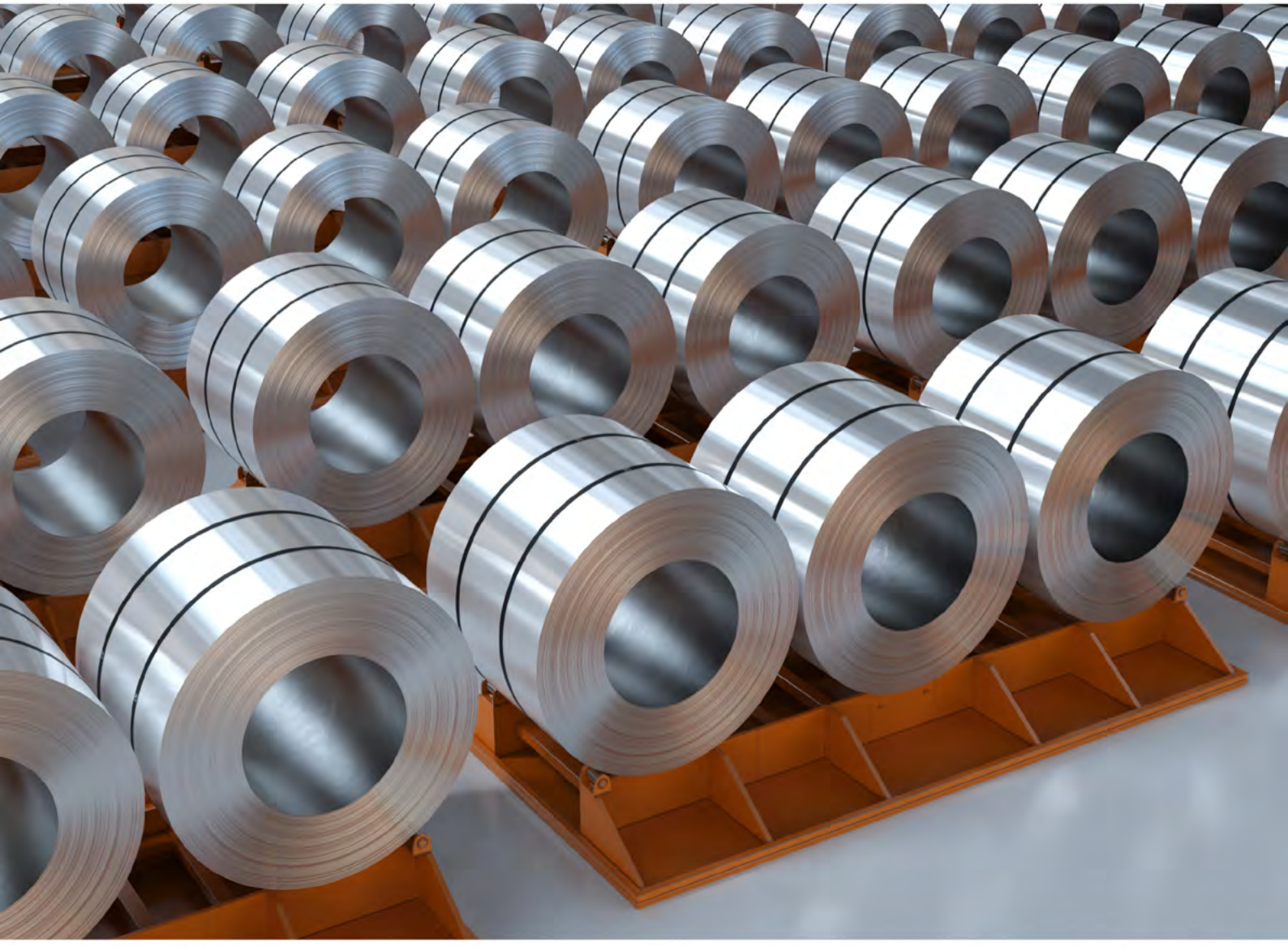
ALCIRCLE PRESENTS

# The Modern World of ALuminium Flat Rolled Products



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**Marko Sydänlammi**, Global Product Line Manager Flatness Systems, ABB

**“As producers call for defect-free aluminium flat-rolled products to meet rapidly growing global demand, ABB’s innovative solutions for measuring flatness, thickness and tension hold the key to enhanced accuracy, reliability,**

**and longevity. Our commitment to continuous development and refinement, including realizing the possibilities of digitalization, enhances real-time decision-making, reduces waste and energy consumption, and addresses the industry's skills gap,"**

Currently, Marko Sydänlammi serves as the Global Product Line Manager for Flatness systems at ABB Measurement & Analytics. In this pivotal role, he is entrusted with the responsibility of ensuring end-to-end profitable growth and development of the flatness systems offering over the entire life cycle. This includes portfolio management, footprint analysis, and the development of a business mix strategy for the products.

He has worked in product management, operations, engineering, and sales of measurement and control equipment for the battery, metals, paper, and converting industries for over 33 years. Marko holds a Master of Science degree in Mechanics and Computer Science from Linköping University, Sweden.

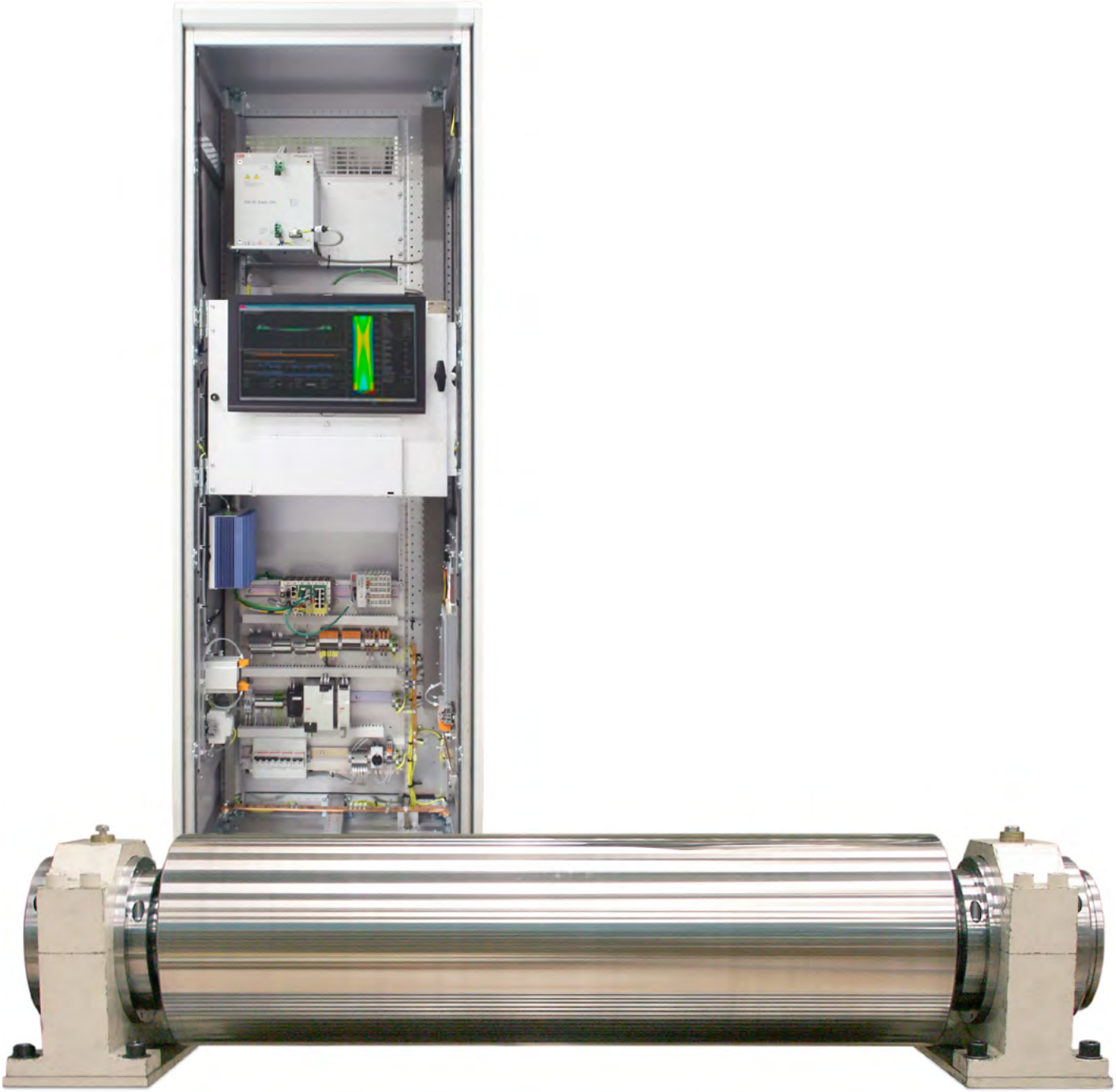
**AL Circle: The aluminium flat-rolled products industry requires precise quality control across multiple stages of production. What innovations have ABB introduced to enhance real-time quality inspection and ensure defect-free products, particularly in high-stress and high-speed environments?**

**Marko Sydanlammi:** We have a long track record of working with metals producers and developing products to help them optimise the quality of their products. All of our instruments – for measurement of flatness, thickness, roll force and strip tension – feature measurement technologies pioneered by us that deliver unsurpassed accuracy, reliability and longevity compared to competing devices. As such, we can offer complete solutions that enable producers to achieve maximum product quality, time after time, with the longest operational lifetime and the lowest cost of ownership.

We are committed to developing and refining our product offering to ensure the needs of our customers are constantly being met. An example is our ABB flatness system, the Stressometer, which was first introduced in 1967. Now used in metal production applications worldwide, it has been steadily refined to offer enhanced performance of flatness control, particularly in aluminium applications.

An example of this ongoing development is our Controlled Post-Rolling Flatness (CPRF) solution, which enables producers to predict and control the post-rolling flatness. By optimising the flatness target map in cold rolling, the solution enables producers to achieve perfect offline flatness in the final product, guaranteeing consistently high quality.

Another example is a low-force sensor and measuring roll device for applications, including aluminium foil production, which we introduced a couple of years ago.



**AL Circle: What specific challenges do you foresee in scaling secondary aluminium production to meet growing global demand, especially regarding material quality and consistency? How does ABB's technology help producers navigate these challenges?**

**Marko Sydanlammi:** For ABB, there is no difference between secondary and primary aluminium. We help customers with all processes, from smelting to hot rolling through to cold rolling and different types of finishing. As ABB, we can help customers in all types of secondary aluminium production applications to maximize their product quality, including optimizing flatness, measuring strip thickness, strip tension and rolling force and all the process steps before and after.

A key issue where scrap aluminium is being used is its alloy content, which can impact the quality of the recycled final product. While the performance of our equipment is insensitive to alloy content, it is essential that the alloy content of recycled material meets the producer's specifications for the quality of the end product they are making.

**AL Circle: In the context of increased digitalisation, how does ABB's integration of IIoT (Industrial Internet of Things) and edge computing technologies improve real-time decision-making and reduce waste in aluminium flat-rolled production? What impact do these innovations have on operational efficiency?**

**Marko Sydanlammi:** Our products help our customers optimise quality, productivity, and yield by measuring and controlling them accurately throughout their processes. For us, IIoT opens new opportunities for condition monitoring of equipment and processes. We have customers who use our sensors to detect anomalies in their production, as well as their overall mill behaviour and mill

output. If the sensors detect that the characteristics of the mill change, we can help operators identify and rectify issues and suggest solutions for using our equipment to automatically respond to and handle those changes. Controlled Post-Rolling Flatness is another example where our technologies minimise post-processing and eliminate the need for, e.g. tension levelling.

**AL Circle: The aluminium industry faces a growing skills gap, with experienced operators retiring faster than they are being replaced. How is ABB leveraging automation and AI-driven technologies to support producers in addressing this challenge? What role does digitalisation play in creating a more autonomous and efficient production environment?**

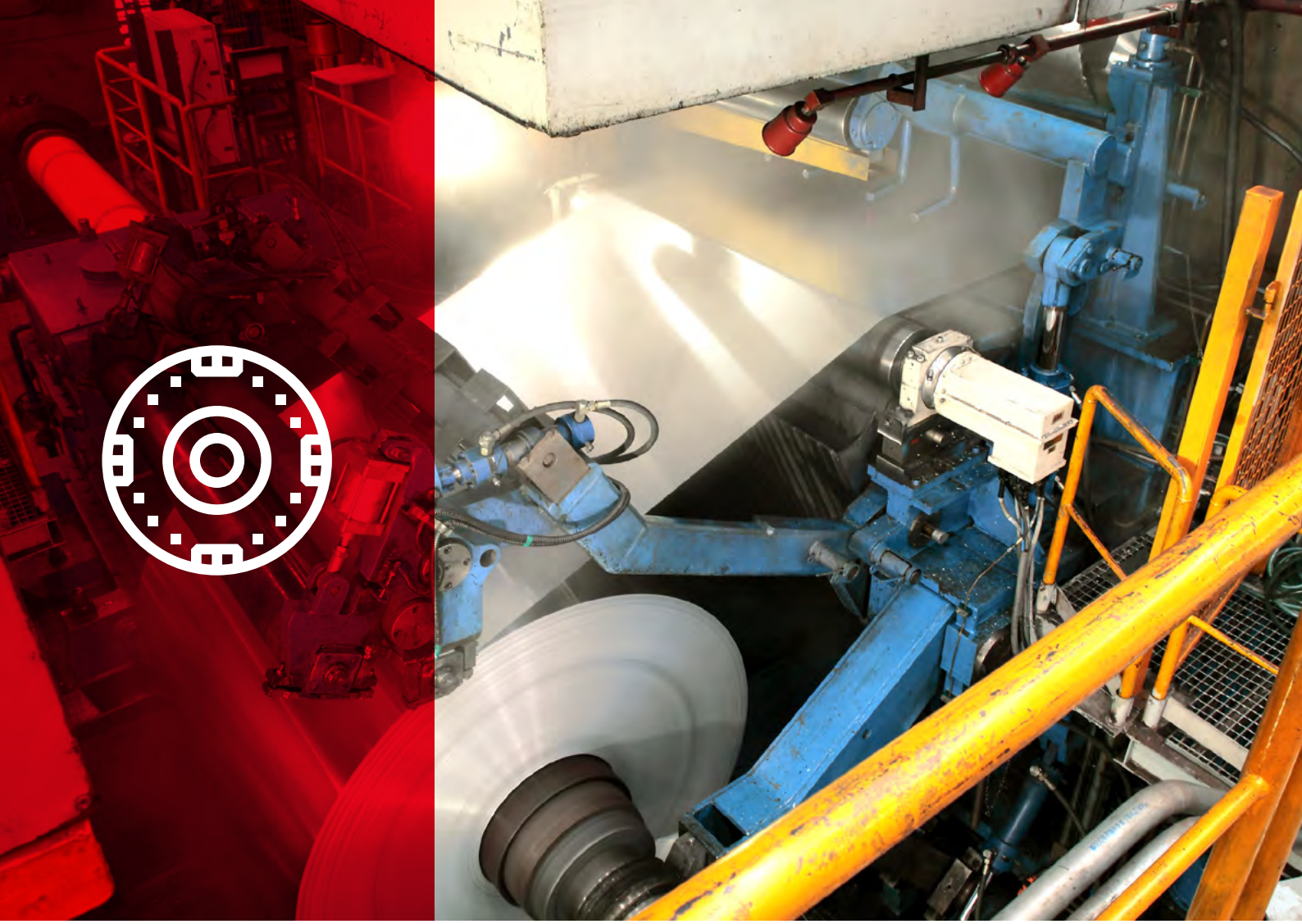
**Marko Sydanlammi:** As ABB's force measurement business, we offer automatic solutions for flatness measurement and control and condition monitoring, which reduce the need for skilled operators and skilled service personnel. A lot of intelligence is built into the products that enable them to automatically respond to changing conditions. This helps to reduce the need for highly trained operators by removing the need for manual adjustments to machine settings and equipment, such as the mechanical and thermal actuators that control the flatness process. The ABB solutions enable accurate preventive maintenance with minimum production disturbances.

**AL Circle: As aluminium demand grows in sectors like automotive, aerospace, and packaging, what future technological advancements is ABB focusing on to further improve the efficiency, sustainability, and performance of aluminium FRP production lines? How does ABB envision the role of automation in the evolution of this industry over the next decade?**

**Marko Sydanlammi:** Artificial intelligence (AI), sensor fusion, and big data are some of the trends which are impacting all types of industries, including the aluminium industry. This is a direction that we are heading in as producers look for new ways to meet their productivity, yield efficiency and sustainability targets.

Diagnostics and the ability to troubleshoot remotely both at the equipment and mill level is a particular area for development. Two examples include remote and automatic condition monitoring and automatically rectifying problems in processes. Our aim is to enable producers to use our technology to enhance problem-solving and greatly reduce the time, cost, and potential waste associated with production issues by preventing them before they escalate.

We also foresee the greater integration of force measurement instruments with devices measuring other parameters, such as temperature and vibration, to provide extra data that will add further value to the customer's production.



# Stressometer® Systems

## Extended actuator teamwork

The long standing problem with flatness control in multi actuator mills is now solved by ABB. To optimally make all mill actuators work together as a team is a complex task. Different actuator combinations will in these mills give the same flatness effect. The problem is to select the one actuator combination with the minimum actuator movement. The ABB patented method of Extended Singular Value Decomposition (ESVD) will optimally make this selection and make your actuators work together as a genuine team. Stressometer Systems. **abb.com/stressometer**

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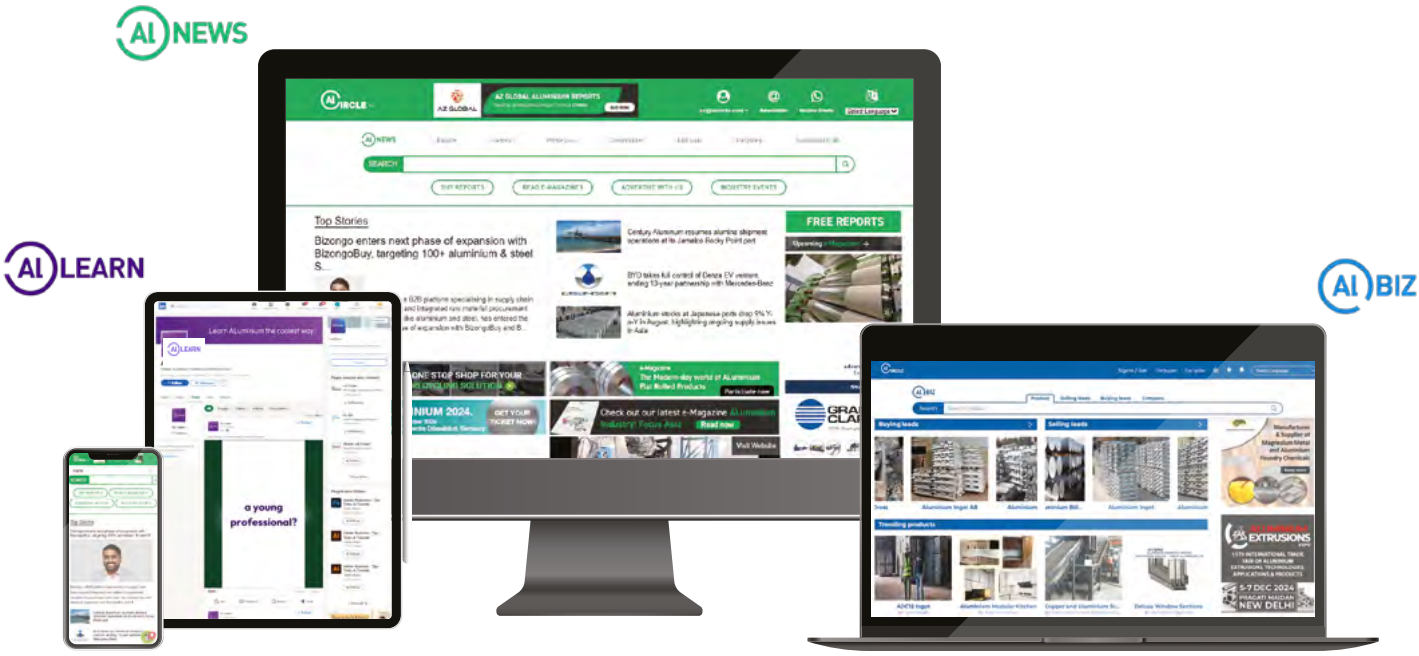


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