Control Room Consulting

Is your user acceptance ready for safety-critical environments?

Keep pace with increasing performance targets
Balance operations with technical needs

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FOR A SAFER WORLD

User acceptance is key

Not involving users from the start of a control-room modernisation project is likely to cause severe delays and costly re-work. Some 70 percent of such projects fail because users do not accept the new approach. Dissatisfied personnel cannot work to their full potential in terms of safety and efficiency.

However, acceptance can be assured by two benefits fully visible:

- Business processes are made transparent to the stakeholders and can be benchmarked
- Technology is the result, not the beginning
  - This means that the operation of the system will be easy and efficient and
  - The training effort is low

Control Room Consulting guides its customers throughout the change process. Frequentis' approach is based on involving users from the very beginning. Using their ongoing feedback we support system design with proven scientific methods.

Key challenges

Challenge	Solution
Planning and designing the control room to satisfy the needs of different stakeholders	Human-centred design based on thorough business process analyses
Preventing negative impact as a result of human errors	Intensive, structured testing to overcome teething problems
Keeping pace with increasing performance targets	Benchmark control room productivity with widespread test methods
Identifying improvements during live operations	Introduce a continuous improvement process

Operators and machines closely interacting

In future systems, operators will remain essential and thus their performance plays a crucial role in improving productivity in control rooms. Empowered by smart systems, operators will make decisions that support the mission goals of the control room. Frequentis puts human beings front and centre, and builds future systems according to their needs. The three underlying principles are:

- Balance user, technology and business needs
- Optimise productivity
- Keep on track with customers' key performance indicators by using proven scientific methods
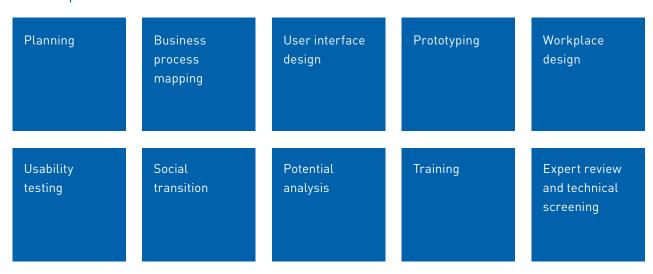
Ensure effectiveness and raise efficiency

Inspired by lean management[1], Frequentis Control Room Consulting targets zero failures and higher productivity for its customers. With a unique set of methods, standards and tools (Aware Toolbox), Frequentis Control Room Consulting builds a bridge between users and technical set-up. Each phase of any control-room transition project covers human-centric processes as described in ISO 9241.

Control Room Consulting

Frequentis Control Room Consulting is a dedicated consultancy department focused on reducing operational expenditure in safety-critical control rooms. The team comprises experts in process analytics, psychology, and workplace and user experience design. All team members are certified professionals in usability and user experience. This expertise is closely linked to integration and management skills that have been applied across the fields of Air Traffic Management, Defence, Public Safety, Public Transport and Maritime. With years of experience in designing and delivering safety-critical systems, Frequentis is a trusted partner in control room projects.

Service portfolio:

Planning	Business process mapping	User interface design	Prototyping	Workplace design
Usability testing	Social transition	Potential analysis	Training	Expert review and technical screening

[1] Lean management refers to a technique developed with the aim of minimising the process waste and maximising the value of the product or service to the customer, without compromising the quality. It was coined by Toyota Production System, which is a part of lean thinking.

Selected references

Airways New Zealand

Airways New Zealand updated its ATM system and developed and introduced a new controller working position (CWP) within new control rooms.

During this change, Frequentis supported Airways New Zealand with business process analysis on selected processes. The aim was to raise user acceptance among controllers and jointly define key performance indicators (KPI) that would enable Airways New Zealand to continue independently with further process analyses for different stakeholders.

Additionally, Frequentis is coaching Airways on various methods to generate evidence that the new system fulfils the needs of the stakeholders and is "fit for purpose".

NATS SHMI

Within its strategic human machine interface (SHMI) project, the British Air Traffic Control authority (NATS) – supported by Frequentis and the French company Altran – prototyped the future design of all NATS controller working positions.

The project was split into two phases with the goal of achieving a higher level of integration combined with a reduced number of displays and systems:

- Phase one: An integrated HMI on a 32" multi-touch screen was prototyped.

- Phase two: New ways of working to increase efficiency and decrease workload were developed. These include the identification of weak and unclear points and the reduction of interactions in general.

Mecklenburg-West Pomerania Police

Mecklenburg-West Pomerania Police introduced broadband communication services into its safety-critical environment.

Frequentis supported the organisation with a holistic examination of its business processes to identify how the police could benefit from higher bandwidth in a future solution.

Frequentis Control Room Consulting analysed the whole process chain based on typical scenarios from the workplace in the centre out to the police officers on the street. In cooperation with the customer, key performance indicators (KPI) were defined, to enable Meckenburg-West Pomerania Police to continue with further process analyses on its own and learn to improve those KPIs.

Frequentis Control Room Consulting worked with the customer to define how requirements for the future solution would translate into changes to the existing technical landscape.

For all enquiries, please contact us at consulting@frequentis.com

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