# SANS adopts data analytics to improve safety, productivity, punctuality and airspace throughput



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With a strategic commitment to "managing skies, securing lives," Saudi Air Navigation Services (SANS) aims to enhance the safety, capacity and efficiency of air navigation services in the Kingdom of Saudi Arabia through innovative technologies and expertise. To manage rapid growth in air traffic, SANS sets out to improve its decision-making capabilities by investing in operational data analytics. The company engaged Frequentis Control Room Consulting (CRC) to help it diagnose the gaps in its existing processes and map out the best way to bridge them.

The Frequentis Control Room Consulting (CRC) department drew on its long experience in safety-critical environments, backed by structured consulting methodologies, to review the management, operational and technical capabilities required. CRC then created a roadmap with recommendations on how to combine Artificial Intelligence (AI) and data science to enable lean operations in ATM without compromising on safety.

## Client profile
Saudi Air Navigation Services (SANS) is responsible for providing air navigation services in the Kingdom of Saudi Arabia, where the company plays a vital role in the security and safety of airspace and aircraft. SANS manages more than two million square kilometres of airspace and is recognised globally for its safety record, service excellence and technology innovation.

## Business situation
Facing a potential threefold increase in air traffic by 2030, SANS wanted to enhance its operational ability to manage a far busier airspace while maintaining the highest standards in safety, efficiency and environmental sustainability.

## Solution
SANS engaged Frequentis to design a strategy and roadmap for adopting operational analytics. The goal is to enhance the speed and quality of safe decision-making in ATM by giving SANS personnel the tools to evaluate conditions, determine the right next actions, and understand the impact of their decisions on global end-to-end outcomes.

## Impact
- Analysed requirements and pinpointed the data science methods required.
- Used Information Stream Analysis to understand the shortcomings of the existing value chain.
- Created a short- and long-term roadmap for enhancing operations with AI and data science.

"Activating operational analytics is an exciting project we have enjoyed working on with Frequentis experts, which has presented many possibilities for unlocking efficiency gains to enable our growth strategy."

Ahmad Alzahrani, Chief Strategy Officer, SANS

**Air Traffic Management**

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# Supporting national economic growth

## Tackling new challenges

To support the Kingdom of Saudi Arabia's economic development and increasing presence on the global stage – including its hosting of the FIFA world cup 2034 and world expo 2030 – SANS knew that it will need to manage up to three times the air traffic within a decade. Abdulaziz Alzaid, CEO at SANS, says: "The accelerated expansion of Saudi air traffic has exerted new challenges, requiring us to look at our processes and the ways we can increase airspace throughput while maintaining safety." SANS wanted to enhance its operations and enable continuous improvement through better decision-making. The organisation was aware of gaps between systems and processes, and that it lacked a consistent single source of truth for decision-support.

## Exploring the possibilities

SANS looked for an external consultancy to help create a strategic roadmap for future enhancements in safety, efficiency, punctuality and throughput. SANS chose Frequentis CRC to help them explore how they can enhance their ATM capabilities and capacity through operational data analytics. A key decision factor was CRC's deep expertise and experience in safety-critical domains.

In a series of workshops, CRC data scientists and consultants worked with SANS engineers and ATM professionals to analyse their requirements and pinpoint the data science methods that could improve the quality and timing of decisions. Jointly 50 use cases were developed, of which 15 use cases were elaborated in more detail.

"Frequentis CRC adopted a truly holistic approach, looking at our entire service through the lens of its Information Stream Analysis method," says Ahmad Alzahrani, Chief Strategy Officer at SANS. "This approach highlighted use cases for operational analytics and helped us explore the technical, organisational and procedural capabilities we need to gain."

## Mapping the way

Following interviews with key stakeholders, Frequentis CRC analysed the existing planning, tactical, engineering, and operational procedures, bringing together different SANS teams to understand the value chain. After identifying opportunities for using AI and data science to enhance workflows and decision-making, the Frequentis consultants structured these use cases and prioritised them according to cost-benefit using the Frequentis aware® methodology.

The final result was a detailed roadmap of short- and long-term objectives, with recommendations on how to create and run the future data analytics platform. SANS will use the roadmap both to design its new data science capabilities and to achieve continuous improvement once it is deployed and in use. Using the approach to data science and operational analytics created by Frequentis CRC, SANS will be able to access real-time decision-support tools alongside deep learning on historical data for strategic planning.

"The consulting project with Frequentis has been a great success. By creating this new operational analytics capability, we intend to grow in an optimised and sustainable way by making smart, data-driven decisions."

Ahmad Alzahrani, Chief Strategy Officer, SANS

**Frequentis Control Room Consulting (CRC)** looks through its customers' eyes from the technical, operational and business perspectives to find cost-optimized solutions for their specific goals. Enabling lean & safeoperations for the highest end-to-end productivity given the available resources.



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