

Press release

SMART REFRIGERATION: THIS NEW AI TECHNOLOGY REDUCES ENERGY USE, BREAKDOWNS, AND FOOD LOSS IN SUPERMARKETS

- The Amicool system, developed by Digitel SA and CSEM, provides an innovative solution for optimizing supermarket refrigeration systems, cutting energy use, breakdowns, and food waste.
- The technology, currently being tested in Migros supermarkets, uses AI to predict and prevent failures, potentially cutting operating costs by 20% and extending the lifespan of the equipment.
- Through technology transfer from CSEM, Digitel can evolve from a component supplier to a provider of innovative technological services, enhancing the SME's competitiveness in a tough economic environment.

Neuchâtel, November 5, 2024 – In response to the energy and food supply challenges currently facing European supermarkets, Amicool, developed by Digitel SA and CSEM, emerges as a revolutionary technology solution. Initially supported by CSEM's Digital Journey competition and now funded by Innosuisse, this project aims to optimize refrigeration systems, reducing breakdowns, energy use, and food waste. The prototype is currently being tested in Migros supermarkets.

Tackling rising energy costs and food waste

Supermarkets consume a huge amount of energy, with refrigeration accounting for up to 50% of their energy bills¹. System failures not only lead to energy overuse but also food waste. In Switzerland, for example, nearly 280,000 tons of food is wasted in shops each year². Amicool directly addresses these issues by using Large Language Models (LLM) and artificial intelligence (AI) to predict refrigerator system behavior in real-time.

Pierre-Jean Alet, Group Leader of Digital Energy at CSEM, explains: *"With our patented method, we can automatically model equipment operation, even if they're from different manufacturers, which is often the case in supermarkets. This allows us to quickly spot anomalies before they cause breakdowns and significant losses. This adaptable approach is a world-first, promising not only for energy management in supermarket chains but also potentially applicable in other sectors."*

A performance-focused prototype tested at Migros

The Amicool prototype is currently being tested at Migros, one of Switzerland's largest supermarket chains. This collaboration aims to measure the technology's real-world impact on large-scale refrigeration management. Pierre-Jean Alet explains: *"The adaptive technology of Amicool not only cuts energy use but also predicts breakdowns before they happen, avoiding costly interruptions."*

Additionally, Marc-Etienne Jan, CEO of Digitel, notes: *"We estimate this solution could cut operational management costs of a refrigeration setup by at least 20%, including energy use, while extending its lifespan."* For Migros, this technology represents a major opportunity in their commitment to reducing

¹ <https://www.foodnavigator.com/Article/2023/06/30/Inside-the-supermarket-of-the-future-promising-to-waste-less-energy-and-less-food>

<https://www.iea.org/commentaries/how-the-energy-crisis-is-exacerbating-the-food-crisis>

² <https://www.bafu.admin.ch/bafu/en/home/topics/waste/guide-to-waste-a-z/biodegradable-waste/types-of-waste/lebensmittelabfaelle.html>

their carbon footprint. By combining energy efficiency with breakdown reduction, Amicool could transform refrigeration management across their network.

Nicolas Billard, Head of Energy Management at Migros Geneva, highlights: *"This technology enables us to quickly identify and target operational anomalies in our commercial refrigeration systems. The tool will be a valuable aid for technicians, guiding their diagnostics. Besides the energy savings, maintenance gains are also possible through better preventive operations management. Migros' internal technicians can thus prioritize their time on high-value tasks"*

CSEM Digital Journey Award: A springboard for development

Launched by its victory in the 2021 CSEM Digital Journey competition, Amicool has cleared several critical milestones thanks to this springboard, allowing Digitel SA and CSEM to refine their technology and test it in real conditions. Innosuisse's support now addresses technical challenges and prepares Amicool for commercialization across all major European supermarket chains. With Amicool, Digitel SA is undergoing a profound business model transformation, evolving from a refrigeration component supplier to a high-value service provider. This transition marks a decisive turning point for the company.

Bahaa Roustom, VP of Marketing & Business Development at CSEM, states: *"Amicool represents more than just a technological innovation; it serves as a model for SMEs in adopting and implementing artificial intelligence with the support of CSEM, unlocking new business opportunities."*



From left to right: Pierre-Jean Alet, Group Leader of Digital Energy at CSEM, and Marc-Etienne Jan, CEO of Digitel, unveil their predictive AI-based technology to reduce energy costs for supermarkets

Further information

CSEM

Wendy Nicolet

DIGITEL

Marc-Etienne Jan

Press contact
+41 78 228 41 95
wendy.nicolet@csem.ch

CEO
+41 21 731 07 62
marc-etienne.jan@digitel.swiss

About Digitel – Pioneer in smart control solutions since 1989

Founded in 1989, Digitel SA is a Swiss company specializing in the development of high-end control, monitoring, and remote management solutions for refrigeration systems. Working on behalf of supermarket chains, the hotel industry, and custom installations, Digitel is characterized by its innovative technologies, which guarantee energy efficiency and optimize the performance of complex infrastructures. Bolstered by its expertise, the company has transformed into a key player in digital energy management and predictive maintenance thanks to the Internet-of-things (IoT) and artificial intelligence. www.digitel.swiss

About CSEM–Facing the challenges of our time

CSEM is a Swiss technology innovation center developing advanced technologies with a high societal impact, which it then transfers to industry to strengthen the economy. The non-profit orientated, public-private organization is internationally recognized and works to support the disruptive activities of companies in Switzerland and abroad. CSEM operates in the domains of precision manufacturing, digitalization, and sustainable energy. To accomplish its mission as a gateway between research and the economy, CSEM's more than 550 employees from 46 countries collaborate with leading universities, scientific institutions, research institutes, and industrial partners. With its six sites in Allschwil, Alpnach, Bern, Landquart, Neuchâtel and Zurich, CSEM is active all over Switzerland.

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