, each receiving a valuable bicycle.

Qatalum's E-Waste Campaign not only showcased the company's unwavering dedication to environmental stewardship but also empowered its employees to actively participate in responsible e-waste practices. Beyond the organization, the initiative aimed to create a lasting culture of sustainability, leaving a positive green imprint for generations to come. As the campaign wrapped up, Qatalum encouraged continuous responsible e-waste disposal, reinforcing its commitment to a cleaner, greener tomorrow

Qatalum Fortifies its Digital Armour with Dynamic Cybersecurity Drive

In a strategic move, Qatalum launched an engaging cybersecurity campaign aimed at heightening awareness about the implementation of the Information Security Management System (ISMS), particularly ISO 27001. With rising cybersecurity threats, the goal was to instil a culture of security and responsibility. Targeting employees, contractors, and partners, Qatalum's initiative deepened understanding of cybersecurity risks, empowering effective prevention and response.

In a world of pervasive cyber threats, Qatalum stressed shared responsibility. The campaign urged all individuals to proactively safeguard digital assets, embedding cybersecurity practices in daily operations. Recognising the benefits, Qatalum aimed to enhance awareness, strengthen defences per ISO 27001, foster collective responsibility, and mitigate risks. Proactive ISMS implementation aimed to reduce exposure to cyber risks, identify vulnerabilities, and safeguard operations and reputation.

Qatalum showcased commitment to preventive security measures, empowering stakeholders as proactive guardians. In the pursuit of more effective cybersecurity readiness, Qatalum continuously works to fortify its defences against evolving threats

A Compassionate Journey of Giving Back During Ramadan

Fuelled by its dedication to Corporate Social Responsibility (CSR), Qatalum wove a tale of compassion and community service during the holy month of Ramadan in 2023. The company partnered with Qatar Charity, Qatar Social Work, and several NGOs to actively contribute to the well-being of the local community.

In the spirit of giving, Qatalum joined hands with Qatar Charity for their Ramadan Projects. Through initiatives like distributing Iftar boxes to motorists at traffic junctions (Iftar Aljawal) and participating in the Kitchen of Charity (Matbakh Al Khier) program, the company ensured support reached fasting individuals and low-income families.

Teaming up with Qatar Social Work, the company extended its support to various NGOs. Celebrating Garangao at Dreama, the Orphan Care Center, Qatalum spread joy by distributing gifts and traditional Garangao bags to the children. Expressing gratitude to organizations like Aman Centre and the Ehsan Center, Qatalum showered meaningful presents, recognizing their invaluable contributions.

These past CSR initiatives reinforce Qatalum's commitment to engaging and supporting the community echo Qatalum's commitment to active societal engagement and community support. By forging partnerships and participating in diverse projects, Qatalum continues to positively impact lives, fostering a brighter future for all

Uniting Against Plastic Pollution for a Sustainable Future

In a collaborative effort to tackle plastic pollution in Qatar, Qatalum partnered with the Doha Environmental Actions Project (DEAP). DEAP, a community organisation dedicated to environmental protection, delivered a webinar on 7 May 2023, enlightening participants about the adverse effects of plastic pollution. The webinar, featuring Jose Saucedo, Director of DEAP, highlighted the indiscriminate impact of plastic pollution on all living creatures, including endangered species in Qatar.

During the informative session, Saucedo emphasized the power of collective action, citing a successful clean-up event in 2019 during which 300 volunteers removed 5000kg of trash from a 300m stretch of beach in just one hour.

The webinar served as a call to action, urging participants to unite in safeguarding Qatar's natural heritage and fostering a sustainable future.

Continuing their commitment to environmental stewardship, Qatalum employees joined DEAP Qatar five days after the webinar for a clean-up event at the Northwest Beach, one of Qatar's popular destinations. Over 50 employees participated, successfully collecting 430kg of waste. This initiative showcases Qatalum's dedication to sustainability and environmental awareness. The collaborative efforts of Qatalum and DEAP aim to create a cleaner, more sustainable future for Qatar and its residents, emphasising our shared responsibility to preserve the environment for future generations

Qatalum partnering with DEAP,
for the clean up drive at the Northwest Beach. Over 50 employees participated, and successfully collected 430kg of waste.

Qatalum Shines at 16th Qatar University Career Fair

Qatalum's Qatarisation Department made a significant impact at the 16th Qatar University Career Fair, held from 11 to 14 September, 2023. The event provided students and graduates with valuable insights into potential career paths within the dynamic aluminium industry.

During the fair, Qatalum focused on attracting top-tier local talent while emphasising its commitment to fostering a diverse and inclusive workforce. The company showcased a range of career opportunities and professional growth prospects, highlighting the appeal of careers in the aluminium sector for the local workforce.

At the core of its participation was the ongoing Qatarisation initiative, reflecting Qatalum's dedication to increasing the representation of Qatari nationals in its workforce. The event facilitated networking with educational institutions, government sectors, and organisations committed to nurturing local talent, establishing crucial relationships for Qatarisation initiatives.

Beyond talent acquisition, Qatalum's participation enhanced its brand visibility in the local job market, reaffirming its commitment to Qatarisation and the development of the nation's human capital. Looking ahead, Qatalum is committed to nurturing the talent encountered at the career fair, fostering their growth, and empowering them for a brighter future in the aluminium industry, solidifying its commitment to Qatar's prosperity ▪

Qatalum's Premier "Her Excellence in Performance" Event

Qatalum made history by hosting its inaugural ladies-only event, "Her Excellence in Performance," on 19 June, dedicated to celebrating and empowering the outstanding female contributors at the company. Held at the prestigious Plaza Hotel, the event brought together female employees from various departments for a day of inspiration and camaraderie.

The day commenced with a warm welcome and introductions, setting the stage for a memorable experience. The emcee, Badrya Al Hamadi, Senior Buyer - Contracts at Qatalum, infused energy into the atmosphere, paving the way for a day filled with festivities. Iconic female leader Shabana Hassan delivered an impactful speech, sharing her 15-year journey at Qatalum and addressing the challenges faced by women in male-dominated fields.

The event's highlight was a thought-provoking short film, produced by the talented female workforce, showcasing their dedication and expertise. Distinguished guest speaker Mead Al Emadi, Events Director at the Supreme Committee for Delivery & Legacy, shared her exceptional achievements, inspiring the audience with her role in organising the FIFA World Cup Qatar 2022™.

The occasion included networking, a rooftop lunch, a painting workshop, and a Lush beauty session. The "Her Excellence in Performance" event marked a significant milestone in Qatalum's commitment to empowering women and promoting workplace diversity and equality, encouraging women to challenge stereotypes and reach new heights of excellence ▪

Qatalum Sponsor Qatar University's Future Tech Forum

Qatalum took centre stage as the gold sponsor at Qatar University's renowned Future Tech Forum on AI & Cybersecurity. This collaborative initiative by the KINDI Center for Computing Research and the AI Organization aimed to promote innovation and sustainability in technology.

The forum, held from 22 to 25 October, featured workshops, seminars, and discussion panels, complemented by an interactive exhibition showcasing cutting-edge AI and cybersecurity applications. The company's active participation highlighted its commitment to fostering technological advancement and contributing to national expertise in AI and cybersecurity.

Qatalum's booth stole the spotlight, featuring Molhem, their groundbreaking AI tool. Attendees engaged in live demonstrations via iPads, experiencing real-time interactions with the AI. On the second day, Qatalum's session, led by Abdulsalam Al-Yafei, delved into the industry's future concerning AI, shedding light on Qatalum's pioneering initiatives.

To reinforce its presence, Qatalum sponsored an ideation competition, recognising and rewarding winners as part of their commitment to nurturing talent and fostering innovation in technology.

By actively engaging and leading innovative initiatives, Qatalum demonstrated a steadfast commitment to driving technological advancements and cultivating a culture of innovation and sustainability.