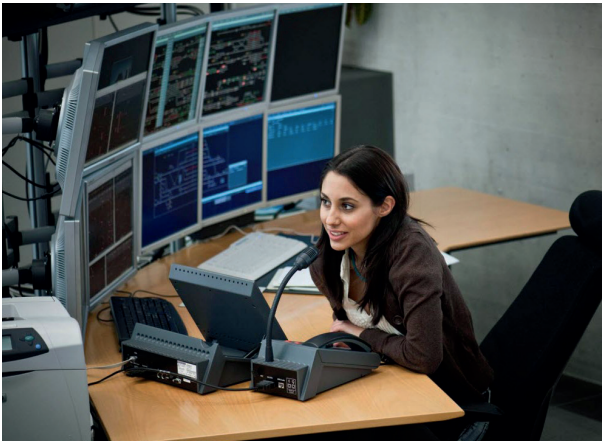


Boosting Rail Management efficiency and effectiveness with Air Traffic Management methods



Trains have the image of being unreliable, not following schedules, labour intensive and complicated to operate safely. A European railway company engaged Frequentis to specify the Railway Operation of the future – neglecting limitations of today. Frequentis with its deep knowledge of several public transport operations – from Air Transport to autonomous driving and drones – came up with a disruptive solution improving quality of service while saving resources.

With more than half of its existing train and track managers set to retire by 2030, this European railway company faces a significant challenge in ensuring the continued safe and timely operation of services. The new Concept of Operations changes the focus from problem-solving to problem-prevention and thus will allow the company to remain under the top European railway operators and even improve their customer experience. Working with Frequentis Control Room Consulting, the company has reimagined the management of its national rail network, creating a blueprint for a revitalised service. Now the roadmap for implementation can be defined.

Business situation

As experienced train and track managers reach retirement age, a national railway company faces a potential skills gap that could make it harder to run safe, timely services. As part of modernising operations to meet new patterns of demand, the company wanted to move the focus of its employees from problem-solving to problem-prevention.

Solution

Frequentis Control Room Consulting drew on deep domain experience across multiple safety-critical industries to completely reimagine the way in which rail traffic is managed across large and complex railway networks. Leveraging continuous improvement methodologies from manufacturing and expertise in the air traffic management (ATM) industry, the Frequentis team designed a new concept of operations, together with new roles, procedures and interfaces.

Potential impact

- Transform **efficiency and effectiveness**, enabling **more capacity** with existing resources
- Reverse the current 80:20 split between exception handling and according-to-plan management
- Enhance decision-making by providing clear, relevant, actionable information with end-to-end focus
- Improve ergonomics of working positions and provide additional job satisfaction

Getting services on track for a more efficient future

Boosting productivity

As the modern world creates new patterns of demand, pressure is mounting on national rail companies to move with the times and optimise their operations. For one such company in Europe, an added pressure is that up to 60% of its existing train and track managers will reach retirement age by 2030. Since these managers have built up their expertise over many years, it will not be possible for the company to recruit sufficiently skilled replacements in time. The only realistic answer is to find new ways to increase productivity as it prepares to welcome a new workforce.

Diagnosing the issues

Seeking a fresh perspective, the railway company engaged Frequentis Control Room Consulting (CRC) to design a blueprint for the future. Whatever else changes, the core objectives for the railway company will remain the same: to provide safe, timely services with the lowest possible environmental impact. With these goals in mind, Frequentis CRC undertook a review of the existing organisation and operations using their unique aware(R) method. It is based on lean management principles to focus on needed information to the end-to-end impact at each decision point. This study revealed that disconnects between different teams and roles are contributing to an 80:20 split between handling exceptions (such as delayed trains, which tend to cause other delays) and working to plan.

Interviewing managers to gain insight into decision-making, Frequentis CRC discovered that, in the absence of hard data, gut-feeling often drives decisions focusing on the own area of responsibility instead of the overall desired result. The interviews also highlighted the need for better communication between departments and roles, as well as better ergonomics and integration in working positions – where users currently monitor way too many different screens at once.

Cross-industry perspectives

Leveraging continuous improvement methodologies from manufacturing and expertise in the air traffic management (ATM) industry, Frequentis CRC designed a new concept of operations (CONOPS), together with new roles, procedures and interfaces.

The consultants borrowed the concept of flow management from ATM and created interconnected roles for managers with different views based on responsibilities. The new CONOPS specifies that the plan be followed as far as possible and that every role be aware of end-to-end targets across the whole network. To minimise the impact of the overall flow, a 80:20 split between exceptions and to-plan management is reversed.

Embracing change

Having designed, tested and benchmarked the proposed new approach, Frequentis CRC has handed it over to the railway company's senior management to consider the next steps. The required evolution will be far from trivial, requiring a clean break with the past and a willingness to embrace change. However, the likely rewards are also significant: a 360°, end-to-end view of services, improved quality and efficiency in control rooms, higher job satisfaction, and a far more customer-oriented organisation.

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 & safe operations for the highest end-to-end productivity given the available resources.



FREQUENTIS AG

Innovationsstraße 1
1100 Vienna, Austria
Tel: +43-1-811 50-0
www.frequentis.com

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