



skyguide

skyguide strategy for success 2020

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Our vision

Our Vision 2035

The following are the core elements of the vision of our industry in the year 2035, as elaborated by the Executive Board :



Location-independent operations in CH and abroad

With the ‘virtualisation’ of the technical systems, and the rationalisation of the airspace, air traffic management became location independent (for skyguide, this means that we have the operational and technical capability to manage any piece of Swiss airspace from any working position in Geneva or Dübendorf under normal conditions) and the supporting systems are no longer monolithic and locked, but service-orientated, open and resilient.



System Switzerland: complementary civil & military systems

We have created a completely complementary system with the Swiss Air Force, ensuring that we have the best and most efficient “System Switzerland”. We utilise synergies and avoid duplications as much as possible, whilst still ensuring national sovereignty and the capability to manage the whole of the airspace from within Switzerland if this necessity were to occur.



From air traffic control to air traffic management

We are customer focussed, and have innovation capacity and a business mind-set, while always giving due priority to safety. Through automation of a significant number of tasks, Air Traffic Managers are licensed on tools and not sectors, providing us flexibility to react to traffic demand. They communicate with the cockpit only by exception and no “air traffic control” as such is exercised in the upper airspace any more – the free route airspace is truly free.



Drone disruptors lead the digitalisation revolution

Unmanned air vehicles were dramatic disruptors and pushed towards Air Traffic Management of mixed airspace (manned/un-manned), based on a very high degree of automation, with the human air traffic manager at its core. All airports at which skyguide provides a service are fully digital.

Skyguide and its partner companies are recognised as leading U-space service providers, a position which skyguide achieved by being customer-focussed, reactive to new needs, and collaborative with key actors.



Skyguide shifts from owning assets to services

We have a service-orientated architecture and we managed to build a small number of long-lasting strategic partnerships with well-selected like-minded Air Traffic Management providers and industry providers, which allow us to buy services where it makes sense, instead of producing everything in-house.



[Download the complete document](#)

Current situation

Air Traffic Management (ATM) is a fundamental enabler of air transportation and the associated economic benefits. Air transport's contribution to the Swiss economy is significant supporting nearly 207,000 jobs and contributing CHF 27.7 billion to the economy, accounting for 4.1% of Switzerland's GDP.

Provision of ATM in Europe however is at a crossroads – with increasing pressure to reduce costs whilst improving performance levels and always giving due priority to safety.

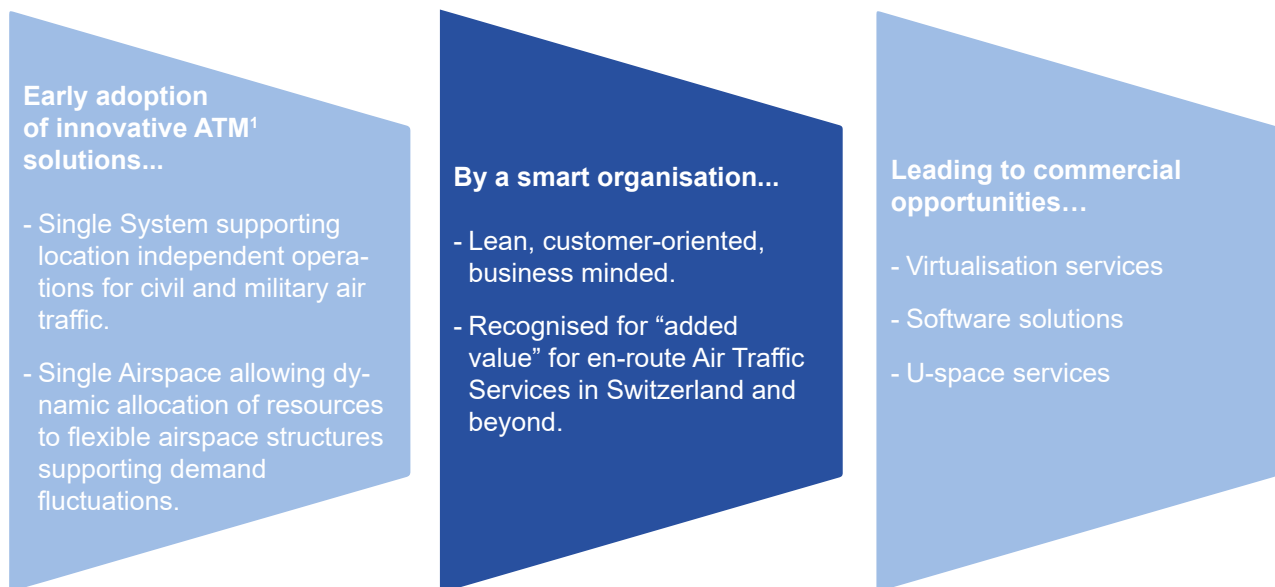
The new European Commission (EC) has placed the Green Deal for Europe at the centre of their objectives. Modernisation of ATM through the Single European Sky is central to their plans – and so is the rebalancing of mobility towards more environmentally friendly modes.

A fundamental response is required to digitalise ATM in a manner that supports both manned and unmanned aviation with the least possible environmental impact and lower costs whilst increasing scalability of service provision as demand changes.

Our response

Skyguide is at the forefront of the necessary transformation. For skyguide to flourish in the future environment, further change is necessary to ensure that the services offered add value to clients firstly in Switzerland and increasingly across the European network.

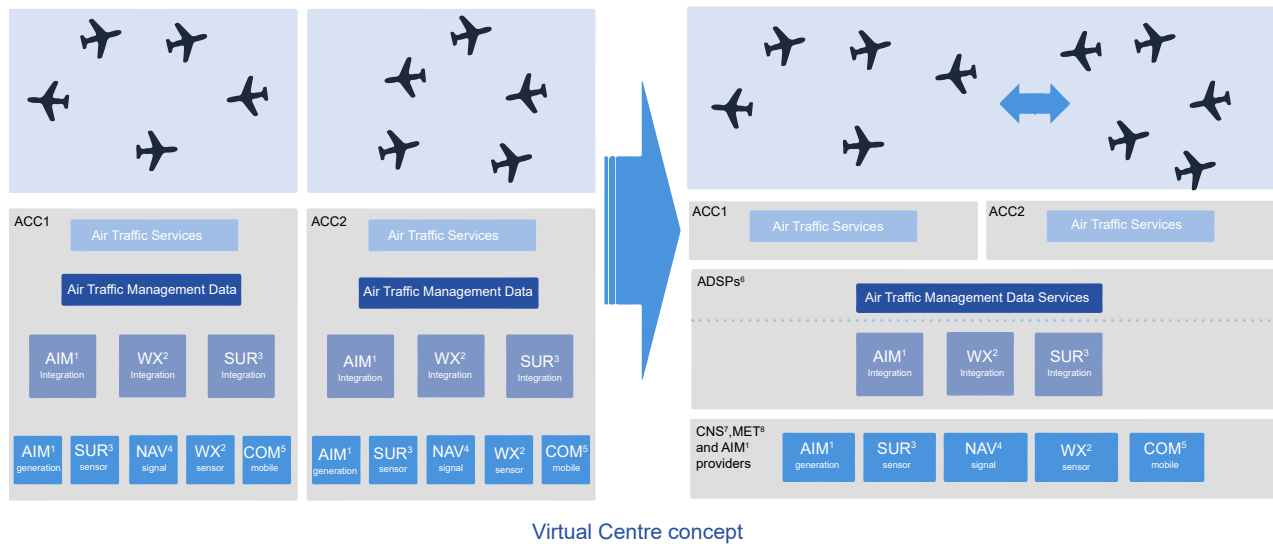
As an early adopter of digital solutions, our strategy will make us a thought leader in European ATM, leading opportunities to optimise service provision and commercial success.



Our vision

¹Air Traffic Management

The technological transformation is already well underway. Skyguide has developed and embraced the virtual centre concept as a more cost effective and resilient way of providing ATM services enabling our two control centres (ACC Zurich and ACC Geneva) to operate as one virtual centre.



¹Aeronautical Information Management; ²Weather; ³Surveillance; ⁴Navigation; ⁵Communication; ⁶ATM Data Service Provider; ⁷Communication Navigation Surveillance; ⁸Meteorological

Within Switzerland, there are a number of immediate operational benefits:

- Increased ability to meet volatile capacity demand.
- Ability of the two centres to provide contingency for each other.

The EC's recent Airspace Architecture Study proposed a new collaborative approach for ATM in Europe based on a widespread adoption of the virtual centre concept. The subsequent European ATM Master Plan Edition 2020 takes this proposal further, with the objective of creating a Digital European Sky that would enable all European Air Navigation Service Providers (ANSPs) to collaborate alongside the Network Manager to provide a seamless pan-European service.

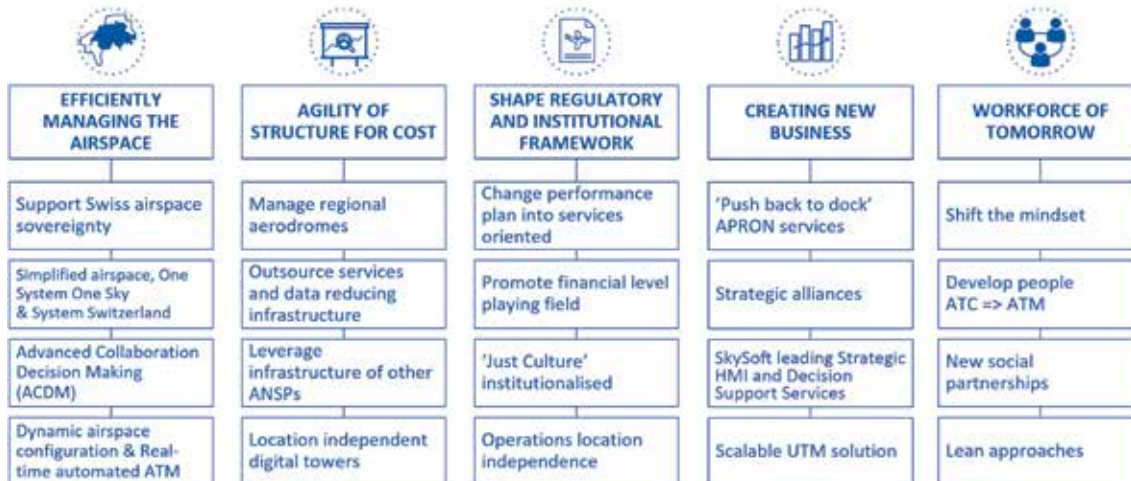
The early adoption of the virtual centre concept in Switzerland will place skyguide in a unique position both to steer these developments towards more efficiency and effectiveness and where appropriate to seize the commercial opportunities that the new approach is designed to provide. The advantages of the virtual centre approach include:

- Lower service provision costs due to the potential outsourcing of data services and rationalisation of auxiliary services;
- Improved flexibility for the Network Manager to balance demand across centres (potentially leading to lower traffic risk);
- Simpler technical arrangements for cross-border services, including the ability to provide contingency services to other European states.

Achieving the vision

In order to achieve the vision, the Executive Board structured the numerous domains of strategic relevance on which the company needs to intervene, and which can be summarised with the following 5 strategic pillars. In turn they result in 3 main change drivers.

strategy pillars



To realise our vision, change management programmes will address three key areas:

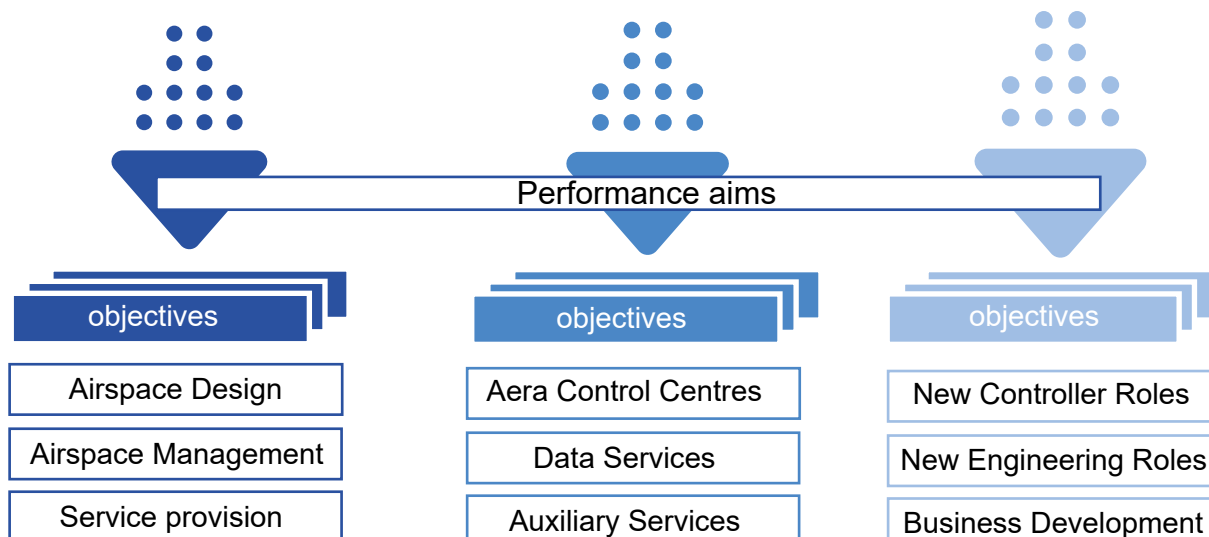
- **Operations** – Refinement of operational concept and airspace design to optimise service provision. Increased ability to meet volatile capacity demand;
- **Technology** – Use of Virtual Centre technology to provide a location independent platform for service provision.
- **Organisation** – Adoption of new operational and business roles to ensure we maximise the benefits of the opportunities created.

strategy drivers

Operational drivers

Technological drivers

Organisational drivers



Achieving the vision

Operational change

The operational objective is to optimise airspace design and airspace management to create seamless service provision for all airspace users (civil and military, manned and unmanned) in all airspace (en-route and lower) by controlling traffic independently of location.

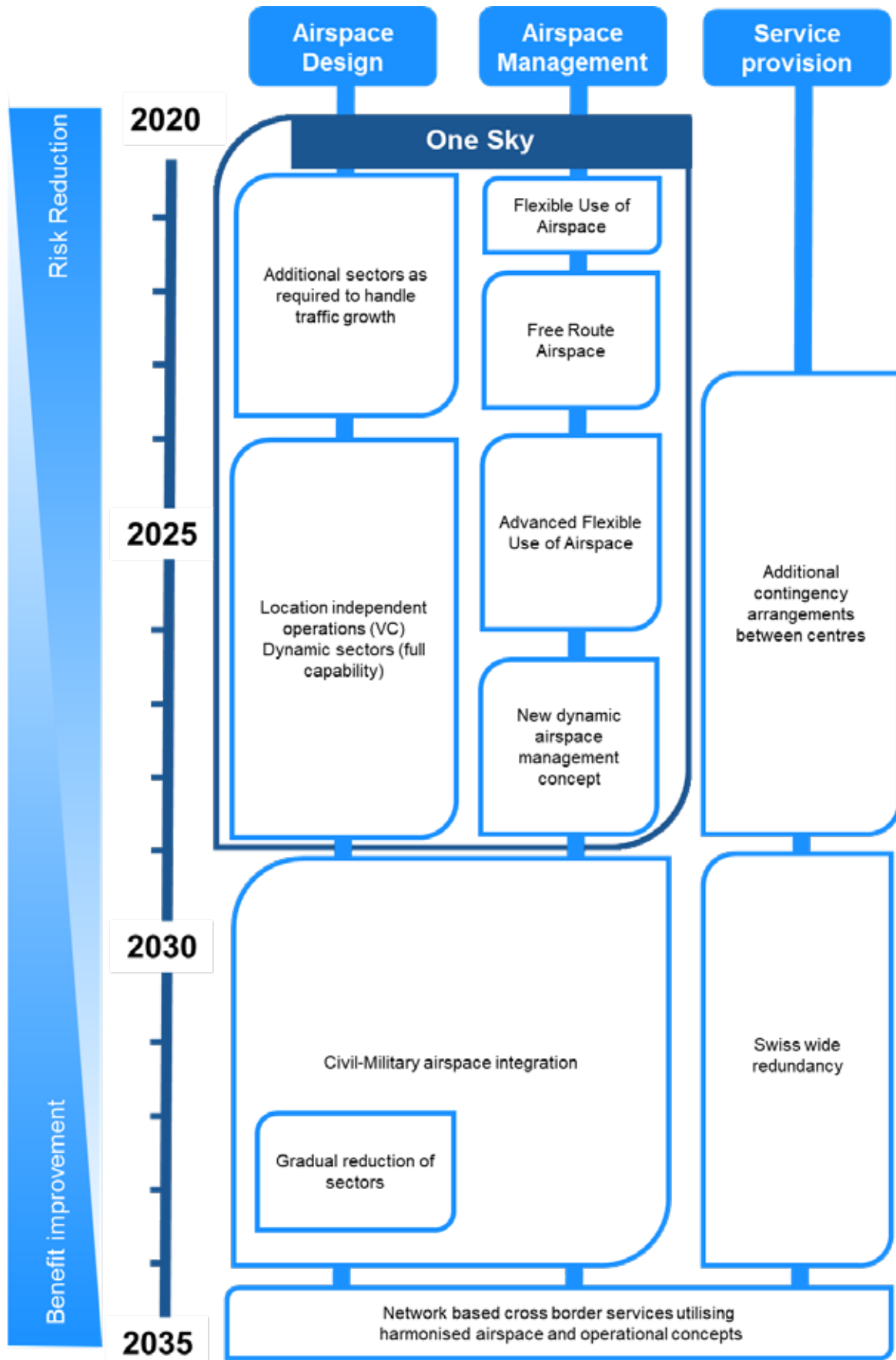
The objective will be achieved by progressive change in three areas:

- **Airspace Design** – Initially, airspace design will be based on additional sectors based on the vertical division of current sectors, in order to perform more efficient sector groupings across centres. The ability to dynamically allocate sectors between centres will enable a new integrated airspace design and management that allows seamless civil and military use of airspace. As automation increases it should be possible to reduce the number of sectors or even utilise flow based techniques rather than sectors. Innovation in this area is key to maintain a highly efficient operation.
- **Airspace Management** – The implementation of advanced Flexible Use of Airspace concepts based on dynamic reservations of airspace structure designed around both the military mission and civil traffic will lead to integrated airspace management.
- **Service provision** – As airspace design changes, there will be greater flexibility to allocate specific resources to airspace structures or traffic flows. The key steps are the ability to provide contingency across the two centres and then the ability to dynamically allocate sectors to centres. This ability requires an evolution of the role of Air Traffic Controllers (ATCOs) as described on page 10.

The end point is a combined airspace and service provision concept that enables skyguide to become a collaborative element of the European ATM network, providing the ability to handle additional traffic on behalf of other European states supporting capacity demand balancing across Europe and thereby helping to minimise the environmental impact of aviation.

At the same time, skyguide retains the ability to control Swiss airspace seamlessly on behalf of both our military partner and civil customers and hence safeguards Switzerland's sovereignty.

Aligned with this, the long term strategy of skyguide is to follow the one system for one airspace principle. Skyguide delivers all the requirements of the sovereign mandate and this, together with our ability to respond well to crises, will therefore lead to a closer collaboration with the Swiss Air Force and its federal partner organisations. This "System Switzerland" will enable a Swiss-wide civil-military solution (people, processes and technology) with a joint and collaborative architecture which, on the one hand, allows an optimal performance with respect of airspace management whilst, on the other hand, catering to the specific military and civil requirements in Switzerland.



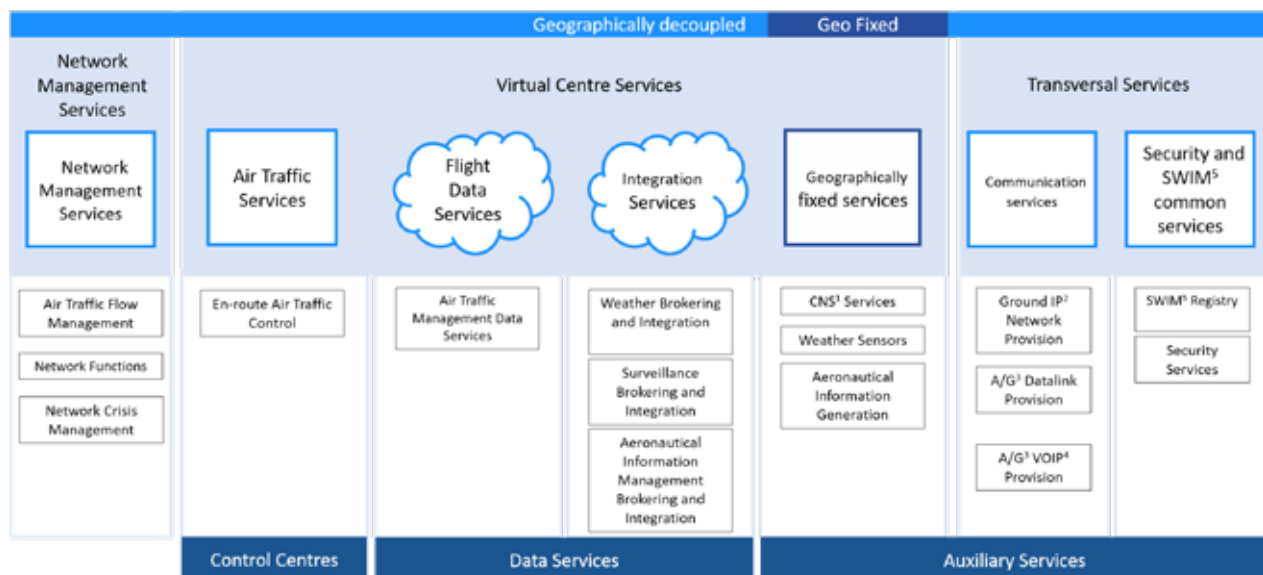
Operational roadmap

Technological change

The technological objective is to support location independent service provision through the virtual centre. Skyguide is already implementing virtual centre technology. It is now of strategic importance to ensure that our virtual centre approach is interoperable with similar approaches in Europe.

Technological change is necessary in the three areas identified in the figure below:

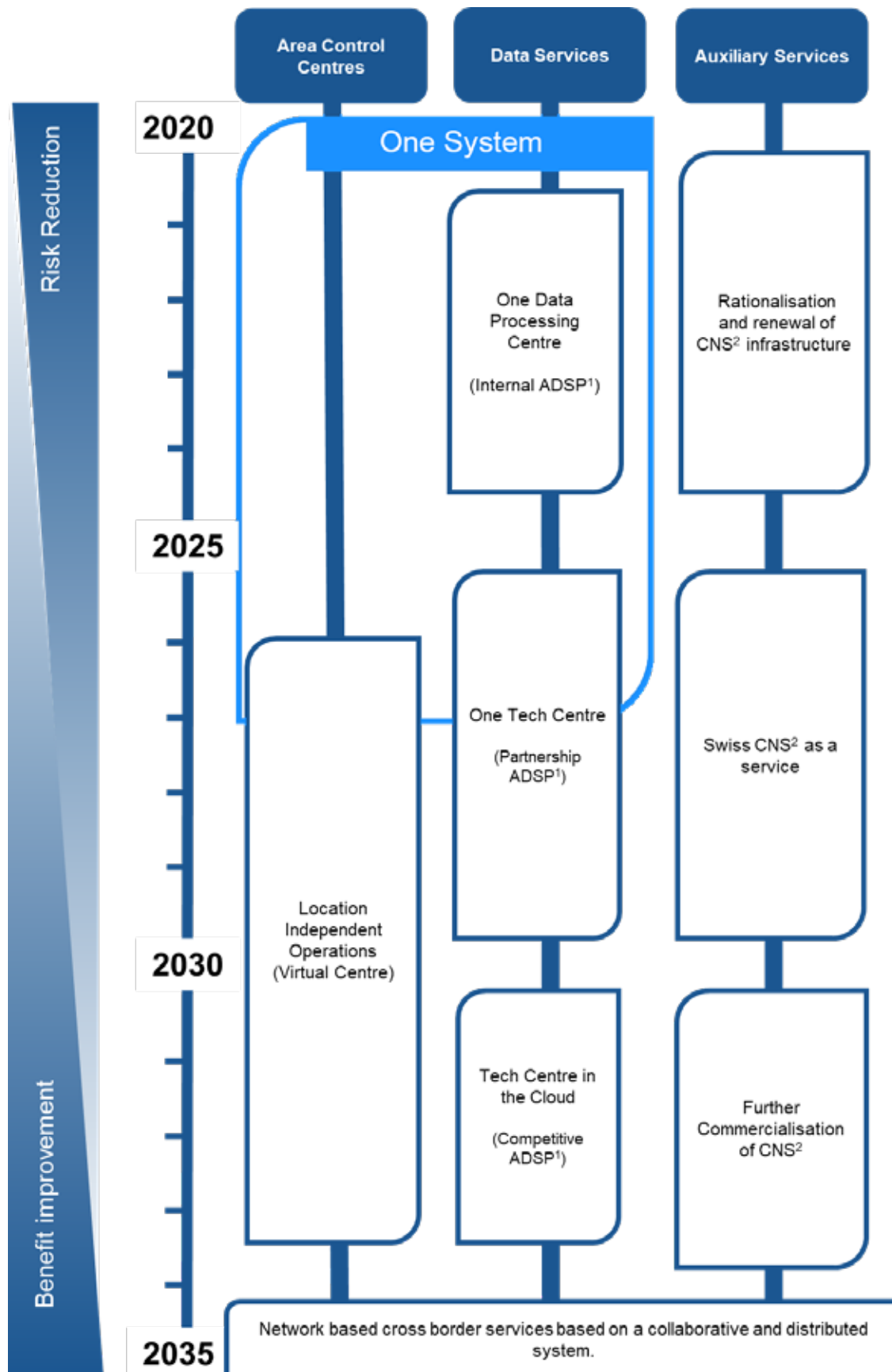
- **Location independent Services** – Through virtualisation, we will manage the Swiss airspace as though from a single centre. We will continue to invest in controller working positions and local tools with increasing levels of automation for ATCOs to ensure we deliver highly efficient operations.
- **Data Services** – ATM data services are currently performed within each control centre, but will progressively be transferred to the cloud using the ATM Data Service Provider concept. Using cloud-based services provides additional flexibility and scalability allowing the control centres to control any airspace supported by an ATM Data Service Provider.
- **Auxiliary Services** – The EU policy requires auxiliary services to be progressively outsourced or operated by regional partnerships. Auxiliary services include communications, navigation and surveillance services, aeronautical information services and meteorological services. We will review and rationalise our auxiliary services taking into account the specificity of their provision in Switzerland. We will find a solution that allows skyguide to concentrate on core service provisions whilst ensuring that Swiss airspace can always be controlled by skyguide in order to guarantee the protection of Switzerland's sovereignty.



Future Air Traffic Management services

¹Communication Navigation Surveillance; ²Internet Protocol; ³Air-Ground; ⁴Voice over IP;

⁵System Wide Information Management;



Technology roadmap

¹ATM Data Service Provider; ²Communication Navigation Surveillance

Organisational change

The objective of organisational change is to create a smart organisation that is able to innovate in order to ensure early accrual of the benefits of ATM digitalisation, whilst reducing the environmental impact of the organisation and of its customers.

The future organisation will be lean, customer-oriented and business-minded.

The core changes to operational roles are:

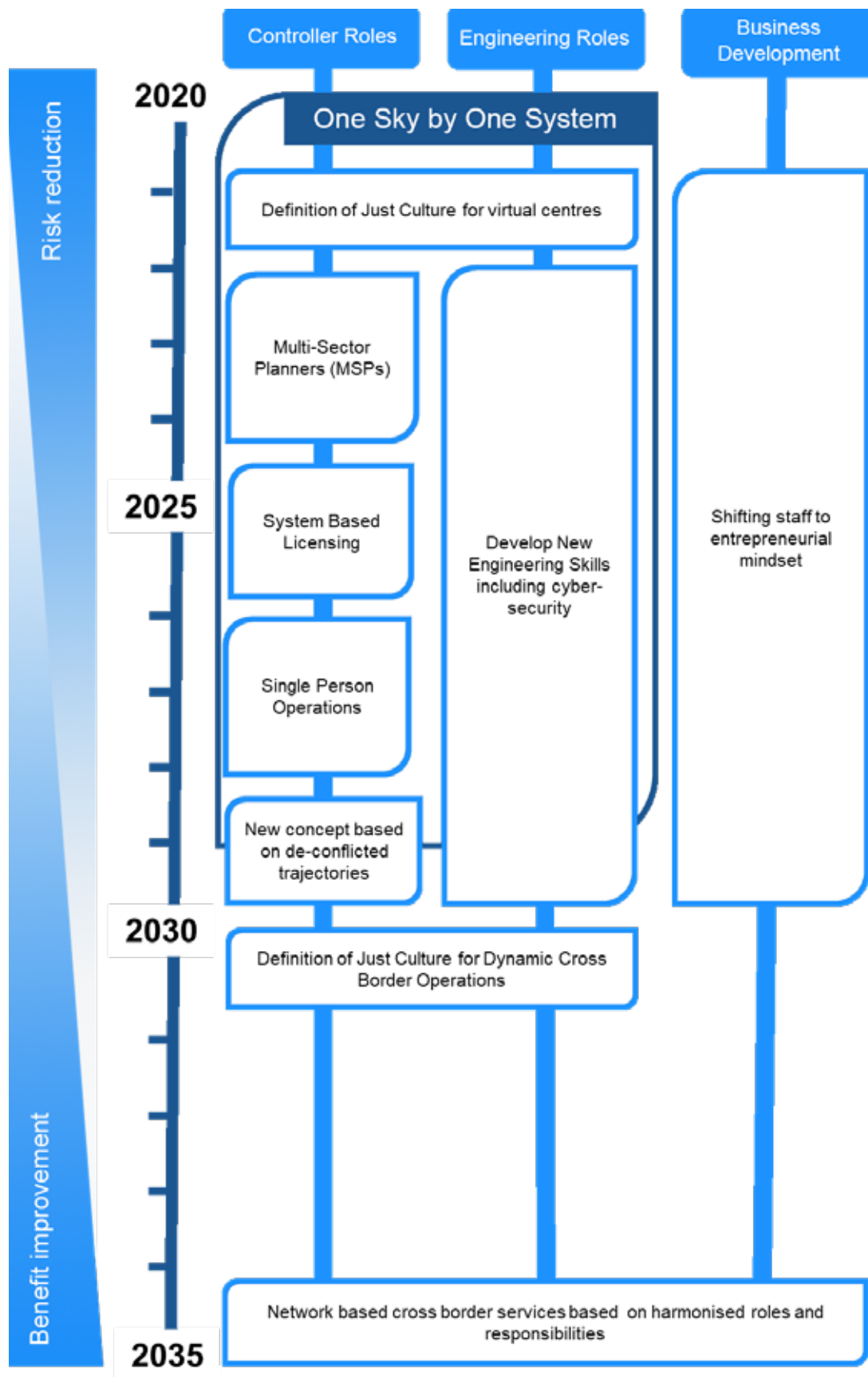
- **Controller Roles** – Airspace change and increased automation will fundamentally change the role of air traffic controllers – with a progressive shift from a control to a management paradigm with a new balance between the system and the human. New ways of working will be required, including concepts that progressively increase productivity, such as:
 - Multi-sector planners;
 - Single person operations;
 - New operational concepts based on de-conflicted trajectories and enabled by the next generation of communications, navigation and surveillance capabilities.

The transition will include a change from ATCOs being certified on specific airspaces to ATCOs being certified on systems in order to enable dynamic cross-border services.

- **Engineering Roles** – New skills will be required to support an evolution from maintenance of bespoke technologies used for ATM to the management of a modern distributed architecture integrating services from multiple third parties with a renewed focus on cyber security and data services.

Alongside changes to the operational roles, the wider organisation will also need to adapt to enable exploitation of the commercial opportunities described in the next section. This will include the need to develop competencies in areas such as airspace design, validation and change management.

By implementing this strategy skyguide will become a role model for ATM provision both in Europe and globally.



Organisational roadmap

¹Air Traffic Services

Financial sustainability

As a leader in the transition to the Digital European Sky as outlined by the EC, skyguide will also create opportunities to increase commercial revenues. Developing innovative commercial offerings will increase our ability to develop and strengthen our core services.

Cross Border Services



Provision of location independent air traffic services within the European network beyond Swiss borders, including temporary delegations with partner ANSPs to support contingency arrangements and capacity shortfalls. The opportunity includes evaluation of communications, navigation and surveillance as a service.

The opportunity is dependent of successful harmonisation of airspace operational concepts across Europe and forms a central part of the European Commission's ambition for ATM.

Virtualisation Services



Support to European ANSPs in the transition to location independent operations including airspace design and validation, system evolution and operational approval as well as operational concepts. This opportunity is an operational consultancy service designed to provide commercial revenues and continued innovation.

Software Solutions



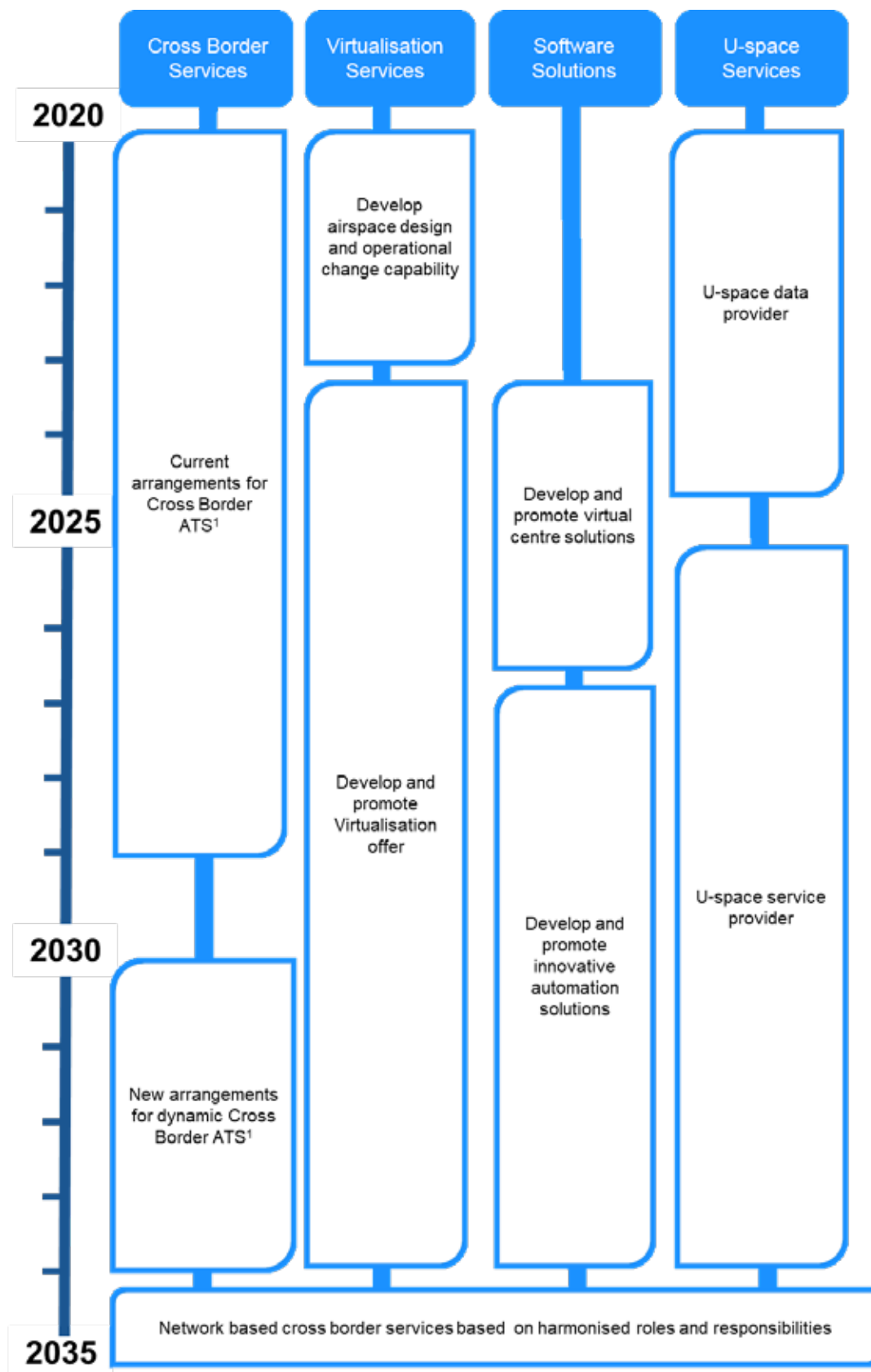
Development of technical solutions using the virtual centre platform that supports local optimisation of the ATM service. This opportunity will be managed through a partnership with SkySoft.

U-Space Services



A growing potential market for ANSPs is the U-space service to support the safe integration of drones into different categories of airspace. Whilst accommodation of drones within controlled airspace is a core role for skyguide, it is anticipated that new services will be required for urban airspace. We will investigate how best to support this market, looking at ways to provide our data to drone users and building data and operational services as required to ensure the safe use of drones in Switzerland.

Each opportunity will be carefully assessed to ensure that it supports continued innovation of the core provision of ATM in Switzerland and is capable of making a profit.



Commercial roadmap

¹Air Traffic Services

Regulatory Framework

Skyguide will strive to deliver in accordance with the objectives given until 2023 by the Swiss government. On the longer term, successfully achieving digitalisation of ATM will require significant revision of the regulatory framework within which we operate.

The European Commission has indicated a desire to promote digitalisation of ATM through the Single European Sky legislation. Whilst the EC's ambition and core approach are currently aligned with our strategy, we will need to work closely with the European Commission and the Federal Office of Civil Aviation, as well as with our partners, to ensure a timely revision of the regulatory framework, including:

- **Technological Enablers** – The architecture for the roll out of virtual centres across Europe is still being developed. We will work to ensure that the concepts developed within the EC's technology research initiative SESAR (Single European Sky ATM Research) support both location independent service provision such that multiple centres can operate virtually as a single centre and a separation between control and data services to ensure that ATM providers are able to optimise their services based on access to a common data layer.
- **Principles for Airspace Design** – As part of the short-term actions to optimise the European ATM Network, the Network Manager is supporting the application of common principles for airspace design based on tactical flows of traffic. We will ensure that our airspace design is compatible with these principles and seek common rules for airspace design that support harmonisation and integration for both civil and military users.
- **Service Provision** – There are currently no rules covering the organisational approval of ATM data service providers. We will work to ensure that proposed rules in this area are fit for purpose and designed around ensuring continuity and availability of the data services. We will also work to ensure that the rules concerning controllers and engineers evolve to support their new roles.
- **Interoperability and Operational Approval** – The current rules for demonstrating compliance of interoperability and safety regulations are based on asset ownership rather than service provision. We will support new rules based on end-to-end services.
- **ATS Delegation** – The current rules for delegated service provision are only suitable for long-term static arrangements – they would not support the sort of dynamic delegations required to enable contingency services. We will support the development of new guidelines for air traffic services delegations to support the flexible use of cross-border services.
- **Economic Regulation** – As service provision changes with digitalisation it is critical that economic regulation evolves to promote the desired behaviour. The current form of economic regulation and risk sharing is not supporting the necessary levels of investment to achieve digitalisation. We will support changes that reflect the need to invest in change.

Strategic objectives

Skyguide goals & objectives

The Board of Directors, in its meeting of February 2020, has approved the following objectives and targets for skyguide, which will help the company in steering the implementation in the right direction and in making choices and tradeoffs when required for the implementation of initiatives and projects. They will also enable us to assess how good we are in implementing our strategy over time.

As a high reliability organisation....



...we enhance skyguide's customer-satisfaction & efficiency

By end of 2027, skyguide generates better punctuality for its customers than 75% of the neighbouring ANSPs.

By end of 2027, skyguide's unit price differential with FABEC and neighbouring ANSPs is below 28%



...we enable & support air mobility in Switzerland, safely, efficiently and in a sustainable way

We implement the measures required to fulfill the environmental requirements of the FABEC performance plan & of the Swiss Confederation's energy plan.



...we create the competences and the culture to become more innovative & customer oriented



...we strengthen the partnership with the Air Force to achieve its security & sovereignty missions effectively

We deliver fully the services required by the Air Force.

Strategic Goals: aspirational
 Strategic Objectives: measureable

Objectives of the Confederation

The Swiss Confederation, as owner of skyguide, rules on objectives for our company on a 4 years basis. The objectives for the years 2020-2023 are the following*:



Strategic directions

- Skyguide fulfills its mandate in an economical way whilst maintaining a high level of quality, contributing to safety with a highly developed safety culture, punctuality and environmental sustainability of air traffic in Switzerland.
- Skyguide ensures the military air navigation services and defense policy interests, so that Switzerland can guarantee its sovereignty on its airspace in full independence and creates in due time the conditions for a 24h air police.
- Skyguide anticipates all structural changes, at national and European level, without compromising sovereignty and the effective control over air navigation services and infrastructures of national importance.
- Skyguide fulfills the performance targets of the European performance scheme and has a highly developed safety culture.
- Skyguide implements and creates innovations, considering the EU ATM Master Plan.
- Skyguide possesses compliance management, business continuity and enterprise risk management systems.
- Skyguide follows a strategy that is ethical and environmentally sustainable, in the frame of its economic resources.



Financial objectives

- Skyguide reaches a financial balance, increases its efficiency, and aims at a net debt of less than 2 x EBITDA (temporary exceeding permitted).
- Skyguide applies a sustainable charging policy, aiming at the self-financing in all its air navigation services in Switzerland and increases the cost coverage ratio of services on regional aerodromes.



Personnel and pension schemes

- Skyguide applies a long-term progressive and social policy towards its personnel.
- Skyguide applies a management and communication style which elicits the trust of its employees.
- Skyguide applies a modern remuneration scheme for being financially sustainable.
- In return for any extraordinary contributions to its pension fund, skyguide secures a substantial contribution from the employees to the financing thereof.
- Skyguide ensures that its employees benefits from an adequate retirement age.



Cooperations

- Skyguide can, if so authorised, enter into national and international cooperations to fulfill its mandate and realise these objectives.

*this is a summary, based on a selection of items translated from the official document published in the official national languages

Going forward

This strategy is designed to ensure skyguide is able to increase operational efficiency to deliver value added ATM services in Switzerland and form an integral part of the future digital European ATM network. It is flexible enough to respond to changing external circumstances and priorities. At the same time, it safeguards the independence and sovereignty of Swiss airspace and ensures efficient and effective mission support for our key partner, the Swiss Air Force.

We will deliver high operational efficiency by developing innovative solutions for both ATM and airspace design so that our controllers, supported by appropriate automation, are the most productive in Europe. We will deliver our services in an integrated manner that supports civil and military as well as manned and unmanned aviation.

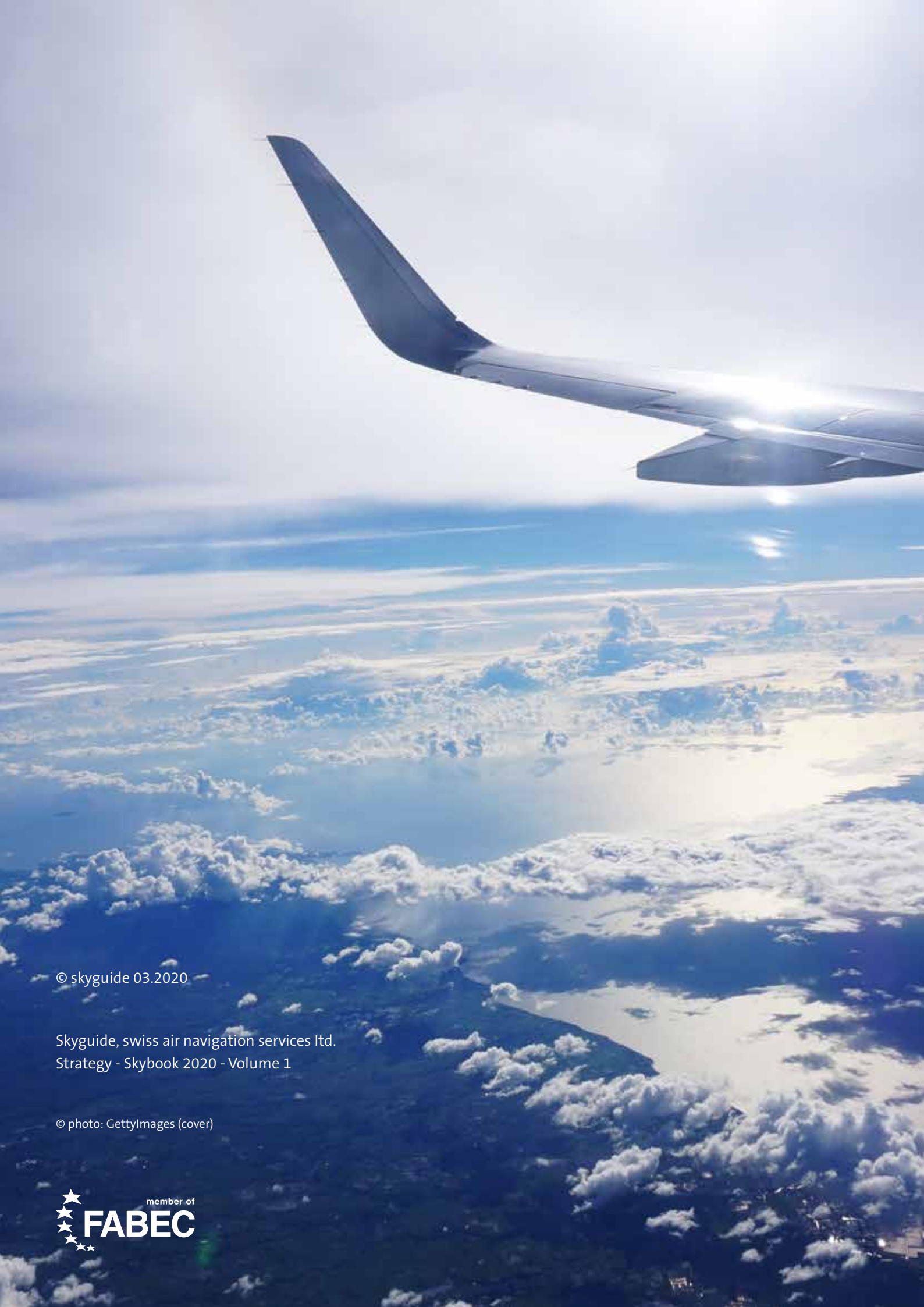
To ensure flexibility and scalability, we will operate our control centres as if they were one; with technical services provided independently of location. We will examine our entire delivery chain seeking to consolidate, partner or outsource as appropriate to ensure cost efficiency.

We will evolve as an organisation – developing new roles ready to deliver new ways of ATM – recognising the emerging challenges of automation, distribution and cybersecurity.

We will look to develop commercial partnerships and opportunities where these strengthen our core capabilities.

This strategy paper is a compact and concise outline of skyguide's ambitious corporate strategy.

It is supported by specific technological and operational strategies as well as strategies defining our efforts in the realm of change management, communications and public affairs that all serve the same purpose: Realising skyguide's vision 2035 in line with the European Commission's ambition for the Digital European Sky.



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Skyguide, swiss air navigation services ltd.
Strategy - Skybook 2020 - Volume 1

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