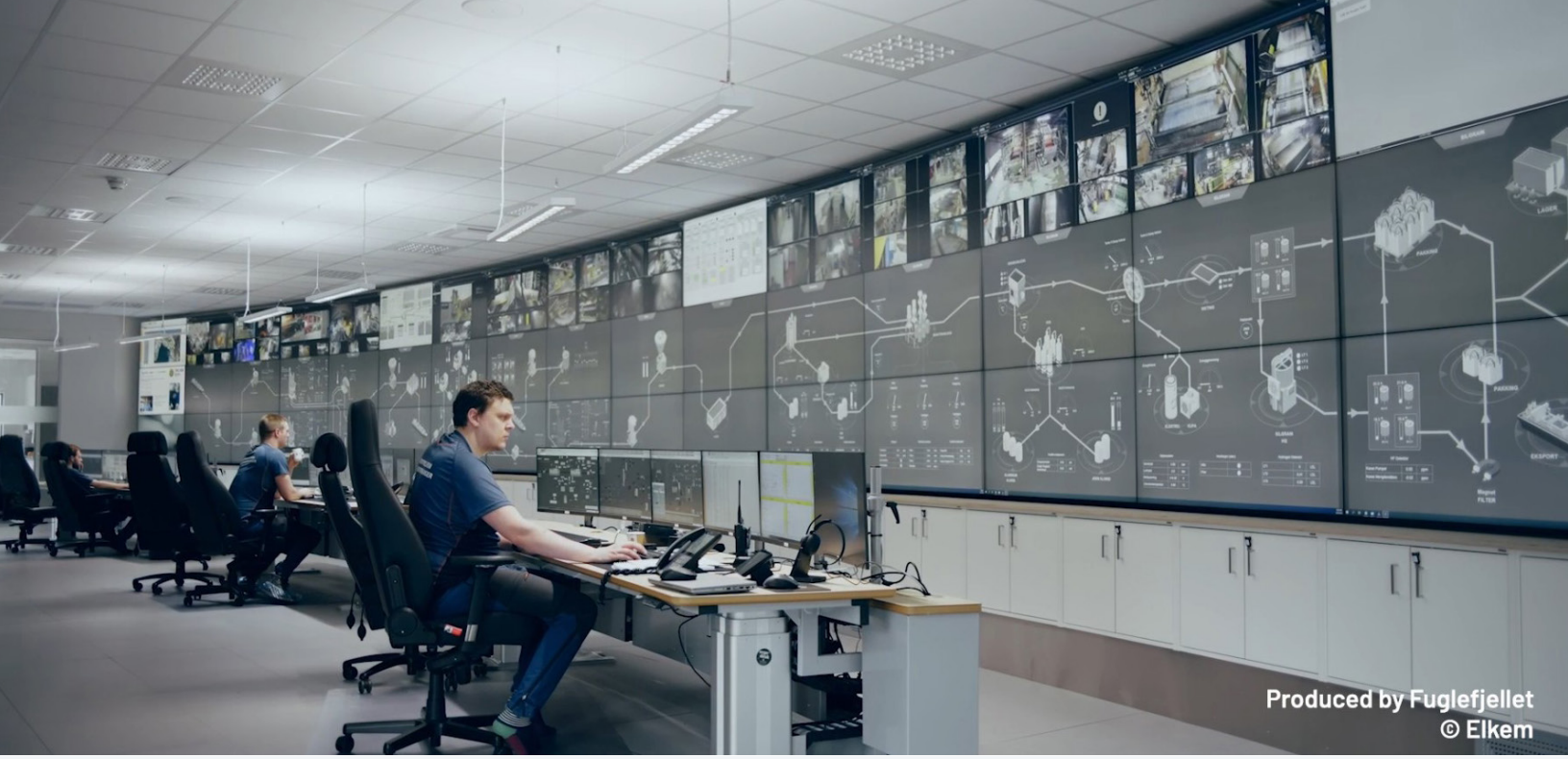

CUSTOMER CASE STUDY

Elkem: Embracing a unified approach to operations

Elkem - elkem.com
Industry - Chemicals and petrochemicals

Challenges

- Operations control and monitoring was fragmented across many different control rooms
- Needed to accelerate progress toward sustainable product development

Solution

- Deployed AVEVA™ Unified Operations Center to aggregate, centralize, and visualize real-time operations data from one common location

Results

- 20-meter video wall displays a holistic view of Elkem's entire value chain, enabling quicker, better-informed decision-making
- Startups and shutdowns are safer and more efficient
- Reduced downtime and increased efficiency
- Fostered collaboration and learning between departments

To ensure consistently high-quality products, you need total control over your operations. That's easier said than done in a siloed operations control environment, which is just the environment Elkem found itself working in. Over the years, as Elkem expanded its facilities, its older plants grew increasingly fragmented between their new additions and functions. In just one of Elkem's eight silicone melting plants, for instance, there were eleven different control rooms in total. "We needed to make a common control room," says Harry Gulestøl, Director of IT, Automation, and Digitalization at Elkem. "Really breaking down the silos and really putting the operator in the center."

With one common control room, Elkem hoped to achieve surveillance across 100% of its control systems, reduce manual work, and use its new-found control and insight to identify process improvements in its furnace operations. To make that common control room a reality, Elkem turned to AVEVA Unified Operations Center.

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> **Harry Gulestøl**
> Director of IT, Automation, and Digitalization, Elkem

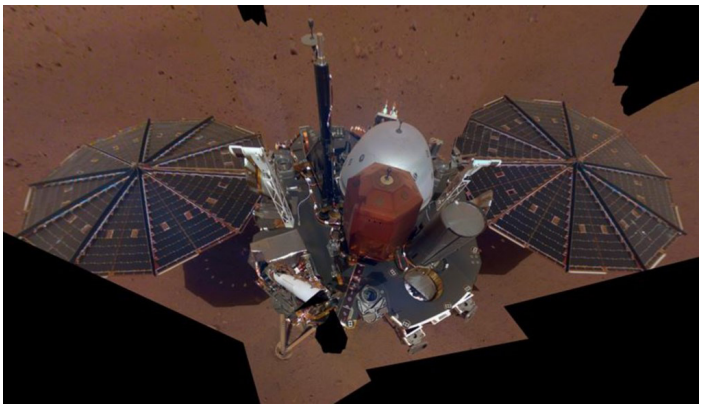
The finest silicone materials on Earth—and Mars!

Headquartered in Oslo, Elkem is one of the world's leading providers of advanced, silicone and carbon-based materials. You can find Elkem silicone products all around the world, in EV batteries, windmills, solar cells, or the cellphone in your pocket.

You can even find Elkem's silicone as far away as Mars; Elkem's specialty silicone, Silgrain, was an essential component of the thermal batteries that landed rovers on Mars—a testament to Elkem's hard-won reputation for stable, market-leading materials.

To uphold its longstanding tradition of excellence, the company decided it needed to reimagine its approach to operations control. Rather than a patchwork of control rooms and oversight, Elkem would create a single, unified operations center, aligned behind a single common set of goals and fostering a single, shared culture.

At the outset of the new project, Elkem was already an AVEVA customer. The company had previously deployed AVEVA™ System Platform and AVEVA™ Manufacturing Execution System to manage operations and to capture production data from its many sites around the world and transform it into valuable information. Now, to unify its approach to operations control, Elkem once again chose AVEVA as its partner.



Elkem's specialty silicon powder product, Silgrain, has traveled from Svelgen, Norway to the planet Mars.

Elkem reimagines the role of HMI

At the heart of its new common control project, Elkem envisioned a large video wall. But first, the team had to decide exactly what information would live on that wall, and how it would be used. Naturally, Elkem's first thought was to display all its various control screens, all its information, up on the planned video wall, but the idea was quickly discarded. All Elkem's operations information up on one screen, no matter how big that screen may be, would inevitably result in a constant bombardment of information. Alternatively, the team considered stripping down the information it had, streamlining it, and simplifying it. Eventually, Elkem decided it had to reimagine the role that HMI would play in operations control more dramatically.

Traditionally, Elkem had a fairly simple conception of HMI: You have an operator; you have a machine; the operator uses an HMI screen to control the machine. That arrangement works all right when you have 11 different control rooms and plenty of operators to carry out manual tasks.

It is not well-suited, however, to seeing the big picture, nor is it well-suited to scenario-based operations control—shutdowns, startups, alarm analysis and so on. “Instead of taking what we had and stripping it down,” Gulestøl says, “we built something totally new.”

In the end, an engineer from AVEVA joined an automation engineer from Elkem in Svelgen, Norway, and spent a week together designing a mockup, originally 10 meters in length. This initial proof of concept took an even broader perspective, providing overview and control across the entire value chain.

> “We realized that we need to have one way of seeing the plant. We need to break down the siloes between departments.”
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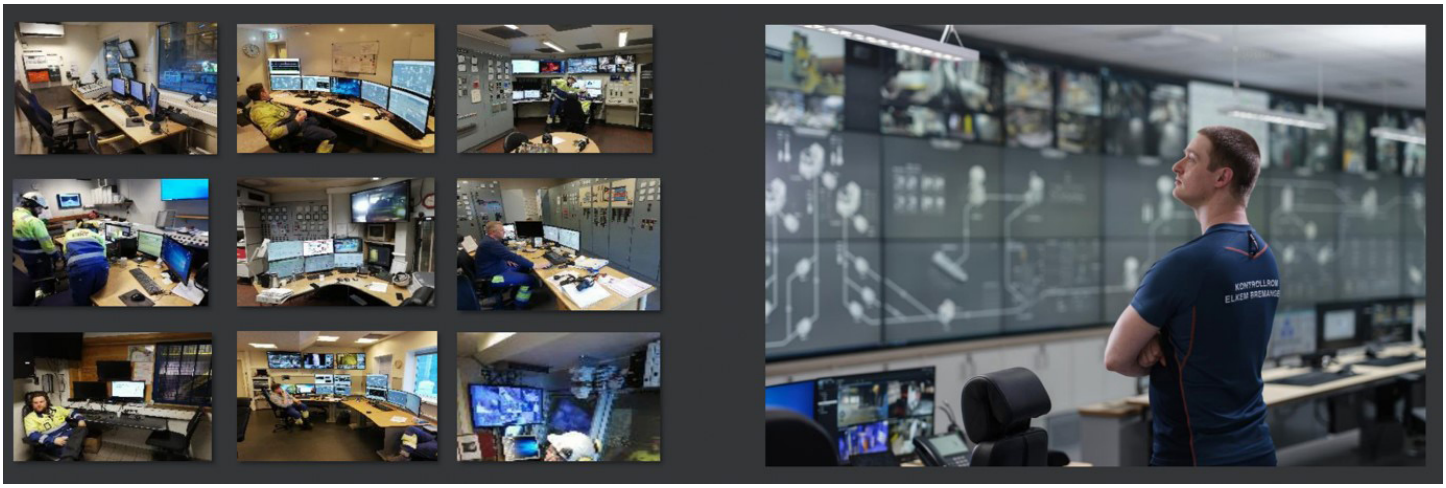
> **Harry Gulestøl**
> Director of IT, Automation, and Digitalization, Elkem

Putting the operator in the center, in control

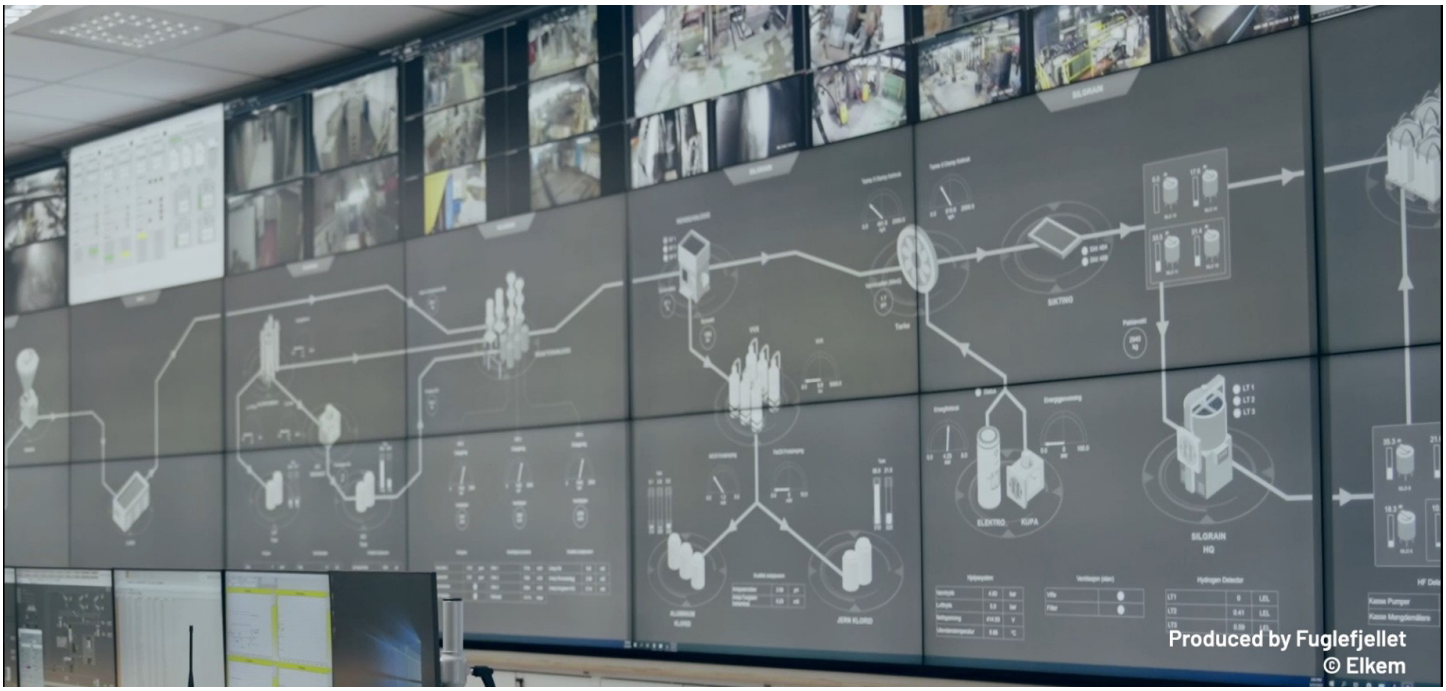
In the center of Elkem’s new control room, a now 20-meter video wall gives operators an easy-to-understand, high-level overview of the plant’s status. From one common vantage point, they can easily see how many issues might presently need addressing, exactly where those issues are in the plant, and where maintenance teams should direct their efforts first. After the video wall alerts operators to issues, operators can drill down into specialized HMI screens where they can investigate further.

With plant-wide visibility and control, the team at Elkem has seen marked improvements in startups and shutdowns, a reduction in downtime, as well as an overall increase in awareness and safety. The control room has also led to a more confident, knowledgeable, and cohesive team. “When people work together,” Gulestøl says, “sitting next to each other and working together—it leads to learning between departments.” Operators that were once siloed in their narrow departmental roles now work shoulder to shoulder. “It’s sneakily building competence between the departments,” says Gulestøl.

And let’s not forget, at 20 meters long, 75 square meters total, the control room also inspires a certain amount of awe—a useful asset when it comes to recruiting new talent to a remote part of Norway. “People who enter,” Gulestøl says, “they have a tendency to say, wow.”



From multiple, siloed control rooms (left), to one common control center for the entire plant (right).



"When people work together—sitting next to each other and working together—it leads to learning between departments."

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Harry Gulestøl

Director of IT, Automation, and Digitalization, Elkem

From Paraguay to Iceland, Canada to China, Elkem has production sites for silicone and carbon-based materials spread all across the world. Now, with its first successful unified operations center project complete, Elkem has laid the foundation it needs to think even bigger. Today, the company is exploring the possibility of creating an even more ambitious global operations center that would centralize control across multiple plants for specific parts of the business.

Citation:

Gulestøl, Harry. "How Elkem works with AVEVA™ Unified Operations Center as part of its HMI System" resources.osisoft.com/presentations/elkem--how-we-work-with-aveva%E2%84%A2-unified-operations-control-as-part-of-our-hmi-system

Watch the presentation