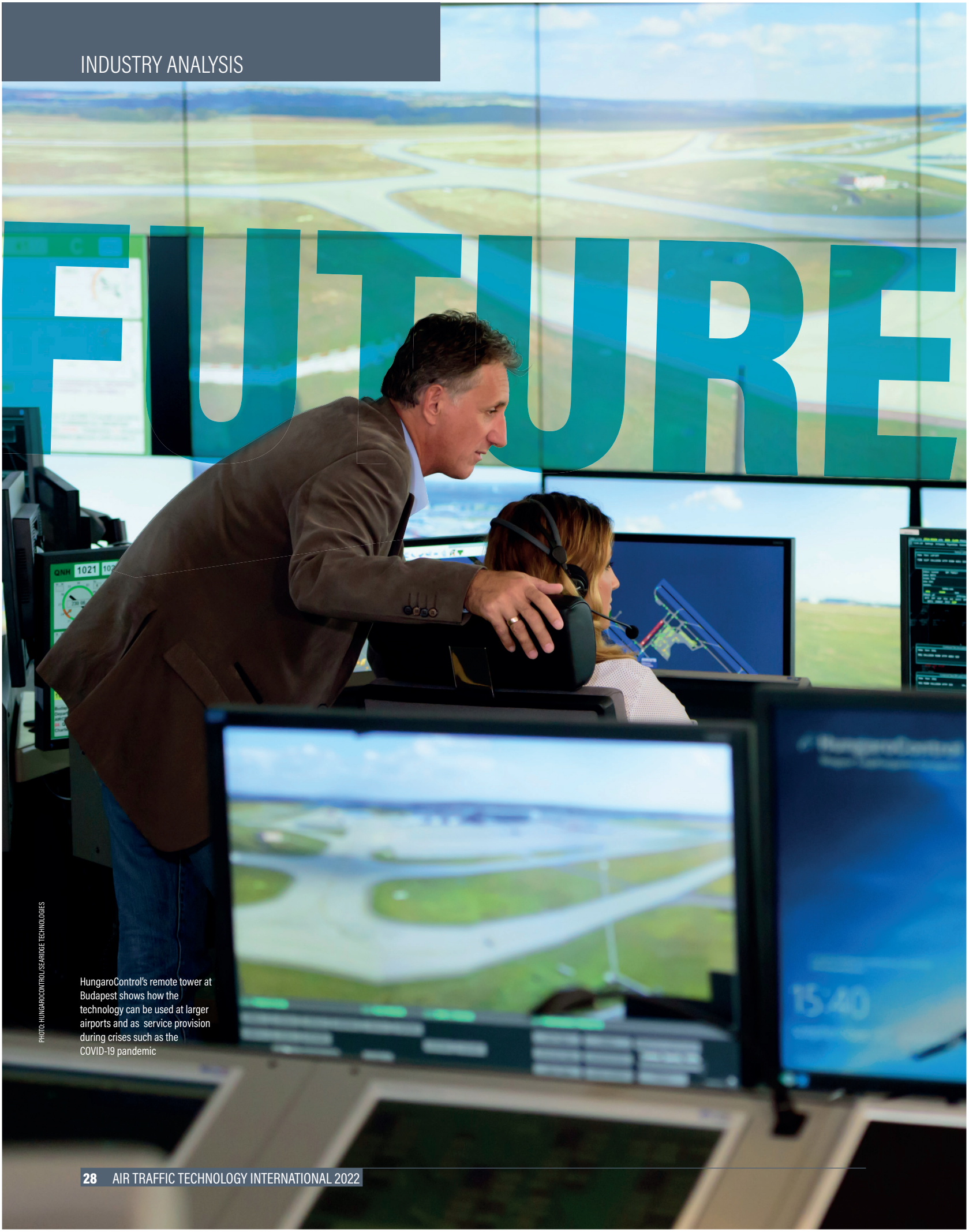
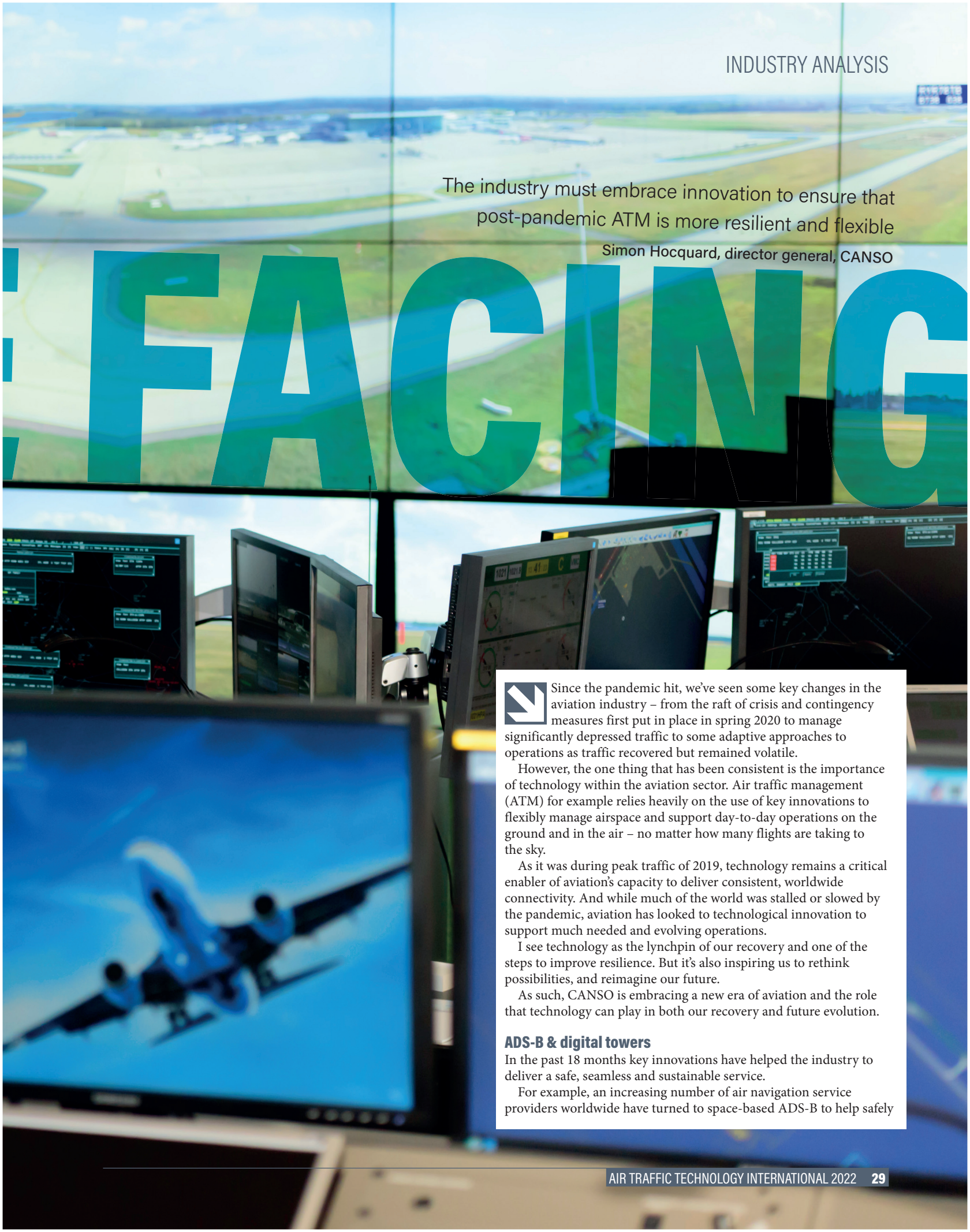


PHOTO: HUNGAROCONTROL/SEARIDGE TECHNOLOGIES

HungaroControl's remote tower at Budapest shows how the technology can be used at larger airports and as service provision during crises such as the COVID-19 pandemic



The industry must embrace innovation to ensure that post-pandemic ATM is more resilient and flexible

Simon Hocquard, director general, CANSO

FACING

Since the pandemic hit, we've seen some key changes in the aviation industry – from the raft of crisis and contingency measures first put in place in spring 2020 to manage significantly depressed traffic to some adaptive approaches to operations as traffic recovered but remained volatile.

However, the one thing that has been consistent is the importance of technology within the aviation sector. Air traffic management (ATM) for example relies heavily on the use of key innovations to flexibly manage airspace and support day-to-day operations on the ground and in the air – no matter how many flights are taking to the sky.

As it was during peak traffic of 2019, technology remains a critical enabler of aviation's capacity to deliver consistent, worldwide connectivity. And while much of the world was stalled or slowed by the pandemic, aviation has looked to technological innovation to support much needed and evolving operations.

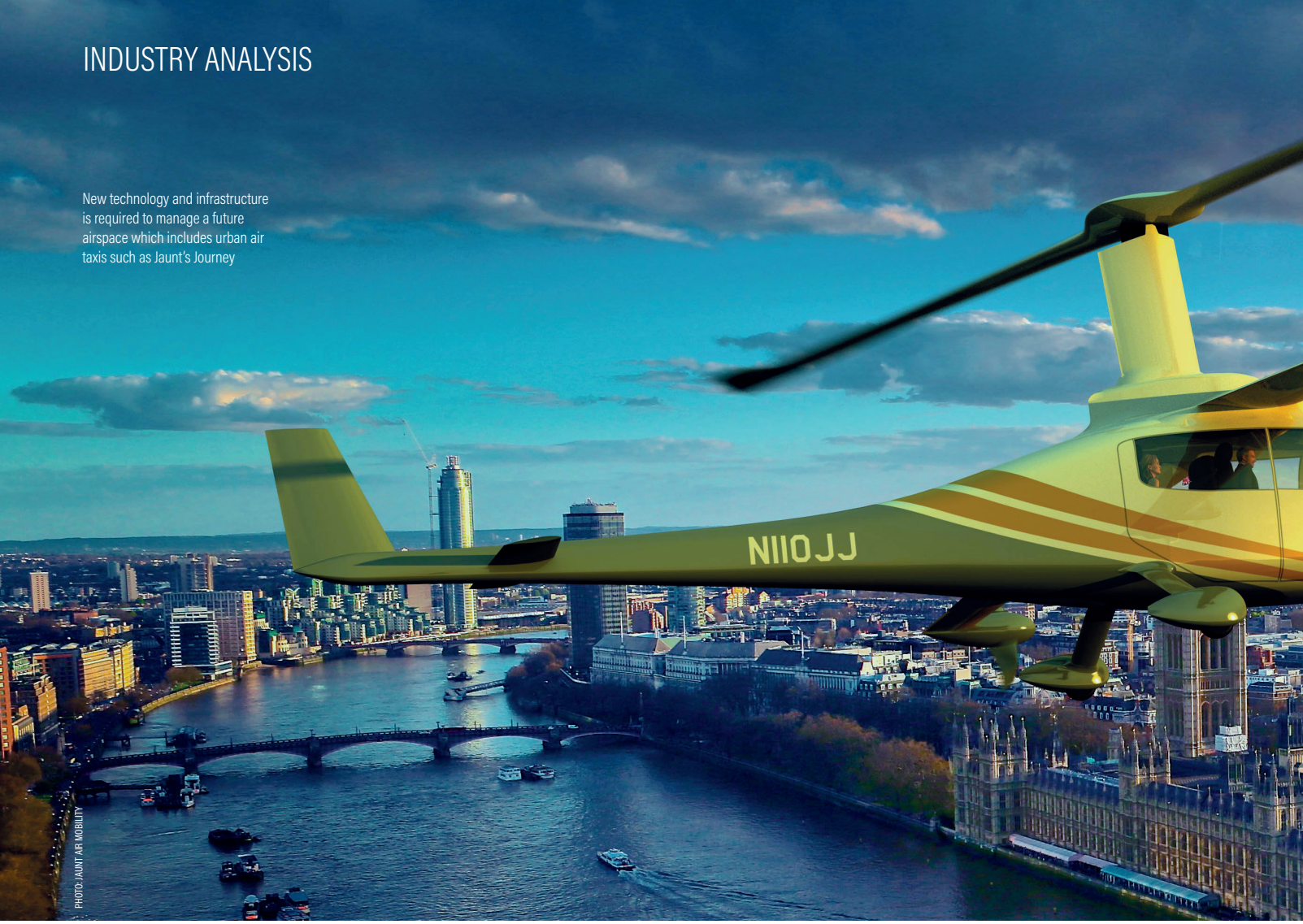
I see technology as the lynchpin of our recovery and one of the steps to improve resilience. But it's also inspiring us to rethink possibilities, and reimagine our future.

As such, CANSO is embracing a new era of aviation and the role that technology can play in both our recovery and future evolution.

ADS-B & digital towers

In the past 18 months key innovations have helped the industry to deliver a safe, seamless and sustainable service.

For example, an increasing number of air navigation service providers worldwide have turned to space-based ADS-B to help safely



New technology and infrastructure is required to manage a future airspace which includes urban air taxis such as Jaunt's Journey

PHOTO: JAUNT AIR MOBILITY

navigate shifting traffic patterns and improve flight efficiency.

These include the Civil Aviation Department (CAD) of Hong Kong, Airports Authority of India and Isavia. Satellite surveillance has also been used to provide key oceanic coverage for Avinor Air Navigation Services in the North Sea, and challenging terrains covered by ASECNA in Africa and NiuSky Pacific Limited in Papua New Guinea.

In addition, ADS-B has been integrated into the EUROCONTROL Network Manager's Enhanced Traffic Flow Management System, boosting air traffic predictability, capacity and sustainability.

And in a similar coming of age story, the use of remote tower technology has been instrumental in supporting flexible operations and building resilience. HungaroControl and Searidge have showed at Liszt Ferenc International Airport that remote tower technology can provide vital contingency and recovery support.

And in a milestone moment, London City Airport also became the first major international airport to be fully controlled by a remote digital air traffic control tower in April 2021. This followed intensive research during lockdown to determine how to safely manage remerging passenger demand.

"Aviation has looked to technological innovation to support much needed and evolving operations"

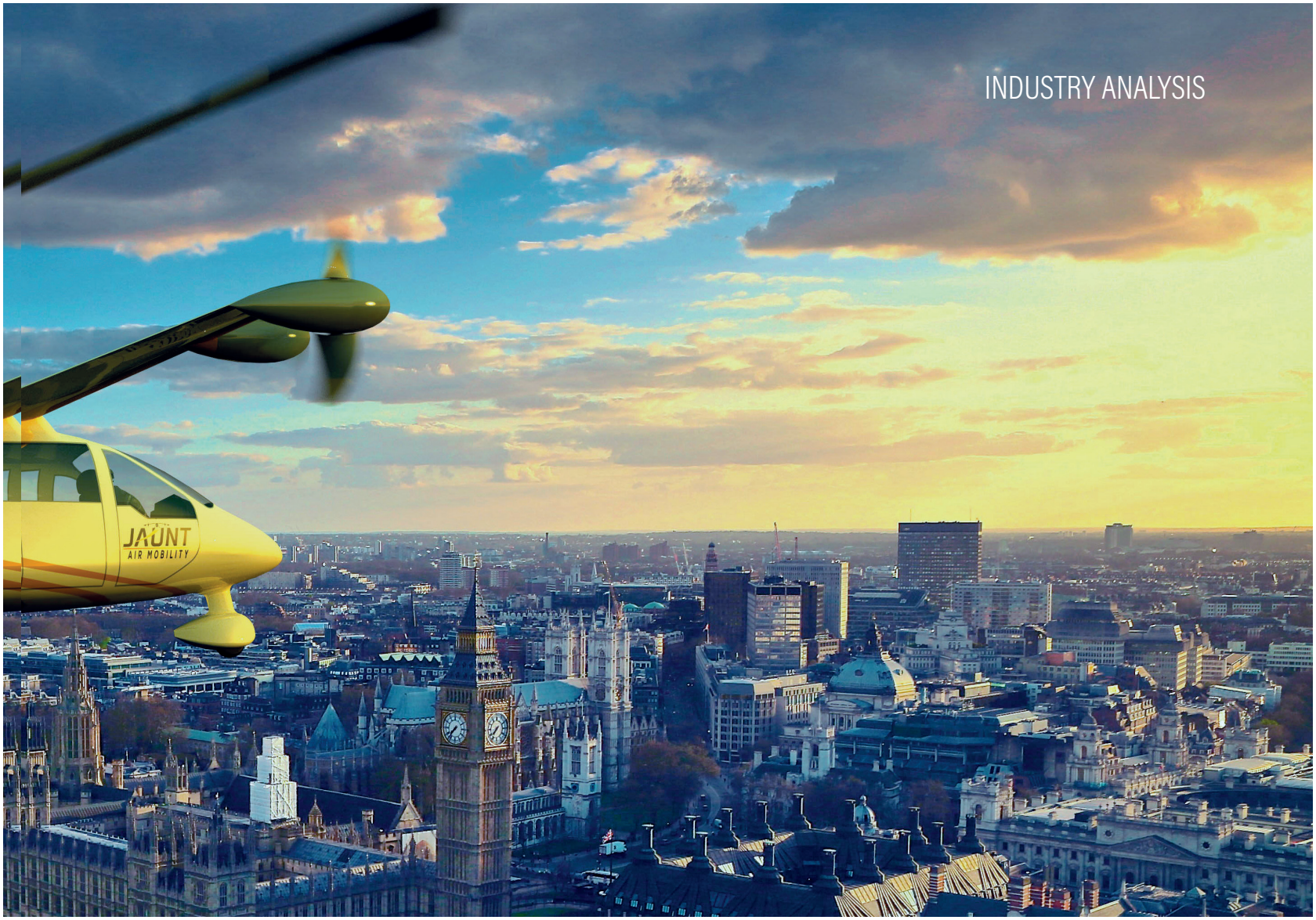
In addition, Swedish air navigation service provider LFV opened RTC (remote tower center) Stockholm, while the Avinor Remote Towers Centre now operates four towers across Norway. Naviair and Airport Authority Hong Kong have also made progress in developing digital tower technology, further boosting the resilience, safety and efficiency of services in high traffic airspace.

Each of these remote projects shows how virtualization and virtual data centers are gathering traction. They provide critical solutions which enable resilient, sustainable air transport robust enough to withstand potential future crises, with flexible use of controller workspaces and solutions that offer geographical agility.

In a similar vein, remote and simulation training technologies have continued to gather momentum, remaining a core part of ATM's efforts to develop our highly specialized workforce and skills pipelines.

From CANSO's partnership with Micro Nav to leverage remote training tools worldwide to other simulator and training initiatives, the latest training innovations have helped the industry to successfully navigate Covid-19 restrictions and delivered much-needed, cost-effective training solutions.

These are just some of the examples of how technology has been helping the industry to react to and recover from the volatility of the pandemic, prioritizing the advancement of their capabilities, even during the traffic downturn. They also show



how the industry has been compelled to speed up innovation to future-proof services and capabilities during resurging demand.

In this way I am confident the industry will continue to harness the benefits of technological innovation and to improve our ongoing resilience.

Reimagining our future

Aviation is at a crossing point between our old and new flight paths. Our world today is very different from how we might have imagined it five years ago, but we still have pressing challenges that we must address – from operational efficiency and flexibility, to sustainability.

We also have an opportunity to change the way we approach rebuilding our world and the tools we use to do this.

I believe technology will have a huge role in influencing air navigation services in the future, and that new and emerging technologies will enable us to explore new potential and reimagine our future.

As a hub for innovation for the air traffic management industry, CANSO relishes the opportunity to explore new possibilities and to draw from the wealth of knowledge and world-leading advances from among the aviation community.

We know in the future that airspace will be managed differently and CANSO has an instrumental role in proactively driving, delivering and maintaining a sustainable future for aviation.

Indeed, our new vision – shaping our future skies – highlights our commitment to delivering more integrated, sustainable and efficient transport and technology that will be a key part of this future.

For example, innovation will help us to envision and deliver the safe coexistence of all airborne vehicles, which is a key focus area for us. We are creating a shared vision for our skies and established the Complete Air Traffic System Global Council to develop this vision and its building blocks. A key part of this process is understanding how we can reimagine our future and embrace conscious innovation through key technology enablers such as automation, digitization and data-based services.

Our vision has also committed the ATM industry to re-doubling efforts on improving environmental performance. Here too, technology has a fundamental role to play. We know that new aircraft, engine technology and new fuels are key to reducing aviation emissions overall but ATM can take responsibility for ensuring we plays our part too.

Key measures

Key measures such as PBN (performance based navigation), free routes, CDO/CCO (continuous descent and climb operations), A-CDM (airport-collaborative decision making) and 4D trajectories, as well as the associated technologies are important drivers of improved environmental performance and therefore core elements of our reimagined story and potential.

As an industry association, our third focus area is to raise the bar of ATM performance by connecting the industry. Over the past year this has included creating strategic partnerships with technology providers to share key data, insights and capabilities, and facilitating technology showcases and briefings to leverage ideas and innovation.

"The industry has been compelled to speed up innovation to future proof services and capabilities during resurging demand"

Simon Hocquard, director general, CANSO

This has been important in helping to guide recovery, build capacity and resilience, and in revising our community's ambitions for the future.

The pandemic has challenged the industry worldwide, uniting aviation around common challenges, and technology has played a powerful role in offering common solutions to these shared problems. From ATFM (air traffic flow management) to digitizing our network, it's clear that by implementing best practice and leveraging technology, our community has the power to not only respond to current challenges but also to work together to shape its own future.

Collaborating to innovate

Collaboratively leveraging technology to tackle our present and future challenges is vital and CANSO is already engaging in several future-focused technology-based activities that are guiding efforts to recover, rebuild and reshape.

For example, we are working with experts and thought-leaders from across the industry to identify key and emerging technologies and explore their potential via a whitepaper series. The first of these is artificial intelligence, which explores the key considerations for the ATM industry in harnessing the benefits of technology – namely perfecting human-machine collaboration and building trust. This will be followed by whitepapers examining system wide information management (SWIM), space-based CNS, blockchain, airborne capabilities, virtualization, and new concepts stemming from unmanned traffic management (UTM). Each poses an important opportunity for the industry to deepen its knowledge, build resilience and propel itself further into the future.

CANSO is also continuing to work with experts worldwide to examine developments in UTM via our global and regional workgroups and our cross-industry initiatives like *We Are All One in the Sky* in Europe. And of course, the process of generating a pan-industry perspective through the Council is a significant joint initiative. Together these activities are driving the issue of safe integration further forward and determining a new plan for tomorrow, today.

To further leverage technology in preparing for the future, we have also launched a new operational information systems platform. A purpose-built collaborative software platform supported by CGH Technologies, CADENCE enables ANSPs to share information on factors affecting airspace demand and capacity, facilitate enhanced situational awareness, and bolster stakeholder engagement on collaborative approaches to air traffic optimization worldwide. In practice, we're learning from recovery and the role that ATFM has played and building the key insights from that into our global thinking and ambitions for the future.

Underpinning all of this is our commitment to the industry and the people that work within it. Each individual and organization has a critical role to play in leveraging technology, safeguarding it and shaping our future skies.

Technology is and will have a transformative effect on our capabilities, automating routine tasks that improve safety, freeing up controllers to manage skies efficiently and achieve higher productivity.

In support of this CANSO continues to encourage collaboration on training and performance initiatives and to develop critical cybersecurity initiatives that can fully embrace the power of technology and ensure seamless and secure skies.

Our crossing point

So for me this is our crossing point – as we learn from what has been and shape up for what is to come. The industry has faced one of its most challenging periods and will face further investment challenges ahead. But CANSO is committed to the reinvigorating power of technology and its capacity to drive us forward into a better future.

Together our members are making the case for technology to be front and center of plans for rebuilding our industry – and in shaping our future skies. ❖