skyguide

Safety, Security, Quality, Risk and Business Continuity Management

roadmap
2020+

Contents

Editorial

Safety is – and will remain – the number one priority of the Air Traffic Services Industry. Skyguide is recognized worldwide for its customer focus, capacity to implement innovative solutions and business mind-set while ensuring safety. We also have a clear vision of the future and are actively driving the necessary transformation for bringing Air Traffic Management in the 21st century, safely.

This roadmap document has been created in support of Skyguide's strategy for success by a group of dedicated people from all the relevant domains. The Covid-19 crisis required us to adapt to new circumstances and to work differently. And this is true for the whole industry. The need for transformation is accelerating, and the challenges which are ahead of us also represent new opportunities to re-invent the technological and operational frameworks.

Skyguide's positive safety culture is a pre-requisite to foster innovation in a safety critical environment. Safety and safety culture are never a given, they need to be taken care of every day. This is our underlying belief, which will allow us to pave the way into a successful future.

Klaus Affholderbach
Chief Safety & Security Officer

I am very proud of the safety journey which Skyguide has made over the last years; the maturity of the discussions we are able to have now is a testament to everyone who works to improve our joint understanding of what safety is, and how we can improve it. Such things do not happen by themselves: they require commitment and dedication from the people involved.

Skyguide's strategy relies on our ability to implement technological and operational innovations safely. This does not happen by itself either, and you will see in this roadmap document that the safety teams have thought ahead well and carefully, in order to make sure that Skyguide is a successful and safe company in the future.

Alex Bristol
CEO

Focusing on the Virtual Centre and the 5 strategic pillars of Skyguide

In order to achieve the corporate vision and strategy, as well as the targets set by the EU and the Swiss Confederation, the domains of safety, security, quality, risk and business continuity management of Skyguide need to be further developed. For this purpose, a strategic roadmap has been worked out. The main goal of this roadmap is to support the safe implementation of the Virtual Centre of Skyguide, as well as of the 5 strategic pillars of the Corporate Skyguide Strategy for Success. The following examples illustrate what kind of support will be provided in the five domains.

To have **the right workforce of tomorrow**, training for safety and security domain champions, as well as for other customers and business partners like agile development teams, needs to be provided. A positive internal safety, risk and security culture will be strengthened which will foster the cultural evolution for a safe transformation to the Target Operating Model of Skyguide.
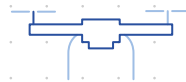
The **Virtual Centre** cannot be put into operation successfully without best practice security capabilities to protect it. Therefore, a Cyber Defence Center must be implemented to continuously improve security monitoring and to provide analysis and response capabilities, also using artificial intelligence.

In order to be able to **create new business,** we must detect and manage interdependencies of complex operations, and we have to develop new capabilities to adapt methodologies for innovation.

In order to **manage the airspace efficiently,** one integrated Skyguide risk management process, including safety, security, projects and strategic risks, as well as crises management and business continuity management, will be implemented, using one centralised risk register for all company risks. Capabilities to aggregate, process, analyse and interpret data in order to support innovative operational concepts will also be of high importance. Finally, we need to be able to produce tailored deliverables in the five domains for specific units.

To **shape the regulatory and institutional framework,** the judiciary systems, as well as our partners and our suppliers, need to be sensibilised on just culture principles at national and international level, and just culture needs to be legally anchored. It is important to establish a mature partnership with regulators and all relevant authorities and to achieve a common understanding of expectations and constraints.

Main directions for the five domains

With the goal to set clear priorities in the five domains for the next decade, 3 main directions have been developed. These main directions shall help Skyguide and its management to focus the effort and resources when providing safety, security, quality, risk and business continuity services and products to the company.

Enable integrated risk management

The current risk management framework of Skyguide is fragmented. Although each process taken in isolation contributes to improving safety, security, corporate risk management and business continuity management, only a complete integration into a comprehensive risk management system will allow Skyguide to achieve a state-of-the-art management of risks. The overarching goals of Skyguide's risk management framework shall be to improve Skyguide's business resilience and to provide management with risk intelligence to support strategic and tactical decisions, and to assure safety and business continuity.

Safeguard safety culture

Skyguide has reached a highly developed safety culture over the last decade. This high maturity needs to be safeguarded, especially in the area of protection of the reporter. Recent court decisions against Skyguide staff involved in safety occurrences created significant challenges. Since we will be collecting more and more data in the future, we will have to ensure that this data will not be used to the disadvantage of the reporters.

Enhance efficiency, competences and tools

Besides enabling risk management and safeguarding safety culture, Skyguide also needs to enhance the efficiency of its processes in the five domains, adapt the competencies of its staff to future needs and increase the capabilities of the tools used.

High-priority initiatives

The 3 main directions and the general elements to be delivered within those areas define the focus of the five domains for the next decade. In addition to the main directions, the specific products and services required to achieve the 5 pillars of the corporate Skyguide Strategy for Success have been identified. Taking into account additional regulatory requirements, the importance of the foreseen development areas, dependencies with other development activities in the company and available resources, priorities have been set. The outcome of this process are the following eight high priority initiatives in the five domains

all analyses results shall be integrated in one single platform "Risk Management Information System" (RMIS). The goal is to provide consistent risk information, to eliminate duplication of work and to reduce the number of tools and interfaces used in the 5 domains.

The integration of risk management into activities like project management, audits, outsourcing, capacity provision, strategic planning and decision making in general shall be enhanced. Supply chain risk management capabilities will be developed to serve e.g. corporate risk management or business continuity management.

Today's Enterprise Risk Management (ERM) needs to be aligned with BCM and the COS. This requires a certain standardization as well as a proper risk culture (risks balanced to threats / risk tolerance). Finally, proper application of risk ownership and acceptability needs to be ensured.

This initiative will mainly support Skyguide's strategic pillar "Efficiently Managing the Airspace" by:

→ introducing one integrated Skyguide risk management process, including safety, security, projects and strategic risks, as well as crisis and emergency management
→ developing one centralised risk register for all company risks
→ assigning one single process owner

Risk intelligence for the support of decision-making.

a – Implement integrated risk management

There shall be one Skyguide risk management process, including Crisis Organisation Skyguide (COS) and Business Continuity Management (BCM), with one single process owner and one centralised risk register for all company risks. Every domain and process shall feed and get information from the centralised risk register to provide risk intelligence to management for the support of decision-making. In order to facilitate interconnections and to become more effective while increasing efficiency,

b – Apply data science

In close collaboration with the O and T Departments we shall develop capabilities to aggregate, process, analyse and interpret data in order to support innovative operational concepts. The overall objective should be to systematically learn from safety II data (explaining why things went well), and to become more efficient in risk management. We will:

– Identify key stakeholders and needs
– Define use cases, discover possibilities and perform simulations
– Draft a data science concept
– Ensure a joint undertake

In order to get the necessary amount of data in the required quality, data should not only be actively pulled by the S Department, but also be actively pushed to the S Department by the rest of the organisation. The same should apply for data produced and owned by relevant military organisation.

This initiative will mainly support Skyguide's strategic pillar "Efficiently Managing the Airspace" by:

→ developing appropriate capabilities on how to collect and deal with a big amount of data
→ acquiring the ability to take existing data that is not necessarily useful on its own, and combine it with other data to generate insight

c – Develop security capabilities to protect the company

We have to pro-actively protect ourselves against an ever-changing threat landscape by actively managing security risks, and, at the same time, to enable organisational and technological transformation.

For this purpose, a security roadmap has already been developed which has been integrated into the overall S-roadmap and implementation plans. The main elements of this security roadmap are:

Cyber Defense Centre using artificial intelligence.

– An optimized and further developed governance and compliance model for information and physical security, supported by initiative d) "Develop a Centre of Expertise".
– Integrate security risks into the risk management methodology described in initiative a), using the same platform Risk Management Information System (RMIS).
– The development and continuous improvement of security monitoring, analysis and response capabilities (Cyber Defence Centre CDC), also using artificial intelligence.
– Establishment of security concepts in the area of physical and information security.

This initiative will support all Skyguide's strategic pillars by:

→ implementing an information security management system;
→ monitoring, analysing and responding to security events;
→ developing scalable security conceptions.

d – Develop a Centre of Expertise at Skyguide in the domains of safety, security, quality, risk and business continuity management

Governance needs to be provided for all services delivered by internal and external suppliers. Key activities like the Virtual Centre require a sophisticated level of expertise in all five domains of the strategic roadmap.

The Centre of Expertise provides services only by itself when required by regulation, where independence or confidentiality is necessary or where specific competences are needed. Domain champions, especially members of agile development teams, will be trained in the domains of safety and security.

The support of the Centre of Expertise needs to be perceived as very valuable and efficient for our internal and external customers. On the other hand, the members of the Centre should be accepted as an independent expert organisation having the right and the duty to intervene where safety seems to be compromised.

This initiative will support all Skyguide's strategic pillars by:

→ providing a sophisticated level of expertise in all five strategic roadmap domains
→ providing governance for all services delivered by internal and external suppliers
→ training of safety and security domain champions (e.g. for agile development teams)

e – Safeguard and foster safety, security, just and risk culture

Just culture is needed for a mature safety, security and risk culture and builds the basis for organisational learning and continuous improvement. Just culture needs therefore to be (legally) accepted by the outside world as well.

We will foster a positive safety and security culture by awareness campaigns and trainings of safety champions. We will measure and monitor our culture and take action where necessary. In close cooperation with all cultural initiatives launched in the company, the cultural evolution for a safe transformation to the Target Operating Model will be fostered.

The judiciary systems, as well as our partners and our suppliers, need to be sensibilised on just culture principles at national and international level.
On the other hand, we also need to respect the roles and views of those stakeholders.

This initiative will mainly support Skyguide's strategic pillars "Shape Regulatory and Institutional Framework" and "Workforce of Tomorrow" by:

→ creating a positive internal safety, risk and security culture
→ legally anchoring external just culture
→ sensitizing judiciary systems, partners and suppliers at national and international level

f – Increase flexibility of processes and products

Today's working practice is still dominated from working in silos and fragmented applications using data silos. There is a need to further simplify some processes by breaking down the divisional silos, ensuring standardisation and automation where appropriate. By doing so, there is a move from working with digital documents to a working with structured data allowing automation, re-use of data and finally a reduction of documents. The capabilities for business analysis (process, information, application, organisation) must be enhanced to act as problem solver and to consult the process owner for process re-engineering and process organisation. Trends and evolutions in

Europe must be monitored, and our processes and methodologies must be adapted where necessary. It is important that tailored deliverables in our five domains are provided for specific units, e.g. for regional aerodromes or services provided for the military, which will not need to apply the fully developed SMS capabilities of units with high complexity. In the context of services provided for the military, the bipolarity of the obligation to be compliant with civil regulations for civil services, versus no obligation to be compliant with civil requirements for the military services, needs to be mastered.

With the objectives to gain synergies and to harmonise existing and new procedures, safety and security activities shall be combined as far as possible and reasonable. This includes risk management, quality management and business continuity management. Adequate training needs to be provided to our staff.

This initiative will mainly support Skyguide's strategic pillar "Efficiently Managing the Airspace" by:

→ moving from working with digital documents to working with structured data;
→ enhancing capabilities for business analysis;
→ producing tailored deliverables in the five domains for specific units.

g – Safely integrate new business models

With the objective to enable innovation, the inter-dependencies of complex operations and competitive business models in relation to safety and security has to be detected and managed. We must achieve a state of readiness to support the development and implementation of new services in all five domains of the S Department, including new capabilities to adapt methodologies for new innovations.

Support the development and implementation of innovations.

As an example, U-space will be developed with the support of the S Department, e.g. by defining new risk baselines fitting the new needs.

This initiative will mainly support Skyguide's strategic pillar "Creating New Business" by:

→ detecting and managing interdependencies of complex operations
→ enabling for new competitive business models and services
→ developing new capabilities to adapt methodologies for innovation

h – Enhance the relationship with authorities

Establish a mature partnership with national and international regulators, National Supervisory Authorities (NSAs), the Swiss Transportation Safety Investigation Board (STSB) and the Swiss attorney general, based on trust and mutual understanding of each other's roles. Develop a common understanding of expectations and constraints which allows also safe innovation and efficiency. It is important to understand that purpose creates partnership, and that the relations must not just focus on compliance. SPOCs will be defined for each authority.

This initiative will support all of Skyguide's strategic pillars, but mainly the pillar "Shape Regulatory and Institutional Framework" by:

→ establishing a mature partnership with regulators and all relevant authorities
→ achieving a common understanding of expectations and constraints
→ enabling mutual understanding of each other's roles