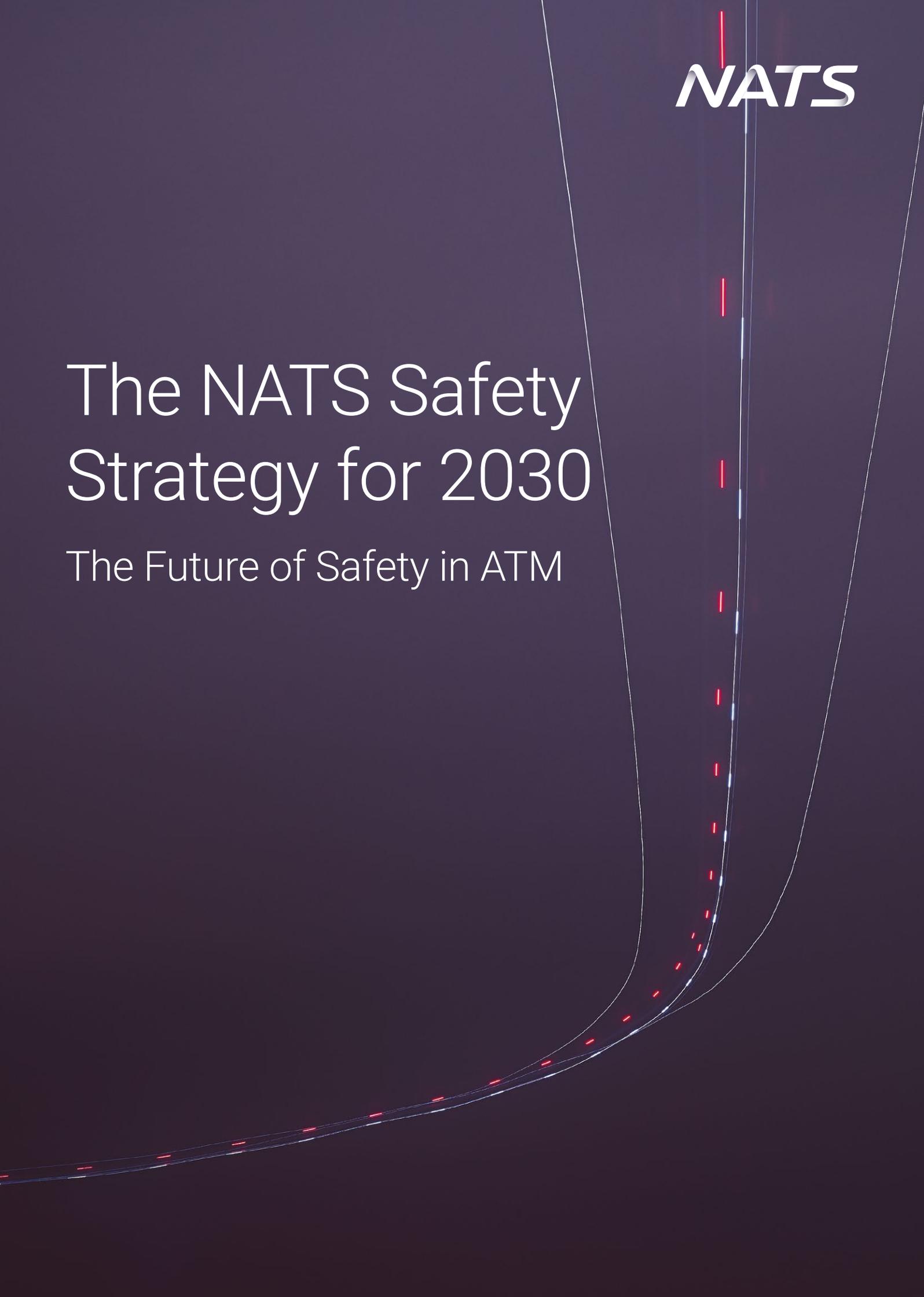


# The NATS Safety Strategy for 2030

The Future of Safety in ATM



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# Preface

In 2014, we published a Safety Strategy that set out a vision for how we wanted safety in NATS to be managed through to 2020. The Strategy took a critical look at our safety performance and the underlying trends in incident rates. It also reflected on the changing regulatory environment, commercial pressures and plans for technology deployments which could affect future safety performance.

At the time of its publication, our Deploying SESAR programme was in its formative stages, the RP2 settlement was just coming into effect and NATS performance, across most measures, was exceptional. Internationally, NATS provided strong leadership in CANSO, our trade body, and provided experts to support and challenge EASA, the European regulator, and the European Commission on best practices in safety management.

The NATS Safety Strategy for 2020 was externally reviewed by academics, safety experts and industry partners during its development. We remain grateful for the time and effort which the reviewers put into shaping our strategy and vision. Their comments suggested that the Safety Strategy represented a much clearer vision than had previously been articulated for where the ATM industry should be headed. Recognising this, the Safety Standing Committee of CANSO adopted the NATS Strategy and its 4 themes as the CANSO Global Safety Strategy. Whilst this represented a positive endorsement for our leadership in safety it also unlocked additional resources from other ANSPs to support our common safety goals.

In a departure from tradition, we made the NATS Safety Strategy available to anyone by allowing the download of the document from the external nats.aero website. The document has been downloaded over 2,500 times since its publication. It has also been cited by others and generated interest and discussion with NHS trusts and other industries with a concern for safety.

Since the publication of the NATS Safety Strategy, some of the challenges that the Strategy sought to address have changed and some challenges have perhaps become more demanding. More than ever, we need to ensure that safety is integral to the business, that we continue to work with our international partners during changing times and that there is a clear path from the ideals of the Strategy to actions at the front-line. Therefore, after 4 years it is worth taking stock and asking: Is it working? What has been achieved so far and are we on track? It is also appropriate to check whether what the Strategy describes is still necessary and sufficient to achieve our safety aspirations.

We have therefore undertaken a review of the 2014 NATS Safety Strategy to examine and validate the core message of the Strategy. This document provides the consolidated output of this review and outlines a slightly revised Safety Strategy to address the evolving challenges, to update our priorities and ensure we are applying a holistic approach to improving safety. The Strategy should continue to stimulate innovation in safety and to embed a mind-set change in how we think about safety. The goals of the Strategy are still challenging and it should be seen as a catalyst for change. I welcome and invite your comments.



Alastair Muir  
Safety Director NATS

Safety is a value not  
a competing priority.

# Introduction

NATS continues to achieve excellent levels of safety performance and we should feel rightly proud of this accomplishment. However, we must guard against complacency and continue to challenge the way we manage safety and ensure that we are alert to evolving risks.

In 2014, when we published the first version of the NATS Safety Strategy, we observed that safety performance was continuing to improve. Whilst this should be celebrated, we also recognised that this created new problems in understanding risk: essentially, 'we were running out of things to count'. Therefore, rather than waiting for increasingly rare incidents from which to learn and mitigate future risks, we needed to evolve our safety approach to become more sensitive and anticipatory.

In 2014, NATS began to embark upon a revised operational concept expressed in a bold vision for a future operation built on the principles of "Any Controller, Any Airspace, Any Centre, Any Customer". This called for a common operating method across the two control centres. To enable this requires an extensive technology update programme which also achieves a major architectural driver of a 'legacy escape' from current monolithic and aging technology platforms. The Safety Strategy identified the increasing use of automation and the use of advanced technology as having tremendous opportunities for safety improvement but also assurance challenges. The Deploying SESAR programme has progressed over the last few years and is becoming more tangible as visible changes occur in the operation. Similarly, the emergence of remote towers as a viable alternative to on-airport operations presents revolutionary possibilities if technical assurance and human performance hurdles can be overcome. Externally, other technological developments are presenting safety concerns. For example, the increase in drone usage by hobbyists and commercial operators has added new users to an already congested airspace and integrating them into the existing operation, whilst protecting existing users, will

continue to pose both technological and hearts-and-minds challenges. In parallel with the technological developments we will continue to press for airspace modernisation as an enabler of our future operating environment.

Safety risk and traffic levels are inextricably linked. The years since 2014 can be characterised by the return of traffic growth in our airspace and at our airports with aircraft numbers returning to volumes previously seen in 2007. The challenge for NATS operations has been a rate of traffic growth that continues to outstrip forecasts. In 2015, NATS set a challenging target for safety performance interpreted as being roughly equivalent to requiring a fixed level of RAT points, as a proxy measure for safety, across the regulatory control period. Looking back, NATS performance in 2014 can be seen as exceptional and in subsequent years our safety performance followed an upwards trend and did not track the target. As we have adapted to the higher pace in the operation, deployed electronic strips into the London Terminal Control operation and re-doubled our tactical risk management efforts this performance has started to return towards the target. It is testament to these efforts that, even with near-record levels of traffic, the operation is substantially safer than it was in 2007 with similar traffic levels. Therefore, the issues that the NATS Safety strategy of 2014 highlighted are fundamentally the same: Do we understand why we were so safe in 2014? How have we achieved a level of performance that is substantially safer than when we handled equivalent traffic levels in 2007? What affects our safety performance? Are the measures of safety in use today helping us answer these questions? Given that traffic levels above the 2007 level have never been experienced before, how will the ATM system react? Are we well-positioned to address the evolving challenges and are our plans sufficient to address the pressure we know is coming? Will we be safe in future?

There will always be a need for greater efficiencies in safety so that scarce resources are directed at the most beneficial safety improvement actions in a tailored and proportionate way. Resources will always be under pressure, particularly in our airport business, and with increasing traffic coupled with technological changes, a new intensity has been created in the operation which puts pressure on safety.



“...the increase in drone usage by hobbyists and commercial operators has added new users to an already congested airspace...”

Resourcing strategic actions will always be a challenge when placed against the demands of the day-to-day operation. Similarly, whilst safety has not been traditionally a commercial proposition in its own right, safety is a core component of our offer to our customers. Therefore, there needs to be a renewed focus on 'safety as being part of normal, every-day activities' as opposed to it being an additional burden or something seen as being separate from 'work'. Furthermore, emphasis needs to be made that safety and efficiency should not be seen as contradictory but as complementary.

The security landscape in which NATS operates has changed significantly even in the short time since the publication of the original Safety Strategy and over the coming years our technical systems will undergo radical change. The challenge of cyber security and safety can be represented by the question: 'Can we be safe if we are not secure?'. The security risks that could impact the business resilience, continuity and safety of our services are arguably increasing and change more dynamically than the 'traditional' expressions of safety risk currently accommodate. The range of external threats, their motivation, capability and opportunity to cause harm fluctuate constantly; therefore, improving the integration of security and safety risk management approaches will be necessary to adequately specify, control, measure and report how risk from the former is influencing the latter.

The Safety Strategy identified that the changing regulatory regime of new rules and new regulators presented both a challenge and an opportunity for improved safety management. The Strategy called for concerted international engagement to both challenge rules and regulations (since compliance with the rules does not necessarily make us any safer) and also by recognising that other stakeholders have a part to play through the sharing of best practices and in helping us to achieve the change we want to deliver. These points remain valid today. However, not anticipated in 2014, were the likely changes as a result of Brexit and the regulatory environment that will emerge. The uncertainties created by the UK's departure from the European Union remain a live issue. It is essential that NATS continues to adapt to the changing regulatory environment that will emerge.

## About this document

This document describes the revised version of the NATS Safety Strategy and is the output of a review of the original Strategy, the evolving challenges and our strategic response.

The NATS Safety Strategy must continue to address evolving safety and business challenges. After 4 years it is appropriate to reflect on the assumptions made and the challenges that the strategy sought to address at the time it was published in 2014. We have taken the opportunity to reflect on the themes, how they have been interpreted and the comments we have received in the 4 years since their introduction.

At the back of the original version we asked the question: what do the strategy and the themes mean for you? With the global adoption of the NATS Safety Strategy we noticed that different organisations interpreted the themes within their own context. As a result, the themes were given different weights or priorities. This has also happened in NATS with different parts of the organisation focusing on aspects they felt were most relevant to them.

The consultation with the business was universally positive on the themes and the overall message of the Strategy. As a business, we are confident that the direction of travel for safety is appropriate and therefore the 4 themes of the Strategy are to be retained. The themes have gained broad acceptance across the business, are increasingly being used in the wider industry and we believe they still provide a framework to address the challenges we face. In respect of the evolving challenges, we have taken the opportunity to revise the interpretation of the themes to address the increase in scope.

The Strategy is a challenging and ambitious step-change in how we think about safety. The vision that the Strategy presents is believed to have enduring applicability. We have therefore extended the timescale for the Strategy to 2030 to align with our corporate 'Destination 2030' strategy that seeks to position our business for the future.

“It is essential that NATS continues to adapt to the changing regulatory environment for the duration of this revised Safety Strategy.”



# A Strategy for Safety in ATM

The question posed in the development of the original Safety Strategy was: Will we be safe in future? Answering this question represents the fundamental purpose of the Strategy.

The question can be interpreted in many ways: how safe are we today and will we be safer tomorrow, how do we know and what should we measure, how should we assure ourselves of the safety of our systems and processes, what are the challenges of the future, what should we prioritise?

Our Airspace Modernisation and Deploying SESAR programmes will radically change our business. The 'One Operation' concept seeks to make best use of the technology and airspace and presents an opportunity to deliver our safety aspirations. At the same time growth in air traffic has returned and exceeded our forecasts. Given the dual challenges of fundamentally changing how we do business whilst at the same time having to deliver today's operation with a renewed intensity, how do we ensure we continue to improve upon our safety performance? It is clear that technology, airspace modernisation and the continued performance of the people in our organisation will all have a role to play. Safety cannot be taken for granted and we cannot just assume that the future will be safe – it requires hard work, commitment and a long-term vision to make it safe.

## A Vision for Safety in 2030

By 2030, NATS will have evolved into an organisation where safety has been fully embedded in everything we do. Our business and safety processes will have become integrated, since we appreciate that the more we understand about everyday performance the more we understand about safety. We now have a far greater understanding of what makes the services we deliver safe and are using new measures and techniques that allow us to anticipate risk and control safety in the operation.

Everyone in NATS understands how their role relates to safety today, as well as in the future. Safety capability across the organisation has been improved through our awareness and safety programmes. The capability of our leaders has been raised to strengthen our organisational culture enabling us to make the right decisions about safety. Everyone recognises that **People Create Safety**.

NATS' safety management system has become adaptable, progressive and fit for the challenges of the future. It permits different, but appropriate, ways of providing the required assurance, and is sufficiently portable so that we can use it in the variety of regulatory environments where we now do business, supporting and enabling our growth ambitions. We have a fully **Tailored and Proportionate** approach to the management of risk.

Leading as well as lagging indicators have enabled us to build a real-time understanding of the performance of the operation. We anticipate, predict and control safety in the operation by understanding what went well, not just what went wrong. We collaborate with our ATM stakeholders to promote a consistent view of risk. NATS **Safety Intelligence** has grown to match its needs.

Ownership of risk is better understood amongst our ATM stakeholders, enabling improved challenge of the rigour and pace of risk mitigation. Equally we have increased our learning and collaboration with others where a risk or a benefit is shared. NATS is a learning organisation that anticipates the unexpected and constantly challenges itself. We have become an organisation with a strong culture of questioning, **Challenging and Learning** both within and outside of NATS.

## Key Themes

One of the key ideas expressed in the Safety Strategy is that of the broader approach to safety. This recognises that creating a safe and efficient service goes beyond front-line operational staff and extends to the rest of the organisation. To achieve the strategic change that we believe is necessary, the Strategy challenges the prevailing mind-set of the company and seeks to be a catalyst for change. We have observed positive steps in this direction since the publication of the original version but we recognise that a mind-set change takes time and that organisational culture cannot be constructed or imposed.

The Safety Strategy is expressed through the four themes, which we believe are simple, clear and help guide the development of the new safety philosophy in NATS. These 4 themes are:

- > People Create Safety
- > Safety Intelligence
- > Tailored & Proportionate
- > Challenging & Learning

Each of these themes is briefly explained in the following pages.



# People Create Safety

People are our strength. Safety comes from individuals taking personal responsibility and ownership.

Our actions and behaviours reinforce the principles the company stands for. Safety comes from how we lead. Safety must be integrated into how we do business.

In the 2014 version of the Safety Strategy, we emphasised the importance of our people in our safety performance. We used the phrase: 'People are our strength, not our weakness'. This captured the idea that people, wherever they are in the organisation, are key to delivering safety. NATS is an organisation of highly-skilled, dedicated professionals who take pride in the quality of the services they deliver and in our joint responsibility for the safety of these services. This professionalism is at the heart of our flexibility and our capability to adapt to change in the complex work of managing UK air traffic. The People Create Safety theme recognises these skills and ensures we respect the critical, but changing, role of the human in delivering the exceptional performance we see today so that it continues into the future. A focus on people needs to be at the forefront of our minds as we move towards Destination 2030, which will undoubtedly present a challenge for the people in our business.

This theme highlights that, with increasing automation and greater integration between human and technical support systems, non-operational staff will have a far more significant role in shaping the safety of the operational service. We need to continue to appreciate this broader approach to safety and involve everyone from across the business in the discussion of safety. Talking about safety empowers and supports a culture that is self-critical, challenging and informed. We must therefore ensure that everyone understands what part they play and how their role relates to safety today and into the future. Safety should continue to be a value which is held by everyone where we harbour a sense of unease about our performance, and where we continually challenge ourselves to guard against any creeping complacency or any over-reliance on past successes in our attitudes to safety in the future.

In asking people to be responsible for safety, we need to make sure that all individuals have the capability and authority to act. Our formal and informal safety awareness programmes will continue to be developed so that our people have the knowledge and practical expertise in all aspects of safety management and safety understanding. We will also recognise that the person doing the work is the most knowledgeable about the safety risks and is therefore in the best position to control them effectively and should be empowered to do so.

Empowering individuals also means that we place our trust in them. People therefore must take a personal

responsibility for safety today whilst also looking forward to identify how we can be safer tomorrow. The actions people take and the behaviours that people demonstrate all reinforce the principles we stand for and the values we hold. Therefore we need to be clear about what standards the company expects and act justly if these are breached. The organisation should encourage a culture where everyone feels comfortable in challenging poor behaviours wherever they are in the organisation. Major incident investigations from recent history all have a theme in common: that organisational culture, managerial capability and leadership are of fundamental importance in the delivery of safety. Safety comes from how we lead. Leaders and accountable managers set the tone for safety and have a profound influence on the culture of the organisation. We need to continue to raise the capability of our safety leaders to reinforce our culture and to improve how we make decisions which affect safety.

Lastly, we should continue to integrate safety into everything we do. Safety is good business and should never be tacked on as an afterthought or done in isolation from the rest of the business. Safety is a value not a competing priority – we should not think of 'service versus safety' but instead should adopt the mind-set of 'service with safety'.



## Theme summary

- > Clear understanding across the business of how people's roles affect safety and how it is a personal value;
- > Safety has a high profile in corporate communications, dashboards and team meetings to connect individuals in a tailored and meaningful way to safety and support an informed culture;
- > Capability of people and leaders has been developed to ensure informed decision-making and awareness of the role leaders play in setting the tone for safety;
- > Safety and business processes have been integrated;
- > Total systems approaches are widely adopted across the business to understand how safety is delivered day-to-day;
- > Staff roles, skills and competence align with the level of technological automation.

# Safety Intelligence

Our performance is such that we must adopt new measures to understand how safe we are. We must redefine safety to mean ‘as many things as possible go right’, not just ‘as few things as possible go wrong’. We will continue to learn from incidents but also define new measures of performance that allow us to anticipate risk.

Our traditional approach to understanding our safety performance has been one that identifies, counts and investigates the times when, for whatever reason, we failed to provide a safe service. Accidents are very rare so we have used proxies, surrogates and other phenomena that we believe have a bearing on understanding the safety of the service. We have learnt the lessons of the past and sought to use them to make the future service safer.

This approach has been highly effective. However, the relatively low numbers of recorded safety events we still see poses troubling questions about understanding how safe we are. Do we understand the reasons why our performance improved so much? Can we adequately explain the recent increase in the number of safety events after this period of historic low numbers of events? Are we learning all we can from these events? Are we fully aware of the risks that exist in the operation and can we infer our future performance from the past given the change we are embarking upon? Where is the tipping point in safety performance? How resilient are we and how do we ensure we retain our resilient capacity in the face of change?

Our safety performance is such that we need to complement existing measures of safety performance with new measures and new ways of understanding how safe we are and what safety means.

We are encouraged by developments in safety science which emphasise examining everyday performance and the study of how safety is produced day-in-day-out without waiting for failures to occur.

Even though our safety performance has not fully achieved all our challenging targets, incidents are still very infrequent. We should continue to redirect our efforts to supplementing our traditional solutions and complementing our current processes with analysis and action based on a total systems approach that goes beyond error. New measures of safety are needed that focus on the effectiveness of the business in producing safety on a moment-to-moment basis.

Since the publication of the last strategy there have been some positive technological steps in this direction so that we have, or will soon have, much greater information about how the ATM service is being delivered. This presents an opportunity to develop this information into indicators of safety performance, of purpose rather than failure; enabling us to further improve our ability to anticipate and proactively manage our risks. Data-driven decision-making will need to continue to be supplemented with individual experience to provide context and build shared understanding. The wider availability of new measures of how effective the business is in producing safety also serves to connect people to the business, reinforce an awareness of risk and support the understanding of safety. Lastly, these measures of everyday work should help us to close the loop between the specification of the systems and procedures we design and the everyday work of delivering the ATM service.

It will still be necessary to learn from incidents when they do occur; but what we learn should consider the ATM system as a whole rather than solely focusing on the human contribution to error. We should be more selective in our investigations and focus on the depth and quality of understanding from the investigation process, rather than the volume of investigations, to produce positive recommendations for improvement.



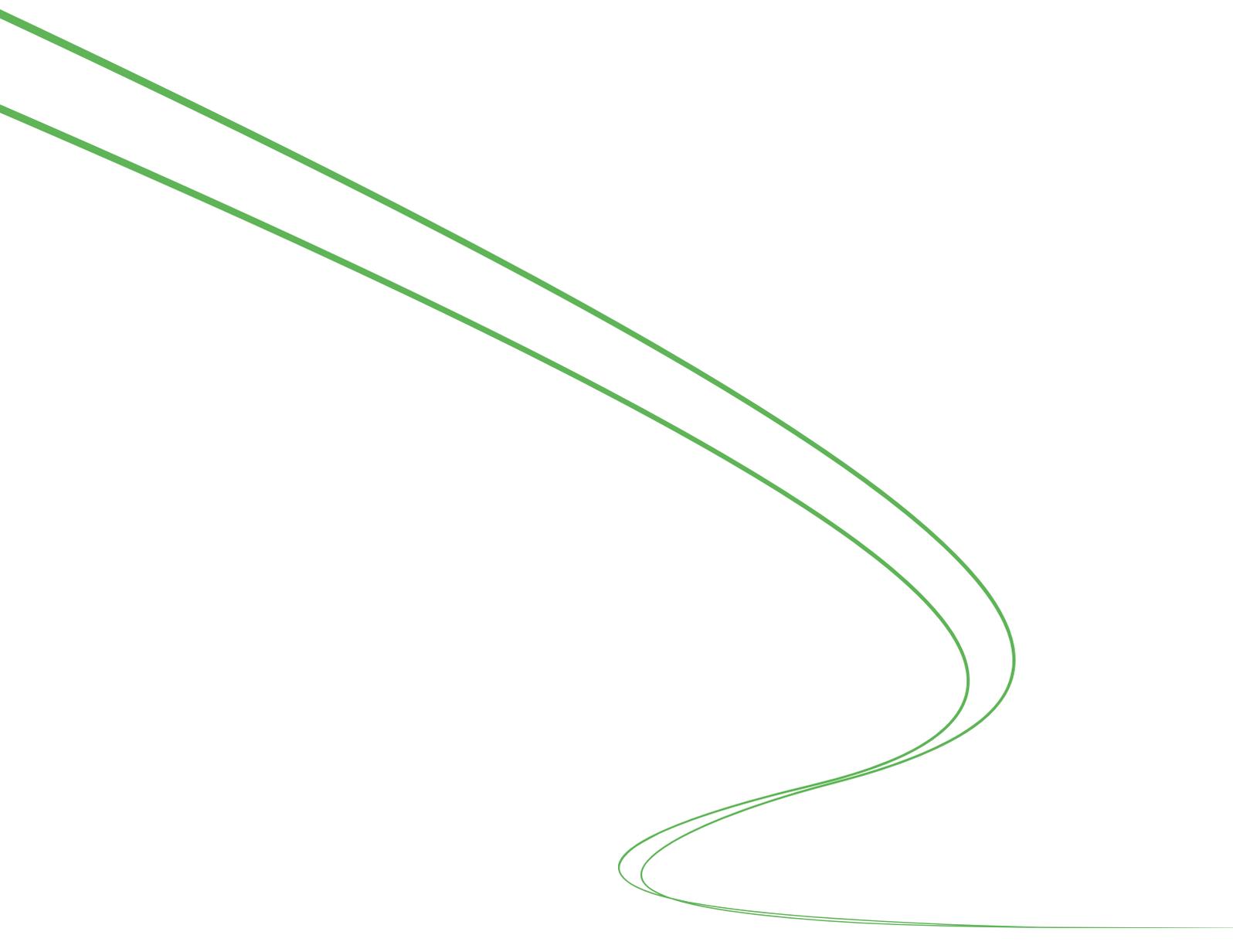
## Theme summary

- > New measures of safety have been adopted that complement existing ‘failure-based’ measures;
- > Our measures and understanding of safety allow the anticipation of risk;
- > Analysis of incidents is complemented by investigations into normal operations to make sense of what keeps us safe and to learn and reinforce what went right;
- > Novel techniques and models of the operation are used to explore the delivery of safety, support decision-making across the business and specify changes to maximise safety benefits.

# Our Strategy

## Safety

Pull out guide



# Our Strategy

## Safety

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Need for change</p>	<h3>Current position</h3>  <ul style="list-style-type: none"> <li>Historically strong safety performance</li> <li>Robust procedures and processes</li> <li>Global reputation for leadership</li> </ul>  <ul style="list-style-type: none"> <li>One-size-fits-all approach to assurance</li> <li>Increasingly resource constrained</li> <li>Running out of things to count</li> <li>We are safe now, but how do we ensure we are safe in future?</li> </ul>	<h3>Short</h3>  <p>Increase in drones</p>  <p>Evolving cyber threat</p>	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Our vision</p>	<h3>By 2030, NATS will have evolved such that:</h3> <ul style="list-style-type: none"> <li>Safety has been embedded in everything we do</li> <li>We have a greater understanding of what makes the services we deliver safe</li> <li>New measures and techniques allow us to better anticipate risk and control safety in the operation</li> <li>Everyone understands how their role relates to safety today as well as in the future</li> <li>Our safety management system is adaptable and progressive</li> <li>Lessons are learned, risks are anticipated and we are constantly challenging ourselves</li> </ul>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Our strategy</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Pe</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Key themes</p>	<h3>People Create Safety</h3>  <ul style="list-style-type: none"> <li>Safety comes from individuals taking personal responsibility &amp; ownership</li> <li>Actions &amp; behaviours reinforce our principles and values</li> <li>Leaders set the tone for safety</li> <li>Safety must be integrated into how we do business</li> </ul>	<h3>Safety Intelligence</h3>  <ul style="list-style-type: none"> <li>Adopt new measures to understand how safe we are</li> <li>Redefine safety to mean 'as many things as possible go right', not just 'as few things as possible go wrong'</li> <li>Learn from incidents but describe new ways of anticipating risk</li> </ul>	

## Short-term challenges



Increasing cost pressures



Unprecedented traffic growth



New regulators and regulations



Delivering our change programme

## Long-term challenges



Changing role of the controller



Anticipating risk and prioritising actions



Advances in data availability



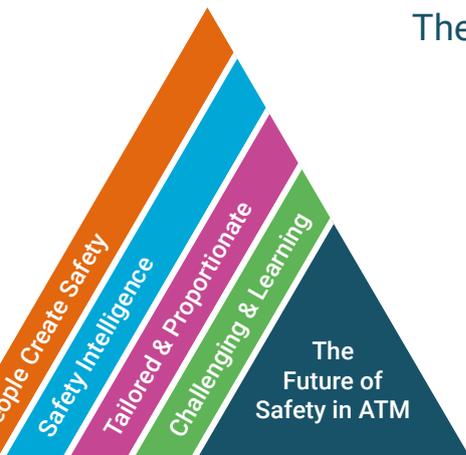
Increasing connectivity and complexity



New concepts



New technologies



## The Future of Safety in ATM

THINK ACT BE **SAFE**

- Safety is a value not a competing priority
- People are our strength, not our weakness
- Understand why, and how, for the vast majority of the time, things go right
- Safety actions must be appropriate, intelligent and surgical so that resources are not wasted on the wrong action or the wrong risk
- A culture of challenge to guard against complacency
- At the forefront of safety management
- Delivering a mind-set change in how we think about safety

### Tailored & Proportionate



- Make sure how we do safety is fit for the challenges of the future
- Understand the real risks and address them proportionately
- Maintain our fundamental principles but support our growth ambitions

### Challenging & Learning



- Improve how we learn from and collaborate with others to address risk
- Create a culture of questioning and challenge in the organisation
- Challenge others on the pace and rigour of risk mitigation

Advancing aviation, keeping the skies safe.

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# Tailored & Proportionate

## The ATM world is changing rapidly and we need to make sure 'how we do safety' is fit for the challenges of the future.

We need to understand the real risks and address them in a proportionate way – focusing on what really matters. We will maintain our fundamental safety principles whilst also supporting our growth ambitions.

Change is part of our business and in an increasingly fast-paced and competitive environment, with an ever-changing security landscape, there is a continuing need to be adaptable, flexible and resilient in how we operate. As we continue to deploy advanced technologies, automation and airspace changes to unlock the potential benefits they provide, the increasing complexity and interdependencies of future systems pose challenges for how we assure ourselves of the safety of these changes.

The current Safety Management System was never designed to cope with the levels of connectivity across systems and the increased propagation of decisions across the ATM network nor the sharing of responsibilities for safety between the ground and the air or between technical and human elements of the system. The SMS was also developed when NATS built many of its technical solutions in-house. As we increasingly rely on other providers to support our services or enter into strategic partnerships to deliver the systems and services we need at a cost we can afford, the SMS needs to continue to evolve to better address the increasingly collaborative nature of service provision. There is a pressing need to identify and validate new analysis and assurance techniques to support an understanding of how safety emerges in complex systems such as ATM. Similarly, the SMS was originally developed in the context of a simpler and more benign security environment. As the security threat and our technical systems evolve, we must continually improve how we assess and control those security risks that have implications for the safety of our services.

Continued cost pressures also require that we target scarce resources on the right problem. When we do take action it must be proportionate to the risk. These actions must also be intelligent and surgical so that resources are not wasted on the wrong action or the wrong risk. We need to simplify and harmonise many of our safety and business processes, centralising the tasks where reasonable and proportionate. This serves to ensure the operational units have sufficient resources to tackle their local safety challenges in a tailored way.

Over the next few years we should continue to focus on delivering further efficiencies in the SMS and how we manage safety to ensure that efforts are directed in the

most beneficial areas. The SMS needs to be recast around sets of principles and values supported by a range of methods to provide the assurance we require. By enabling different approaches, the SMS will become more portable, flexible and adaptable to support the changing regulatory environment and our growth ambitions whilst still being rigorous, thorough and compliant with regulatory requirements. The SMS should also be connected to the rest of the business so that the processes and procedures it describes are informed by data and experience.

The Tailored and Proportionate theme also embodies an ethos; it is not just about processes. It should be taken into all aspects of the business. For example, empowering individuals to take risk-mitigating actions as part of their normal day-to-day role is a more proportionate way of managing risks. Rather than one-size-fits-all approaches to, for example, training, we should tailor development to the individual. With safety integrated into how we do business, rather than tacked on at the end, we can take more proportionate and structured decisions in the design, procurement, planning, deployment and maintenance of the technical system. Procedures should be tailored to safety so that they have risk controls built into the task. The safety of our technical systems will be further enhanced by ensuring they are secure-by-design and by ensuring they maximise human performance. Our approach to the ongoing rule-making and regulatory framework should be one which is proportionate to the risks it poses so that efforts can be directed appropriately.



## Theme summary

- > The Safety Management System enables flexible and proportionate approaches to providing the necessary safety assurance whilst retaining the core elements of rigour and thoroughness;
- > There is a clear and consistent understanding of safety risks across the business and our stakeholders;
- > Actions taken are proportionate to the risk they address and tailored to the local circumstances;
- > Investment decisions are based on an understanding of the work-as-done and how safety is produced in the operation.

# Challenging & Learning

NATS operates in a wider ATM world. We must continue to learn from and collaborate with others to address the risks in ATM.

We will continue to develop a culture of questioning and challenge in the organisation. We must also challenge others on the pace and rigour of their risk mitigation actions.

The rapid pace of change in the external political and economic environment affects ANSPs across the globe. NATS must respond to these challenges by ensuring that we operate at the forefront of safety management so that we are in a position of strength and understanding when challenged by others. We are an outward-looking organisation and we should continue to look beyond aviation to other safety-related industries and academia for alternative practices which can complement and improve upon our own.

To achieve this during changing times, it is vital that we continue our international engagement to both maintain our expertise and to influence the ongoing change in risk management regulations and developments in safety science. This may require us to better align our activities with the plans of others rather than to forge our own path, recognising that we can gain efficiencies by working with our international partners and stakeholders on common issues affecting us all.

Ownership of risks needs to be clear so we should continue to provide robust challenge to our regulator and other aviation stakeholders on the speed and rigour of risk management actions. Where risks are shared, or where we have expertise which can assist, we should retain our duty to constructively support and collaborate to ensure that risks are properly addressed to the benefit of aviation safety.

Rules do not necessarily make us safer and proving an activity is within the rules does not necessarily make it safe. With the increasing amount of international rules and regulations imposed upon us, we must ensure that the metrics that are used to measure us drive the right behaviours.

This theme also takes an inward look at NATS. There is still work to be done to enhance how we learn lessons and we should build on our culture of story-telling to promote safety awareness. Learning and professional development should be encouraged across the business and embedded in our culture to make it systemic and part of everyday work.

Effective and open two-way communication helps align the organisation to the common goals and objectives of safety improvement. Whilst visions, strategies and plans are important, there is considerable value in listening to the organisation and valuing feedback on the realities of the operation. Greater debate and constructive challenge from across the business helps guard against complacency and a drift towards failure so should be actively encouraged. We should ensure that how the organisation is structured does not prevent sharing and we need to continue to value experience and expertise. Empowering people, providing the necessary resources, prioritising safety actions and breaking down the silos in the organisation will also help bring all our talents and different perspectives to bear on the challenges we face.



## Theme summary

- > Clear understanding of roles, accountabilities and responsibilities for safety across the business so that there is complete alignment towards the common goal of safety;
- > Lessons learning is second nature such that there is an absence of recurring safety recommendations;
- > We encourage challenge since different perspectives can expose new risks;
- > We engage with other stakeholders, wider industry and academia, learning from them to support improvements and to continually challenge ourselves whilst working with them on shared risks;
- > Ensuring the emerging regulatory framework continues to make us safer and ownership of risks is clear.



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# Guiding Principles

A number of principles have informed the development of the strategy. They point towards how we believe ATM safety should be managed in future. These need to be embedded within the ATM industry to enable it to achieve safe and efficient operations in the future.

## ① Safety is a value, not a competing priority

Safety is a product of our everyday activities and our performance. It needs to be integrated into our business processes and decision-making. It must not be tacked on at the end. We must evolve from a view of service versus safety to service with safety.

## ② Cultivate a culture of curiosity & challenge

We must have a culture that supports questioning and that challenges complacency and the reliance on past success as a perceived guarantor of future safety. We must continually ask 'How did that happen?' not just about failures, but also about our successes. An understanding of normal operations is just as important to safe and efficient operation as learning from failure. Normal day-to-day operations should be seen as opportunities to learn just as much as incidents. The investigation procedure changes to an analysis process, which is open with all levels involved and learning openly shared.

## ③ People are our strength, not our weakness

The human in the ATM system has a key role in ensuring the safety of our operations. Human decisions can only be understood in the context in which they are taken. Human error is not a cause but a symptom. Competence in every role is essential to sustaining reliable and safe operations. We empower individuals and devolve responsibility, recognising experience and expertise. We ensure that training is relevant and provides the right knowledge and skills.

## ④ Performance measures should be proactive and anticipate risk

We can no longer measure safety by simply counting incidents. We need to move from a model which relies overly on lagging indicators to a mixed model that also makes use of leading indicators and of measures that help us understand how mutually dependent functions in the ATM system can come together to create the opportunity for performance variation. Our measures must help us prepare and anticipate risks in all our operations and provide the capability for resilient operations, even when the risks are unknown and never conceived or experienced before. We no longer only use the past to inform the future and neither is safety only assured from past performance.

## ⑤ Failure and success come from the same source

Our safety model should reflect progressive safety thinking and must go beyond simplistic cause and effect, since the world is more complex than that. Our capacity to deliver a safe and efficient service depends on our ability to make performance adjustments and adapt to risks and critical situations. Incidents result from the consequences of our normal everyday actions when we cannot make these adjustments – and not simply from failures, broken components and a predictable sequence of events.

## ⑥ Knowing when enough is enough

Our processes must support us in taking the right actions to address the right risks to achieve the right outcomes. But they must also tell us when to stop or give us the confidence to change direction. We must guard against gold-plating and look to make our management processes goal-based and flexible without necessarily prescribing the method to achieve it.

## ⑦ Beware of perverse incentives

We should use metrics and measures carefully and ensure that they drive the right behaviours, system outcomes and performance. We need to communicate our values and goals so that when we use targets they are set at the right level in the organisation. We verify not only that the necessary activities are being executed but also that the expected outcome is being achieved.

## ⑧ Make it safe rather than prove it is safe

We embed safety-by-design principles in our project lifecycle to deliver optimum safety benefit from projects. We understand that good engineering helps create good safety, we use detailed risk models and quantitative requirements appropriately and make better use of expert judgement. We adopt a progressive approach to what delivers safety that does not assume, suppose or resort to safety by numbers.

## ⑨ Do not just blindly 'do' safety

Through training, we provide the workforce with the capability to make these principles real, to progress from the service versus safety view, evolving, over time, to a company ethos of service delivered safely. We extend the benefits of the human contribution to safe operations to everyone, not just those in the front line.

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# Delivering the Strategy

For this version of the Strategy we are also providing a set of high-level outcomes that describe how we envisage safety being managed in 2030 that bridge across the 4 themes. These outcome statements should help direct the implementation of the Safety Strategy and ensure the vision presented in the Strategy is real and can be embedded in the objectives of the business.

The Safety Strategy sets out a top-down vision for safety, but safety actions can, and should, also be identified, initiated and acted upon at local and individual levels. The Safety Plans for the Units, where those with most knowledge of the local risks identify the changes that need to happen, should align to the Safety Strategy. Similarly, the strategic themes should ensure that the organisation prioritises these local actions and ensures the necessary resources are made available. Where risks, issues or mitigations that have been identified at a Unit level require more of a corporate response than it is expected that actions would be coordinated and aligned at a corporate level to ensure, for example, that all parts of the business learn lessons or benefit from local understanding.

To achieve longer term strategic change though requires strategic planning.

We envisage the Safety Strategy will be implemented through a structured programme of projects and activities that have been developed in partnership with the business. These will be managed using nine safety capabilities that will be the focus for our improvement activities in the implementation of the strategy. The capabilities include a number of outcome statements that describe the desired end-state for 2030.

## 1 Safety Culture, Ownership and Commitment

- > Leaders take a strong stand for safety. They communicate and act in accordance with a clearly defined and well understood safety culture to create a positive and constructive environment;
- > Continue to ensure that everyone in the business is committed to safety and understands their contribution. All safety-specific roles are clearly documented, understood and executed;
- > The mechanisms available at the Units and across the business support the discharge of accountabilities for safety;
- > Safety has a high profile throughout the business and, as a result, there are frequent and open discussions about the role of individuals, behaviours, leadership and decision-making to deliver continuous improvement of our safety culture;
- > Learning culture is established and we can demonstrate that there has been a reduction in repeat events.

## 2 Future roles, skills and talent

- > Role definition, recruitment and development are consistently informed by the identified and evolving need for skills in automation, analytics, our future platform, partnerships and international collaboration;
- > Staff are highly skilled, motivated and have a high professional standing;
- > Safety training is a fundamental aspect of continuous professional development;
- > We recognise the need for human resilience in the system and provide the necessary support to proactively maintain the health and wellbeing of staff.

## 3 Strategic Safety Benefit Management

- > Establish and embed strategic safety requirements in our Business Transformation Programme to optimise the safety benefit;
- > Improve our capability to prioritise and track the delivery of our strategic safety requirements;
- > Structure the business to deliver safety improvement and meet our safety aspirations;
- > Evidence-based decisions are made at all levels of the business. Data and new understanding from the operation is used to support justifiable, proportionate and tailored safety-related decisions and investments.

#### 4 Reporting and engagement

- > Individual performance data is used to inform competency checks and tailor training and development needs;
- > Safety performance data is readily available and meaningful to individuals and teams;
- > Key performance indicators for safety give clear insights into system health, weak signals and risk;
- > Continue to ensure that staff are actively engaged in the development and delivery of safety improvement activities.

#### 5 New measures and understanding

- > Real-time data from the work in the operation is used to support tactical decision-making in the operation;
- > Human performance data is monitored at the level of the individual and the team to inform risk management decisions;
- > Data from the operation enables proactive identification of emerging strategic risks. Changes in behaviours, strategies and performance are monitored and assessed against a model that supports our understanding of the impact on risk;
- > A risk-based, rather than compliance-based, approach is adopted to the development of new measures of safety to ensure they better reflect accident risk.

#### 6 Collaboration, partnerships and regulation

- > The regulatory framework is used as a stimulus and vehicle for delivering safety improvement;
- > Continue to strengthen our international partnerships, collaborations and supplier relationships to encourage and share best practices that enhance ATM safety;
- > NATS takes advantage of the wider data science community to solve its safety issues;
- > Risks at our interfaces are proactively managed with our stakeholders.

#### 7 New users, new risks

- > We have a business capable of safely supporting a range of new airspace users with innovative capabilities;
- > In light of emerging threats, the integrity of the information needed for the safe delivery of our services is maintained;
- > We have a long-term view of our risks and opportunities to ensure the business is in a position of strength to respond.

#### 8 Delivering safety research & innovation

- > Innovations in safety have been identified, funded and prioritised;
- > We are engaged with academia and industry and are recognised as being at the forefront of safety research for ATM;
- > We have a development programme that is delivering the next iteration of advanced ATM to support a safe operation.

#### 9 The future Safety Management System

- > The SMS has been benchmarked against other safety-related and safety-critical industries. There is a robust programme of continuous improvement;
- > The SMS adopts a true socio-technical approach to risk;
- > The SMS has become more portable, flexible and adaptable to future ways of working and facilitates our growth ambitions whilst remaining rigorous and compliant with regulatory requirements;
- > The SMS drives a tailored and proportionate approach to risk.

These safety outcomes describe the tangible delivery of the Safety Strategy. To that end, these outcomes will be embedded in our business transformation programme.



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# Tell Us What You Think

Once again, we invite your thoughts and comments on this revised Safety Strategy, in particular on the vision, the language, the understanding of the themes and, most importantly, how the strategic change can be achieved through action.

The Safety Strategy should be seen as a catalyst for change and promote a positive discussion about how, together, we can keep the ATM industry safe today and make it safer tomorrow.

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