DEPARTMENT OF TRANSPORT

NOTICE 3529 OF 2025

INVITATION OF WRITTEN COMMENTS ON THE DRAFT AIRFREIGHT STRATEGY FOR SOUTH AFRICA

PURPOSE

This notice hereby invites interested persons and stakeholders to submit written comments on the draft Airfreight Strategy for South Africa within **30 working days** from the date of publication of this Notice in the Government Gazette.

The written comments should be addressed to the **Director-General: Transport** for the attention of:

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BACKGROUND

In the recent years, the Department of Transport (the DOT) embarked on the review of its transportation policies to better support South Africa's development and economic goals. Since aviation plays a significant role in economic growth, the DOT has concluded a review of the civil aviation policy whose output is the draft Comprehensive Civil Aviation Policy. Amongst others, the draft Comprehensive Civil Aviation Policy calls for the development of a more detailed framework for airfreight, aiming to enhance the sub-sector's contribution to the overall aviation industry. This approach is geared at ensuring that airfreight grow effectively and support broader economic development.

The Airfreight Strategy for South Africa aims to guide the development and promotion of the airfreight sector. It focuses on several important areas including competitiveness, infrastructure funding, integrating sector activities, promoting of broader economic inclusion and participation, eliminating barriers to entry, driving sectoral integration and transformation and enhancing information sharing related to airfreight. Overall, this proposed Strategy seeks

to strengthen and grow the airfreight sub-sector as a key part of the country's transportation and economic development.

The draft Airfreight Strategy for South Africa document is available from the Department of Transport's website: https://www.transport.gov.za/?page_id=1011, under the folder of Civil Aviation - Policies or through this weblink: https://www.transport.gov.za/wp-content/uploads/2023/02/Draft_Airfreight_Strategy_SouthAfrica.pdf

AIRFREIGHT STRATEGY FOR SOUTH AFRICA

2025

transport

Department:
Transport
REPUBLIC OF SOUTH AFRICA

2030 NDP

FOREWORD

Civil Aviation, in particular air transport, is one of the world's most important service industries. It serves as a major catalyst for domestic and global economic activities. In that regard, it is vital to ensure South Africa's effective participation in the continued provision of orderly, safe and secure air transport services to maximise economic and social benefits for the country.

Airfreight is a key building block in the air transport system, and this strategy is the culmination of a broad and inclusive process that sets out to identify necessary interventions to deal with prevailing challenges as well as identified opportunities in the airfreight sector.

Driven by the underlying economics prevalent in the multi-modal freight logistics system, the strategy recognises the important and specific role played by airfreight and the fundamental change in the global aero-political environment towards the liberalisation of air transport services along with the removal of most of the economic barriers to market entry and the liberalisation of access to air transport markets.

The identified strategic interventions were developed with due recognition of the overarching higher-level policy principles of government, including the importance of innovation, free-market competition, and the user-pay principle. The strategy further recognises the prevailing fiscal constraints faced by government and the need to allow open-market public sector participation in the approach to stimulate an airfreight sector that is responsive to demand and supports growth opportunities.

Included in the strategy are interventions in the following areas:

- At airports
- Airport connectivity
- Domestic, Regional and International operations
- Licensing
- Drones
- Airfreight data.

The strategy also sets out an implementation framework for the identified strategic actions.

In conclusion, a word of thanks is recorded to all those representatives from government departments, entities and industry associations who made time available to provide critical inputs into the strategy formulation process.

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ACRONYMS AND ABBREVIATIONS

BMA	Border Management Agency
1P	First party E-commerce seller
3P	Third party E-commerce seller
AAM	Advanced Air Mobility
AAT	Asia Airfreight Terminal Operated by Asia Airfreight Terminal Co Ltd.
ACSA	Airports Company South Africa
AEO	Authorised Economic Operator
AfCFTA	African Continental Free Trade Area
ANSP	Air Navigation Service Provider
ASLC	Air Service Licensing Council
ATAS	Draft Air Transport (Airlift) Strategy, 2020-2025
ATFI	Air Trade Facilitation Index
ATM	Air Traffic Management
ATNS	Air Traffic and Navigation Services Company
AU	African Union
B2B	Business to Business
B2C	Business to Consumer
B-BBEE	Broad-Based Black Economic Empowerment
BRICS	Brazil, Russia, India, China, South Africa intergovernmental organisation
BVLOS	Beyond visual line of sight
CAA	Civil Aviation Authority
CAP	Draft Comprehensive Civil Aviation Policy
CAR	Civil Aviation Regulation/s
CATS	Civil Aviation Technical Standards
CCT	Cathay Cargo Terminal Operated by Cathay Pacific Services Limited
Chicago Convention	Convention on International Civil Aviation
CPT	Cape Town International Airport
Delta BEC	Delta Built Environment Consultants
DHL	DHL Central Asia Hub
DOT	Department of Transport
DSI	Department of Science and Innovation
DTIC	Department of Trade, Industry and Competition
DTP	Dube TradePort
DUR	King Shaka International Airport
eFFI	eFreight Friendliness Index
EU	European Union
FOP	Foreign Operator's Permit
GPI	Global Performance Indicator
GSE	General Service Equipment
GTS	Green Transport Strategy (2018-2050)
HACTL	Hong Kong Air Cargo Terminals
HS	Harmonised System
IASC	International Air Services Council
IASL	International Air Services Licence
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System, categorised as CAT I, CAT II or CAT III
ISO	International Standards Organisation
IT	Information Technology
JNB	O.R. Tambo International Airport
MTOW	Maximum Take-off Weight
NADP	Draft National Airports Development Plan
NAMP	National Airspace Master Plan, 2011-2025
NASCOM	National Airspace Committee
NASMP	Proposed National Aviation Sector Master Plan
NATMAP	National Transport Master Plan (NATMAP 2050), 2016

NCAP	White Paper on National Civil Aviation Policy, 2017
NCAPWG	Draft National Comprehensive Aviation Policy – Airfreight Working Group
NCATS	Draft National Civil Aviation Transformation Strategy
NFLS	National Freight Logistics Strategy, 2007
NTP	National Transport Policy, 2021
RAWG	BRICS Regional Aviation Working Group
RPAS	Remotely Piloted Aircraft Systems
SAA	South African Airways
SAAFF	South African Association of Freight Forwarders
SAATM	Single African Air Transport Market
SACAA	South African Civil Aviation Authority
SARS	South African Revenue Services
SEZ	Special Economic Zones.
SOE	State-Owned Enterprises
SPS	Sanitary & Phytosanitary
TBT	Technical Barriers to Trade
TFA	Trade Facilitation Agreement
The DTIC	The Department of Trade, Industry and Competition
TSA	USA Transportation Security Administration
UA	Unmanned Aircraft
UAE	United Arab Emirates
UAM	Urban Air Mobility
UAS	Unmanned Aircraft System
UAV	Unmanned Aerial Vehicle
ULD	Unit Load Device/aircraft container or pallet, ready for shipment
UPS	United Parcel Services
USA	United States of America
USD	United States Dollar
UTM	Unmanned Traffic Management
VTOL	Vertical take-off-and-landing
WCO	World Customs Organisation
WTO	World Trade Organisation
YD	Yamoussoukro Decision

EXECUTIVE SUMMARY

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The Department of Transportation (DOT) is the custodian of transportation policy, and it is in the process of reviewing such policies to ensure that they are appropriate to achieve South Africa's development and economic ambitions. Aviation is a key contributor to economic performance and growth. The departmental policy review process has resulted in the draft Comprehensive Civil Aviation Policy, which emphasises the need for a more detailed airfreight-specific framework for this sub-sector to make its rightful contribution to the aviation sector as a whole.

Airfreight, like any other activity, contributes to the overall economic fabric and makes specific contributions to production, employment and wealth creation. The preparation of an airfreight-specific strategy to complement the Civil Aviation Policy is required. This Airfreight Strategy is thus intended to provide guidance on the issues of development and promotion, competitiveness, funding, sectoral integration, broader economic inclusion and participation mechanisms, elimination of barriers to entry, sectoral transformation, and information sharing regarding the airfreight aspect of air transport.

The airfreight strategy follows the following values:

- Policy compliance.
- Consultation and transparency.
- Economic rationale and sustainability.
- Innovation.
- International best practice.
- Safety, Security, and Environment.
- Excellence.

The methodology that was followed and the structure of the strategy document is in line with the general sequence of Government policy and Strategy development.

Section 1 of this document presents the key characteristics and particular circumstances in which airfreight operates.
Specific issues that are identified in section 1 include:

- The substantial reliance of airfreight on passenger aircraft as a means of transportation
- The cost of airfreight transport (expressed as Rands per to-km) is significantly more than the cost of road (5 times), rail (10 times) and ocean (30times) transport.
- The CO_2 and Greenhouse Gas Emissions of airfreight are substantially more than other modes of transportation.
- South Africa currently has minimal domestic airfreight (less than 5% of total airfreight by weight).
- International airfreight is processed virtually exclusively at O.R. Tambo International Airport (95%), Cape Town International Airport (3%) and King Shaka International Airport (1%) (by weight).

Section 3 of this document considers policy and legislative environment.

Section 4 of this document presents the strategy for airfreight.

Key strategy interventions that are identified in section 4 are:

- The natural direction of the modal shift is downwards along the energy chain to the modes that are less energy intensive, i.e. from plane to truck, to train, to ship.
  The strategic intention is to improve the workings of airfreight so that it can compete efficiently with other transport modes and provide an alternative means of transport and associated choices for customers under the right circumstances. This then contributes to an increase in the share of airfreight.

- Expansions and refurbishments of airfreight facilities on airports and the provision of by-pass facilities should be promoted in support of efficient airside and landside airfreight operations, with a specific emphasis on the three primary airports that currently process most of the airfreight.
- The existing domestic airport network adequately provides for airfreight demands given that these facilities are adequately maintained and operate within each one's prevailing affordability of airfreight movements.
- Sustain South Africa's position to exchange limited international rights on a bilateral basis.
- Reduce red tape and provide additional capacity to the IASC for improved service delivery, including turnaround time on applications.
- Measures are to be considered to stimulate capacity on the routes to regions with which South Africa has strong political and economic links and where a shortage of connectivity exists, specifically BRICS.
- The collection and distribution of anonymised airfreight data to assist in the planning and development of airfreight infrastructure, facilities and services.

Section 5 presents the strategy options.

- Guidance for strengthening of airfreight through investments, especially at the three primary ACSA-owned airports
- Protection competition in the airfreight industry
- Provision of ICAO (International Civil Aviation Organisation) compliant airfreight bypass facilities at all airports that process airfreight.
- Support the development of aerotropolis, airport cities and SEZ areas in the immediate proximity of airports.
- Maintain and continue to strengthen South Africa's interest in multi- and bilateral agreements.
- Exploit South Africa's position on the South America, Indias, Far East and Southeast Asia routes.
- Maintain South Africa's position as a compliant source/destination player in international airfreight by ensuring continued compliance with international prescriptions.
- Improve turnaround times regarding the consideration and approval of authorisations and licence requests.
- Collect and distribute anonymised airfreight data.

Section 6 presents the Action Plan.

1 INTRODUCTION

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1.1 BACKGROUND AND PURPOSE

The Department of Transportation (DOT) is the custodian of transportation policy, and it is in the process of reviewing such policies to ensure that they are appropriate to achieve South Africa's development and economic ambitions. Aviation is a key contributor to economic performance and growth. The departmental policy review process has resulted in the draft Comprehensive Civil Aviation Policy, which emphasises the need for a more detailed airfreight-specific framework for this sub-sector to make its rightful contribution to the aviation sector as a whole.

The policy review process was impelled by the challenges of the COVID-19 pandemic, the sovereign downgrade and lacklustre macro-economic performance. It was also stimulated by emerging opportunities such as E-commerce, drone transport and new trade frameworks.

1.2 PROBLEM STATEMENT

Airfreight, like any other activity, contributes to the overall economic fabric and makes specific contributions to production, employment and wealth creation. The Strategy should promote this sub-sector's potential role and impact where airfreight has a **leveraging effect** whilst recognising that, in some instances, its contribution is less instrumental.

Airfreight should fulfil its **natural role in the overall cargo transport** arrangements. The different transport modes make up a choice set of options from which consignors and others choose the required attribute set (speed, cost, reliability, etc.). Airfreight is not expected to usurp another mode, but it must be an attractive option for the appropriate goods and not relinquish to less efficient solutions (e.g. as happened with rail-friendly cargo defaulting to the road).

Airfreight is particularly important for **a class of goods that depends on the speed of transport** and can afford to pay for that attribute. The Strategy should, therefore, principally address the requirements of this category. Although it entails some typical goods, it has also recently been seen how airfreight acts as a pressure valve for a broader range of goods in times of crisis (the pandemic, Red Sea shipping insecurity, national port backlogs) or during temporary demand spikes (early-season fruit exports). The Strategy should not just address the normal ebb and flow of air cargo but also ensure that the sub-sector can fulfil this intermittent buffer role in cargo transport.

There is a range of airfreight functions and actors under the direct authority of the DOT, including policymaking, safety and economic regulation, infrastructure (notably airports), and an air service operator (national carrier). The DOT, therefore, has great sway in the sub-sector, both in terms of acting where there are inadequacies of service but also **facilitating entry for others** who can fill the void - acknowledging that freight transport is essentially a commercial domain. One of the barriers to entry into the sub-sector is the lack of relevant, recent **information** on the performance of airfreight.

Because airfreight involves goods for economic production and consumption, it is **intertwined with other policies** related to (amongst others) trade, industrial development, and spatial integration. These policies and the Airfreight Strategy should be complementary,

and the Strategy should support and feed off these initiatives where practicable. An issue that needs to be considered specifically in the Strategy is whether and how the **"traditional" footprint of airports** that accommodate airfreight should be expanded in support of the Government's broader economic objectives.

Beyond dovetailing with other sector policies, airfreight requires a coordinated approach with the operation of **other Government agencies**. These are mostly those that deal with trade (SARS, Health, Agriculture, etc.) and other port of entry control (like the Border Management Agency). The more automated and efficient these actors are, and the more outward-facing airport procedures are, the easier it is to locate airfreight activities off-airport and, in so doing, provide more options to consignors and transports as well as relieve airports from having to cater for all airfreight needs.

The Airfreight Strategy is therefore intended to provide guidance on the issues of development and promotion, competitiveness, funding, sectoral integration, broader economic inclusion and participation mechanisms, elimination of barriers to entry, sectoral transformation, and information sharing regarding the airfreight aspect of air transport.

1.3 Process Values

The Airfreight Strategy was developed by the DOT, inclusive of support from external advisors and broad consultation with key role players and industry groups. This approach was based on the following values:

- **Policy compliance**. The Strategy is a lower-order, more practical blueprint for a specific sub-sector of the transport and aviation domains. It cannot make high-level policy and is subject to the general directions and principles established by such higher-ranking policies. Notwithstanding, it would be amiss of the Strategy if it did not push the boundaries of the overarching policy framework by pointing out where airfreight-specific matters push the boundaries of such policies.
- **Consultation and transparency**. The Strategy must clearly address the sub-sector's practical needs, and these are determined by talking with the players involved. Various rounds and forms of consultation were had with public and private industry representatives. Their opinions were obviously not always congruent, and the Strategy is therefore not just a list of their issues but relies on some further principles to reconcile the industry's positions.
- **Economic rationale and sustainability.** The actions proposed in the Strategy must be practical and economic in the sense that their downstream benefits properly exceed their effort and cost. Aviation already has a big ecological footprint, and the Strategy should at least not increase that.
- **Innovation**. Fresh approaches to old problems should be encouraged. The use of technology and information management techniques to improve the efficiency of the airfreight system should be encouraged.
- **International best practice**. The shortcomings encountered in South Africa are mostly not unique, and solutions have likely already been tried elsewhere. The Strategy should not just copy what has been done by others but should consider approaches that have proven their worth already.

- **Safety, Security, and Environment**. Civil aviation management is underpinned by the importance of upholding international standards of safety and security, and there would be a gap if the Strategy process values did not acknowledge this norm specifically.
- **Excellence**. Although a very high aspiration, the Strategy should underpin operational excellence, continuous improvement, and the highest standards in airfreight services to meet the evolving needs of stakeholders and users.

1.4 STRATEGY TIMEFRAMES

The overarching policies that guide the Airfreight Strategy, such as the National Transport Master Plan, 2050 (NATMAP) and the National Civil Aviation Policy, usually have lifespans of about ten years before they are refreshed. This Airfreight Strategy is a more hands-on instrument dealing with just one area within the broader transport policy environment. Accordingly, the strategic recommendations made should, therefore, be implemented in the next couple of years and definitely within the next decade.

1.5 METHODOLOGY

The methodology used in the development of this Airfreight Strategy comprised several phases in line with the general sequence of Government policy and Strategy development.

1.5.1 Status Quo Assessment

The Status Quo Analysis provided a baseline understanding of the airfreight system, how it works, the challenges experienced, and changing demands and opportunities that could bring about improvements. The intention was to understand the 'as-is' situation to provide a rational basis for identifying appropriate strategies.

The process included:

- Desktop analysis of available data regarding macro government policies and transport policies, legislative mandates, international agreements, trade and airfreight data and the workings of the airfreight system. Available international case study data was also considered.
- Structured interviews with industry representative bodies and Government stakeholders and role players, primarily to confirm the desktop analysis findings, challenges being experienced, and opportunities to be addressed for improved airfreight performance.
- The findings were documented, workshopped with the departmental project team in DOT and presented to the Project Steering Committee for ratification.
- The findings provided input into the Strategy options analysis.

1.5.2 Options Analysis

This analysis sought to provide strategies to address performance deficits and opportunities for improvements in the airfreight system, including the aviation industry. It included a comprehensive examination of various factors, including policy, economics, infrastructure, and market trends. The process involved further consultation with stakeholders to refine and finalise Strategy options.

The options analysis was conducted through multiple interdependent lenses, namely:

- Role of airfreight in the overall freight system
- Airfreight value chain
- Airfreight types
- Air services
- Strategic airfreight connectivity
- Strategic airport network
- Military Airports
- Airport airfreight infrastructure
- Airport Integration
- Drones/unmanned aerial vehicle (UAV) Operations
- Coordination and information
- Standards and procedures
- Training.

The analysis of each topic entailed identifying shortcomings or gaps (tested against the process values shown previously), determining whether the failure is significant, identifying possible solutions (options), and concluding with a worthwhile Strategy solution.

Further, the options analysis was documented and consulted with key stakeholders and the departmental project team and presented to the Project Steering Committee.

1.5.3 Strategy Formulation and Consultation

The Strategy formulation focussed on additional data analysis for key Strategy options and the subsequent crystallisation of the overhead Strategy for airfreight into key strategic intervention areas.

The process included a 'National Consultation Workshop on the Development of the Airfreight Strategy for South Africa' dated 13 February 2024, to which industry bodies and Government stakeholders were invited to consider and make inputs on a draft version of the Strategy document.

1.6 Document Structure

The Strategy document includes the following chapters:

- **Section 1** sets out the background, need for, and purpose of the Airfreight Strategy and the approach followed in its development.
- The airfreight domain is somewhat esoteric and technical for those not involved. **Section 2**, therefore, unpacks its important dimensions and distinctive features of airfreight – an understanding of which is required in the subsequent chapters. The topics are mostly selected because, in some form or another, they find their way into the Strategy.
- The direction of and parameters for the Airfreight Strategy are imposed by the framework created in other higher-order policies and legislation. These are interpreted in **Section 3**. The take-on point for the Strategy is the overall transport policy realm but emphasising freight transport and aviation. Brief

mention is also made of the trade framework since it impacts meaningfully on airfreight.

- With the thematic understanding from and within the policy parameters set out in the previous two chapters, **Section 4** unpacks the issues emanating from the Strategy investigation and consultation process. These issues are considered and then reduced to a “checklist” of interventions.
- **Section 5** sets out recommended actions for the Strategy targets identified in Section 4.
- The Strategy is concluded in **Section 6** with an implementation plan.

2 UNDERSTANDING AIRFREIGHT

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The airfreight sub-sector shares some features with other cargo and transport modes but is also unique in some key respects. It can be considered a niche transport mode given the prevailing and particular circumstances under which it operates. This chapter identifies important attributes of the sub-sector that informed and served as reference points in the development of the Airfreight Strategy.

Provided data can also be used as input into designs for airport airfreight expansions or new greenfield initiatives where these are being considered.

2.1 AIRFREIGHT TYPES

“Airfreight” broadly refers to physical goods, usually packaged into appropriate consignments, for transportation in aircraft. Sometimes a distinction is made between “airfreight” and “air cargo”, e.g. airfreight is transported on a dedicated freighter aircraft vs air cargo carried on a passenger aircraft, or airfreight and air cargoes are also transported on different complementary modes of transport, or airfreight is air cargo plus mail, or air cargo is goods only, but freight includes all related logistics activities. These nuances are not particularly important for purposes of the Airfreight Strategy, and the approach followed is, therefore, to use the two terms interchangeably.

Certain types of goods are particularly well-suited for transportation by air. These are categorised into different types, which helps to standardise and streamline the handling and documentation of airfreight. The following airfreight types are defined by the International Air Transport Association (IATA):

- **General Cargo,** including a wide range of non-specialised goods that do not require specific handling conditions. It can include, among other things, electronics, machinery, clothing, and other commercial goods.
- **Dangerous Goods** or hazardous materials, which are items that require special handling, storage, and packaging due to these goods or materials posing a risk to either health, safety, property or the environment.
- **Perishable Cargo,** including items of food, flowers, and time-sensitive goods that require temperature-controlled transportation. These goods have a limited shelf life and can deteriorate over time.
- **Pharmaceuticals,** which are like perishable cargo in that both categories require a temperature-controlled environment and, in some cases, time-sensitive (as was evident during the COVID-19 pandemic). Pharmaceuticals require stringent and specialised handling and control to maintain the integrity of the goods.
- **Oversized Cargo,** including goods that require special handling and storage due to it being larger than the standard dimensions for general cargo. Oversized cargo are items that have unusual shapes and are heavy or large items.
- **Live Animals,** including pets, livestock, racehorses, game, and other animals that can be transported by air. Animals require specialised facilities, handling, and care to ensure the well-being of the animals during transit and compliance with regulations.

- **High-Value Cargo** includes goods such as precious metals and jewellery. This category of airfreight often requires additional or specialised security measures to ensure the safety of the goods.
- **Human Remains** are deceased bodies being transported to their place of origin for burial or other reasons. The transportation of human remains requires specialised handling and regulatory procedures and documentation to ensure proper handling.
- **Express and Mail** are time-sensitive in nature and often involve shipments that require fast and reliable delivery, such as documents, small packages, or high-value items.
- **E-commerce** is not typically categorised as traditional airfreight but has become more common in recent years due to the rise of online shopping and the expectancy of consumers for fast delivery. E-commerce is generally treated as express or general cargo. E-commerce is discussed in more detail in section 2.2.

2.2 E-COMMERCE

In the context of airfreight, “E-commerce” is the buying and selling of goods electronically on the Internet, together with the supply chains for the delivery of such goods to end customers. The growth of E-commerce in the past five years and the projected importance of E-commerce in the economic development of South Africa warrants scrutiny regarding what E-commerce is, what it impacts, the role it plays and what is needed to support E-commerce.

The following E-commerce business models are considered:

- Business to Consumer (B2C) and Business to Business (B2B)
- Stock operations and no-stock operations
- First party (1P) and third party (3P) operations.

2.2.1 B2C and B2B Business Models

A company operating in the B2C space sells products directly to the end-user. E-commerce companies like Takealot, Amazon and Zappos are some of the most well-known online B2C companies.

A company operating in the B2B space sells its products and services to other companies. The purchasing company will use the products it purchases from the selling company either for its own operations or to resell products to the end consumer. Marketplaces like Alibaba, Thomasnet, EWorldTrade, TradeFord, and SeeBiz are some of the most well-known examples of B2B E-commerce sites.

However, the difference between the sectors is not always clearly defined. Most B2B E-commerce stores will sell to consumers if asked. Some businesses will also make purchases through B2C companies and resell them at a markup or use the goods they purchase for their company operations.

- **B2C:** Customers expect a B2C offering to be slick, easy to navigate, with fast delivery, and the option of very fast delivery at a premium.

- **B2B:** B2B customers expect more focused product knowledge and understand the need for the product to exactly match the customer's requirements and expectations.

2.2.2 Stock/No-stock Operations

In terms of stock holding, E-commerce operations are further characterised as follows:

- **With Stock:** This company holds stock of the goods it sells. It may also offer "buyouts" from other organisations in parallel.
- **No Stock:** This company holds no stock of the goods it sells and only offers to ship from the selling party to the buying party.

2.2.3 1P or 3P Operations

In terms of the relationship between the seller/supplier of goods and the E-commerce operator, the following is applicable:

- **1P:** In a 1P or first-party relationship, the E-commerce service provider buys the product wholesale from the seller and handles most of the selling details. The E-commerce company buys bulk from the seller and pays the seller in full on delivery of the goods.
- **3P:** In a 3P or third-party relationship, the seller is an independent party that advertises on the E-commerce marketplace. This gives the seller both more control over the branding of its products on the E-commerce marketplace and assigns more responsibility for logistics. The E-commerce service provider pays the seller for each individual item sold as and when the item is dispatched.

2.2.4 Cogs in E-commerce

An E-commerce business has all or some of the following cogs in its implementation (See Figure 2-1: Full 1P E-commerce operation for the schematic representation):

- Marketplace (Website)
- Search, select and place order
- Track order
- Return goods if needed (warranty, exchange, incorrect shipment)
- Supplier of goods
- Warehouse for temporary storage of goods
- Facility to pick, pack and label shipment (single or multiple goods)
- **Shipping** (which includes airfreight)
- Depots for receipt, sorting and dispatching of shipments
- Delivery to customer.

Airfreight (shipping) is thus a cog in the overall eCommerce value chain. The warehouses at the origin and destination airports can be but are not necessarily on-airport.

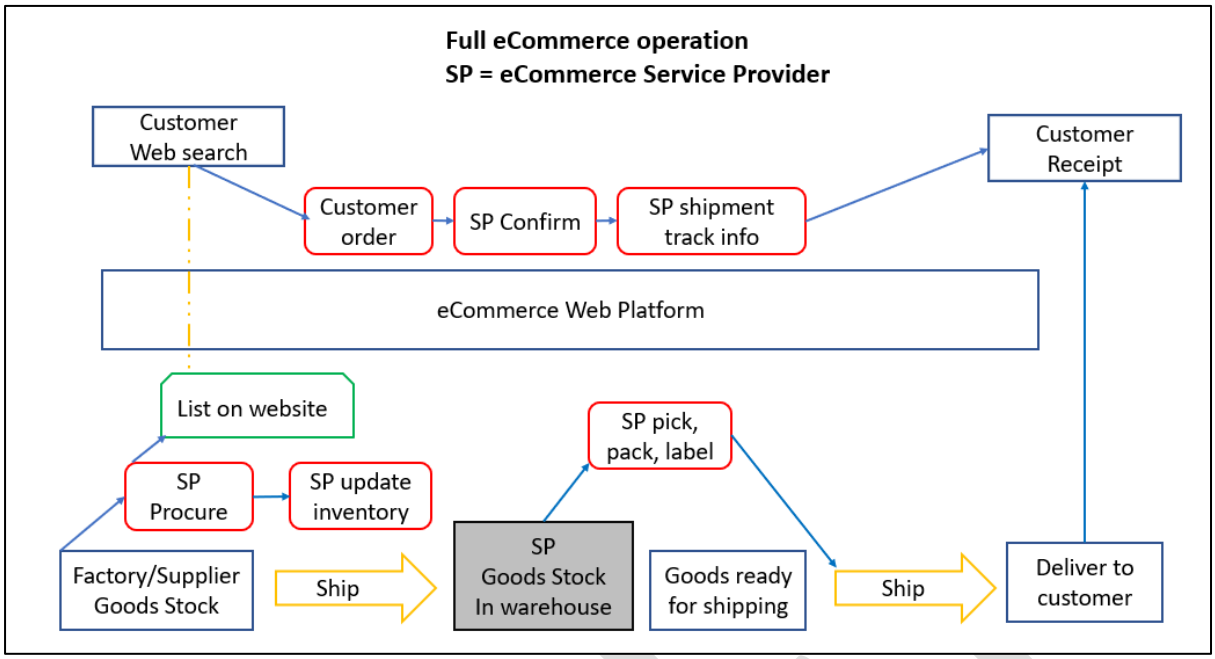

Figure 2-1: Full 1P E-commerce operation

2.2.5 Goods Generally Shipped via Airfreight

Since air cargo rates are expensive, airfreight of E-commerce goods is usually limited to smaller, high-value goods or time-sensitive items, such as:

- Electronics
- Apparel. Seasonal trends in clothing can shift fast. As a result, companies generally need to get clothing from factories to stores as quickly as possible. Again, the clothing's small size and high value make it a great trade-off
- Pharmaceuticals. Given their small size and value, medical goods are frequently shipped by air
- Documents and Samples. Air remains the most cost-effective method of shipping documents
- Seasonal shipments. Whatever the product is, if there is high international demand for a product that requires bolstering down a supply chain, it will generally be shipped by air.

2.2.6 Bulk Shipments

Bulk shipments destined for the E-commerce service providers' goods stock warehouse may be shipped by airfreight, but since the bulk order is generally not time-sensitive, it is usually shipped by lower-cost means such as road, rail or sea transport.

2.2.7 Role of Airports in E-commerce

The location of an E-commerce facility (bulk warehouse, distribution depot or last-mile distribution centre) may be on an airport or adjacent to an airport. Key to the location is the need to reduce warehouse and processing centre costs as well as efficient processing of the associated airfreight at airports.

The E-commerce service provider/facility owner will have to reach an agreement with the airport and the regulatory authorities to provide for the infrastructure as well as the processes and procedures:

- For an on-airport facility
- To move the goods into and out of the airport for an off-site facility

E-commerce viability is largely a function of cost and time efficiencies in its value chain.

2.2.8 Role of Airfreight in E-commerce

The role that airfreight plays in E-commerce is primarily related to:

- Shipment of bulk goods from seller to E-commerce warehouse
- Shipment of individual items from warehouses to distribution depots
- Shipment of individual items from distribution depots to final last-mile distribution centres.

In this context, the E-commerce airfreight handling is largely indistinguishable from general or express cargo. An agent for the E-commerce service provider manages the booking, preparation of airway bills, freight manifests, taxes and airport fees, and delivery to and collection from the airport (cargo terminal).

By ensuring efficient and cost-effective airfreight processes and procedures for general and express airfreight, the airfreight Strategy provides underpinning support for E-commerce.

2.3 Flying Freight vs Passengers

Despite the focus of this Strategy on airfreight, it is useful to consider some differences between the transportation by air of passengers and of freight, given that a significant portion of airfreight is transported with passengers on the same aircraft as belly freight.

For passengers, the passenger is also the customer, moving themselves and their accompanied baggage through airports, monitoring their own travel and raising challenges with agents and airlines as these occur. There is one seat per passenger, seat availability and selection are pre-determinable, and loading per seat (weight) is estimated based on statistics. Passenger traffic is highly predictable, with customers booking and paying months in advance. Also, most passengers return to the origin of travel, making passenger transport bi-directional.

Airfreight is quite different from passenger transport in that there is a more complex value chain for the management and processing of airfreight from its origin to its destination with multiple role players. It involves extensive on-airport ground handling operations, from being transported by conveyors or forklifts inside the terminal to being packed into Unit Load Devices (ULDs), lashed, and tracked on its way. Cargo will not notify anybody if it is forgotten. Airfreight requires available or remaining cargo capacity (weight and volume) to be estimated and managed per flight, handling requirements per shipment to be managed to ensure the safety of the loading and packing arrangements inside the aircraft, and accommodation to be made for part-payload loading and unloading at stop-over airports.

Airfreight demand is awkward to predict, with most bookings made at short notice. Airfreight movements are highly imbalanced, given that freight movements are seldom bi-directional.

2.4 AIRFREIGHT VALUE CHAIN

2.4.1 Value Chain Activities

Executing the airfreight function entails several different but tightly coordinated steps:

- **Preparation of freight** at point of origin, including booking of freight slots, preparation, and packaging of goods, ensuring conformance with regulatory requirements for type of goods and scheduling of transport to airport.
- **Transport to airport**, involving acceptance of goods and then the actual transport under appropriate security arrangements.
- **Entry to airport** with associated security screening, unloading and storage.
- **Inspections** by Customs and other trade-related authorities with subsequent clearance of goods.
- **Packing of ULD**, i.e. combining of goods for designated flights and temporary storage of packed ULDs.
- **Loading**, i.e. transfer to airside, ground handling (moving the ULD to the aircraft), loading onto the aircraft and handing over documentation to the airline.
- **Flight.**
- **Unloading,** i.e. removal of the ULD from the aircraft, transit out of the airside zone, transport to warehouse and temporary storage of the ULD.
- **Unpacking of ULD** and sorting for onward forwarding.
- **Inspection and release,** including Customs and trade-related inspections leading to clearance and release of goods.
- **Transport** to destination.
- **Unpacking** at destination.

2.4.2 Role Players

The value chain comprises a series of interdisciplinary activities which accordingly involve a variety of role players, each with their own mandates, roles, functions and responsibilities. The main categories of role players are:

- **Originator** (also referred to as shipper or consignor), who is the owner, producer or manufacturer of the goods sold and transported. These include farmers, manufacturers, mining houses, retailers, and E-commerce entities.
- **Freight forwarders and other logistics agents** (such as specialist packaging agents and air security screening agents) arrange the transport of goods from the consignor to the consignee and prepare the goods accordingly. Their scope includes airworthy packaging (specialist packaging is required for dangerous goods, live animals, temperature-sensitive goods, pharmaceuticals, etc.), security screening (to ensure no prohibited goods or materials pass), labelling, booking with the airline (preparation of airway bill) and the receiving freight forwarder at the destination airport, consolidation (combining multiple shipments into a consolidated shipment), building up a

complete ULD (aircraft container or pallet, ready for shipment), and registration of export goods with the necessary authorities (Customs, Port Health, Agriculture, State Vet, etc.). Similar roles occur for received airfreight.

- **Authorities** responsible for clearing in and outbound goods for transport and trade. The South African Civil Aviation Authority (SACAA) oversees the rules applicable to the air transport environment but does not approve individual consignments. For airfreight, the Revenue Authority (Customs) and goods-specific authorities (Port Health, Agriculture, State Veterinarian, etc.) approve consignments subject to rules from those domains.
- **Transportation entities** who do the actual movement of airfreight to, between and from airports. These are mostly trucking companies for the terrestrial legs and airlines but could also include shipping lines and rail operators.
- **End customer** (also receiving entity or consignee) who is the entity at the ultimate destination of the goods.

The Airfreight Strategy considers the strengthening of the overall airfreight system to the benefit of all role players.

2.4.3 On-Airport vs Off-Airport Activities

The airport is the point where outbound cargo is received and transferred to the aircraft (or vice versa for inbound cargo). There are some airfreight-related activities that unavoidably must take place at the airport, while there are others that could be either on or off-airport. Activities closely associated with the transfer of cargo to or from aircraft that need to be located on-airport include:

- Short-term storage of shipments prior to loading or after unloading of aircraft.
- Movement of cargo across the landside/airside boundary with necessary administration procedures (air safety and security clearance) and air carrier formalities (weight and volume confirmation).
- Loading and unloading the aircraft (ground handling).

Increasingly, both internationally and in South Africa, some activities which were traditionally on-airport are performed off-site, including:

- Build-up and break-down of ULDs.
- Completion of all airfreight administration formalities, i.e. air safety and security clearance, Customs clearances, payments and formalities, Port Health, Agriculture and other regulatory formalities, and air carrier formalities (weight, volume, carrier charges).
- Freight forwarder services, including receipt of shipment and preparation for airfreight, delivery of shipment to consignees, consolidation of shipments, and airfreight formalities.

How the on- off-airport activities are divided has implications for the design and operation of airports, given the extent to which the airport itself must provide airfreight-related infrastructure and services and the available opportunities for airfreight role players to make profitable investments in such facilities and the provision of associated services.

Figure 2-2 shows a simplified airfreight value chain with the on- and off-airport location of the activities. The brown-coloured blocks reflect those activities that could be on- or off-airport.

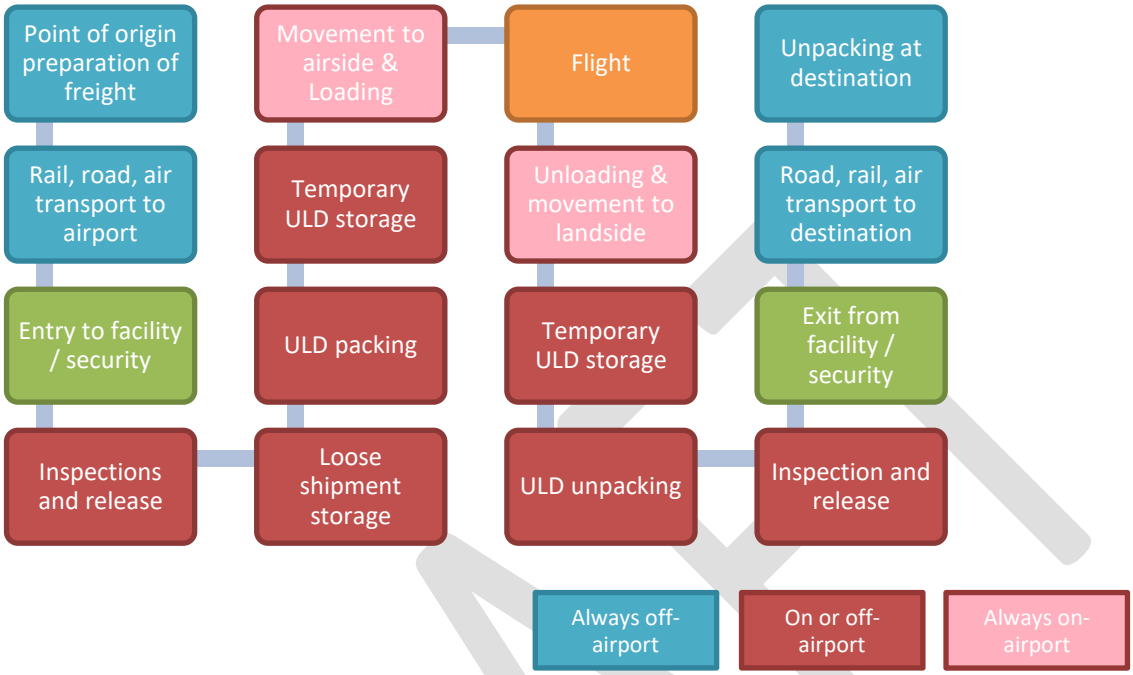

Figure 2-2: Freight Value Chain On vs Off Airport (high-level)

The relocation of airfreight activities away from the airport itself is facilitated, amongst others, amongst others by:

- Authorities' willingness and ability (in terms of staff, Information Technology (IT) systems) to carry out their functions higher up and lower down the value chain at consignor/consignee or freight agents' locations.
- A risk management regime of "know-your-customer", as established under an authorised economic operator (AEO) dispensation.
- Secure transport arrangements to and from the airport, i.e. an enclosed truck with a loading door fitted with a tamper-proof sealed lock.
- Enabling the airport of access security arrangements and the provision of a physical bypass to and from the airside. Bypass requirements are considered in more detail in Section 2.6 Airfreight Terminals.

2.5 Airfreight vs Other Cargo

This Strategy considers airfreight within the broader range of cargo transport options available. It is thus useful to show how airfreight is positioned in the overall freight system and its specific role and contribution thereto.

2.5.1 Logistic Chain Cost

Although under certain circumstances, a client, i.e., the originator of freight, may not have alternatives to choose from, generally, where alternatives are available, optimum solutions for freight are sought that minimise the total cost of moving goods from origin to destination.

Such costs include the direct financial cost of transport, the cost of logistics events such as packing/consigning, handling, storage, etc., stock carrying costs and stock losses related to delays, and opportunity costs such as loss of business for slow, late, or unreliable delivery. The optimal solution is to minimise transfer between transport modes and, in so doing, minimise handling costs.

Figure 2-3 shows how costs stack up along the whole logistics supply chain from origin to destination, either for transport indicated by the sloped sections of the curves or locational events indicated by the vertical sections. The green curve reflects a continuous door-to-door transport mode, and the red curve reflects the steep costs of events along the logistics chain.

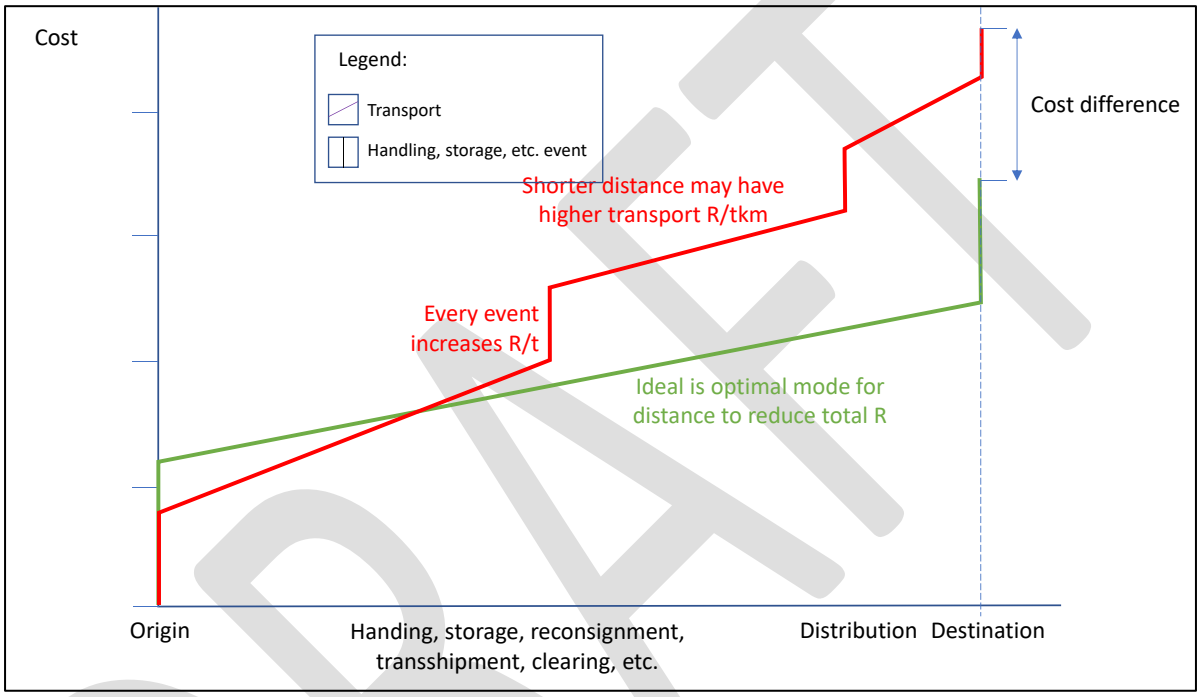

Figure 2-3: Logistics Supply Chain Cost Elements

Mostly, only road transport is flexible enough to be door-to-door, but drone delivery may, in future, compete at this distribution end of the value chain. Only pit-to-port railing of mining commodities achieves a single (terrestrial) transit. Airfreight relies on terrestrial (probably road) transport at both ends to collect and deliver freight. Airfreight has many handling, storage, waiting and repacking events and thus displays characterised by the red curve.

2.5.2 Consignment and Interoperability

Figure 2-4 shows the main cargo transport modes and their consignment (a form of “packaging”) characteristics. It considers the freight types that could travel by air and excludes bulk liquids and ore, agricultural commodities, etc., that are not suitable for airfreight (bulky and low value). For all modes except road (truck), there are likely to be buffer events in the form of cargo build-up or break-down.

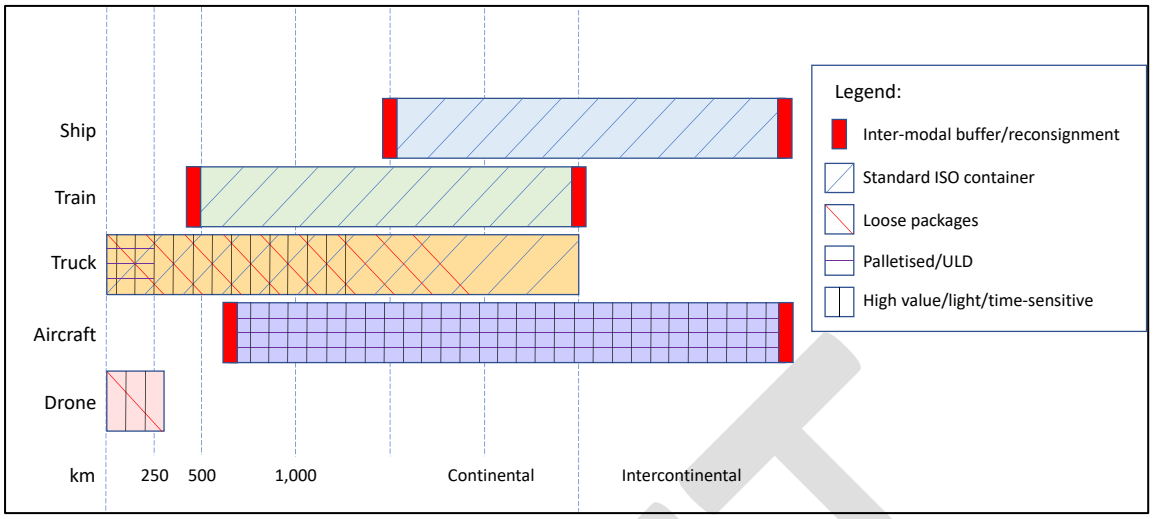

Figure 2-4: Cargo Transport Modes: Consignment, Distance & Time

For each mode, a typical range of transport distance is shown. Such distance parameters are the result of the modes' physical characteristics and cost structures. Sea and air transport have long (even intercontinental) reach, while rail and road have a terrestrial reach of up to a few thousand kilometres. Sea, air and rail transport have minimum distance requirements because of their operational economics (long waiting times, high value of equipment, high fixed costs, etc.), while road transport can perform more economically over short distances. Drone transport is cost-effective over short distances only.

The consignments included in the figure are:

- International Standards Organisation (ISO) shipping container.
- Loose packages (also called break-bulk) comprising cartons or boxes of various sizes.
- Palletised cargo or ULDs shaped and sized to fit into aircraft and for handling in and around aircraft.

An additional category of cargo is shown (high value, light, and/or time-sensitive), which is not a form of consignment but rather distinguishes the type of goods typically carried by air.

ISO shipping containers allow goods to be transhipped between road, rail, and sea without substantial repacking and are thus the most ubiquitous form of consignment, i.e. the cargo "suitcase" of the world. However, ISO shipping containers are too big and heavy (tare weight) to be flown. Contents of such containers must be destuffed (unpacked) and re-consigned into smaller units for transport by air. Loose packages are quite fragile and are therefore transported together in small numbers (by road), which makes them unattractive for either sea or rail. Again, to be practically transported by air, packages need to be re-consigned into larger pallets or ULDs.

With reference to the overall logistics cost (Figure 2-3), sea-air and rail-air interfaces are more complex, slower, and more expensive than road-air exchanges.

The opportunity costs and risks are too high for high-value and time-sensitive goods to be transported by slow modes of transport such as sea or rail, and these are transported by road if the distances are not too long, otherwise by air.

In conclusion, for aviation-compliant and cost-effective cargo, the modal choices are road-air-road vs road. Cargo will make the whole journey by road if the transport distance is not long enough to warrant the inefficiencies of intermodal changes and greater airfreight costs. An example of how this modal selection plays out in South Africa is Dube TradePort (Durban), which trucks certain goods to O.R. Tambo (Johannesburg) because the air service options are expensive, somewhat restricted and not time competitive.

For rail-air inter-modalism to work, a very efficient and high-volume (for economies of scale) interface is required. It is thus not surprising that on a global scale, there is no example of such a rail-air cargo transfer scheme, although it is common for passengers.

For sea-air transfer, there are cases where goods are first shipped for the long-haul leg (e.g. to Dubai) and then flown into congested areas like in Western Europe. A similar situation pertains to South Africa, where some goods are shipped to Durban and then flown to remote mining sites in Central Africa. But these cases reflect the absence of road transport alternatives rather than some inherent competitive advantage of air transport.

2.5.3 Freighter vs Belly Cargo

Airfreight is carried across a range of aircraft configurations. The main categorisation is (a) dedicated freighter (an aircraft that carries only freight) and (b) freight carried in the cargo hold of a passenger aircraft (so-called belly or “under-the-wing” freight). There are also combi aircraft carrying a “combination” of passengers and freight in the passenger cabin, but these have mostly fallen out of fashion. In both cases of freighters and belly airfreight, there are narrow-body (single aisle) and wide-body (double aisle) versions.

Figure 2-5 shows these typical aircraft configurations.

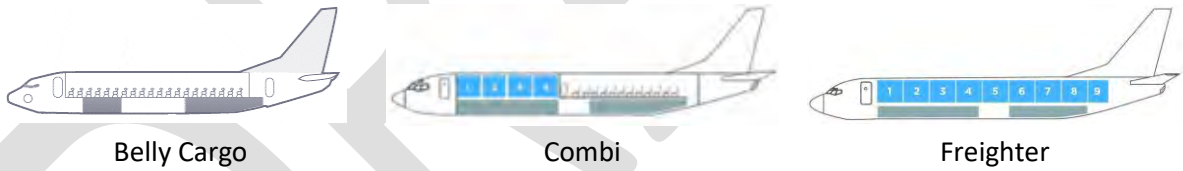

Figure 2-5: Aircraft Freight Configurations

During the peak of the COVID-19 period, when almost all long-haul operations were suspended, there was a need to support the logistic chain with a solution to increase the cargo capacity using passenger aircraft to transport cargo on the main deck, i.e., “cabin cargo”, literally strapped into passenger seats. However, this was dealt with by aviation regulators as a temporary measure because the necessary cargo handling standards could not be complied with.

Table 2-1 compares the various cargo aircraft in terms of cargo configuration, types of cargo accommodated, operational characteristics, and cost. Dedicated freighters are technically superior to belly-freight aircraft in terms of capacity and handling (loading and unloading) characteristics, and they can carry a wider range of goods. However, the business economics of the two operations are quite different.

Most commercial aviation activity, especially in South Africa, centres around passenger transport, which requires a generally high level of service regarding route network, direct links, regular departures, on-time performance, etc. Passengers also typically fly both ways (return trips). For dedicated freighters to be affordable, both inbound and outbound flights should carry a substantial cargo volume. Most importantly, passenger tariffs are set to recover the cost of the operation, allowing freight to be charged "marginally", i.e., to just recover any additional costs caused by the freight. For low-cost carriers who operate narrow-body aircraft, freight is often not an attractive service offering, given the additional nuisance of accommodating freight handling and the potential risk freight causes for their on-time departures.

Dedicated freighters, on the other hand, must charge all costs through to freight and thus rely on a balanced load (two-way traffic) for economically sustainable operations.

In South Africa, the interplay of technical and commercial considerations has resulted in minimal belly freight carried domestically. One service provider (BidAir Cargo) offers a domestic freighter service operated with a dedicated freighter (supported by road feeder services) but mostly using third-party belly capacity. Most international cargo is carried as belly freight in wide-body aircraft.

Further, freight-only airports are quite exceptional internationally, and in South Africa, there are none. These are usually brownfield, re-purposed facilities where the original motivation for the (passenger) airport has fallen away, and the capital costs are either already recovered or written off. An example is Viracopos in São Paulo, Brazil. These freight-only airports are usually express parcel service hubs, for example, FedEx Super Hub in Memphis and United Parcel Services (UPS) in Louisville.

Table 2-1: Belly vs Freighter Considerations

COMPARATOR	PAX BELLY			FREIGHTER	
	NARROW BODY	WIDE BODY	COMBI	NARROW BODY	WIDE BODY
Typical aircraft	B738	B777	B74C	B73F	B74F
Cargo payload (t)	180 pax (w check-in and carry-on) + 2 tonne cargo	500 pax (w check-in & carry-on) + 40 tonne cargo	300 pax (w check-in & carry-on) + 50 tonne cargo	20 tonnes	100 tonnes
Palletised (ULD)	No upper deck- none lower deck- loose cargo	Yes upper deck- none lower deck- loose cargo	Yes upper deck- none lower deck- loose cargo	No / Yes upper deck- 10 ULD lower deck- loose cargo	Yes upper deck- 30 ULD lower deck- 12 ULD
ULD Height	No ULD	160cm	160cm/300cm	208cm	160cm/300cm
ULD max length	No ULD		317cm x 244cm	317cm x 220cm	317cm x 244cm
Airport Runway Length (Sea Level / Jo-Burg)	2500m / 3100m e.g. Lanseria	3200m / 4000m e.g. O.R. Tambo	3200m / 4000m e.g. O.R. Tambo	2500m / 3100m e.g. Lanseria	3200m / 4000m e.g. O.R. Tambo
Hazardous goods	No	No	No	Yes	Yes
Project cargo/outsize	No	Some	Some	No	Yes (nose load)
Distance	Short / Regional (Africa)	Intercontinental	Intercontinental	Short / Regional (Africa)	Intercontinental
Flight frequency	Higher	Higher	N/A	Lower	Lower
Reliability of departure	High	High	High	Lower	Lower
Routing	Direct	Direct	Direct	In/direct	In/direct
Routing	Direct	Direct	Direct	In/direct	In/direct
Require return load?	Not required	Not required	Preferred	Required/preferred	Required/preferred
Pricing	Marginal	Marginal	Opportunistic	Cost recovering	Cost recovering

2.5.4 Vehicle Payload

The distance limitations for the different transport modes partly derive from their payload, i.e. the volume of cargo they can carry on a trip. Figure 2-6 presents the payloads (vertical axis) and transport distance (horizontal axis) for various transport modes. The payload scale is logarithmic, i.e. each interval is ten times bigger than the previous one.

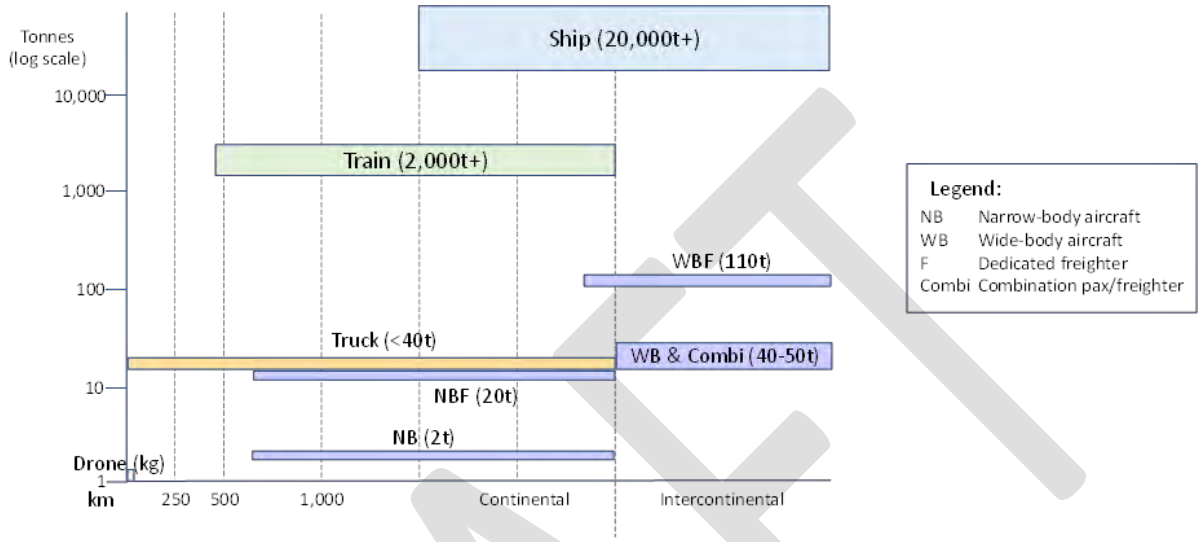

Figure 2-6: Payload per Transport Mode

The various aircraft configurations can transport up to 110 tonnes per trip but typically much less than that. For the first couple of thousand kilometres, one road truck can uplift the same as one or more aircraft. Trains uplift more than 20 times and ship more than 200 times the payload of the largest cargo aircraft.

2.5.5 Transport Unit Cost

Different transport modes all have different “cost functions”, i.e. their average unit cost, Rand per tonne-kilometre (R/t-km), changes in relation to the distance travelled. Several factors influence the cost functions, including:

- Basic physics, i.e. the energy spent to overcome friction and resistance in the modes’ respective operating conditions and speed of movement
- Investment vs operating cost (e.g. trucks are relatively inexpensive compared with trains but cost more to operate)
- Overhead costs (e.g. a trucking firm can more easily scale its overhead costs proportionally to its operational costs than an airline)
- End costs, including start/stop costs (e.g. for aviation, fuel burn on take-off), arrival/departure costs (e.g. landing fees), loading/offloading costs (e.g. cargo consignment, clearing, handling)
- Compliance costs (e.g. aviation is highly regulated, and the cost of compliance is high compared to other modes)
- Cost allocation (e.g. individual trucks pay little for roads, but a relatively limited number of trains carry the full cost of rail infrastructure).

The effect of the cost levels and structure of a mode results in cost curve shape and position. Generally, higher cost efficiency is obtained with longer trip lengths but with diminishing efficiencies at longer distances. From a pure transport perspective (i.e. excluding transhipment costs), there are inflection points, with the cost of trucking lowest at short distances, then at some point rail is competitive, and finally, sea transport has the keenest cost.

Figure 2-7 shows the typical recent transport costs for South Africa. The costs of the terrestrial modes are in a similar range, and there will be circumstances where these modes compete for the same business.

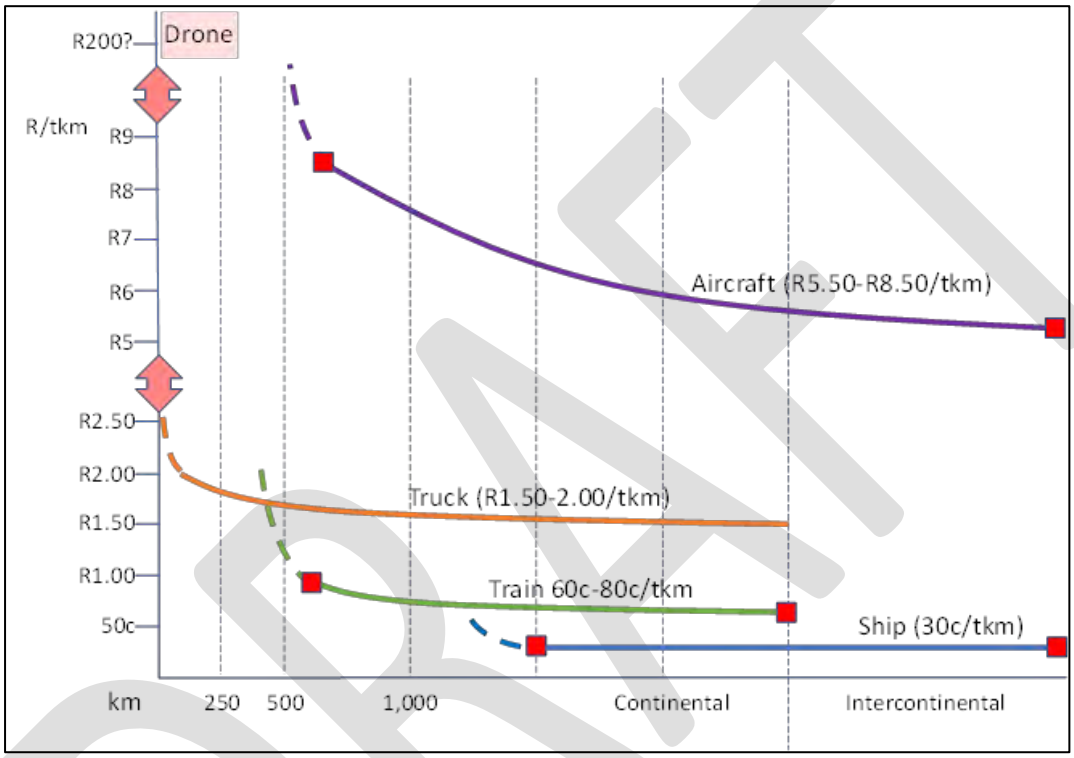

Figure 2-7: Cost Functions per Transport Mode

The cost of moving goods by air is three or four times higher than by road and more than ten times the cost of the other terrestrial modes. There would almost certainly be no circumstances that aviation can compete with those modes purely on costs. The cost premium would have to be offset by superior service, specifically reduced transport time, preservation of the cold chain, increased security and other benefits for which clients are willing to pay an air transport premium.

Not much is yet known about the likely cost of drone delivery operations. Recent reports from the United States of America (USA) put the cost per 5lb package delivered in a 5-mile radius in a range of United States Dollars (USD) 0.24-1.00. That would translate to a range of R0.20-0.80/kg-km or R200-800/t-km. Distance-wise, drone delivery would only compete with road transport and (like aviation) would have to be justified by a higher service level.

2.6 AIRFREIGHT TERMINALS

2.6.1 Airfreight Terminal Infrastructure

Airport airfreight infrastructure includes the following physical components to support the on-airport process of the airfreight value chain:

- Access to on-airport cargo facilities, which is a physical entrance gatehouse with security control.
- Landside truck staging, which is pavement with a truck parking area.
- Cargo inspection, processing and storage area comprising the physical building with the interface between landside (trucks) and airside (dollies).
- Airside dolly movement area, which is the pavement on the airside where the transfer of airfreight and ULDs (via dollies) to and from the cargo warehouse is facilitated.
- Landside-airside boundary, which is the physical boundary positioned either inside the warehouse, on the warehouse façade or on the airside.

The combination of the above facilities is referred to as the airfreight "terminal".

Any developments for airfreight purposes to expand existing airport infrastructure or for greenfield opportunities need to take cognisance of the characterises and attributes set out in the following sub-sections as well as giving due consideration to the portion of the airfreight value chain that will be incorporated in the on-airport facility versus off-airport options.

2.6.1.1 Airfreight Terminal Infrastructure

Table 2-2 below shows the area and dimensions required for airfreight volumes of 100 000, 500 000 and 1 000 000 tonnes per annum. Figure 2-8 and Figure 2-9 show typical cargo precinct layout in plan and section.

The following assumptions are made for these tables:

- Airside
- The apron size assumes all freight is carried by freight aircraft (i.e. no allowance for passenger belly freight)
- The apron and taxi lane width are dimensioned for Code E aircraft (typically wide-body jets)
- Building
- Density (purple shaded line) assumes increasing mechanisation and automation:
- For 100 000 tonnes throughput, assume 10 annual tonnes/m^2
- For 500 000 tonnes throughput, assume 15 annual tonnes/m^2
- For 1 000 000 tonnes throughput, assume 20 annual tonnes/m^2
- Building depth is typically 80 to 100m, comprising
- ULD storage – 20 to 25m deep
- ULD build-up and break-down workstations
- Landside comprises

- Truck docks with 17m depth
- Truck access road
- Staging area for waiting trucks
- Visitor and staff car parking
- General area for general service equipment (GSE), empty ULD.

Table 2-2: Typical airfreight infrastructure requirements

Annual Tonnage Assumptions				
Annual tonnage	Tons	**100,000.0**	**500,000.0**	**1,000,000.0**
Tons per day	Tons	274	1,370	2,740
Tons per aircraft	Tons	80	80	80
Aircrafts	#	4	18	35
loading time (hr)	Hr	5	5	5
Apron Stand Area				
Apron operational hours	Hr	20	20	20
Stands	#	1	5	9
Apron width - full	m	90	450	810
Apron depth including back and front of stand roads	m	106	106	106
Single Stand Size	m^2	9,540	9,540	9,540
Total Stand Area	m^2	**10,000**	**48,000**	**86,000**
Taxiway Area				
Aircraft Wingspan	m	82	82	82
Safety margins- wing tip clearance	m	4	4	4
Total required width	m	90	90	90
Apron length	m	90	90	90
Taxiway Length	m	143	503	863
Total Taxiway Area	**m^2**	**13,000**	**46,000**	**78,000**
Building Area				
Building Depth	m	80	88	102
Density	ton/m2	10	18	25
Building Area	m^2	10,000	27,780	40,000
Building width	m	125	316	393
Building compared to Apron	:	1.4	0.7	0.5
Width available for truck docks	m	94	237	295
Total Building Area	**m^2**	**10,000**	**28,000**	**40,000**
Truck Staging Area				
Standard truck width	m	2.5	2.5	2.5
Truck parking bay width	m	4.0	4.0	4.0
Truck length	m	17.0	17.0	17.0
Truck parking area needed	m^2	68	68	68
Truck Capacity (25 to 30 Euro-Pallets, each 200 kg average)	tons	6.0	6.0	6.0
Number of trucks needed per day	#	46	229	457
Truck Operational hours (6am to 6pm)	Hr	12	12	12
Truck Arrivals and Departures per Hour	trucks/Hr	4	20	39
Truck loading time (45 minutes)	Hr	0.8	0.8	0.8
Truck queuing time (15 minutes)	Hr	0.3	0.3	0.3
Total Truck time in loading bay	Hr	1.0	1.0	1.0
Total Truck bays needed	#	4	20	39
Truck dock width	m	16	80	156
Truck dock % of building width	%	13%	25%	40%
Truck dock loading area needed	m^2	272	1,360	2,652
Truck dock loading area (entire width of building)	m^2	2,125	5,372	6,681
Truck dock loading area as % of entire width of building	m^2	13%	25%	40%
Road width	m	15	15	15
Calculate Length of Exit and Entry Roads	m	125	316	393
Calculate area of Exit and Entry Roads	m^2	1,875	4,740	5,895
Truck staging area	m^2	2,125	5,372	6,681
Total Landside Area	**m^2**	**7,000**	**16,000**	**20,000**
Total Area needed	Tons	**100,000**	**500,000**	**1,000,000**
Airside	**m^2**	**23,000**	**94,000**	**164,000**
Building	**m^2**	**10,000**	**28,000**	**40,000**
Landside	**m^2**	**7,000**	**16,000**	**20,000**
Total	**m^2**	**40,000**	**138,000**	**224,000**
Total area using maximum width dimension	Tons	**100,000**	**500,000**	**1,000,000**
Width	**m**	**143**	**503**	**863**
Depth	**m**	**325**	**333**	**347**
Airside	**m^2**	**28,100**	**98,600**	**169,200**
Building	**m^2**	**10,000**	**28,000**	**40,000**
Landside	**m^2**	**8,900**	**41,400**	**90,800**
Total Area	**m^2**	**47,000**	**168,000**	**300,000**

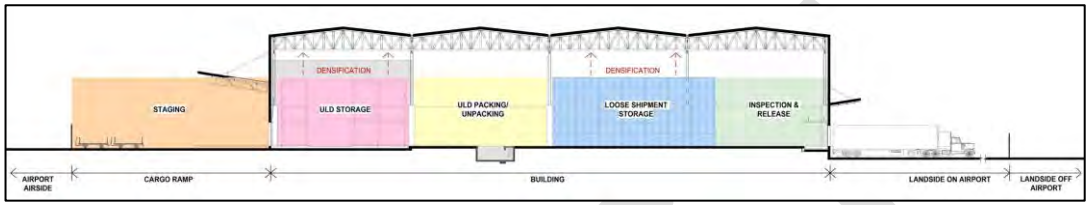

Figure 2-8: Typical Airfreight Terminal – Section view

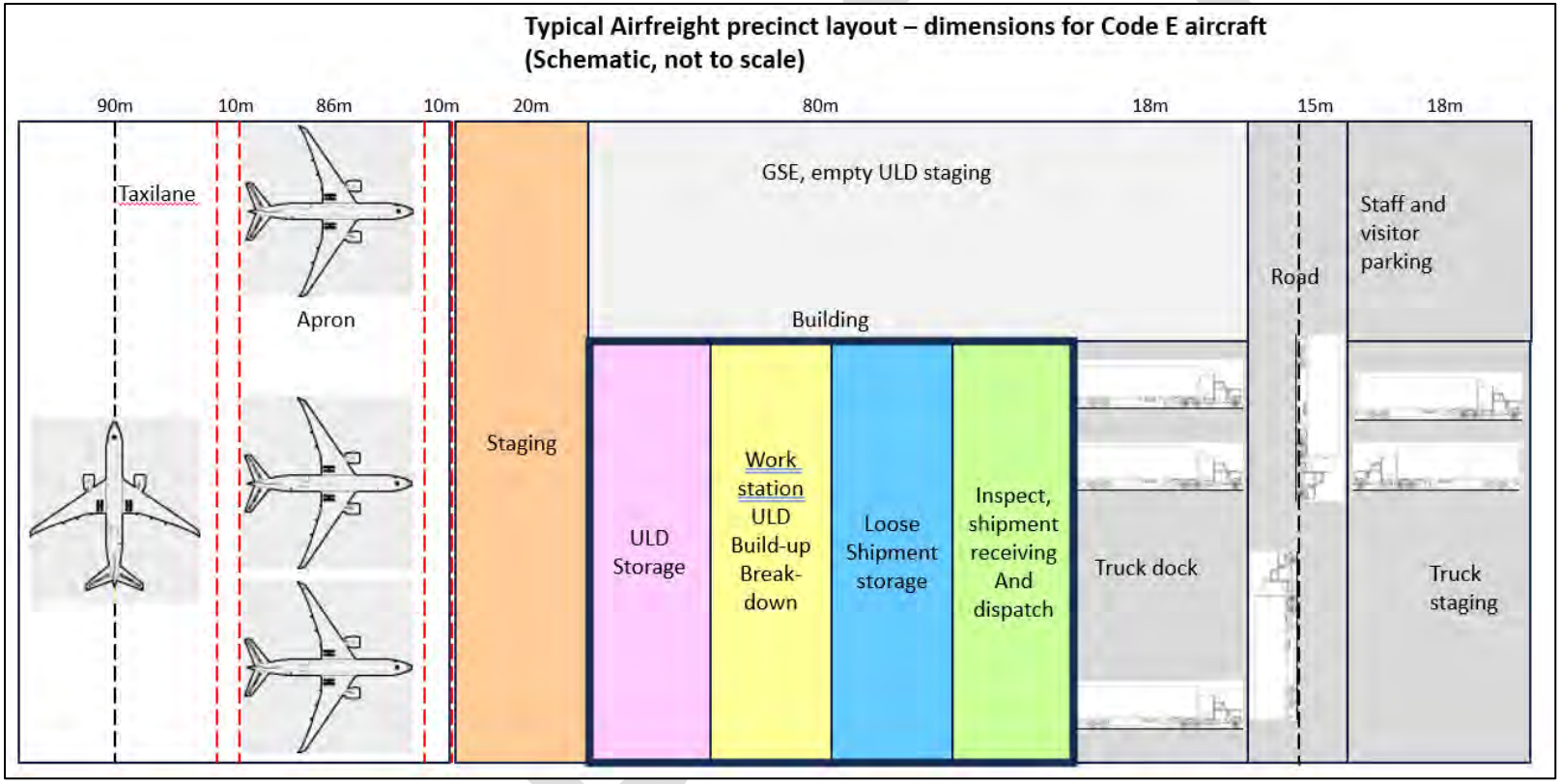

Figure 2-9: Typical Airfreight Terminal – Plan view

2.6.1.2 Air cargo terminal building density

The general parameter used to express and compare the airfreight throughput of cargo terminal buildings is – annual freight volume (tonnes) per area of the terminal building (m^2). This is termed the "airfreight density" of the building.

Since the space on and adjacent to an airport is constrained, airports with high passenger and cargo throughput cannot afford sprawling, land-hungry airfreight precincts. Examples of air airfreight density (building footprint) are:

Table 2-3: Cargo Terminal Building Footprint

CARGO TERMINAL	WIDTH (m)	DEPTH (m)	AREA (m^2)	THROUGHPUT (ANNUAL TON)	DENSITY A-TON/m^2
Hong Kong Air Cargo Terminal	200	300	60 000	3 500 000	58
Hong Kong Asia Airfreight Terminal P1 Bypass	230 + 100 25	80 + 25 90	21 000 2 300	420 000	20
Hong Kong Cathay	220	175	38 500	2 700 000	70
Addis Ababa T1	176	80	14 000	120 000	8
Addis Ababa T2	200	180	36 000	600 000	17
King Shaka International Airport, Durban	180	60	10 800	140 000	13

2.6.2 Configuration and Operating Model

Although there are good design principles to adhere to, there is no single optimal design for airfreight terminals, and this Strategy emphasises underlying principles and does not promote any specific design. Following the airfreight value chain discussed previously in Section 2.4, Figure 2-10 shows basic airfreight facility layout options:

- **Stand-alone facilities** provide a separate space for each airline or cargo agent, then decide on its own operating arrangements, e.g. automation. Cargo processes and buffers are duplicated at each facility, and this configuration thus requires the most space.
- **Multi-user or Common facilities** can be limited in number and space because cargo activities are done by selected agents (multi) or shared amongst agents (common). The more limited space implies that cargoes would linger for shorter periods, facilitated by shared processes, improved automation and probably pre-clearance off-airport.
- **Single provider** is the case where one agent handles all cargo. This is process and space-optimal but offers no choice to users.
- **Bypass** is a passageway allowing pre-built and inspected cargo to move to and from the airside in a just-in-time manner without spending time on the airport landside. A bypass would typically be attached to one of the above configurations.

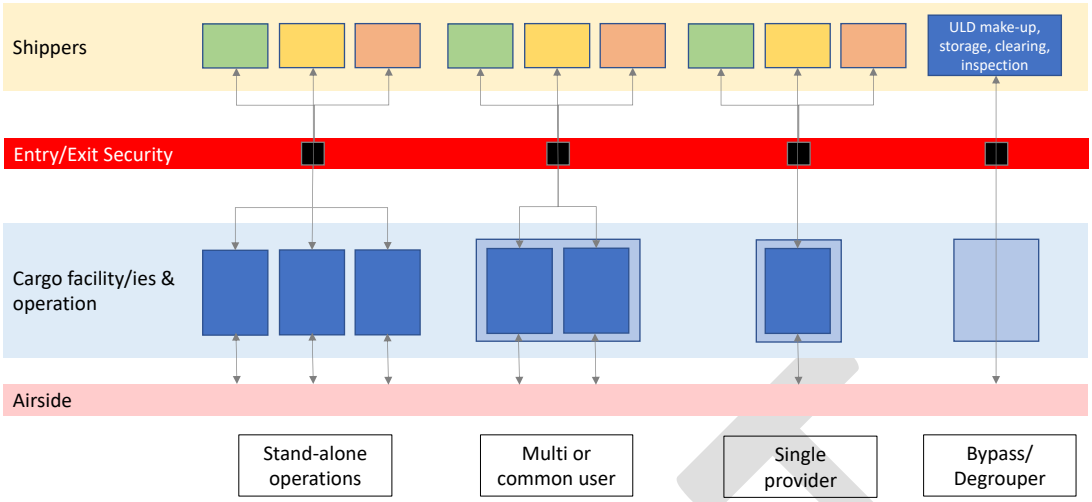

Figure 2-10: Airfreight Terminal Operation Configurations

2.6.2.1 Bypass channel

Physically, the bypass facility is a means to reduce the airfreight management space requirement at an airport. Economically, it is one of the few mechanisms available to expose an airport to competition from efficient external parties, which would otherwise have been beholden to the cargo facility model imposed by the airport.

A bypass operation imposes additional requirements in the form of security clearance, which must be done off-airport, secure transportation from the off-airport site to the airport to maintain integrity of security, and the off-airport site must be registered and managed as a bonded warehouse. Internationally, bypass facilities at some airports account for up to 50% – 60% of airfreight volumes.

2.6.2.2 Ownership and Operating Models

The various airfreight facility configurations may also lead to different development and ownership approaches. These approaches are not exclusive to a particular configuration but would typically be:

- **Stand-alone** (separate space per agent) facilities would likely be developed and owned by the airport itself and made available to tenants in terms of a lease or rental and probably on a short-term basis.
- **Multi/common** facilities could be developed and owned by the airport or jointly with an outside party (but unlikely with one of the tenant agents). Tenants would probably have longer tenure obtained through a competitive procurement process.
- **Single provider** facility could be developed by the airport or an external private party and be leased on a long-term basis, probably to that same private entity.
- There should be a **bypass** option under each of the above commercial models. It will be incumbent on the airport and the various authorities to ensure its unhindered availability and operation.

International trends are driving towards multi or common-user and bypass facilities that allow competition and for a significant portion of the infrastructure to be established off-airport, which is more economical and generally results in more competitive user tariffs.

2.6.3 International Examples

Two international airports have been identified as comparative case studies of modern, well-run and efficient airfreight terminals. Liège Airport, Belgium, and Hong Kong International Airport (HKIA) have been chosen on the basis that:

- Data is available regarding freight processing is available for these airports.
- Both have well-functioning airfreight facilities.
- Liège is essentially an airfreight airport as freight flights dominate the air movements.
- Since 1996, Hong Kong International Airport has processed the most airfreight worldwide.
- Both airports achieve low dwell times (time that the goods spend on-airport).
- Both airports have successful and high-throughput bypass channels.

2.6.3.1 Case Study 1: Liège Airport, Belgium

The airport is open 24 hours, seven (7) days a week, provides all weather operations (CAT III ILS (Instrument Landing System)) and has a 3 700m runway that allows unrestricted MTOW (Maximum Take-off Weight) aircraft movements. The airport processes, on average, 3 000 tonnes per day.

Liège Airport is primarily an airfreight facility. Its headline statistics for 2023 are:

- 1 005 676 tonnes (versus 1 140 060 tonnes in 2022)
- 175 606 passengers (versus 166 898 in 2022)
- 33 548 aircraft movements (versus 37 589 in 2022), of which 23 917 cargo movements.

There are 65 logistics providers at the airport, creating a diverse and competitive airfreight environment. The nine airfreight facilities (buildings) are all owned by the Liège Airport Authority. They are leased to and operated by various entities, including airlines, trucking companies, freight forwarding companies and ground handling companies. Examples of tenants include Airbridge Cargo, the Challenge Group, DHL, and Cainiao (serving Alibaba E-commerce).

The airport allowed apron staging of built-up ULDs on dollies as they were unloaded from the aircraft, waiting to be processed or waiting for loading into the aircraft. As the volume of cargo increased over the years, managing on-apron ULDs became unwieldy and onerous. Since dolly trains can be easily moved, the tracking and inventory management of ULDs is difficult.

All terminals offer in-warehouse ULD build-up and break-down. All terminals offer ULD bypass functionality. The statistics of the proportion of ULDs that bypass the Liège airport cargo terminals show that:

- Cargo terminal that processes general cargo
- 50% of inbound (import) freight uses ULD bypass.
- 50% of outbound (export) freight uses ULD bypass.
- Cargo terminal that processes primarily perishable cargo
- 70% of inbound (import) freight uses ULD bypass.
- 25% of outbound (export) freight uses ULD bypass.
- Cargo terminal that processes primarily E-commerce cargo
- 0% of inbound (import) freight uses ULD bypass.
- 10% of outbound (export) freight uses ULD bypass.

The following observations can be made from Liège Airport:

- The airport works towards same-day processing of goods (dwell time of less than 24 hours)
- Liège airport allowed on-apron staging (storage) of built-up ULD. The airport authority is moving away from this concession, expecting all tenants to store ULDs within the relevant buildings, with on-apron staging limited to ULDs that are being unloaded or loaded.
- The airport encourages the processing of ULDs off-site. All the airfreight buildings have ULD bypass facilities, which allow pre-built ULDs to be delivered to the airport (as known cargo) for direct loading into aircraft, as well as deliver ULDs directly from the aircraft to off-airport sites.

2.6.3.2 Case Study 2: AAT Terminal, Hong Kong International Airport (HKIA)

Since the airport is built in the ocean on reclaimed land, the airport real estate is scarce and expensive. The airport processed 4.5 million tonnes in 2022. A third runway came into service in November 2022. Currently, HKIA provides 55 parking stands for cargo aircraft. The current expansion plans at the airport will create a capacity of 10 million tonnes of airfreight.

To achieve this throughput, HKIA demands efficient and compact operations. Land on the airport is at a premium/highly sought after. The airport thus allows only high-density infrastructure. The airport does not allow on-apron ULD staging (storage).

The Hong Kong airport has the following airfreight terminals.

- Hong Kong Air Cargo Terminals (HACTL).
- Asia Airfreight Terminal (AAT) Operated by Asia Airfreight Terminal Co Ltd.
- Cathay Cargo Terminal (CCT) Operated by Cathay Pacific Services Limited.
- DHL Central Asia Hub (DHL) Operated by DHL Aviation (Hong Kong) Ltd.
- Air Mail Centre

In addition, the airport authority has constructed a building that it leases out to tenants to prepare ULDs (built-up) for delivery to the airfreight terminal. This reduces the area footprint of the airfreight terminals.

We have considered the airport in general and the AAT terminal in specific to establish industry best practices.

AAT achieves an efficient and highly dense facility by:

- Manage dwell times – AAT commits to processing times. AAT publish monthly cargo process time statistics. An example of information gathered and published is the average time for a shipment from aircraft wheels on runway touchdown until the shipment is available to the client at the truck dock.
- AAT accepts pre-built ULDs for export and delivers ULDs to clients for off-site processing. This reduces the real estate required on-airport for airfreight build-up and break-down activities.

The following observations can be made from Hong Kong International Airport:

- The competitive environment of Hong Kong airfreight compels the airfreight terminal operators to offer efficient and cost-effective airfreight handling services. The airlines and freight forwarders have a choice of which terminal to use. The freight processing at the airport is thus fast and efficient.
- The use of bypass facilities is encouraged.

2.7 AIRFREIGHT STATISTICS

The South African airfreight total volume in 2005 was approximately 350 000 tonnes. Some 20 years later, the airfreight in 2024 is expected to be approximately 450 000 tonnes, which is a year-on-year (linear) growth of 1.5%.

In the same period, the total worldwide airfreight was reduced by 50% from 130 million tonnes to 65 million tonnes. South Africa's airfreight performance was thus significantly better than the world's airfreight performance.

South Africa's current airfreight volumes are not outside of the norm given per capita airfreight worldwide. This is calculated as follows:

- The approximate worldwide airfreight is 8 kg per person (estimate of 65 million metric tonnes of airfreight and a world population of 8 billion).
- The approximate South African airfreight is 7.5 kg per person (450 thousand metric tonnes of airfreight and a population of 60 million).

2.7.1 South Africa Domestic Airfreight

The South African domestic airfreight market constitutes a relatively modest share compared to its international counterpart, contributing less than 5% of the total transported volumes. Since limited domestic airfreight statistics are available, this estimate is based on evidence and interaction with airfreight agents and stakeholders active in domestic airfreight. The primary flow of domestic airfreight occurs predominantly between Cape Town International Airport and O.R. Tambo International Airport, while a smaller proportion is transported to and from King Shaka International Airport.

2.7.2 South Africa International Airfreight Volumes

South Africa trades in the order of 380 000 tonnes by air per year. Figure 2-11 presents the export and import data for South Africa for the years 2019-2021. Air cargo export volumes (tonnes) for South Africa decreased by 19% from 2019 to 2020 due to COVID-19 and

recovered by 6% in 2021. Imports by air decreased by around 24% between 2019 and 2020, once again because of COVID-19 and grew 20% from 2020 to 2021[1].

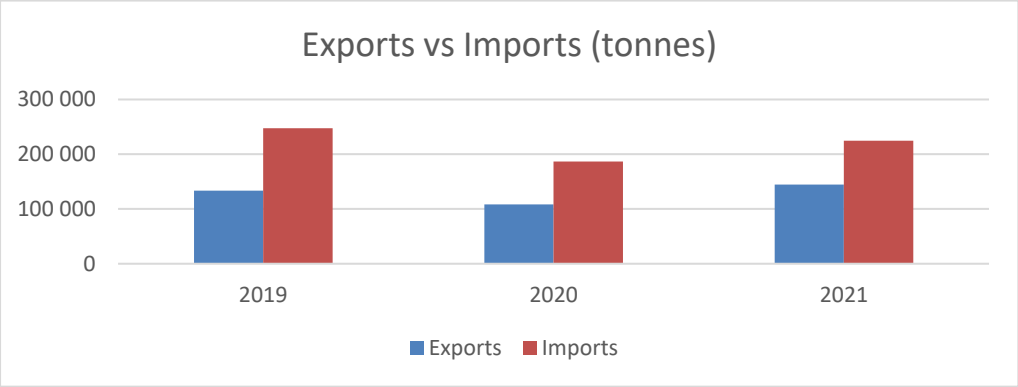

Figure 2-11: South African Airfreight Imports vs Exports (tonnes)

Figure 2-12 and Figure 2-13 present the volumes of exports and imports (2019-2021) grouped into dry cargo products and perishable products.

Perishable products include fresh foods, frozen foods, and other perishable non-foods. These perishable cargo products require cooling/cold storage facilities to ensure the cold chain is kept intact. Dry cargo products include land vehicle parts, semiconductors, machinery for general industrial uses, chemical products, and clothing and accessories.

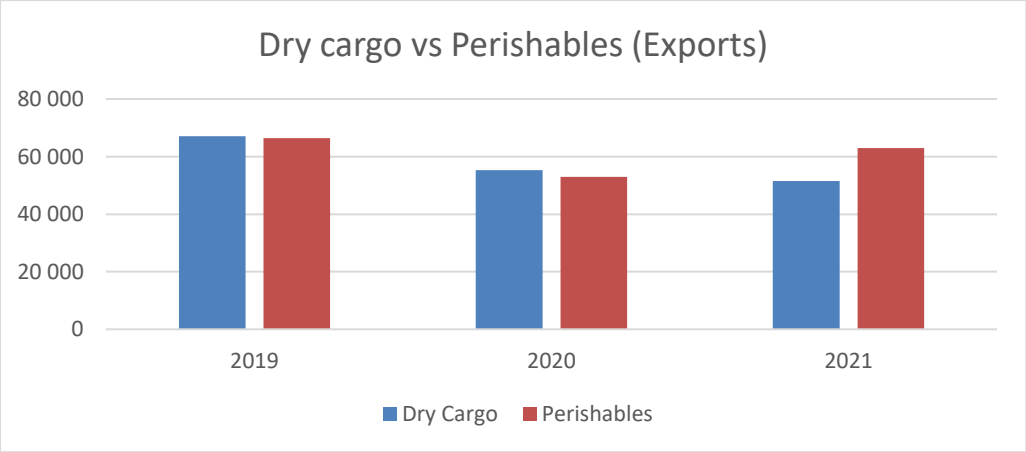

Figure 2-12: South African Dry Cargo vs Perishables Exports (tonnes)

[1] Seabury for 2019-2021

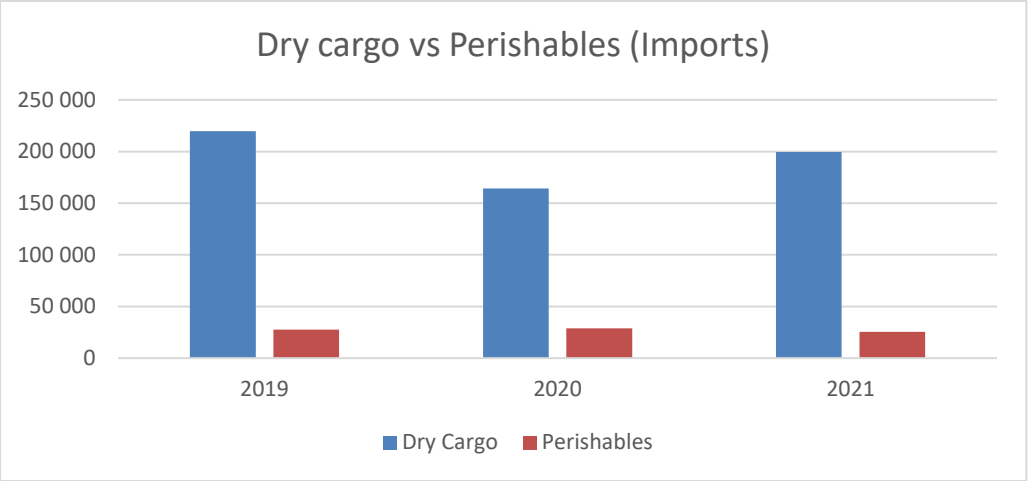

Figure 2-13: South African Dry Cargo vs Perishables Imports (tonnes)

South Africa exports almost the same amount of cargo volumes (tonnes) for both the dry cargo and perishables and imports significantly more dry cargo than perishables.

2.7.3 International Airfreight Market Value

The value of exports by air in South Africa decreased from 2019 to 2020 from R423 billion to a low of R282 billion. 2021 saw a recovery of exports, with the value of exports climbing to close to R489 billion.

The value of imports by air in South Africa decreased significantly from 2019-2020 from a high of R481 billion to R224 billion and recovered slightly to R266 billion in 2021.

Figure 2-14 and Figure 2-15 below indicate the market share per airport in terms of the value of goods exported and imported from the primary international airports in South Africa.

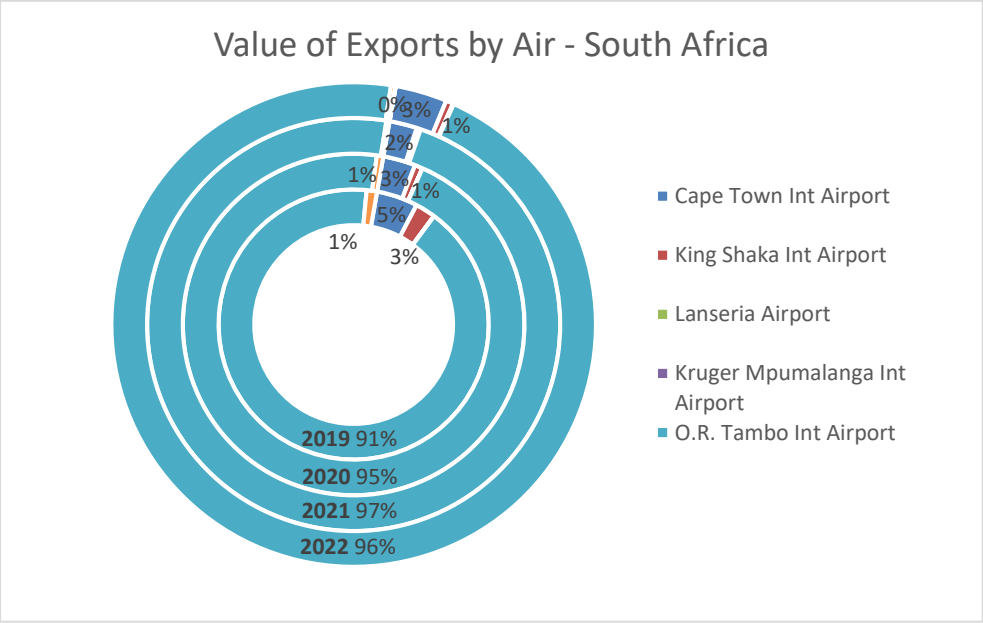

Figure 2-14: South African Value of Exports by Air per Airport (% value)

Source: South African Revenue Services (SARS)

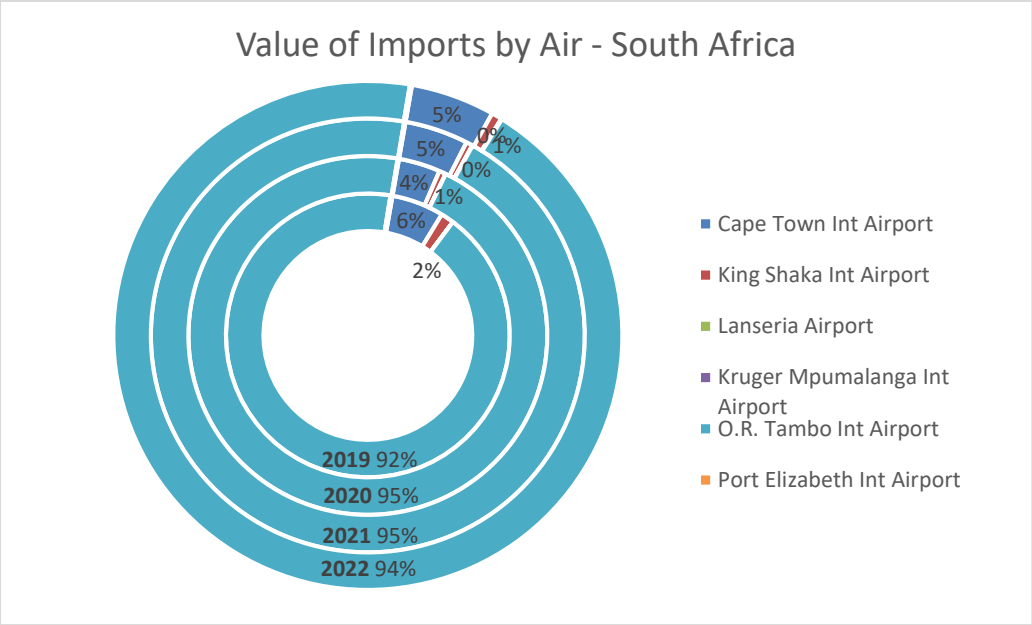

Figure 2-15: Value of Imports by Air per Airport (% value)

Source: SARS

O.R. Tambo International Airport (JNB) dominates the market, with an average of 95% of the market value for imports and exports by air. Cape Town International Airport (CPT) has a market share of approximately 3-5% of the market value, and King Shaka International Airport (DUR) takes up around 1% of the market value.

2.7.4 Comparative Share of Freight Market

From the above discussion in Section 2.5 that characterises airfreight versus other modes of transport for cargo, there is an expectation that more expensive, time-critical goods will be considered for flying and bulkier, less costly, less time-sensitive items will be moved by means of modes with lower cost per Kg attributes (reference Figure 2-7: Cost Functions per Transport Mode).

Statistics on the volume (tonnes) of airfreight vs cargo by other transport modes are not readily available (SARS provides data per original transport unit, which is not always in terms of tonnes). However, some rough estimates were made during research for the Airfreight Strategy. For 2019 (i.e. before COVID-19), South African imports by air were around 250 000 tonnes and exports 135 000 tonnes. For that year, the reported export surface freight was 921 million tonnes. The implication is that the contribution of airfreight was about 0.02% of total freight.

The South African airfreight contribution is borne out by international experience.

As shown in Figure 2-16, Eurostat data reflects the contribution of each transport mode for the carriage of freight per country in the European block in 2021. Overall, maritime transport carries two-thirds and road one-quarter of freight. Most of the remainder is carried by rail and inland waterways. Aviation contributes just 0.2%.

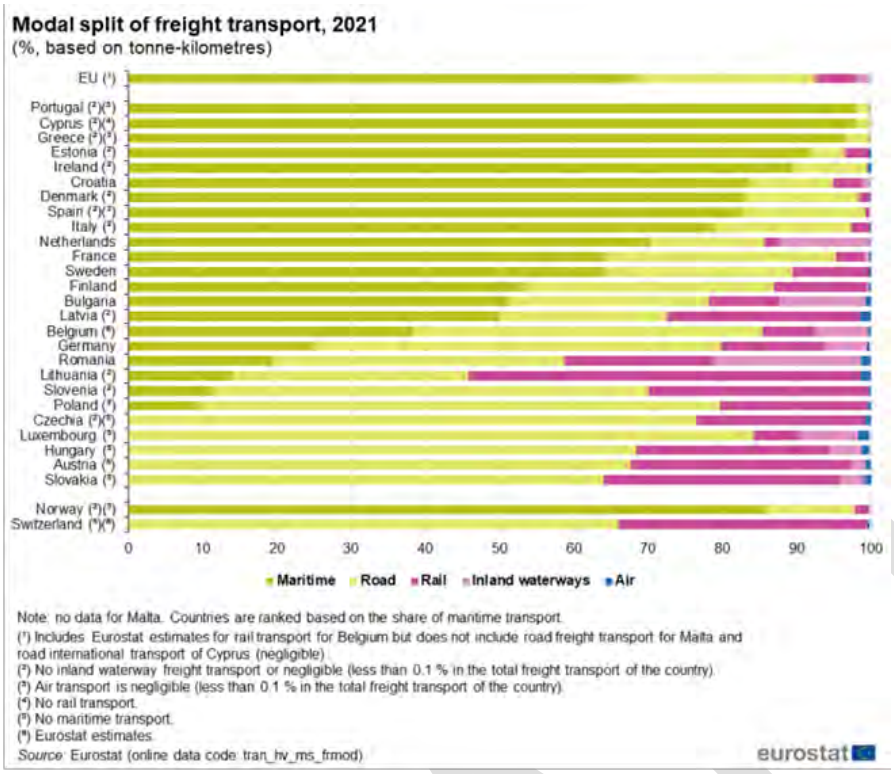

Figure 2-16: Freight Modal Split per European Country, based on Mass

Figure 2-17 further shows the aviation freight contribution to total freight by tonne per country. The highest recorded share is 1.6% in 2021.

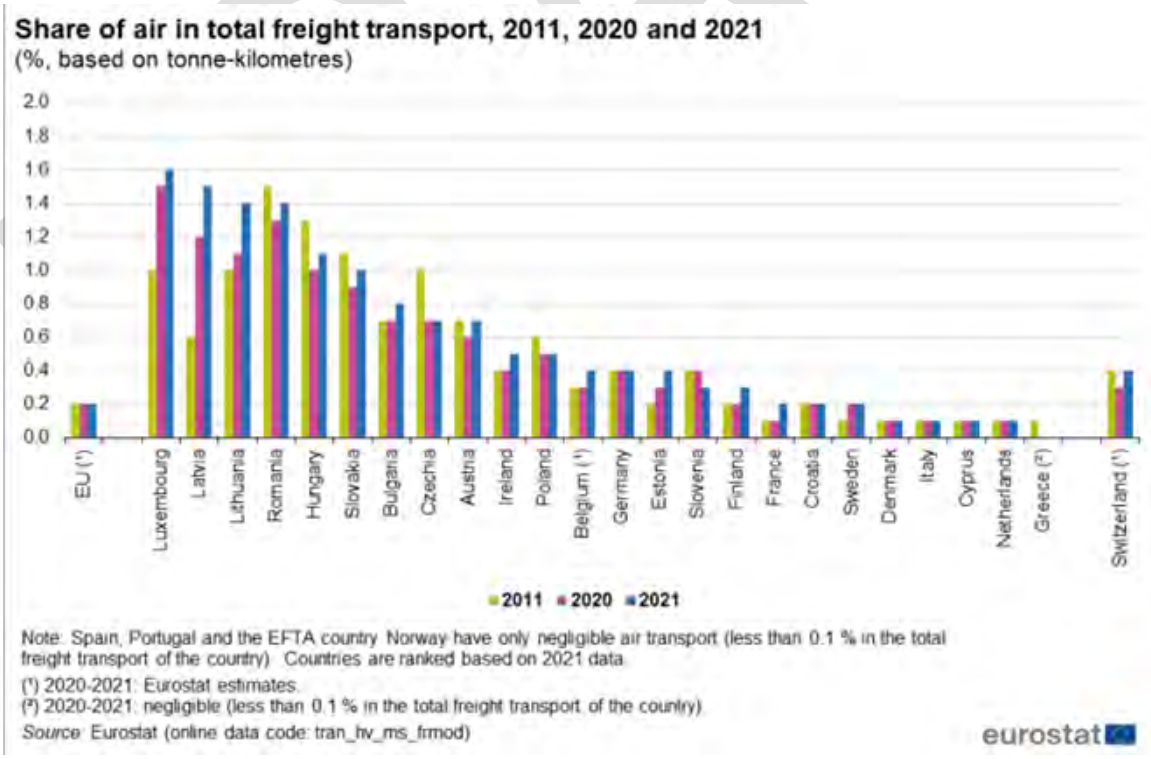

Figure 2-17: Contribution of Airfreight per European Country, based on mass

However, it should be noted that the shares presented in both Figure 2-16 and Figure 2-17 are based on the physical mass of freight and not the value, in which case the contribution of aviation is much more significant. As shown in Figure 2-18, if the value is considered, then aviation's contribution increases to nearly 30% for exports and about 20% for imports.

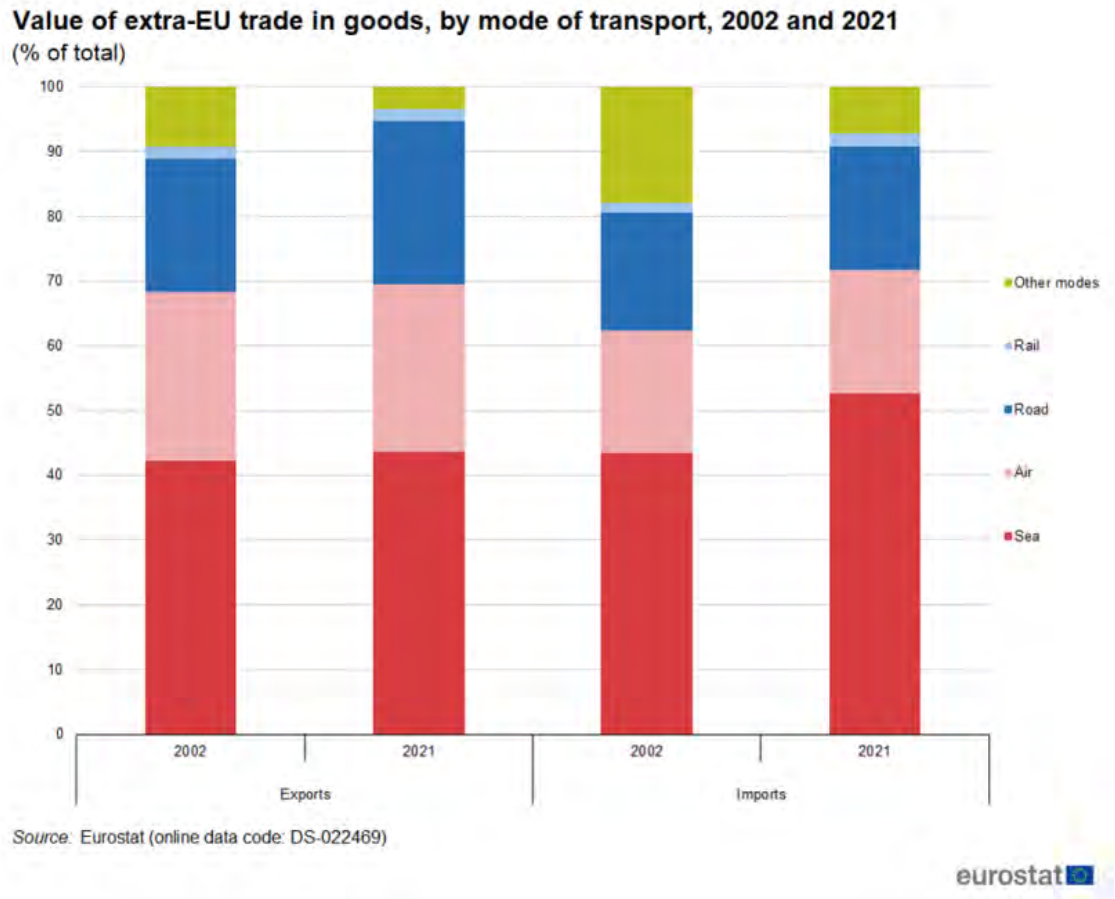

Figure 2-18: Freight Modal Split per European Country, based on value (%)

It is also instructive to consider Australia, which, like South Africa, is a commodity-exporting and technology-importing country, not located on a main trade route or flight path corridor. Although the available data is somewhat dated (2012), domestic airfreight accounted for less than 0.01% of total domestic freight movements (mostly newspapers, parcels and other light goods transported between capital cities). International airfreight also represented less than 0.1% of total merchandise trade by mass but over 21% of total trade by value. [2]

In 2017, for domestic freight transport in the USA, airfreight contributed 0.03% by mass and 3.4% by value.[3] In 2020, the contribution by mass was 0.06%.[4]

[2] https://www.bitre.gov.au/sites/default/files/Freightline_01.pdf
[3] https://www.bts.gov/topics/freight-transportation/freight-shipments-mode
[4] https://www.statista.com/statistics/184595/us-freight-movement-mode-share-by-tonnage/

2.8 KEY TAKE-OUTS

From the above exposition, the important pointers considered in the Airfreight Strategy include:

- Airfreight is managed along a multi-player transport value chain in which the actual transportation of cargo is just one step. Only a few role players fall directly under the jurisdiction or influence of the DOT.
- Physically, airfreight consignment sizes are small, and goods have distinctive preparation and packaging requirements based on safety, security, packaging and weight restrictions.
- Although traditionally, most airfreight preparation and inspection activities took place on-airport, constraints at airports and a more permissive trade regulatory environment have led to many of these being located off-airport.
- The range of airfreight facility configurations and development models has therefore expanded with more opportunities arising for optimisation and private sector participation.
- The type of aircraft employed (bias towards belly freight rather than dedicated freighters) reflects the nature of the air routes, specifically the distance, volumes and bidirectionality of trade.
- Airfreight is expensive in absolute terms and is the preferred mode of transport for specific products under particular circumstances.
- The domestic role of airfreight depends on the country's geography and competition from surface transport modes. In South Africa, it competes with quite an efficient road freight sector over relatively short distances (in aviation terms).
- Aviation plays a key role in international trade. It moves specific goods, not high in volume but representing a large share of the value of trade.
- In times of emergency (recall the COVID-19 pandemic), the contribution of airfreight is not just economic but outright strategic.

3 POLICY AND LEGISLATIVE ENVIRONMENT

3 POLICY AND LEGISLATIVE ENVIRONMENT

This section briefly reviews the policy and legal backdrop applicable to the Airfreight Strategy, confirms the scope of relevant documents and sets out how these have impacted the Strategy.

3.1 LEGISLATIVE FRAMEWORK

3.1.1 International Conventions

The Convention on International Civil Aviation (Chicago Convention), 1944, is the overarching international agreement that lays down the principles and arrangements for the development of international civil aviation and international air transport services. South Africa signed the Convention in 1947 and is furthermore a signatory to a number of treaties and protocols flowing from the Convention.

The Yamoussoukro Decision (YD) is a treaty adopted by most members of the African Union (AU) which establishes a framework for the liberalisation of air transport services between African countries and fair competition between airlines. The Single African Air Transport Market (SAATM) aims to implement the Yamoussoukro Decision on an AU-wide basis.

3.1.2 Domestic Aviation Legislation

The commitments made under international conventions and other arrangements pertaining to civil aviation in South Africa include the following:

- Civil Aviation Act 13 of 2009, which regularises the aviation laws giving effect to certain international aviation conventions and provides for the control and regulation of aviation within the Republic.
- Carriage by Air Act 17 of 1946, which gives effect to a convention for the unification of certain rules relating to international carriage by air.
- International Air Services Act 60 1993, which provides for the establishment of an International Air Services Council and the regulation and control of international air services.
- Air Service Licensing Act 115 of 1990, which provides for the establishment of an Air Service Licensing Council (ASLC) for the licensing and control of domestic air services.
- Civil Aviation Offences Amendment Act 63 of 1978, which regulates air safety and security of goods transported by air.
- Airports Company (ACSA) Act 44 of 1993, which provides for the establishment of ACSA and regulates certain activities at company airports.
- Air Traffic and Navigation Services Company (ATNS) Act 45 of 1993, which provides for the establishment of ATNS and related airspace management matters.

The Civil Aviation Act is supported by the Civil Aviation Regulations (CARs), a separate part of which deals with a specific aspect of civil aviation. For airfreight, the following parts are relevant:

- Part 71 – Personnel Licensing (for drone operations)

- Part 92 – Conveyance of Dangerous Goods
- Part 101 – Drone Operations
- Part 108 – Air Cargo Security
- Part 111 – Aviation Security
- Part 139 – Aerodromes and Heliports
- Part 141 – Training (for drone operations)
- Part 172 – Airspace and air traffic services.

Part 108 should be highlighted, given its implications for off-airport airfreight activities as discussed previously under the Airfreight Value Chain (Section 2.4, page 13). It defines a "regulated agent" which is a commercial air transport operator, freight forwarder, cargo handling agent, postal agency or any other person involved in the carriage of cargo by air and approved by the Commissioner for Civil Aviation as such and who is engaged in the acceptance, forwarding, storage and carriage of cargo by air. If the preparation of the goods is carried out compliantly and the goods are handled under the supervision of a regulated agent, then these goods can be declared as "known cargo" and treated accordingly at the airport, avoiding additional processes that would otherwise be required.

The CARs, in turn, are supported by more detailed Civil Aviation Technical Standards (CATS), which are not further elaborated on here.

3.2 AVIATION POLICY FRAMEWORK

The Airfreight Strategy is a building block in the overall policy and legislative hierarchy. The background to this Strategy includes the Government's overarching approach and policies for economic growth, development, inclusion, and other objectives. These influence more specific domains (sectors), such as the transport sector, in general, and thereafter the aviation sub-sector. Within aviation, there are sub-sector policies, legislation, strategies, and plans. The policies provide the longer-term goals and direction, the legislation (acts, regulations, and technical standards) legally locks down the policies, the strategies give effect to policy and legislation in the form of programmes, and these are executed at the tactical level through specific plans or projects.

3.2.1 Transport Sector

Policies and strategies which direct the development of the transport sector overall are:

- National Freight Logistics Strategy (NFLS), 2005, aiming to address structural and organisational deficiencies in the freight system. Given the lapse of time, it is the intention to update the NFLS shortly. However, it remains instructive for the development of the Airfreight Strategy in that many of the issues raised then (and possibly also solutions) still apply today.
- National Transport Master Plan (NATMAP 2050), 2016, intends to support continuous development and improve the efficiency and effectiveness of a multimodal transport system, which is well regulated, well managed and coordinated, based on cooperation between various Government spheres, the private sector and civil society.
- Green Transport Strategy (GTS) (2018-2050), which enshrines the DOT's approach to making a significant impact in reducing GHG (greenhouse gas)

emissions. The GTS aims to minimise the adverse impact of transport on the environment while addressing current and future transport demands.

- National Transport Policy (NTP), 2021, which updated the positions previously presented in the White Paper on National Transport Policy of 1996. It is a multimodal policy addressing, amongst others, civil aviation matters.

3.2.2 Aviation Sector

Policies, strategies and plans specific to civil aviation are the following:

- National Airspace Master Plan (NAMP), 2011-2025, which is a requirement of the National Civil Aviation Policy and is also aligned with global and regional airspace plans and initiatives, including addressing the Global Performance Indicators (GPIs) of International Civil Aviation Organisation (ICAO). It provides a strategic view and direction of airspace organisation and management in South Africa.
- White Paper on National Civil Aviation Policy (NCAP), 2017, which updated various older policies that dealt with more specific aspects of civil aviation, such as the domestic air transport policy (1990), international aviation policy (1992), policy on state airports and air traffic and navigation services (1992), and the policy on airports and airspace management (1998).
- Draft National Comprehensive Aviation Policy (NCAP) is the document that will replace the 2017 NCAP. This version of the policy is still in draft format.

Various other policies and strategies are in the process of being prepared and will be finalised subject to completion of the NCAP, including:

- Draft National Civil Aviation Transformation Strategy (NCATS), 2018
- National Airports Development Plan (NADP), 2019
- Draft Air Transport (Airlift) Strategy (ATAS), 2020-2025
- Proposed National Aviation Sector Master Plan (NASMP).
- Aviation, Forwarder and Clearing Sub-Sector Broad-based Black Economic Empowerment (B-BBEE) Charters, which aim to develop a world-class, cost-effective and efficient modally integrated transport sector that promotes entry of Black peoples into the industry to stimulate economic growth, development and trade whilst also complying with acceptable safety and environmental standards in all operations.

3.3 Policy Themes and Directions

Although the focus and intention of each differ, there is a large overlap of the topics addressed in the transport sector and aviation sub-sector policies. Rather than reviewing each policy on its own, it is thus useful to bring the policy topics together under standardised subjects. As far as possible, the text below is composed of direct quotations from the policies, but sometimes, a statement is paraphrased to mould it into the surrounding context.

3.3.1 Policy Aims

The government's aims for the transport sector (and, by extension, the civil aviation sub-sector) are best articulated in the NTP and NATMAP. Transport plays a facilitating role in

promoting the expansion of trade and tourism. The industry must thus be capable of competing both domestically and internationally. Free-market principles should be applied to maximise consumer choice and meet consumers' needs. Transport should be conducted in an investor-friendly environment where adequate returns can be realised, and policy and regulatory certainty is provided.

3.3.2 Air Services

The domestic air transport services market is economically deregulated, based on the principles of market-driven services, users' interests, and a level playing field (equal treatment). The international market is moderately liberalised, based on competition but safeguarding national interests and encouraging South African participation.

The policy position is that the private sector is largely responsible for delivering commercial transport services. However, it is acknowledged that in aviation, there is ambiguity around direct Government involvement in the provision of air services (three state-owned airlines competing with private airlines when the NTP was formulated in 2021). In the NTP, the Government reaffirms its intention to reposition its direct involvement in the provision of air passenger and freight services in what is meant to be a deregulated and competitive environment.

The policy intention is to implement a liberal regulatory regime with African States bound by the Abuja Treaty, aligned with the principles and objectives of the Yamoussoukro Decision. The actual granting of such rights may be subject to reciprocity due to the interim bilateral implementation of the YD principles.

In the case of other States outside the Continent, the concept of progressive liberalisation should be carried further and speeded up, where possible. Scheduled international air transport services should continue to be controlled and regulated within a well-defined regulatory framework. Deregulation of services by foreign operators to South Africa will be considered by the Government only if reciprocity exists. For non-scheduled international air transport services, a more open dispensation will apply for operators of small aircraft, and the service rights for large aircraft will be awarded to complement the scheduled network, especially to stimulate tourism, investment, and trade and developing new air links.

As regards the awarding of air service licences, it is acknowledged that there is a lack of capacity and resources devoted to the Air Service Licensing Council (ASLC). To be resolved also, there are overlapping functions between the ASLC and the International Air Services Council (IASC) on safety and reliability.

3.3.3 Airport and Aviation Infrastructure

It is expected that infrastructure be planned according to economic development requirements and that airport planning and development be integrated with and incorporated into the planning initiatives of relevant provincial and municipal governments. However, currently, national airport network planning is not fully integrated, does not fully consider multi-modal transport linkages, and is not always evidence based.

Under the NCAP and NAMP, there are initiatives ongoing for improving the capacity at international access airports, as well as reassessing the designation of international airports.

For purely domestic airports, the aim is to have a broader national footprint, i.e. including all nine provinces. Outside urban areas, the focus on second and rural economies shall be addressed by providing non-commercialised infrastructure on a developmental basis.

As regards the delivery of airports, the policy position is that where transport services are mostly delegated to the private sector, the public sector is largely responsible for delivering transport infrastructure. However, transport infrastructure is delivered by quasi-private state-owned companies, but these are often poorly managed and overseen. The model of public ownership and operation by state departments, while still a viable option for socially necessary infrastructure, is decreasing in application for higher-order infrastructure because of proven efficiency gains from less bureaucratic and more commercial approaches.

ACSA will continue to provide and manage infrastructure at airports within their control. The National Government will act as a responsible shareholder and ensure effective oversight of its agencies. Infrastructure gaps and investment shortfalls are to be addressed by removing State Owned Enterprises (SOE) balance sheet constraints and planning and delivering infrastructure according to economic development requirements.

Notwithstanding these intentions, the State does not have sufficient capacity to solely finance and implement transport investment plans; therefore, private funding will need to be sourced. Although the model of public ownership and operation by a state-owned corporation or agency, such as ACSA, has been found effective in infrastructure provision and maintenance, concessions for private financing, construction and operation represent a method for addressing fiscal constraints within such a model.

Local and international private sector participation in the provision and operation of airport infrastructure should be encouraged in all spheres of Government.

3.3.4 Airspace Management

A seamless airspace is required with as much centralisation of control of the airspace as possible. Airspace planning must be performance-based and not primarily technology-driven. Although there will generally be minimal permanent or fixed constrained airspace, certain airspace will be subjected to service limitations, including denying access over an extended period (for national interests or safety, coordinated with the air traffic management (ATM) community). However, there will always be airspace that is primarily used or organised for a specific purpose (e.g. high-density airspace, special-use airspace). Notwithstanding these principles, at present, the airfreight corridor network is ill-defined and lacks clear interconnectivity among the national, provincial, and local airports and transportation modes.

3.3.5 Commercial Principles and User Charging

Investment in infrastructure or transport systems should satisfy social, economic, or strategic criteria, including targeted state investment to build infrastructure where the private sector is not able to do so or where it concerns strategic transport infrastructure. Investment in the infrastructure of transport systems should happen in ways which will satisfy social, economic, or strategic investment criteria.

However, the State does not have sufficient capacity to solely finance and implement transport investment plans on the required scale and on time; therefore, private funding will need to be sourced. Government financing should thus be provided to projects that are important and urgent and which have spill-over economic benefits, and projects with specific beneficiaries should also be financed via private finance, except if there are specific, defined risks where a Government contribution or guarantee may be required. A combination of both state and private funding through a joint partnership, which is the case for a growing number of infrastructure projects, may also be a feasible option.

Where appropriate and possible, infrastructure will be funded through user charges and/or investments by the private sector. Airport development should be funded by adopting an appropriate funding model for different airport scenarios based on the “user-pays” principle. The principle asserts that direct benefits received and costs caused should be charged to the beneficiary of the project.

For financing of "economic" infrastructure and operations which provide a measurable economic or financial return, such as airports, the "user-pays" principle applies, while for infrastructure and operations for which the user cannot or should not pay but which provide social benefits greater than the costs, should subject to budget availability, be funded through appropriations to achieve an equitable distribution of resources, or as an incentive to provide services that are desirable in a broader social context. Since revenue from national airports and air navigation match costs, users should be fully responsible for paying for national airports and air navigation.

However, it is unlikely that many smaller and non-commercial aviation-focused airports could fully cover costs on a user-pays basis, and sometimes, there is a public benefit which does not generate user revenue. Still, in all cases of Government funding, the return on investment (whether financial, economic, or social) of monetary and other resources must be justifiable. However, at present, there is no framework to assess under which circumstances an airport merits financial support.

In the medium term, the bleak economic and fiscal environment in the country makes new public investments unlikely. New initiatives would need to be self-funding.

3.3.6 Airfreight-Specific Policy Positions

Airfreight is important for the transport of high-value, low-density cargo. There should be a recognition of the vital role of airfreight when supply chains are under stress, e.g. during COVID-19 and the KZN floods.

In general, airfreight infrastructure is characterised by low application of technology, old buildings, and low efficiencies. Space constraints at O.R. Tambo have become a problem within the planning horizon. The growth requirements, especially E-commerce, have placed additional stress on facilities.

A deep reflection is required regarding the role of ACSA, which does not support airfreight in the manner done at other international and regional airports.

The scale and nature of cargo are unlikely to support freighter-focused airports and cargo hubs in the short-to-medium term.

3.3.7 Remotely Piloted Aircraft

The potential of RPAS (remotely piloted aircraft systems, i.e. drones) has to be harnessed to expand and modernise the airfreight supply chain. RPAS are increasingly considered for several purposes, including airfreight such as parcel, food and blood delivery and transportation of cargo in general. The regulatory framework needs to support the evolution of RPAS whilst ensuring a sufficient level of safety and security. However, efforts to integrate RPAS into civil airspace will exclude fully autonomous, unmanned aircraft in the near future.

3.3.8 Transport and Aviation Regulation

The transport policies confirm that regulation will remain the responsibility of the Government. Transport should be managed by strong institutions supported through effective policy and regulation. However, the current inappropriate regulatory institutional framework should be addressed by being more responsive to industry and economic change requirements.

The intention is to regulate only where it is essential. There should be minimal red tape and improved regulatory responsiveness if the airfreight sub-sector is expected to operate optimally.

3.3.9 Other Related Policy Matters

Landside Service Provision

The private sector is largely responsible for delivering transport services. Inefficiencies and monopolistic pricing should be addressed by introducing competition in and for operations at competitive pricing.

Transformation

The current transformation profile is disappointing regarding aviation-related professions and organisations. The aim is to transform the aviation industry by broadening economic participation in the provision of aviation-related services. This will be achieved by instituting an NCATS governance protocol, establishing an aviation academy, increasing access to aviation training and increasing access to entrepreneurial capital and markets.

Environmental Considerations

The transport policies acknowledge the reality and seriousness of climate change and, therefore, the importance of greening the transport sector and adhering to environmental standards. An effort must be made to improve energy efficiency and reduce emissions while recognising the need to grow the economy and develop the transport system. Accordingly, there will have to be a just (measured) transition to a climate-resilient transport system. Although ICAO has identified various emission reduction measures (aircraft-related technology development, aircraft-based emission testing with penalties, alternative fuels, improved ATM and infrastructure use, market-based measures, airport improvements, and regulatory measures), South Africa has, at this stage, committed to focusing on improved ATM measures.

Information and Information Systems

There is a general lack of integration and coordination in transport planning and delivery. There is also no coordinating, guiding or regulatory mechanism and as a result, the airfreight stakeholders operate in isolation. Furthermore, there is a lack of reliable data and systems integration.

The lack of integration and collaboration is to be addressed by a more direct role for the Government in directing planning and implementation and through the mandatory filing of information. A digital information-sharing platform (central database) should be implemented aimed at facilitating data sharing between all types of supply chain stakeholders through connecting existing IT platforms and services. A Consolidated National Transport Databank is to be created, i.e. a single-source consolidated data system where all the data and information from different modes is stored.

Consultation and Participation

Transport is to be based on cooperation between various Government spheres, the private sector and civil society. Government departments and State-Owned Companies should work together to enable the sub-sector and make it possible to compete with the likes of Ethiopia and Kenya regionally. There should, therefore, be adequate consultative forums in a well-defined communication system.

3.4 NON-AVIATION CONSIDERATIONS

As shown in the discussion on the Airfreight Value Chain in Section 2.4, the airfreight-related activities are not purely related to transport but intermingled with other disciplines which are not overseen by the DOT and which cannot really be affected by this Airfreight Strategy. For completeness, it is important to acknowledge at least the domain of international trade since its rules and arrangements greatly impact the management of airfreight.

In a similar manner to how the Chicago Convention and ICAO establish the framework for international civil aviation, the World Trade Organisation (WTO) deals with the global rules for trade between nations. This is done through various agreements, specifically the Rules of Origin Agreement (establishing criteria to determine the national source of a product for tariff purposes), the Customs Valuation Agreement (providing for the uniform and neutral valuation of goods for customs purposes), the Sanitary and Phytosanitary (SPS) Agreement (containing food safety and animal and plant health regulations), the Technical Barriers to Trade (TBT) Agreement (for testing, certification, packaging, quotas, etc.), and the Trade Facilitation Agreement (TFA).

At the continental level, the key trade instrument is the 2019 Agreement establishing the African Continental Free Trade Area (AfCFTA). The AfCFTA and SAATM are both flagship projects of the African Union's Agenda 2063: The 'Africa We Want', the continent's strategic framework for inclusive and sustainable development.

The AfCFTA aims to boost intra-Africa trade through the progressive elimination of tariffs and non-trade barriers, enhanced efficiency of customs procedures, trade facilitation and transit, enhanced cooperation in areas of TBTs and SPS, and the development of

continental value chains. These actions are set out in the accompanying annexes to the Agreement, many of which lean heavily on the equivalent provisions of the TFA.

Trade facilitation entails the improvement of procedures governing and reducing the costs of the movement of goods across national borders. The World Customs Organisation (WCO) is the intergovernmental organisation dealing with customs-related matters as regulated by various key instruments, including:

- Harmonised System (HS) Convention for standardised product nomenclature and classification
- WTO Trade Facilitation Agreement (TFA) addressing Customs processes and formalities
- Kyoto Convention on the Simplification and Harmonisation of Customs Procedures
- Montreal Convention for the Unification of Certain Rules for International Carriage by Air with important provisions related to air cargo related to the use of electronic air waybills and the liability of cargo carriers.

South Africa has ratified all the above Conventions but not necessarily implemented all their provisions. The TFA makes provision for special and differential treatment, which allows countries to phase in the provisions. In terms of how South Africa performs as regards trade facilitation in general, there are several indices which compare countries' performance (such as the World Economic Forum's Enabling Trade Index, the World Bank's Trading Across Borders Index and its Logistics Performance Index) which show that South Africa achieves between 60% and 80% of the best trade facilitation scores. As regards air cargo specifically, the country achieves around 80% and ranks 41st (of 124) under the Air Trade Facilitation Index (ATFI) and 9th (of 135) under the eFreight Friendliness Index (eFFI). However, these two indices were measured in 2016, and the performance may have changed since.

3.4.1 Other Domains

The trade rules are very important in how they influence (international) airfreight operations. Various other public policy and regulatory spheres also play a role, although less so. These are not discussed here but include areas such as land-use planning, occupational health and safety, labour matters and communication.

3.5 Key Take-outs

The review of the various policies which create the framework for the development and promotion of airfreight indicates that across the transport and civil aviation policies, the mindset is of a civil aviation sector that is business-like and business friendly. The clear intention is to harness private sector initiatives, participation and capital where possible. The Government plays a guiding role and will intervene as a last resort where solutions are not self-funding, but there is clear social and economic merit to participate. It will also protect the national interest as required. The Government will apply light-handed regulation without compromising safety whilst ensuring a competitive business environment.

From a trade perspective, South Africa underwrites the key international and continental trade agreements and is committed to implementing best-practice trade facilitation measures.

4 STRATEGIES FOR AIRFREIGHT

4 STRATEGIES FOR AIRFREIGHT

The following sub-sections set out strategies for airfreight as informed by the context of how airfreight works, broad and specific policy aspirations and the identified opportunities for improvement.

4.1 AIRFREIGHT MODAL SHARE AND DESIGNATION

The physics and economics of flight determine that airfreight has a small share of the mass of goods transported but contributes significantly in terms of the value of transported goods. Overcoming drag and weight requires a much higher energy expenditure than terrestrial transport, with the energy intensity (kJ/tkm) of aviation six to ten times greater than road transport, which in turn is about five to eight times greater than rail. And higher energy input correspondingly translates into higher carbon emissions output. Aviation is thus more expensive directly (financially) and indirectly (economically).

To fly goods (rather than truck, rail or ship) must thus be justifiable in terms of the value of the good, the need for it (opportunity cost), its urgency, and the remoteness (distance) of its use. When goods do fly, it is preferably where there is a freeloading opportunity (as belly freight), except where demand is high in both directions so that a dedicated freighter can pay its own way. Goods with specific characteristics (perishable, high-value, low weight-to-value ratio) are potentially airfreight, but these are the exception, so nearly all freight is transported by terrestrial modes. Because of the unique requirements of airfreight consignments, goods prepared for terrestrial transport require handling and repackaging for flying and do not seamlessly transfer between modes, for example, an ISO container between truck, train and ship.

The natural direction of the modal shift is downwards along the energy chain to the modes that are less energy intensive, i.e. from plane to truck, to train, to ship. This assumes that the more optimal modes are indeed available and efficient. In South Africa, there has been a modal shift away from rail to road, partly because of the flexibility and increased efficiency of road transport but also because of the deteriorating availability and performance of rail transport.

Growth in airfreight is unlikely to occur from capturing freight from other transport modes. It would rather be stimulated by economic growth, in general, by increased production sophistication (less export as unprocessed bulk and more as value-added goods like electronics) and by having a more outward-looking trade orientation (as promoted under the AfCFTA).

Designating certain goods for transport by air to increase the volume of airfreight and to achieve economies of scale with more competitive airfreight fees is thus countered by the abovementioned free market driving forces. There is a corollary to this issue in the rail sector, which has lost business to the road and where an option is to restrict certain goods from being transported by road (as has been attempted in, e.g. Zambia). However, the impetus in the South African road-to-rail policy is on measures to improve the rail offering and attract back volumes from the road rather than to force volumes onto the under-equipped rail system prematurely.

Likewise, in airfreight, the main risk of designating goods for air transport is that airfreight and related off-airport infrastructure and operations at and around key airports (specifically O.R. Tambo International Airport) are already under pressure even before additional volumes are potentially required to be handled by the system. This is a chicken-and-egg situation, i.e. whether demand should lead (infrastructure) capacity or capacity lead demand.

For South Africa, the contribution of airfreight to overall cargo transported is not out of the norm seen internationally. There is no obvious structural failure, as is the case with the expected increased contribution by the rail mode in the road-to-rail debate. Although there will be specific areas where the airfreight offering may improve, it should be recognised that airfreight has significantly greater carbon emissions than other modes, is notably more expensive than road transport, has a much lower volume (mass) carrying capacity than road, and distances in South Africa mostly favour efficient road transport.

The strategic intention is to improve the workings of airfreight so that it can compete efficiently with other transport modes and provide an alternative means of transport and associated choices for customers under the right circumstances. This then contributes to an increase in the share of airfreight.

4.2 AIRFREIGHT VALUE CHAIN AND ROLE PLAYERS

Apart from the airfreight carrier itself, there are various other role players providing infrastructure and services along the airfreight value chain. Not all the role players and relationships fall within the scope of what this Airfreight Strategy can influence.

4.2.1 Distinction between On vs Off-Airport Activities

In South Africa, as elsewhere, the traditional airfreight operating model was for the balance of airfreight-related activities to be carried out on-airport, often in separate facilities for each airline or agent. This is, to some extent, still the model at O.R. Tambo and Cape Town international airports, although the lack of space and the outdated and neglected state of freight facilities have resulted in a split of models. There remains a community of agents operating on-airport, purportedly in inadequate facilities and under short-term occupation arrangements which do not encourage reinvestment and modernisation. On the other hand, many of the larger, internationally aligned freight agents have established facilities with bonded warehouses in the vicinity of the airports (the “aerotropolis”) from where they conduct most freight activities that do not absolutely have to be done at the airport. O.R. Tambo does accept pre-built ULDs from trucks on the landside. However, the mechanisation to transfer ULDs from trucks into the airfreight building and then onto the dolly for transfer to the aircraft is inefficient and makeshift solution. Improving the ULD bypass facility at O.R. Tambo should be prioritised.

At King Shaka (Durban), the Dube TradePort (DTP) Tradehouse, there are freight preparation facilities for a limited number of agents who obtain access to these competitively under medium-term leases. The single DTP terminal is operated by DTP itself, although an area is set aside for South African Airways (SAA). The DTP has a bypass channel available to off-airport agents and also to manage over-size cargo.

The diversity of arrangements at the three main airports (defined by prevailing airfreight volumes) indicates that a sole optimal model cannot be promoted. However, the trend in

many busy and efficient airports internationally is to allow flexible on vs off-airport arrangements.

The possibility for airfreight activities to be located off-airport is physically made possible by having an adequate bypass channel and administratively by revenue authorities and other regulatory agencies making their services available off-site and by implementing risk-based ("know-your-customer") procedures and arrangements like the authorised economic operator (AEO) concept.

Expansions and refurbishments of airfreight facilities on airports and the provision of by-pass facilities should be promoted in support of:

- reduced on-airport facility requirements

- decongestion on airports

- efficient airside operations

- efficient transfer and storage of airfreight within the land- and airside operations and movements between the two

- improved opportunity for airfreight agents to participate on a competitive and sustainable basis.

4.2.2 Off-Airport Role Players

The off-airport service providers are freight management entities and road transporters. These entities are represented by associations such as:

- SAAFF (South African Association of Freight Forwarders) represents the air, road and sea freight forwarders and related cargo service providers in South Africa. Its current membership is in excess of 400 entities.
- SAEPA (South African Express Parcel Association) represents the express freight and courier industry in South Africa.

The total number of freight forwarders in South Africa is estimated at around 900. Similarly, there are various national road transport associations representing a membership of several thousand trucking and logistics firms. These firms are all commercial entities operating in a liberalised and competitive environment with fairly low barriers to entry.

This is a vibrant industry with no obvious lack of market participants, skills, or apparent market failures. However, the size and diversity of the airfreight service industry imply that there is limited structured gathering and reporting of information on the activities of this sector. This has similarly been recognised as the situation in higher-level policies for transport and aviation.

Regular, comprehensive and accurate reporting of cargo types, volumes, routes and other dimensions would be useful to market participants and policymakers.

The establishment of systems to support such data development and sharing is required.

4.2.3 Impact of Airport Ownership on Third Parties

Broader policy positions are that the Government will remain ultimately responsible for infrastructure of a strategic nature and that state-owned corporations are the delivery vehicle of choice for commercially sustainable infrastructure like airports. However, it is also clear that private initiative, participation, and capital may (or even should) be leveraged for expansion and improvement.

The issue of airport ownership belongs in higher-ranking policies such as the National Transport Policy and the Government's policies about infrastructure delivery in general.

A distinction is made between the primary airports and lower-order (secondary and tertiary) airports. The lower-order airports (with relatively few aircraft movements, low number of passengers and insignificant airfreight volume given the limited belly freight capacity) require limited freight handling facilities and few (if any) freight agents. These airports are also mostly located relatively short distances from primary airports that should be equipped to handle significant freight volumes. The small activity base at these airports does not obviously warrant interventions to increase access by third parties.

Currently, most domestic and international airfreight moves through the three main ACSA-owned airports, namely Cape Town, O.R. Tambo and King Shaka international airports, as set out in Figure 2-14 and Figure 2-15.

King Shaka International Airport is owned by ACSA, but cargo processing is done by Dube TradePort. At O.R. Tambo International and Cape Town International Airports, all on-airport airfreight handling infrastructure is owned by ACSA and SAA.

The infrastructure and handling practices are outdated. There is no clear framework on third-party cargo handling, competition in cargo handling, and the associated commercial rules such as the form (rental, lease, ownership) and duration of access to freight facilities.

Apart from the third-party commercial rules not being clear, from a technical perspective, the policy documents regulate mainly the airside, airspace and air services (aircraft, airlines). Other than airport infrastructure, little or no attention is given to regulating ground-based entities (freight forwarders, ground handlers) operating in the aviation value chain.

Clarity is required regarding the current airport ownership model and third-party participation at or near these airports. Current tenants have a sense of impermanence and experience neglect of facilities, which has a detrimental effect on the airfreight delivery model, facilities and operations.

4.2.4 ACSA-owned Airports and the Role of SAA Cargo Facilities

ACSA charges and receives revenue from renting airfreight facilities at its airports to third parties. This is particularly relevant for the major airfreight handling airports, namely O.R. Tambo International and Cape Town International. No throughput revenue from airfreight (i.e. the equivalent of a passenger processing charge) is received.

The investigation into airfreight shows that the majority of airfreight passes through the three ACSA-owned airports, O.R. Tambo International, Cape Town International and King Shaka

International, with O.R. Tambo International processing in excess of 90% of all air cargo in South Africa. These ACSA-owned airports thus play a crucial role in airfreight and require specific focus in the Airfreight Strategy. Special emphasis must be placed on O.R. Tambo International, as the South African airfreight industry is nearly totally reliant on the airport and its airfreight infrastructure.

The historically low land-lease revenues have favoured the freight forwarding and freight handling entities. However, the corresponding lack of maintenance and investment has resulted in inefficiencies that are now stifling airfreight processing. This can be attributed to the fact that ACSA, as the landlord, is not generating sufficient revenue required to maintain and invest more in the airfreight infrastructure. Neither party (ACSA nor freight handling entities) is benefitting from the status quo.

The assessment of the status of the airfreight facilities at these three airports is discussed in more detail in the earlier chapters of this strategy document. The primary observations emanating from the assessment of the airfreight infrastructure are:

- The investment in airfreight infrastructure over the past 40 years at O.R. Tambo International and, to a lesser extent, Cape Town International has been wholly inadequate.
- The current airfreight infrastructure at O.R. Tambo International and, to a lesser extent, Cape Town International is outdated, in poor working condition and does not meet the minimum IATA standards and industry best practice standards.
- The freight operators leasing the airfreight facilities are critical and even scathing in their evaluation of the airfreight infrastructure at O.R. Tambo International.
- The revenue ACSA collects from leasing the airfreight facilities has been insubstantial, which further exacerbates the issue of maintenance, upgrades and improvements.
- The current short-term leasing periods for the airfreight buildings offered by ACSA discourage the airfreight tenants from making their own investments.

The Regulating Committee (the Committee) is the economic regulator of ACSA (and ATNS) established in terms of section 11 of the Airports Company Act No. 44 of 1993 (as amended).[5] Economic regulation entails setting “airport charges” and prescribing service standards for “relevant activities”. Airport charges are limited to tariffs for landing, parking and take-off of aircraft or a tariff for or on passengers. Relevant activities include all the activities for which airport charges may be levied but further include activities such as handling an aircraft, supplying provisions to an aircraft, supplying fuel, and handling passengers or their baggage. In particular, a relevant activity also includes handling cargo at all stages while it is on the premises of such an airport. Therefore, all airport charges relate to relevant activities, but all relevant activities do not have associated airport charges. “Cargo handling” is a relevant activity but does not attract an airport charge.

[5] It is anticipated that the powers and functions of the Regulating Committee will, at some point in the future, be incorporated into the Transport Economic Regulator, once established, as per the Economic Regulation of Transport Act, Act 06 of 2024.

When the Regulating Committee sets airport charges (which exclude cargo charges) and service standards (which may include cargo), it is obliged to trade off users' interests and ACSA's commercial standing. In other words, it needs to ensure the balancing of interests of the airport operator with that of the users. Users are protected by the Regulating Committee by (i) restraining the airport operator from abusing its monopoly position, (ii) promoting the reasonable interests of its users without disadvantaging the airport operator from having a reasonable prospect of earning a commercial return on capital employed and (iii) encouraging timely improvement of facilities at these airports so as to satisfy anticipated demands by the users of the airports.

Hence, ACSA after consultation with its users and the Regulating Committee, is responsible to provide adequate cargo facilities. The primary legislation is not prescriptive in terms of the funding model in this regard, therefore, how ACSA recovers costs for providing cargo facilities and/or air cargo services at its airports should be a product of discussion between ACSA, the Regulating Committee and the users. However, the Regulating Committee, as mandated by the legislation, should be the final arbiter on the funding model. However, it is clear that the airport operator may raise or receive income from sources other than airport charges, including, but not limited to, the power to enforce any contract for such income. It must also properly ringfence such income and associated costs in terms of accounting practice as the Regulating Committee reasonably requires. The most likely form of charging for cargo could be in the form of a lease (for space and facilities). Since cargo is a relevant activity, the lease rate would have to be determined with reference to the cost of the facility/ies provided. The Regulating Committee may not set the lease rate like it does with airport charges, but it must regulate the service level of a relevant activity. It is unlikely that ACSA will set lease rates below the actual, justifiable cost of providing cargo facilities. But if it sets the rate higher than justified, the Regulating Committee could intervene by insisting on a corresponding higher level of service. This approach is unwieldly, and it would be easier resolved if ACSA and its cargo users came to a reasonable fee-for-service understanding.

In short, ACSA must provide adequate cargo facilities in a cost-effective manner. There are several options for ACSA to consider in this regard, such as (i) erecting buildings that are well equipped with freight handling equipment and lease them to airfreight terminal operators to operate the airfreight facilities on-airport; or (ii) operate the airfreight facilities themselves, etc. It is important that the level of the charge must be reasonable and cost reflective. The Regulating Committee should, in accordance with the relevant legislation (*either the Airports Company Act or the Economic Regulation of Transport (ERT) Act No. 06 of 2024*), ensure that adequate mechanisms are put in place to safeguard the regulated entity from abusing its monopoly position.

To solve the dilemma of ageing and dilapidated airfreight infrastructure, the following needs to be considered:

- The funding of airfreight infrastructure shall follow the user-pay principle.
- Industry best practice airfreight infrastructure requires substantial investment.
- ACSA must obtain adequate revenue from airfreight operations. Tariffs levied to the users ought to enable ACSA to finance its obligations and ensure that it has the prospect of earning a commercial return for capital employed, as stipulated in section 12(10)(e) of the Airports Company Act, 1993 (as amended).

- The revenue collected must be fair, which (since cargo is a “relevant activity”) means that charges are set with reference to the cost of the facilities and services provided.
- However, it must be acknowledged that on-airport land is considered premium because of its location. An associated modest premium may thus be payable for the privilege of operating from the airport. The existence of “bypass” facilities, which are encouraged in this Strategy to allow off-airport cargo operations, should rein in the on-airport premium. However, a delicate balance must be maintained between the standard of facility, airport access and on-airport premium to ensure a robust airfreight industry.
- For leases (land or airfreight building), the terms should be let out competitively and be of sufficient duration to encourage tenant investments. The Regulating Committee should be more actively involved in monitoring cargo facilities, standards and charges.

Several options are available to resolve the historical underinvestment in these airfreight facilities. These approaches have relevance to the broader list of airports in the country. Remedies include:

- Providing leased land to airfreight terminal operators to erect and operate airfreight facilities on-airport.
- Erect building shells (without freight handling equipment) and lease them to airfreight terminal operators to install freight handling equipment and to operate the airfreight facilities on-airport.
- Erect buildings complete with freight handling equipment and lease them to airfreight terminal operators to operate the airfreight facilities on-airport.
- Erect buildings, complete with freight handling equipment, apply for a freight terminal licence and operate the airfreight facilities on-airport.
- Erect stand-alone freight bypass facilities or erect bypass facilities as part of the abovementioned options.

Within these options, the following revenue models can be considered:

1. Lease of land or airfreight building without risk/reward sharing.
    a) ACSA provides the land or building to an airfreight operator with a long-term lease.
    b) ACSA recover a fair revenue from the tenant.
    c) This revenue is classified as non-aeronautical income.
2. Lease of land or airfreight building with risk/reward sharing.
    a) ACSA provides the land or building to an airfreight operator with a long-term lease.
    b) ACSA recover a reduced lease revenue from the tenant (reduced when compared to 1b. above).
    c) In addition to the lease, ACSA recover a fee from the tenant, which is one of the following:
        i) Proportional to throughput volume (R/kg)
        ii) Percentage of turnover of airfreight terminal operator
        iii) Percentage of EBIT (Earnings before Income Tax) of airfreight terminal operator.

iv) ACSA receive a basic lease income plus revenue based on the performance of the airfreight facility.

d) This revenue is classified as non-aeronautical income.

e) The lease plus throughput/turnover percentage/profit share options incentivises both ACSA and the airfreight agent to promote the airfreight business. ACSA can afford to keep the basic lease low, reducing the start-up cost commitment for the airfreight agent, with upsides for both parties for growing airfreight volumes.

3. Operation of the airfreight facility.
   a) ACSA can register and apply for an airfreight terminal license.
   b) In this case, ACSA will provide cargo handling services as contemplated in the Airports Company Act, 1993.
   c) ACSA would apply typical airfreight charges, including charges for throughput, short term storage, security screening and the like
   d) This revenue is thus classified as aeronautical income and would be a regulated activity.

Note:
The lease plus percentage of turnover/profit fee structure is widely used for airfreight infrastructure Examples are Airfreight Terminals in Hong Kong and the Liège Airport in Belgium.

Recently, the Regulating Committee approved ACSA's "O.R. Tambo International Mid-field terminal capital expenditure (CAPEX) project", estimated to cost ACSA about R5 billion. This project will form part of the Regulatory Asset Base (RAB), which means the users will have to pay for the project. When the Regulating Committee determined airport charges for the 2023/24–2027/28 period for ACSA, the cost of the Mid-field Terminal was considered.

The approval of this project defines the magnitude of the airfreight infrastructure investment cost and the projected revenue (land or building leases). The cost and revenue for this project must be managed with care to ensure an ongoing and vibrant airfreight industry that is not crippled by excessive airport airfreight infrastructure costs.

SAA Facilities

South African Airways (SAA) has physical cargo facilities at OR Tambo International Airport, Cape Town International Airport, and Chief Dawid Stuurman International Airport (Previously Port Elizabeth).

SAA leases cargo facilities from Dube TradePort at King Shaka International Airport.

A complicating issue at O.R. Tambo International is the SAA Airfreight facility. This facility is located on the boundary of the airport, with direct, unencumbered access to the airside aprons. The land and buildings are owned by SAA. This allows SAA to move airfreight onto the airport and to the aircraft with no revenue accruing to ACSA. ACSA thus receives no income (neither land lease nor throughput) from SAA airfreight that passes through the airport, which has key repercussions. SAA can offer airlines and freight forwarders

favourable terms, undermining ACSA's initiatives to improve and invest in airfreight infrastructure.

Recommending a solution to this issue lies outside of the airfreight strategy's mandate. However, with cargo operations moving to the mid-field, there is a risk that the SAA Airfreight building will become isolated or even stranded, and there will be pressure to redevelop the site in a manner that corresponds with the overall airport development plan.

The strategic intention is to improve the cost-effectiveness of airfreight infrastructure improvements considering:

- Monitoring and guidance of the O.R. Tambo International midfield cargo project to ensure affordability and efficiency. This affordability issue is to ensure that airfreight handling costs are reasonable, while at the same time ensuring that ACSA is able to generate reasonable revenue to sustain its business. However, this needs to be more specifically monitored by the Regulating Committee.

4.2.5 E-commerce

From section 2.2, specifically sub-sections 2.2.7 and 2.2.8, airfreight facilities are support to and a vital key component of E-commerce. As such, the airfreight sector benefits from E-commerce.

The Airfreight Strategy recognises the crucial role of E-commerce in contributing to freight turnover and volume. It also acknowledges that airfreight facilities are vital for ensuring the efficiency and cost-effectiveness of E-commerce operations.

The strategic intention is to improve the cost and process efficiency of airfreight infrastructure considering:

- Provision of cost effective on-airport E-commerce aligned airfreight infrastructure.

- Provision of efficient on-airport by-pass airfreight facilities to support off-airport E-commerce facilities.

- Provision of efficient airfreight on-airport processes for efficient, cost effective and swift movement of airfreight between aircraft and E-commerce facilities.

4.3 AIR SERVICES

A key link in the airfreight system value chain is the actual air transport service. The right to fly is subject to safety, customer protection and other technical and regulatory requirements on the one hand and economic considerations on the other. This section deals with the economic rights only.

4.3.1 Domestic Air Services

Like most developed aviation markets, domestic air services in South Africa have been liberalised for some time. There are various players (in terms of sizes of operators, types of aircraft, bases of operation, types of services, etc.). The market has shown over many years

that operators have freedom of entry (and exit). There is sufficient competition, especially the road transport mode, to avoid market gouging by the aviation sector. Domestic routes are fairly short and thin, resulting in limited and niche (overnight express freight) dedicated cargo flights between major centres only, with most airfreight transported as scheduled belly cargo.

A specific aspect investigated is whether domestic airfreight may be encouraged by reducing some of the freight security standards, given that many such requirements reflect the needs of international civil aviation and commitments under international protocols. For example, air cargo security requirements for flights to and from the USA are stricter than required in South African regulations. However, given that domestic air cargo often starts or ends as international cargo and, therefore, must comply with the higher standard, as well as the fairly low domestic volumes. The conclusion was that making exceptions in the form of relaxing domestic standards would probably not be worthwhile.

The major development regarding short-haul, domestic freight is the potential use of unmanned aircraft, which may allow aviation to compete more effectively with road transport at the lower end of the mass-distance spectrum. This subject is substantial and thus addressed in its own right in section 4.8.

In summary, domestic air services are liberalised, the airfreight services provided, and the routes operated reflect economic forces and competition, especially by the road freight mode.

The strategic intention is to improve the opportunity, through restructured regulation, for unmanned aircraft services to participate and compete more effectively in the 'last mile' airfreight operations.

4.3.2 Regional Air Services

International air services are conducted in terms of international conventions and protocols under which states grant one another rights to fly over or into their territory based on a range of "freedoms" of the air. In practice, such permission is usually granted in terms of bilateral air services agreements (BASAs). It is becoming more common to allow unrestricted (not BASA-based) access between member states of a region (European Union, ASEAN, MERCOSUR) between regions (US-EU "Open Skies" Air Transport Agreement) and by individual countries on a reciprocal basis (Singapore, New Zealand, UAE, etc.).

In the Africa region, the Single African Air Transport Market (SAATM) aims to implement the framework for the liberalisation of air transport services between African countries as set out in the Yamoussoukro Decision. The SAATM arrangements are still bilateral but encourage states to grant fifth freedoms for passenger services and to liberalise air cargo services fully. Nearly two-thirds of African countries have implemented the key provisions of SAATM/YD. South Africa is at the forefront of exchanging comprehensive rights with states willing to reciprocate. Regions with low YD implementation rates are North Africa, the Indian Ocean Islands, South Africa's neighbouring countries and the rest of SADC. In some countries' cases, air access has been protected more jealously, but although an administrative nuisance and possibly restrictive for passenger services, these do not really depress airfreight.

The African Continental Free Trade Agreement (AfCFTA) encourages increased trade with African states outside of SADC (SADC countries will keep on trading under the SADC Free Trade Agreement), principally by means of reducing duties on goods and services traded with such states. UNECA has estimated that implementing the AfCFTA should lead to the doubling of intra-African airfreight by 2030.

The trading arrangements for the AfCFTA are made outside the domain of the transport regulator (DOT in South Africa). States (the DTIC for South Africa) develop schedules of tariff concessions, which are exchanged bilaterally with another state on a reciprocal basis. Domestic exporters register with the customs authority (SARS), which confirms alignment with the tariff concessions and required rules of origin. The transport response is in the form of shipping (moving) the traded goods as agreed by the consignor/consignee under the AfCFTA trade framework. For the AfCFTA to have the desired trade stimulus effect, the SAATM/YD arrangements, therefore, need to be in place, i.e. BASAs with the destination/origin trading states, with adequate frequency capacity so as not to cause a regulatory bottleneck. The actual aircraft capacity offered on a route will reflect the commercial potential as appraised by air service licence holders.

By February 2024, seven non-SADC African countries had finalised the necessary domestic legislation for the implementation of their respective tariff reduction commitments and were thus eligible to trade with South Africa under the AfCFTA. Two maritime consignments had been shipped.

South Africa's air services arrangements to facilitate transport under the AfCFTA are well ahead of the tariff concession arrangements. The country has BASAs with every African country except Djibouti. Destinations around South Africa are well connected and sometimes served by several carriers. The major aviation countries on the continent (Ethiopia, Kenya, Nigeria and Egypt) have implemented the full package of YD measures in their South African BASAs.

Except for Nigeria, where frequencies are shared half-half with South African carriers, all the frequencies are flown by carriers of the other country. Although foreign carriers generally use their allocations more fully, many allocated frequencies to South African carriers have not been taken up, so there does not appear to be pent-up demand that is underserved.

There are limited dedicated regional freighter services (Nairobi, Addis Ababa and – potentially – Kigali), all provided by foreign carriers. There are several South African-based freighter operators and lessors with equipment that could be used for freight if required. While consulting on the Airfreight Strategy, it was proposed that surplus military airlift capacity could be used to access smaller, remote locations across the Continent for emergency response or even commercial purposes. This is technically possible but would chip away at the overarching transport policy principle of encouraging the private sector to handle cargo services, with public intervention only where they clearly fail to do so.

As is the case with domestic airfreight services, there is, therefore, no evident failure in the actual or available regional air service capacity. As noted before, South Africa comfortably awards access to other reciprocating African states, implying that the further roll-out of the SAATM will depend on the pace at which more traditionalist states relax their position on opening up rather than on any specific actions by South Africa (e.g. under this Airfreight Strategy).

Similarly, to domestic air services, an unrestricted situation mostly applies to regional and Continental services, although not all YD/AU states are equally permissive, and there may be ad hoc cases where South Africa may wish to restrict access reciprocally.

There are opportunities to support airfreight without changing the existing dispensation of awarding air service rights.

4.3.3 Intercontinental Air Services

Whereas within the Continent, there is a movement towards a more liberal air services dispensation, South Africa continues to follow a BASA-based approach with limited rights awarded beyond the traditional third and fourth freedoms. South Africa has BASAs with 80 countries outside of Africa, all with capacity limitations (compared with African/YD countries where three-quarters provide unlimited capacity). There are carriers from 15 countries beyond Africa that fly to South Africa, two (EK and QR) of which operate scheduled freight-only services (May 2023). Foreign carriers use three-quarters of their allocated capacity. Other foreign operators provide non-scheduled services, such as Cargolux and CMA-CGM.

The current policy position is that national interest will be best served by continuing to exchange limited rights on a bilateral basis (including encouraging carriers to enter into cooperative arrangements) and not to liberalise international air transport (e.g. through so-called horizontal air access agreements with blocks of states). Although the theme of liberalising air transport amongst BRICS (Brazil, Russia, India, China, and South Africa) countries has been touched on, this is not currently a focus area of the BRICS Regional Aviation Working Group (RAWG). The matter of improving strategic airfreight connectivity is returned to in section 4.4.

The strategic intention is to sustain South Africa's position to exchange limited international rights on a bilateral basis.

4.3.4 International Airfreight Capacity

Airfreight volumes to/from South Africa peaked in 2019 (pre-COVID-19) at 247 000 tonnes of imports and 134 000 tonnes of exports. The current scheduled belly-freight potential capacity (based on awarded frequencies) is 1.6 million tonnes per direction (import or export), while the actual capacity (frequencies actually flown) is 700 000 tonnes per year. Of this, more than a third is on European routes, about a quarter to the Middle East and about one-fifth to Africa. There is very little capacity for Southeast Asia, hardly any to the Far East, and none to the Indian sub-continent or South America. Two-thirds of the actual capacity is on Johannesburg routes, and most of the remainder is on Cape Town routes. While the potential capacity is fairly balanced, more than 90% of the actual capacity is provided by foreign carriers. These statistics exclude freighter-only services.

Most of the inter-continental access is still through Johannesburg, although Cape Town has attracted much additional traffic through its Air Access programme. The programme for Durban has stalled somewhat, as reflected in a notably lower number of intercontinental services than before.

The inference is that while there is adequate freight capacity in the aggregate, specific routes and airports (specifically Durban) are under-served. There are unmet seasonal and instantaneous demands.

Provision should be made to stimulate additional capacity for specific products, times of year, and routes which are not adequately provided for when applying the policy prescripts conventionally.

4.3.5 Position of SAA

Although several South African registered carriers hold an International Air Services Licence (IASL), all intercontinental route designations are currently in favour of SAA, with nearly two hundred weekly frequencies on about fifty routes. Until the recent re-establishment of the São Paulo service, none of this capacity was operated. SAA, as the national carrier, was being favoured by not applying the IASL "use-it-or-lose-it" restrictions. However, the total SAA capacity allocation is less than a quarter of the available frequencies, and only in the case of North American routes is SAA allocated a significant share of about 24 of 30 available frequencies. There is, thus, sufficient capacity available on intercontinental routes for other IASL-holders to explore.

Despite a perception that SAA is favoured in terms of intercontinental rights (e.g. not being subject to the use-it-or-lose-it rule), there is no specific evidence of this, and there is, therefore, no pressing requirement to "make space" for other local carriers.

4.3.6 International Air Services Council (IASC)

The IASC is responsible for issuing IASLs to South African carriers and foreign operator's permits (FOPs) to foreign visiting aircraft and the negotiation of air transport services agreements (including BASAs). It took some time to re-establish the IASC operations after COVID-19, and this resulted in inheriting a backlog of permit applications and a weak administrative support system to deal with such backlog.

It has long been acknowledged that the IASC is under-capacitated; this has resulted in a slow turnaround time in response to applications, compared to international norms, especially under urgent conditions. The rules for awarding freight service rights are generally more relaxed than for passenger services, but it is not particularly effective for airfreight since most are carried in belly holds.

Expectations by the market are that freight in general and certain categories of airfreight services should be regulated in a more light-handed manner than is currently the case to be responsive to changes in customer demands, logistical developments, and market forces. Although non-scheduled cargo-only rights are available upon request, more complicated rights like fifth and sixth rights operations that would allow more efficient tail-to-tail operations are not typically awarded. More importantly, the turnaround time for an FOP is long, compared with international norms of three to five days, and some airports (e.g. Schiphol) offer a 24-hour processing time. For time-sensitive perishable exports (citrus, blueberries, etc.), it is necessary for rapid activation of air services to respond to failures elsewhere in the freight logistics chain (especially at ports).

Reducing red tape and providing additional capacity to the IASC is, therefore, an obvious focus area for the recommendations later on. The capacity support would be both in terms of information systems and human capital. The pipeline of certification that the IASC depends on, mainly the SACAA, but also others, such as the Department of Agriculture, Land Reform and Rural Development, SARS, etc., should also be streamlined accordingly. This is, therefore, an area to take up in communication and information.

Provision should be made to reduce red tape and provide additional capacity to the IASC for improved service delivery, including turnaround time on applications.

4.4 STRATEGIC AIR CONNECTIVITY

4.4.1 Comparative Connectivity

Transport connectivity in general and connectivity by air in particular ensure integration into the international economy and enable key economic flows such as trade, investment, tourism, and other drivers of economic development. South Africa's actual air connectivity is much lower than the potential suggested by the country's extensive portfolio of bilateral agreements. Specifically, there are some key intercontinental destinations with poor or no connectivity. In 2020, IATA established that South Africa was positioned 47th in terms of absolute international connectivity amongst some 200 countries but in the middle of the group when considering its size of population and economy.

Compared with other African countries, in absolute terms, South Africa was third most connected but only tenth when standardised for population and 25th considering its economy. All the major aviation countries aspiring to be aviation hubs on the continent, except Nigeria, ranked above South Africa on the standardised measures.

A cursory review of other African countries' connectivity reveals that their national carriers' route networks are far more extensive and far-reaching than is the case for SAA. This is specifically so for Egypt/Egypt Air, Ethiopia/Ethiopian Air and Kenya/Kenya Airways. These countries/airlines are not just well-connected continentally but also intercontinental. This situation also applies to Rwanda/RwandAir, whose connectivity will shortly be further enhanced through its strategic link-up with Qatar Airways. These countries' carriers all provide capacity to the Indias and the Far East, and to a lesser extent, Southeast Asia and South America – i.e. the regions with which South Africa lacks good connectivity. Importantly, these are regions of emerging economies, some large economies (e.g. in the Far East and Brazil), and strategic partners of South Africa (e.g. in BRICS, current and future).

4.4.2 Expected Connectivity

The existing policy outlook is that although South Africa needs to be properly integrated into the world economy through aviation, in an international aviation industry that is increasingly liberalised, the country aims to retain a balanced (reciprocity-based) role and a fair share for South African carriers. The National Civil Aviation Policy (NCAP) strives for a well-founded strategic approach, but it does not provide guidance on the trade-off between economic integration objectives and the aim to preserve and promote the local aviation sector.

The Cabinet approved the 2006 Airlift Strategy, which aims to support national economic growth through greater alignment with the tourism and trade markets and unblocking obstacles to growth. In particular, the Strategy allows for greater market access to support growth and competition in the air service industry through the creation of an enabling regulatory framework, which, inter alia, allows for capacity to be negotiated ahead of demand. Bilateral Air Service Agreements are recognised as key instruments in the transport connectivity arrangements for the country. In terms of the Airlift Strategy, the views of the DOT and other Government departments and the views of the industry stakeholders are, together, formulated to provide a balanced approach toward bilateral air service negotiations.

The Airfreight Strategy considers complete global air connectivity for South Africa to reflect the realities of geography (South Africa's location away from major air routes) and commerce (cost of instating services on possibly thin routes). The approach focuses on specific unserved (strategic) routes and encourages air services through smart (not expensive) interventions, yielding a potentially high connectivity return without interfering with incumbent carriers.

The regions currently not connected well, such as South America, the Indias, the Far East, and Southeast Asia, would be targeted. These fall on a Global South East-West axis. Since such routes, if operated end-to-end, would be at the outer limit of the range of commercial aircraft, it would be logical to make a transit stop in Africa. There are runways in excess of 3 500m capable of handling intermediate stops all along East and Southern Africa, in locations with good connections into Africa, the Gulf, and Europe. However, few of these locations can compete with South Africa, especially Johannesburg and Cape Town, in terms of an attractive local economy proposition, tourism offering, and political standing, e.g. BRICS. An appealing offering in terms of flight rights and local passenger uplift could reasonably attract such long-haul flights to operate via South Africa and, in so doing, expand the airfreight connectivity opportunities.

The routes would be promoted by offering fifth (5th) freedom rights liberally where there is, in any case, no or few frequencies and where South African designated carriers have not taken up their rights. This approach would be an extension of the position under YD and SAATM to award 5th freedoms between African countries and carriers in the normal course. Additionally, designated carriers should be encouraged to cooperate with designated FOP carriers and codeshare and block purchases on their operations. Such cooperation is already allowed under most BASAs. However, this could be made a condition for FOP designation on selected routes, i.e. a designation is made subject to a cooperation agreement being concluded.

It is proposed that measures be considered to stimulate capacity on the routes to regions with which South Africa has strong political and economic links and where a shortage of connectivity exists, specifically BRICS. This should be in the form of incentives rather than financial commitments.

4.5 STRATEGIC AIRPORT NETWORK

Whereas the strategic air services network discussed in the previous section provides access to the country in general, the strategic airports tie the air services to specific locations and local economies.

4.5.1 Commercial Airport Network

The South African airport network consists of many licensed, unlicensed, and registered airports. There are ten airports with international designations to handle cross-border flights for persons and goods. All of these, except for Pilanesberg, have scheduled domestic traffic. Only three have regular scheduled international traffic, namely O.R. Tambo, Cape Town and King Shaka. Kruger Mpumalanga only has a limited 6 or 7 international widebody flights a year, and Lanseria does not have regular scheduled international traffic.

These three airports are regarded as the “primary” airfreight airports within the network due to their current airfreight volumes and their geographic locations and positions within the so-called hub-and-spoke system. The “hub” or larger airports consolidate passengers and freight from within their catchment areas, as well as flights from smaller airports and distribute the traffic to other smaller airports along “spoke” routes. There are 11 “secondary” airports that offer scheduled passenger services and more than 100 licensed domestic airports handling non-scheduled services. ACSA owns and manages six of the international airports and three secondary airports.

There is virtually total terrestrial coverage of South Africa for access by helicopters from main airports for emergency purposes, as reflected in Figure 4-1. This figure sets out the coverage by the internationally designated airports (green circles) and other secondary airports, namely Springbok, George, Beaufort West and East London (blue circles). However, it is to be noted that Springbok and Beaufort West airports are poorly developed for freight purposes.

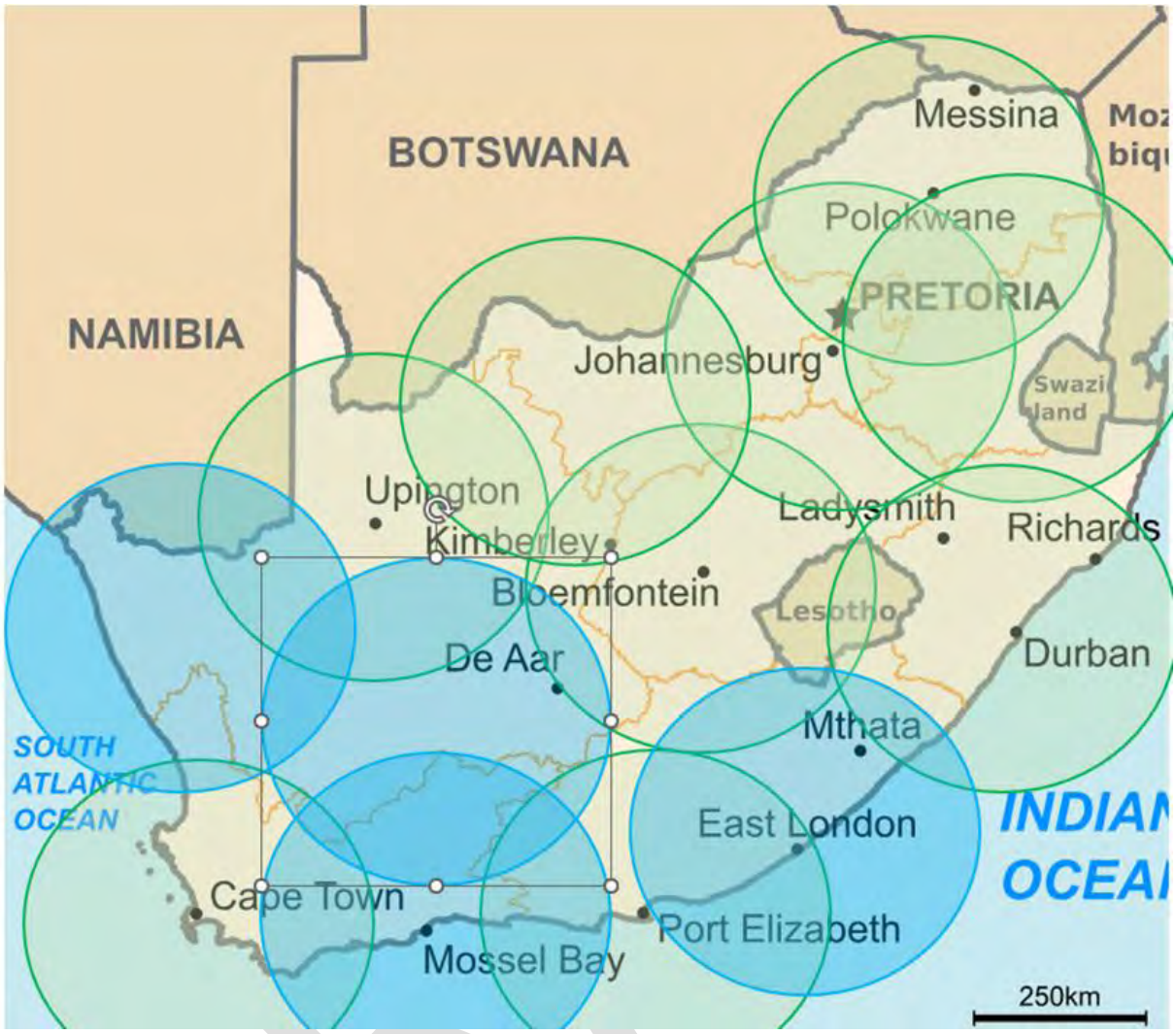

Figure 4-1: Coverage provided by key South African Airports (250 km radii)

The general importance of the secondary airport network is recognised. Movements at the secondary airports are, however, mostly training, private, charter, and corporate flights. There is no evidence of pent-up demand for airfreight services at these airports. Given the prevailing nature of airfreight characteristics and volumes at the major airports, the role of secondary airports for additional airfreight is currently limited to exceptional circumstances or emergencies such as floods.

The conclusion is that from a coverage perspective, the footprint of this network, but not necessarily the individual airports themselves, provides well for existing airfreight demand. It should also be recalled that road distances to primary airports are relatively short, and road transport is much less costly than transport by air. Primarily for this reason, airfreight is mostly moved as belly freight, with domestic freighter services limited to overnight parcel freight between the main airports. The three major internal hubs naturally provide for the bulk of international and associated domestic freight connectivity, and this is where the focus of airfreight development should be. However, provincial and local authorities should remain aware of the potential of local freight needs and whether to provide an aviation alternative for that.

The existing domestic airport network adequately provides for airfreight demands, given that these facilities are adequately maintained and operate within each one's prevailing affordability of airfreight movements.

4.5.2 National Airfreight Footprint

The development or expansion of an airport is one of the public interventions often considered as a driver for regional or local economic development. Airports may also be developed with outright (usually private) financial profitability objectives. Airfreight is often the initial rationale, i.e. activity will at first be oriented towards cargo, with passenger traffic following later on. There are many past and present-day examples of both public and private airport development initiatives in South Africa:

- Current cargo initiatives include Mkhuze, Cape Winelands and Vaal River City Project.
- Initiatives that have been worked on over a long time include Wonderboom, Pilanesberg and Richards Bay.
- Historic initiatives that did not survive include Dunnotar, N1 Highway and Upington.

It is the Government's aspiration that there will be a vibrant and expanding network of access by air, and these airport initiatives are therefore encouraged. There is also a body of experience developed in the public sector (e.g. DOT and SACAA) that such entrepreneurs can access from the Government.

It should be recalled that one of the process values for the Airfreight Strategy, as directed by the broader general and freight transport policy framework, is that freight facilities and services must be financially self-sustaining. The economic dynamics of this sub-sector were unpacked in Chapter 2, including aspects like the synergy between air passenger and air cargo transport, dealing with the dead leg, and the strong competition between surface and air transport. Whereas the barriers to entry for air cargo services are moderate, the economic realities of creating successful cargo airports are such that up-front investments are large and financial returns will take substantial time to realise.

Given the prevailing fiscal and financial constraints, the National Government is not in a position to share in the commercial or economic risk of developing a cargo airport. The Government is also not keen to interfere where economic forces are self-regulating, e.g. in terms of allocating cargo market share to a new airport. Where developers have identified non-financial measures where DOT can assist them, they are encouraged to bring these to DOT for potential action.

Other tiers of Government (provincial and local) may, of course, elect to support cargo airport developments. This may be via financial measures such as subsidies or co-investment or other means such as thorough planning and prioritisation of synergistic investments.

This Strategy sets out the characteristics of and critical elements for successful airfreight and, as such, could be of use to any party considering airport expansions or new airports dedicated to or accommodating airfreight.

4.5.3 Military Airports

Domestic Military Airfields

Parallel to the commercial airports, there is a network of nine air force bases across the country. Two of these share runways with commercial airports, and of those with their own runways, five are in close proximity to primary airports, and only AFB Hoedspruit can be thought of as providing access to an area not well served by commercial airports.

The National Civil Aviation Policy already recognises that military airports may be used for civil aviation purposes under specified conditions. These airports are also already used for civilian purposes such as humanitarian and disaster relief operations.

Continental Military Airlift

Military-civil cooperation in airfreight was raised at the BRICS Aviation Conference, held on 19 August 2023. It entailed making use of under-utilised military airlift capacity across the Continent to transport typically out-of-gauge or oversized cargo which would not typically be handled as standard commercial airfreight, using autonomous aircraft (such as a C130) to airports with short runways and otherwise limited support infrastructure, i.e. not the usual commercial hubs (often capital cities).

Such use of airlift capacity is technically feasible but challenging from a commercial perspective. Airfreight volumes into the Continent are tiny and oversized cargo is rare, implying that such services will be on an ad hoc basis. It also raises the spectre of crowding out the private sector, whereas the policy framework encourages market solutions in airfreight services.

There is no apparent argument foreseen in the Strategy for leveraging off military airports to improve airfreight capacity or access.

4.5.4 Disaster Responses

During the COVID-19 period of 2019 to 2021, the shipment of airfreight by dedicated airfreight aircraft increased substantially. This shift in airfreight to dedicated airfreight aircraft can be attributed to the collapse of the passenger aircraft movements – i.e. available passenger belly capacity reduced substantially.

The airfreight industry interpreted this growth and shift to dedicated freight aircraft as a permanent change. However, as passenger traffic has increased and returned to pre-COVID-19 levels, available passenger belly capacity has increased. The post-COVID-19 shift of airfreight back to passenger aircraft has been inevitable. The COVID-19-induced spike in dedicated freight aircraft demand was temporary.

Generally, the nature, scale, severity and impact of disasters are unpredictable. So, too, is the uncertainty as to which organs of state will be required to be part of a coordinated response to said disaster. Powers under the Disaster Management Act, Act 15 of 2002, provide for necessary coordination and action and the making of rules that would otherwise not be considered possible in the normal course of events for the country.

As with the COVID-19 disaster, tailored regulations to address the disaster were gazetted. This included powers for numerous identified Ministers to make subservient regulations in their specific areas of competence in support of the broad 'inter-governmental' disaster response approach.

Thus, for airfreight in a declared disaster, regulations could be crafted to include provisions to use military assets for airfreight movement, relaxation of licensing prescriptions for determined flights, targeted use of airport facilities for airfreight handling, lifting of restrictions on procurement processes, etc.

In that context, given the unpredictability of disasters and that there is already a base airfreight capacity and capability that can accommodate more than the current airfreight volumes, it is not evident that any particular airfreight Strategy is required for disaster management preparation.

4.6 AIRFREIGHT TERMINAL INFRASTRUCTURE

4.6.1 South African Airfreight Facilities

Table 4-1 shows a breakdown of the status of cargo infrastructure at the ACSA-owned airports. Information on the other main privately owned airports is not readily available. ACSA is a Schedule 2 public entity as per the PFMA. Schedule 2 public entities are business enterprises that are required to generate revenue to fund their operations.

Only a limited number of airports in the network have dedicated cargo infrastructure, and, in many cases, cargo infrastructure is old and sometimes not adequate for current cargo operations.

Table 4-1: Cargo Infrastructure Status - ACSA Airports

AIRPORT	FOOTPRINT (sqm)	CAPACITY (T)	COOLING CAPACITY (sqm)	AUTHORITY PRESENCE	TECHNOLOGY USE	BUILDING LIFE STATUS	OVERALL CAPABILITY	COMMERCIAL STRUCTURE	OPERATIONAL STRUCTURE
JNB	64 600	517 000	3 000	Good	Needs Attention	Needs Attention	OK	Majority Property Developer	Unstructured Platform & Open Access
CPT	24 200	174 000	+ 3 000	Good	Needs Attention	Needs Attention	OK	Majority Property Developer	Unstructured Platform & Open Access
DUR	15 800	135 000	1 500	Good	OK	Good	Good	No ACSA cargo facilities or services	Single Operator
BFN	100	600	N/A	With prior Notice	Needs Attention	Needs Attention	OK	Majority Property Developer	Unstructured Platform & Open Access
PLZ	9 400	75 200	N/A	With prior Notice	Needs Attention	Needs Attention	N/A	Majority Property Developer	Unstructured Platform & Open Access
UTN	1 250	6 250	N/A	With prior Notice	Needs Attention	Needs Attention	OK	Majority Property Developer	Unstructured Platform & Open Access
ELS	1 550	9 300	N/A	No	Needs Attention	N/A	Needs Attention	No ACSA cargo facilities or services	Unstructured Platform & Open Access
GRJ	430	2 800	15	No	Needs Attention	Needs Attention	Needs Attention	Majority Property Developer	Unstructured Platform & Open Access
KIM	180	900	N/A	No	Needs Attention	Good	OK	Majority Property Developer	Unstructured Platform & Open Access

Source: ACSA

Except for King Shaka International Airport, where cargo is managed by DTP and Kimberley Airport, the majority of the cargo infrastructure at ACSA-owned airports requires attention. This is consistent with stakeholders' concerns, especially those operating from the two primary airports, O.R. Tambo International Airport and Cape Town International Airport, that the cargo infrastructure at these airports is old and inadequate for efficient cargo processing. The use of technology like automated cargo systems is also limited to the Dube TradePort-operated cargo terminal, whereas cargo is manually handled at the other airports and terminals.

The current infrastructure limits meaningful private sector participation, and it has naturally resulted in a mushrooming expansion of warehousing and freight logistics adjacent to the airports. The developments in Pomona and Bredell on the R21 freeway and freight warehouses along the N2 and N1 outside Cape Town are noticeable examples. An extreme example of the market wanting to vote with its feet is the plans that arise periodically to build completely separate freight-orientated airports, e.g., Carousel, Dunnottar, Winelands, Nkangala, etc.

Of the non-ACSA airports with scheduled traffic, there are limited cargo operations and facilities only at Lanseria, Kruger Mpumalanga, Pietermaritzburg and Richards Bay airports.

4.6.1.1 O.R. Tambo International Airport

The three primary airports make the dominant contribution to airfreight, especially O.R. Tambo as the busiest entry point. King Shaka (Dube TradePort) is the most recently established and reflects modern airfreight management principles, whereas the facilities at O.R. Tambo reflect a previous era. The following are some of the issues experienced at O.R. Tambo International Airport, but many of these also apply to Cape Town:

- The landside access and truck movement area of the cargo precinct is extremely congested during peak times, leading to delays in accessing the precinct and congestion on the receiving platform.
- Buildings are, in some cases, more than 40 years old, suffer from maintenance neglect, and require improvements like lighting, IT networks and internal reconfiguration.
- Agents occupy facilities under short-term leases and have little incentive to affect improvements themselves.
- Facilities are not equipped with modern cargo handling technology (mechanised and automated), which is particularly undesirable for the rapid processing required for E-commerce and express cargo.
- The airside cargo ramp is served by only one access gate, is cluttered with dollies and cargo, and lacks proper ramp management, all of which lead to congestion.
- Cargo is stored on the apron for longer than required due to capacity issues within the warehouse. This is, in particular, debilitating for cold chain management, with pallets containing perishable goods such as flowers and frozen goods left standing on the apron for extended periods of time.

From an oversight perspective, SACAA, as the safety and security regulator, applies punitive measures and recommends corrective actions where shortcomings are identified. The

Regulating Committee exercises economic regulation function on tariffs charged by ACSA and ATNS, given that they hold monopoly positions. However, these regulatory functions do not penetrate to such practical levels of performance as are required to address freight infrastructure shortcomings, given that the handling of cargo at all stages within the airport premises is a relevant activity.

Operators who have moved their primary cargo breakdown and consolidation operations off-airport into so-called degrouping depots or customs-controlled warehouses are using their cargo facilities effectively at the airport as a bypass (landside-airside tunnel) only. By formalising this practice through a means of a structures bypass channel/s, congestion at the landside truck delivery areas will be eased, and the throughput capacity of the on-airport freight handling precinct will be significantly increased. Trucks using a bypass channel spend less time within the airport precinct (due to the offloading ULDs instead of individual packages), thus reducing the peak traffic demand.

ACSA has been updating its Cargo Strategy over the last couple of years. The Strategy is expected to contain guidance on the future of cargo infrastructure and operations at ACSA-owned airports, as well as the intended business model for developing cargo facilities. The Strategy is not publicly available, and as such, it has not been considered in the development of the Airfreight Strategy.

One element of the Strategy that is widely known is the move towards the midfield cargo terminal and precinct, which is planned to be operational in 2027. The midfield cargo precinct has the potential to alleviate much of the frustrations and inefficiencies experienced at the current cargo precinct. However, the institutional configuration and operational arrangements of the midfield cargo precinct still need to be confirmed.

4.6.1.2 Terminal Configuration

Globally, various cargo terminal operational configurations are used depending on the specific circumstances of an airport. Cape Town and O.R. Tambo airports have stand-alone cargo terminals with separate spaces for agents who use these exclusively. Dube TradePort is structured as a multi or common-user cargo terminal but is essentially operated by one party.

There is no single best terminal layout model, and this should also not be prescribed in the Airfreight Strategy. However, the selected configuration must accommodate the type and volume of freight activity, including by accommodating off-airport operators; it is expected to enable and encourage competition and multiple users on-airport. There is a need to encourage the development of higher-density and more efficient infrastructure configurations, promote multi-user facilities, and attract private capital investment.

Terminal design norms should include efficient bypasses. The bypass approaches already in place, e.g. at DTP, have proven to improve cost efficiencies, competitiveness, and reduction in capital expenditure by the Government and have been accommodated by the various Government authorities such as SARS.

The considerations listed here should be considered when terminals are developed or modified. In the absence of other regulatory guidance, it may be considered to require the design and operations of cargo terminals at primary international airports to align with

international best practices, such as the IATA Airport Development Reference Manual 12th edition and ICAO Annex 14.

4.6.1.3 Terminal Development Model

All three primary airports are currently part of the ACSA stable, and as shown above, except for DTP, their freight facilities demonstrate a lack of investment and modernisation. Future investments should evidently draw from the guidelines provided in this Strategy. Some of the key provisions affecting airfreight terminals are that:

- Airfreight infrastructure is of an economic nature, as opposed to a social nature, and will, therefore, ultimately be funded by users paying for the service thereof.
- ACSA will continue to provide and manage infrastructure at its airports, but this may also be in a landlord capacity where it awards the right to develop and operate a facility to an outside party.
- Private involvement in the freight sector is encouraged, including in developing freight infrastructure.

4.6.1.4 Strategy for Airfreight at South African Airports

This Strategy identifies that there is a need at the three primary international airports for:

- upgrading of cargo facilities, with a significant concern identified at O.R. Tambo International Airport where optimising current cargo facilities may have constraints and where a midfield development could provide a significant opportunity for an n optimised and modern design approach.

- enhancing the technological capabilities within cargo facilities to remain competitive and operationally efficient.

– addressing enhancements to cargo movement efficiency through investments in both landside and airside infrastructure. Special consideration is required for addressing congestion issues on the landside and airside ramp at O.R. Tambo International Airport.

- optimising cargo terminal space allocation, ensuring that it is efficiently utilised and not occupied by operators that do not require direct access to the airside.

- the strengthening and expansion of efficient bypass cargo infrastructure.

- improved management of landside and airside movement platforms to ease congestion, especially at O.R. Tambo International Airport. This includes proper housekeeping practices and following international guidelines and best practice benchmarks.

- the O.R. Tambo International Airport midfield precinct development to reflect modern layout requirements and third-party participation in the operating model.

4.6.2 Air Cargo Security

Airfreight security is largely dictated by international standards and norms. The South African regulatory requirements (CAR Part 108: Air Cargo Security) follow best practices, including making possible off-airport preparation and acceptance of "known cargo" by a "regulated agent" (refer to section 3.1.2). The implementation of these norms and standards in South Africa is generally acceptable, as is the oversight of the implementation of the security norms and standards by the South African authorities. The consequences of the rigorous security provisions for air cargo are the costs of the screening (equipment and manpower) and the time required for cargo to be processed by the security screening.

However, an airport wishing to accommodate direct flights from the USA is obliged to comply with the Transportation Security Administration (TSA) requirements and regulations, which are stricter than the South African CARS. These requirements may have the consequence of "raising the bar" for security standards across all operations, possibly even domestic flights and should, therefore, be treated as an exception. The preferred approach would be to establish "green channels" that align with USA and EU standards to facilitate the expedited movement of cargo that meets these standards. These channels should be designed with the purpose of minimising delays and streamlining the clearance process for compliant shipments.

The Strategy recognises the importance of maintaining cargo security standards at primary airports, which is critical to ensure uninterrupted trade channels with the USA and EU, safeguarding international trade interests.

4.6.3 Infrastructure Funding Models

The policy principles related to freight transport are unequivocal in that this sub-sector is expected to be self-funding. Freight transport operations are expected to be privately operated and owned. The recent reforms in the rail sector (the last bastion of freight transport operation by Government) emphasise this principle.

Aviation infrastructure may indeed have broader economic benefits and, therefore, have some social or economic characteristics. But it serves distinct markets and direct beneficiaries. Here, too, the principle is thus clear, i.e. that aviation infrastructure will be funded by users (the direct beneficiaries). This approach also applies to historically state-owned airports because of their strategic position in the transport system.

Government is stepping back from its traditional role as funder or guarantor of last resort. Rather, its role is to create and regulate an attractive investment environment. Whereas Government historically capitalised on aviation infrastructure, the expectation is that the private sector will increasingly take up this responsibility. However, private capital requires security, implying that the question of rights to the asset cannot be avoided. The assets created are required to protect the private capital invested and must naturally form part of the security package, either in the form of ownership or as other long-term real rights.

A range of ownership and investment options is therefore foreseen at Government-owned airports, which are all degrees of public-private partnership or private sector support:

- Long-term lease of specific existing facilities where tenants have security of tenure and can make improvements, e.g. warehouses within a freight terminal.
- Development of new facilities in partnership with Government-owned airports, e.g. a new freight terminal.
- Development and long-term ownership of new facilities by private partners under a concession from the airport.

In order to protect the national fiscus, Government-owned airports should be required to demonstrate that they fully explored ownership and investment options, followed by competitive and transparent procurement. A vigorous development and procurement process of this nature should trump a statist approach, which must subsequently be overseen by an economic regulator.

There may, of course, also be outright private expansions and new developments by the private sector under the safety regulation umbrella but outside of the transport economic (tariff) regulatory regime and in competition with state airports, like Lanseria, KMIA or (potentially) Cape Winelands.

The Strategy recognises:

- the importance of securing adequate investment in the landside and airside of the airfreight infrastructure to foster efficient cargo operations for both the modernisation and expansion of existing freight facilities and the establishment of new facilities.

- that state airports should not, by default, risk owner's capital in new freight developments but rather actively seek to attract private initiative and capital.

4.7 AIRPORT INTEGRATION

4.7.1 Airports and Roads

Major airports have evolved into critical nodes in global production and corporate systems, providing speed, agility, and connection. They are also significant engines of local economic growth, bringing all forms of aviation-related enterprises to their surroundings. The policy framework accordingly emphasises the importance of airports being properly integrated into their surrounding areas and economic bases. "Aerotropolis" is a catchphrase used to describe the interrelatedness of the airport and its environment.

However, the National Airports Development Plan points out that this type of integrated planning is not yet embedded with the relevant authorities since multiple role players, overlapping jurisdictions, and limited mechanisms are available to give effect to this.

The challenge is not at the macro scale, as indicated by the discussion on the Strategic Airport Network, which showed how the interplay between air and road transport and the combination of the two modes is what makes the country very freight accessible. As illustrated in Figure 4-2, airports are generally situated near the national strategic transport network, often within a 2 km reach.

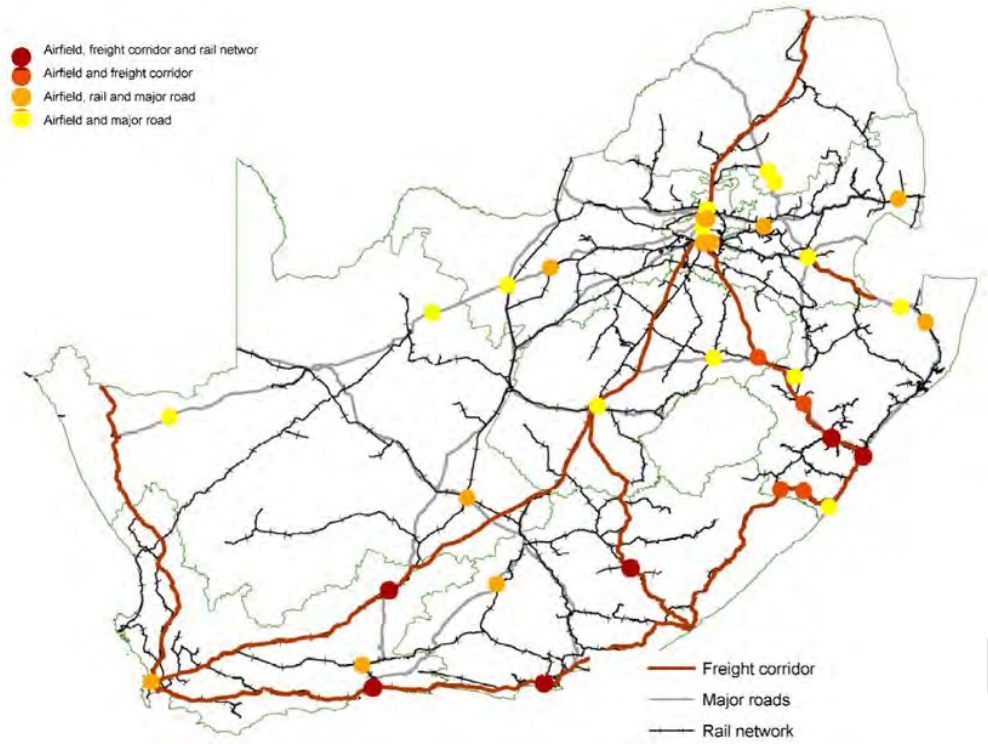

Figure 4-2: South African Airports within 2 km of strategic transport network

Rather, the issue is at the localised level. Instances of airports not being accessible were pointed out in the Strategy development process. Especially shortcomings regarding inter-modal transport integration (i.e. road access) were identified as a key issue during stakeholder consultations. An example is the inadequate design, capacity and consequential congestion experienced in the area around the access points to the O.R. Tambo freight terminal.

An efficient airport-road interface is necessary for a variety of airfreight scenarios or combinations thereof, including the facilitation of:

- On- and off-airport freight agent operations
- Access for unmanned/drone freight movement
- Access to and from special economic zones both on- and off-airport.

Generally, most roads that link the airports with their surroundings are owned and maintained by the provincial/local Government. There is an ongoing need to strengthen the planning and development of airport and road interconnecting infrastructure to accommodate time-critical airfreight movement onto and off-airports.

There is a requirement for all road and airport authorities (national, provincial and local Government and private owners) to strengthen the planning and development of airport and road interconnecting infrastructure linking airports to their surrounding aerotropolis and potentially SEZ areas.

4.7.2 Aerotropolis and SEZ Considerations

4.7.2.1 Relevance of Aerotropolis

“Aerotropolis” is sometimes used to describe the interrelatedness of the airport and its environment. The concept is that an airport is the point of economic gravity of an area, so businesses reliant on efficient air linkages in their supply chains migrate towards the airport area, together with commercial businesses that support them. Whether a conurbation is or becomes an “aviation” city depends on how important air transport’s contribution is to the area’s overall economic activity; otherwise, it may be more of an “industrial”, “commercial”, “seaport” or another type of city, with the airport being one of various importing supporting functions. Notwithstanding the relative economic importance of an airport in its surrounding area, by looking at the airport through the lens of aerotropolis points, planners and others look at how the supporting supply chains and logistics networks can be improved, and interactions with the airport accelerated.

As seen around strategically placed hub airports internationally, and to some extent around the major airports in South Africa, aviation-related businesses naturally migrate towards the airport, making a locational decision on the costs and benefits.

For example, for cut flower exports from Cape Town, growers are spread across the Western Cape, flower traders and cold storage are located in the freight parks along Borcherds Quarry Road, while some of the freight handlers are on-airport. The extent to which parts of the supply chain are located on the airport is subject to the space requirements of the core airport functions and, thereafter, the commercial opportunity costs for the airport and the business (revenue, cost and time benefit trade-offs).

Integrated land use planning, as directed by a shared vision, Strategy, and coordinated activities across the corporate, governmental, and institutional sectors, thus allows for an airport to be a critical component in local economic development.

4.7.2.2 Potential Role of Special Economic Zones

One of the national industrial development policy initiatives is the establishment of special economic zones (SEZs). A SEZ is a spatially defined area earmarked for specific economic activities to promote national economic growth and exports, encouraged by fiscal and other support measures. They are geographically designated areas set aside for specifically targeted economic activities to promote national economic growth and exports by using support measures to attract foreign and domestic investments and technology. They are regulated by the Special Economic Zones Act 16 of 2014, which provides for the designation, promotion, development, operation and management of SEZs.

A SEZ would be located close to a point of entry (e.g. seaport or airport) if the value is added to goods imported via the relevant transport mode before being re-exported by the same mode. If goods are imported for domestic use, if local goods are exported, or if import and export are not via the same mode at the same port, then the port of entry is one of many locational considerations.

In the context of the aerotropolis and location decision discussions above, whether locating a SEZ at or near an airport depends on factors such as the type of activity targeted (whether

dependent on and integrated with an aviation supply chain), the modal bi-directionality, the product value proposition (aviation attracts expensive, time-sensitive goods), and the SEZ physical requirements (airports are jealous about giving up space).

There are about eleven SEZs in South Africa, of which nine were established to support industries across a range of manufacturing, mineral beneficiation, agro-processing, terrestrial logistics, automotive and marine services, and therefore sited at locations where these industries are predominant.

Although there would be some relation with aviation, these SEZs do not intrinsically rely on an airport. This would generally be the case, but there could also be SEZs established specifically to dovetail with aviation.

There are two such SEZs in South Africa located to be interlocked with airports, of which Dube Trade/AgriZone is positioned on-airport and O.R. Tambo SEZ right next to the airport. The evolution of these SEZs shows how challenging it is to pre-select a specific economic sub-sector with the aim of its industries clustering together and forming synergies amongst themselves and with the airport. At the two airport SEZs, industrial clustering (as expected in an aerotropolis) has not yet come about, and the businesses located there are not bi-directionally (and mostly not even in one direction) dependent on aviation.

Establishing a SEZ within an airport precinct thus comes at the risk of compromising space required for airport functions or other more productive uses.

From an airfreight policy perspective, successful SEZs close to an airport could contribute to economy of scale and diversity in the overall airport offering. On-airport, however, the necessary long-term spatial needs for the core airport functions need to be secured (and locked down in an airport master plan), where aftercare should be taken not to allocate commercial space exclusively for a single use or user. The emphasis of spatial planning on and around the airport should be to seamlessly receive, handle and dispatch goods from and to any nearby location, whether SEZ, industrial park, E-commerce park or other estate.

The customs clearance arrangements are already flexible enough to allow this type of on/off airport logistics activity.

Key to the movement of airfreight for SEZs, where relevant to the SEZ business, are:

- The efficient processing by Government departments such as SARS (customs and excise) and the other border management agencies.
- Efficient and cost-effective movement of airfreight between the SEZ and airfreight aircraft.

The strategic intention is to support the contribution of airfreight capabilities at airports through integrated land use planning and improvements in the cost and process efficiency of airfreight infrastructure. This is relevant for 'aerotropolis' and SEZ considerations. Specific actions include:

Provision of cos- effective on-airport airfreight infrastructure.

Provision of efficient on-airport by-pass airfreight facilities to support off-airport industries.

Liaison with Government border management agencies to provide efficient airfreight processing to support off-airport industries.

Provision of efficient airfreight on-airport processes for efficient, cost-effective and swift movement of airfreight between aircraft and the neighbouring industries in the aerotropolis.

4.7.3 Airfreight Hubs

South Africa's position at the southern tip of the African continent makes it an end destination rather than a hub.

O.R. Tambo International Airport can be considered a regional hub serving the South African domestic airports and sub-Saharan countries. The lack of ULD-friendly passenger aircraft on the domestic South African routes and the low passenger travel demand to neighbouring sub-Saharan countries reduces the viability of O.R. Tambo as a regional hub.

If one considers the BRICS group of countries, South Africa could be considered an east-west hub, linking South American countries to India, China and other countries in those regions.

The Airfreight Strategy should thus support O.R. Tambo as a possible BRICS hub.

The strategic intention is to support the development of O.R. Tambo as a possible BRICS hub by providing cost-effective on-airport airfreight transit infrastructure.

4.7.4 Intermodal Transportation

Of the four transport modes (air, road, rail and sea), the road-air is the only significant intermodal shipping option.

Standard shipping containers shared by road, rail and sea transportation are not compatible with aircraft.

However, road transport can transport containers designed for airfreight. Airfreight can thus be seamlessly shipped by road and air. All freight shipped by rail and sea must be transferred between the two container types.

In addition, the volumes and weight of goods shipped by rail and sea are generally at least an order of magnitude greater than the corresponding volume and weight capacity of aircraft.

The strategic intention for intermodal shipping is to support the development of infrastructure that allows for seamless transfer of goods between road and air. This includes:

- Provision of efficient on-airport by-pass airfreight facilities for the seamless transfer of goods between road and aircraft.

- Provision of efficient on-airport airfreight facilities to support efficient transfer of goods between road and aircraft.

- Liaison with road transport departments (municipal, provincial and national) to encourage efficient road access for freight to airports.

4.7.5 Funding

In South Africa, the cost of road intersection enhancements for new adjacent property typically falls on the developers. This is part of their obligation to ensure that the infrastructure surrounding their developments can support the increased road traffic and usage. Municipal-level agreements stipulate the conditions under which such developments can proceed.

This is the case with the Tshwane metropolitan municipality, and such agreements are managed through its wayleave application and approval system. The City of Tshwane Land Use Management By-law provides the legal and regulatory framework for the developers' obligations regarding infrastructure improvements.

In the case of the KSIA airport in Durban, ACSA was obliged to construct the new interchange on the N2 as well as the new access road to the airport.

This approach stimulates direct off Government budget support for road infrastructure enhancements. A similar approach should be considered to support the funding of airport-road interface infrastructure for airport airfreight infrastructure enhancement projects and new airport facilities.

There is a requirement for consideration to be given to applications for funding requirements for adjacent road enhancements for airport developments to be included in the overall development design and cost.

4.8 Drone/Unmanned Aerial Vehicle Operations

“Drone” is a broad term applied to all unmanned aircraft, i.e. operating with a remote pilot (remotely piloted aircraft system) or fully autonomously (unmanned aircraft system). Other operating characteristics that distinguish drones from standard aircraft are that they are usually smaller in size, may have vertical take-off-and-landing (VTOL) capability, operate at lower speeds, have advanced detect-and-avoid technology, have high manoeuvrability and can adjust routings quickly, and may operate in “swarms” with limited separation.

Drones have a wide application, including inspection (surveying, monitoring, location, detection, photography, detection, etc.) and aerial work (firefighting, crop spraying, etc.), but the application that is of importance is the use of drones for the delivery of goods (packages, supplies, components, etc.). Compared with the first two localised applications, goods

delivery entails operations over longer distances, BVLOS (beyond visual line of sight) takes place over multiple properties, probably in more organised and permanent pathways, but not necessarily, and probably making use of larger and more impacting equipment.

The target markets would be remote access delivery (pharma, blood, etc.) or supply chain support (e.g. transporting high-value goods from an airport like O.R. Tambo International Airport to a specialist manufacturing hub like Rosslyn). There are various examples internationally and in Africa where these types of drone operations are already taking place, and at least one case is in South Africa (Bloodwings). Although the Strategy should also accommodate Amazon-style delivery of packages in urban areas, South Africa's relatively mature terrestrial transport networks and low congestion make such home delivery operations a less pressing Strategy matter. Even for longer-distance delivery, there is much speculation about how big the potential market is and what the overall contribution (tonne-kilometre) may be to airfreight overall, but there is a general belief and expectation that transport-by-drone will grow in importance.

Possibly, the key consideration related to drones is whether it is just another participant in the civil aviation framework that needs to be accommodated in and comply with the organisation and rules of that framework or whether it is sufficiently special that it warrants a separate framework. Issues to resolve include organisation, use and control of airspace, and licensing and regulation of aircraft, aviators and operations. The current situation is that the traditional civil aviation role players are inclined to want to integrate drone operations into the existing framework, while the drone industry aspires to a more moderated treatment of drones.

The view is that matters related to drones are somewhat disorderly, with drones and drone operators not properly registered, growing drone infringements in civil airspace, and a lack of public awareness about drone operations. Drone detection and integration with the current ATM/communications, navigation, and surveillance systems have not yet been established. Accommodation of drones within the National Airspace, in terms of flexible use of airspace, is a lengthy process and could lead to non-compliance with the regulations. There is also no clear policy position on the use of an unmanned aircraft system (UAS)/Unmanned Traffic Management (UTM) framework and establishment.

4.8.1 Accommodating Drones in Civil Airspace

The approach to regulating drone operations has evolved from treating them like typical, manned aircraft that must be “integrated” into the existing civil aviation system to recognising that they are more supple, largely take place in different airspace, and involve stakeholders and regulatory authorities that are not classical aviation actors. Aviation regulators’ attention is increasingly not on drone operations but on the interface of drones with manned aviation.

From an airspace perspective, the original intention of ICAO was to bring unmanned aircraft (UA) into the regulatory and operational dispensation of manned aircraft in a flexible airspace use dispensation, in other words, into the standard air traffic management (ATM) arrangements. Later on, there was a recognition that UA has some idiosyncrasies, which may justify segregating airspace for UA use (UTM) and focusing on managing the interface between UTM and ATM. UA should be “compatible” with manned aircraft rather than purely “mirroring” it. Subsequently, Urban Air Mobility (UAM) or Advanced Air Mobility (AAM) has emerged, i.e. the use of small, highly automated aircraft to carry passengers or cargo at

lower altitudes in urban and suburban areas, developed in response to terrestrial traffic congestion. UAM is a “cross-over” issue between ground and air transport in that it is an aerial solution for ground-based problems, carried out at low altitudes in airspace that can be seen as an extension of the public space.

The idiosyncrasies of drone operation of low altitude, low impact energy, manoeuvrability, etc., together with the risk of intrusion in classical airspace, have caused ICAO to recognise that drone UAM in built-up areas requires strong coordination and alignment among different aviation, ground mobility policies and stakeholders such as regional mobility authorities, local authorities, operators of urban mobility, associations of urban mobility. A clear legal framework is required to modernise the governance management of such airspace operations.

In South Africa, whereas the arrangements for designating and managing conventional airspace are clear, including the respective roles of ATNS, National Airspace Committee (NASCOM), SACAA, and the Department of Transport, the appropriate arrangements for drone operations at lower levels are still under consideration. Although ATNS still applies the principle of segregating airspace for a specific use, i.e. in a non-flexible manner on a temporary basis, the direction is towards establishing segregated “UTM” more enduringly, which will be operated in a coordinated manner with “ATM”. The extent of ATM interface requirements will depend on the nature of the drone operation. The concept is that dedicated, low-altitude drone corridors may be established with barrier arrangements to separate drone activity from conventional aviation, including technology-based barriers like geo-fencing. Drones operating in the corridors would require minimum communication and detect-and-avoid capabilities and be visible to the Air Navigation Service Provider (ANSP) responsible for the surrounding airspace. Less populated areas would not require the same onboard tracking capabilities as required in dense airspace or areas of high demand. There would be standard avoidance protocols for when such corridors are penetrated by others, e.g., police helicopters. To give effect to this approach, ATNS has been tasked by NASCOM with defining the drone innovation corridors. The intention is to create a test environment for pilot drone operation cases.

ATNS is the only ANSP in the South African civil airspace. But, considering the characteristics of UTM referred to above, it is not inevitable that all or some “drone” airspace be managed in the conventional civil aviation fashion. South Africa has proposed to ICAO that there be a UTM Service Supplier that interfaces with the current ATM system in terms of data exchange. UTM users and operators manage themselves in one or a network of UTM systems and rely on a data exchange protocol to utilise ATM-related information within the UTM. The best practice is that ATC does not control UAS traffic in the UTM; however, the ANSP and civil aviation regulator (SACAA) are granted access to the UTM in real-time and the respective database for monitoring, investigative and technology enhancement purposes. Elsewhere, independent UTM management capability is developing and scaling up, with reference to the Altitude Angel in the United Kingdom, implying that an external service provider may be most cost-effective.

4.8.2 Risk-Based Drone Operational Classification

In terms of current legislation and policy, the SACAA regulates all civil aviation activity – including drones. The SACAA appears to be under-capacitated and resourced, which results in administrative delays. It also takes a fairly traditional approach to drone regulation,

effectively dealing with non-localised drone operations as if these were conventional (manned) flight operations.

Internationally, there is a move towards the risk-based classification of drone operations and, by implication, the sizing and scoping of regulation to fit with the risks of a specific type of application. The Joint Authorities for Rulemaking of Unmanned Systems (JARUS) is a worldwide group of regulatory experts from the national aviation authorities, including SACAA, and regional aviation safety organisations. JARUS has developed a non-binding UAS Operational Categorisation, which builds on the concept of a risk-based approach for performance-based regulations of UAS operations. It entails mitigations to achieve an acceptable level of safety, including degrees of approval of airworthiness, imposing operational limitations, operator competence, design approvals, etc.

There are three defined levels of operation, i.e. Category A “open” (low unmitigated risk), Category B “specific” (BVLOS, operations over people, transporting of objects, etc.) and Category C “certified” (carrying of passengers, carriage of dangerous goods, cross-border operations).

Assuming that South Africa will align with the risk-based categorisation and regulation of drones, Category A is not really relevant for drone delivery, as it involves small drones in contained, localised airspace, operating under the authority of the owner of the area overflown, at low altitude. This type of operation should not require outside authorisation or even notification. Category C certified operations are potentially risky for traditional, manned civil aviation and should, therefore, comply with the standard ATM arrangements, subject to the oversight of the SACAA and terms of the South Africa CARS. The focus here is, therefore, operations of a Category B-specific or certificated nature. The package of applicable rules and regulations should reflect the relative riskiness but should, in principle, be simpler and less onerous than for Category C.

Category B delivery operations will practically happen at lower altitudes in what is UTM airspace. Expanded “home-delivery” type operations in UAM/AAM airspace are being trialled elsewhere in the world but are an alternative to terrestrial transportation and not really an “airfreight” matter. There are also many ancillary issues around the social licence for such operations to be resolved in terms of privacy, noise, security, etc. It may even be argued that local authorities, other than CAAs, may be the most appropriate regulators of this industry.

4.8.3 Drone Ecosystem Architecture

Consultations during the review of the NCAP emphasised the need for a comprehensive drone “ecosystem” based on the risk categorisation approach referred to above. This would comprise tighter control of access to, at least, certain types of drones and a RICA-type registration of drones and operators/owners. Drones’ access to controlled airspace needs to be managed, probably through remote identification/tracking and automated airspace exclusion, supported by a digital application and implementing UAS traffic management (UTM). The components of the ecosystem applicable to a specific operation would depend on its risk category.

Regarding oversight of the drone framework, SACAA lacks capacity and resources, resulting in administrative delays. This may reflect the aspirations of the drone industry, which is not

accustomed to the more cautious requirements of the civil aviation regulatory system. The current policy framework, which provides cues to these sub-sectoral strategies such as this one, does not, however, foresee that an independent Authorised Aviation Organisation (AAO) could be established to operate and manage the compliance requirements for the drone industry. It is, therefore, important to ensure that SACAA has the necessary resources to do so not to hold back the potential growth of the drone industry.

The use of drones in airfreight is still in its infancy but is an area where new operational models are being actively explored. Regulation in South Africa does not accommodate the characteristics of drone operations. The industry should not be held back by unnecessary regulation.

The main Strategy implications related to drones include the organisation of drone-specific airspace (UTM), the risk-based categorisation of drone operations, and actioning other aspects of a drone ecosystem.

The drone corridors would be defined, approved and established under NASCOM, like any other activity of segregating airspace. Whether and how NASCOM will oversee UAM/AAM airspace in future is not pertinent right now.

Ways must be explored to simplify and accelerate (commoditise) the establishment of drone corridors. This must not be a significant barrier to entry. It is onerous for an individual operator to obtain back-to-back landowner approval for a particular corridor, and operations must thus be at sufficient altitude to allay concerns about privacy and noise.

Individual operators can apply to have corridors designated (demand-driven), or corridors can be established on a supply-driven basis. Drone “highways” should be considered on routes that connect major economic hubs[6], with first/last-mile legs the responsibility of individual operators to apply for. Corridors must ideally be public good facilities with open access, avoiding a spaghetti of single-user corridors.

The right to operate in a corridor must be certificated based on the risk of the operation, as well as the operating condition of the corridor (density, use pattern, etc.). Ways of simplifying and accelerating operational certification must be explored. Corridor “rules-of-the-air” must be developed specifically for drones.

Traffic control in the corridors has to change from normal ATCs to allow for denser aircraft operations with high manoeuvrability and autonomous avoidance capability. ATC will be more automated/digitised, with fewer (or no) humans involved. The existing ANSP (ATNS) will have to expand its capabilities to be a UTM manager. High-use corridor/s may warrant introducing an independent UTM Service Supplier.

A ringfenced or dedicated UTM management arrangement will provide a platform to establish a self-sustaining business based on user charging.

[6] For example, in the United Kingdom, a drone “superhighway” is being developed (“Skyway”). It is a corridor established at an altitude below the United Kingdom’s regular flight corridors. It will be 265 km long and connect Reading, Oxford, Milton Keynes, Cambridge, Coventry and Rugby. Operation is planned for 2024.

Although the focus of the above conclusions is on corridor-type drone delivery operations, the recommendation of the Policy Review RPAS working group to establish a drone ecosystem architecture remains very relevant. All the components of that system should ideally be in place, with drone delivery operations being one type of activity taking place in that system. These include:

- An easily accessible electronic or digital **register** for all RPAS intended to be operated within the national airspace, distributed, or sold within the boundaries of South Africa
- Controlled **access and distribution** of RPAS in the Republic
- Except those operated for recreational purposes, all RPAS must be installed with a device to **monitor and track** it
- Government must establish a **levy structure** for all RPAS registered and operated in the Republic, especially those operated for economic or commercial purposes.

As regards oversight of the drone framework, the current policy framework determines that SACAA should remain responsible for the regulation of civilian RPAS within a well-defined regulatory framework. However, the SACAA's capacity should be enhanced to oversee the overall drone ecosystem and address the somewhat laissez-faire situation that currently prevails.

The above approach should be embedded in relevant policies, specifically the NCAP and NAMP. Regulatory changes should be made to accommodate the drone categorisation, drone ecosystem and related arrangements. In the aviation domain, this involves updating Part 101 (Drone Operations) to align with the risk categorisation approach (also CATS 101), as well as Parts 71 and 141 (Personnel Licensing and Training) to follow Part 101.

In non-aviation areas, regulatory changes are required in:

- Broadcasting, including spectrum frequency allocation by ICASA (drone C2 links for aircraft-controller communication), the ICASA drone certification process, and registration of drone C2 links.
- SAQA National Qualifications Framework, specifically aligning SACAA regulations with the NQF so that bursaries and Government funding structures can be accessed.
- Appropriate third-party liability insurance products are required for the different categories of drone operation, but probably not for very small UAs.

The Airfreight Strategy requires that drone operational models and associated regulations be developed with due consideration of at least the following:

- regulations should acknowledge that drones and drone operations are often distinct from traditional aircraft operations. The traditional arrangements should only be applied where there is a risk of conflict between the two dispensations.

- an increased consideration of the risk assessment and classification specifically relating to drone operations.

- where drones are operated distinctly from traditional aviation, the process of establishing drone airspace should be simplified.

- control of drone airspace does not necessarily have to be done by the existing ANSP (namely ATNS), and a distinct self-financing arrangement may be more appropriate.

Consideration to be given to:

- An easily accessible electronic or digital register for all RPAS intended to be operated within the national airspace, distributed, or sold within the boundaries of South Africa.

- Controlled access and distribution of RPAS in the Republic.

- Except for those operated for recreational purposes, all RPAS must be installed with a device to monitor and track it.

- Government must establish a levy structure for all RPAS registered and operated in the Republic, especially those operated for economic or commercial purposes.

In non-aviation areas, regulatory changes are required in:

- Broadcasting, including spectrum frequency allocation by ICASA (drone C2 links for aircraft-controller communication), the ICASA drone certification process, and registration of drone C2 links.

- SAQA National Qualifications Framework, specifically aligning SACAA regulations with the NQF so that bursaries and Government funding structures can be accessed.

- Appropriate third-party liability insurance products are required for the different categories of drone operation, but probably not for very small UAs.

4.9 COORDINATION AND INFORMATION

4.9.1 Airfreight Data

Notwithstanding the country's obligation to report freight data to ICAO, there is no systematic reporting by airlines, airfreight operators or airport operators and no capturing of such data regulated by the DOT. On a monthly basis, SAAFF and Business Unity South Africa report partial data, specifically international airfreight data at O.R. Tambo International Airport obtained from Air Cargo Operators' Committee members and domestic airfreight from BidAir Cargo. The lack of a common data storage and sharing platform and the involvement of various data collection stakeholders complicates the issue. Still, the unavailability of reliable data makes it difficult for Government and the market to conduct analysis for purposes of trend tracking or for planning.

Ultimately, it is the public responsibility to obtain and report relevant data. The National Transport Policy highlights that “Government must leverage its unique position to collect, collate and interpret data that no other organisation in society can legitimately be expected to undertake.” The National Airports Development Plan further notes that the DOT is developing a Knowledge Management System for airports, which will interface with both the DOT's internal GIS and the SACAA's systems and will establish a system to collect airport network information, which, over time, can shift to an integrated system with electronic data exchange with key aviation stakeholders.

The process of developing the Airfreight Strategy was subject to the same absence of readily available airfreight data for policy and planning purposes as has been pointed out by previous aviation policies.

The Montreal Convention is a multilateral treaty adopted by the International Civil Aviation Organisation (ICAO). South Africa is a signatory to the Montreal Convention, and its provisions are incorporated into the country's legal and regulatory aviation environment principally through the Civil Aviation Act, No. 13 of 2009.

Several data reporting obligations on airlines and states are provided for in the Montreal Convention to ensure transparency, accountability, and adherence to the rules set out in the treaty. Reporting obligations for international flight operations include incident reporting, claims data, compensation payments, baggage handling operational data, regulatory audit compliance data, consumer protection and transparency data and safety and security data. The applicable acts under which FOPs and ASLs are issued furthermore provide for licensees to furnish prescribed statistical information to the relevant authority.

Specifically, the ICAO annual reporting Form C provides for reporting by airlines on international operations, including flight traffic inclusive of available capacity (number of passenger seats and payload freight tonnes) and revenue traffic (number of passengers, freight tonnes and mail tonnes). Currently, no such obligation is imposed on domestic operations.

Additionally, numerous domestic and international private sector companies provide value-added services in the trawling and analysis of data on all modes of transport performance across the globe.

This Strategy proposes that based on the ICAO Form C, all commercial operators at South African airports (domestic and international) are obligated to report annually on airfreight capacity and utilisation.

Secondly, these reports be submitted to the DOT, that these be anonymised and made available on the DOT website and that a consolidated annual statistical summation of the individual reports also be published on the DOT website. This will make the data available for broad consumption and further trend analysis within the market.

Such reporting be made obligatory as a condition of the licences issued in terms of the:

- International Air Services Act (s22 (b) furnishes the council within the prescribed period with the prescribed statistical information).

- Air Services Licencing Act (s24 (b) furnish the council within the prescribed period with the prescribed statistical information.

4.9.2 Collaboration Framework

The aviation and related logistics industries are well organised, with various representative bodies for stakeholders of a similar nature, and in most of these, airfreight is an area of interest. Nonetheless, there is no specific framework or forum that brings these entities together to coordinate their airfreight interests and perspectives. The Airfreight Working Group, contributing to the formulation of the draft National Comprehensive Aviation Policy, especially pointed out that one of the weaknesses of the airfreight sector is a lack of transparency and communication between stakeholders. This position was echoed during the consultation on the Airfreight Strategy, with commercial stakeholders indicating that they find themselves in an asymmetrical relationship with public service providers.

What appears to be lacking is a platform that brings a broad enough range of airfreight stakeholders together and also involves the Department of Transport as overseer and, to some extent, arbitrator amongst the stakeholders. Such a forum would provide an opportunity to communicate, share insights, express concerns, and exchange best practices, and should even be tasked with refreshing the Strategy periodically. Tactically, the feedback provided would be invaluable for the Department to be informed earlier of any issues brewing, and strategically, it would be placed a step ahead to fine-tune its policies.

In order to avoid being unwieldy, the forum could consist only of key public bodies and representative organisations. Individual stakeholders (an airport, a local authority, a Government department, etc.) could be brought into discussions when required. A proposed composition is:

- Department of Transport
- ACOC (Air Cargo Operators Committee)
- SAAFF (SA Association of Freight Forwarders) and SAEPA (South African Express Parcel Association)
- Selected consignor associations (e.g. Fresh Produce Exporters Forum and Automotive Industry Export Council), some of which may be more prominent in specific locations and during specific seasons.

- ACSA and the AAA-SA (Association of Airports and Aerodromes Southern Africa)
- Border Management Agency (BMA) and selected other Government departments and agencies (e.g. Department of Agriculture, IASC, SARS, SAHPRA).

The forum should meet at least annually and periodically in between as required by the nature and urgency of the concerns identified.

A stakeholder forum of Government stakeholders and industry representative bodies, overseen by the DOT, is proposed that deals to coordinate airfreight interests and perspectives.

4.10 Skills Development and Empowerment

As evidenced by publicly available information, numerous online and in-person courses are available in South Africa that serve airfreight training needs. Training courses related to airfreight in South Africa are offered by various institutions, including universities, colleges, vocational training centres, and private training providers. The specific courses and programs vary in terms of content, duration, and accreditation and include courses in categories such as:

- Air Cargo Management: Courses that cover the principles of airfreight operations, logistics, and management.
- Cargo Handling and Documentation: Training in handling cargo, including packaging, loading, and documentation procedures.
- Dangerous Goods Handling: Courses on the safe handling and transportation of dangerous goods by air.
- Customs and Compliance: Training on customs regulations and compliance requirements for airfreight shipments.
- International Trade and Logistics: Programs that provide a broader understanding of international trade and logistics, including airfreight aspects.
- Aviation and Air Transport Management: Courses that cover various aspects of the aviation industry, including airfreight logistics and commercial aviation management Training.

Given the numerous available online and in-person training opportunities and the fact that the industry did not see note shortcomings in the availability of airfreight-related training, there are no indications of any additional strategic considerations in this area.

In addition to the broad legislative prescriptions and frameworks for Broad-Based Economic Empowerment (B-BBEE), there is an Integrated Transport and Sub-Sector charter. The sector-wide charter aims to develop a world-class cost-effective and efficient modally integrated transport sector that promotes the entry of Black people into the industry to stimulate economic growth, development and trade whilst also complying with acceptable safety and environmental standards in all operations.

Included is an aviation sub-sector charter that applies the Integrated Charter's principles to the aviation industry. This is done by means of calibrating indicators of empowerment in the following areas:

- Equity ownership
- Management control
- Employment equity
- Skills development
- Preferential procurement
- Enterprise development
- Socio-economic development.

Throughout, specific quantified commitments are made with respect to Government, the private sector in general, SA-domiciled airlines, foreign airlines, and TETA/THETA (Transport Education and Training Authority, and Tourism, Hospitality and Sport Education and Training Authority). These commitments are recorded in B-BBEE Scorecards for the Domestic Aviation Sub-Sector, Domestic Aviation Qualifying Small Enterprises (QSEs), and Foreign-owned Airlines. The charter furthermore includes a Procurement List: Inclusions and Exclusions stating to which operating expenses the procurement requirements apply.

In addition to the aviation sub-sector charter, there is also the Forwarding and Clearing Sub-Sector B-BBEE Charter. It is structured similarly to aviation. The main distinction is that it provides distinctly for a foreign-owned operation with a global approach of not selling equity to locals in investee countries. There is also a fronting test to establish whether an enterprise is indeed an F&C operator rather than a sales or marketing agent for another operator.

There is no additional requirement for B-BBEE charters from the perspective of this Airfreight Strategy.

5 RECOMMENDED STRATEGY OPTIONS

5 RECOMMENDED STRATEGY OPTIONS

5.1 STRATEGIC DIRECTION

The Airfreight Strategy responds to the various identified challenges and opportunities. It further considers the practical realities of the domestic and international airfreight system and operational characteristics.

The overarching intentions for the Strategy are provided by the following:

- Vision: South Africa is a major contributor to airfreight connectivity, fostering sustainable economic growth for the country and participation.
- Mission: Empowering economic vitality through a robust and innovative Airfreight Strategy, ensuring efficient, secure, and sustainable movement of goods while enhancing domestic and global connectivity, competitiveness, and trade relations.
- Strategic Objectives: To give effect to the mission, vision and values, the strategic objectives of the Airfreight Strategy are that it will promote airfreight to occupy its useful and rightful place in the overall freight transport system through the:
    - Identified interventions for strengthening the existing airfreight system and performance thereof for South Africa.
    - Provision of general guidance for role players considering the establishment of new airfreight capacity for the country.

5.2 STRATEGY ACTIONS

5.2.1 On-airport Interventions

Intervention 1: Overall, the strategic intention is to improve the workings of airfreight at airports so that it can compete efficiently with other transport modes and provide an alternative means of transport and associated choices for customers under the right circumstances. This then contributes to an increase in the share of airfreight.

Action 1: Guidance for airfreight strengthening – the Strategy provides general guidance for the development of airfreight capabilities at airports where the economic situation provides for the improved potential for airfreight growth and, as such, authorities may seek to plan and motivate for growth based on specific individual circumstances. Specific strategic recommendations for the three main ACSA airports do not detract from the general support of the Strategy for all airfreight strengthening opportunities.

Further, the Strategy recognises:

- The importance of securing adequate investment in the landside and airside of the airfreight infrastructure to foster efficient cargo operations for both the modernisation and expansion of existing freight facilities and the establishment of new facilities.
- That state airports should not, by default, risk owner's capital in new freight developments but rather actively seek to attract private initiative and capital.

- Consideration to be given to applying funding requirements for adjacent road enhancements for airport developments to be included in the overall development design and cost.

Action 2: Investment and competition at ACSA-owned airports – greater clarity is required regarding the current airport ownership model and third-party participation at or near the ACSA-owned airports. Current tenants, particularly at O.R. Tambo International Airport, have a sense of impermanence and experience neglect of facilities, which has a detrimental effect on the airfreight delivery model, facilities and operations. The Government, as the majority shareholder (for ACSA and SAA), must ensure through the shareholder action that ACSA and SAA do not exploit monopolies to exclude operators or gain from monopoly at the expense of other private sector operators.

In order to facilitate the opportunity for direct investment by ACSA in airfreight infrastructure at its airports, the following should be considered:

- Changes to the revenue structure of ACSA to include an airfreight throughput fee that applies also to SAA freight should be considered.
- The regulation of the lease component of airfreight facilities to avoid the stifling of airfreight.

These fees further need to be brought under the jurisdiction of the Regulating Committee to protect competitive practices and investments by third parties and to minimise the cost of entry for newcomers to the airfreight business.

Intervention 2: Protect competition and open market practices for agents and ground handlers to allow options for private sector participation whilst ensuring ACSA sustainability.

Government, as the ACSA majority shareholder, is to ensure through shareholder action that:

- **Action 3: Adequate Infrastructure** - Investments in infrastructure are planned and implemented at the primary airports to address ageing and inefficient landside and airside airfreight infrastructure and facilitate and promote efficient operations on and off-airport. This includes adequate capacity for perishable cargo, i.e., cold rooms, general cargo, high-value cargo, dangerous cargo, live animals and human remains. Fit-for-purpose facilities promoting rapid processing should be considered for E-commerce and express cargo. Private participation in infrastructure development is to be considered to reduce the burden on the state. Such infrastructure improvements will be generally supportive of E-commerce.
- **Action 4: Competition** - A clear policy on third-party cargo handling, competition in cargo handling and commercial rules are developed and implemented. This should contribute to efficient and competitive arrangements where the economics are justified and acknowledging constraints such as cost of entry for new private sector agents and ground handlers at airports.

Intervention 3: Ensure improved provision of bypass channels for airports to accommodate just-in-time and off-airport consolidation/deconsolidation whilst reducing on-airport congestion and the need for investment. This will generally be in support of e-Commence.

Government, as the ACSA majority shareholder and the engagement of DOT with other authorities for such channels (SARS, Agriculture, etc.) to ensure through shareholder action that:

- **Action 5: Bypass Channels** - Allows for the increased offsite preparation of airfreight necessitates the development and implementation of efficient "Bypass" cargo infrastructure, allowing goods to be prepared offsite in de-grouping depots and brought onto the airport in already packaged, inspected, and cleared Unit Load Devices (ULDs).
- **Action 6: Express Cargo** - Revisits arrangements for efficient handling of express or just-in-time (JIT) cargo given the ongoing increase in international and domestic E-commerce traffic requirements.
- **Action 7: Eliminate Congestion** - Provides for the improved management of landside and airside movement platforms to ease congestion at especially O.R. Tambo International Airport, including improved housekeeping practises and following international guidelines and best practice benchmarks. This is to include:
  - Implementation of strict oversight and monitoring of cargo handlers to prevent mishandling of cargo and equipment. Damaged ULDs and dollies should be promptly identified and removed from the movement area.
  - Exercise greater control over the management and movement of empty ULDs and dollies to ensure they do not disrupt operations and contribute to congestion.
  - Prioritising airside access to Tier 1 cargo operators that are licensed to operate on the airport, thereby restricting on-airport first-line airside access to Tier 2 and Tier 3 cargo operators.

5.2.2 Airport Connectivity Interventions

Intervention 4: Develop intermodal and aerotropolis functionalities at primary airports through the specific inclusion of airfreight considerations in associated stakeholder and intergovernmental initiative participation.

DOT should, within its policy mandate, direct and support:

- **Action 8: integrated land use planning** - the strategic intention is to support the contribution of airfreight capabilities at airports through improvements in the cost and process efficiency of airfreight infrastructure within the adjacent environments inclusive of ‘aerotropolis’ and SEZ considerations. Road and airport authorities (national, provincial and local Government and private owners) need to strengthen the planning and development of airport and road interconnecting infrastructure linking airports to their surrounding business, aerotropolis, and potentially SEZ areas.
- **Action 9: Improved access and efficiency** - A stronger focus on the integration of the land-based movement of airfreight to allow for efficient

movement of airfreight throughout the value chain since an increasing number of cargo operations happen off-airport (e.g., de-grouping depots), and require slick passage to and through the airport.

- **Action 10: Public Participation** - Greater participation by the private sector and airport interest groups in spatial and transport planning, particularly at local and provincial authority levels.

5.2.3 Domestic, Regional and International Interventions

Intervention 5: Maintain and continue to strengthen South Africa's interest in multi- and bilateral agreements impacting on and for airfreight.

DOT should, within its policy mandate, direct, participate in and support the strengthening of airfreight components within:

- **Noted, but no action required: Domestic Air Services** - The domestic market is deregulated; there are various players in terms of sizes of operators, types of aircraft, bases of operation, etc. The market has shown over many years that operators will come and go. There is sufficient competition from other transport modes, especially roads, to keep the aviation sector on its toes and efficient. The domestic airfreight market is probably reflective of the underlying economics of airfreight competing with other modes over relatively short distances.
- **Action 11: Regional Air Services** - Destinations around South Africa are well connected and sometimes served by several carriers. There are no dedicated freighter services, but probably adequate belly capacity. There are several South African-based freighter operators and lessors with equipment that could be used for freight as required. Although foreign carriers generally use their allocations more fully, many allocated frequencies to South African carriers have not been taken up, so the market does not appear to be underserved.
- **Noted, but no action required: Regional Liberalised Air Service Rights** - South Africa is quite comfortable with concluding liberalised BASAs with fellow African states in support of YD 1999 and the SAATM. Those who reciprocate obtain 5th freedom rights. However, although there are some interlinking operations (e.g., NBO-LUN-JNB-NBO) there is not much upside from 5th freedoms as there is a limited number of regional destinations flights that could proceed to/from South Africa. The process of liberalising and moving towards the SAATM will proceed at its own pace depending on the readiness of laggard countries, which will reciprocally dictate South Africa's momentum. The total opening up of the SAATM in a multi-lateral, non-BASA fashion, as was done in the Third Package of EU deregulation, is not yet on the cards.
- **Action 12: Long-Haul Air Service Rights** - There is good belly-based connectivity from South Africa to key intercontinental destinations. However, all flights outside the continent are operated by foreign carriers. There is no South African carrier providing scheduled intercontinental passenger and/or cargo services. 5th freedoms are not issued as a rule, so carriers have to operate point-to-point to/from South Africa. It appears that these rights are safeguarded given the inability of South Africa to reciprocally utilise the original (3rd/4th freedom rights), never mind an expanded 5th freedom. The NTP

explains this in terms of tension between “national interest” and “open skies”. However, the issue of “national interest” and “national carrier” are easily obfuscated, i.e. acting in the national interest requires protecting the national carrier. A more considered approach should be followed to evaluate the national benefit of opening selected routes vs South Africa not being able to participate in operating the route.

- **Noted, but no action required:** Regarding **dedicated freighter operations**, there are some scheduled operations from the Gulf and East Africa, and there are intermittent freighter non-scheduled movements. The DOT has indicated that non-scheduled cargo-only rights are easily obtained upon request. However, this is somewhat pyrrhic as belly-hold is really the sweet spot for airfreight for a destination like South Africa.

The DOT should continue to strengthen domestic representative forums contributing to the international multi- and bilateral initiatives.

Intervention 6: Position South Africa on the South America, Indias, Far East and Southeast Asia routes through reconsideration of South African Airways (SAA) position as it is not necessarily the most efficient solution to serve the route, open to other domestic operators and consider selective/strategic 5th freedoms (e.g. MAS in early 2000s), 5th freedom east-west Strategy would link up BRICS via South Africa.

The DOT should, within its policy mandate, direct, participate in and support the expansion of:

- **Action 13: Granting of 5th Freedoms** - One approach applied in the past is to encourage long-distance flights to transit through South Africa, supported by granting 5th freedom rights to collect and set down South Africa-originating passengers en route. For example, Malaysian Airlines (MAS) operated a Kuala Lumpur-Johannesburg-Cape Town-Buenos Aires service for a period in the mid-2000s, which was popular in both directions. The idea would be to award 5th freedoms liberally where there is, in any case, no or few frequencies and where South African designated carriers have not taken up their rights. This approach would be an extension of the position under YD and SAATM to award 5th freedoms between African countries and carriers in the normal course. It may even be argued that policy-wise (in the NCAP review), this line of thinking is already under consideration. The benefit of a 5th freedom transit country (like South Africa) is clear; this would be additional connectivity at no risk. For the operating carrier, there are benefits as well, mostly in the form of bulking up a route that would otherwise not have sustainable demand and an opportunity to extend its route reach. It could also avoid transiting via a more remote and expensive hub airport. Carriers like Emirates and Singapore have traditionally operated various 5th freedom routes, usually to/from North America and South America. For passengers, the gain is a more direct routing and avoiding an inconvenient transfer en route.

- **Action 14: Airline Cooperation** - Additionally, designated carriers should be encouraged to cooperate with designated FOP carriers and codeshare and block purchases on their operations. Such cooperation is already allowed

under most BASAs but could be made a condition for FOP designation on selected routes, i.e. a designation is made subject to a cooperation agreement being concluded. The benefit for the South African designee is obviously much lower barriers to entering a route and much minimised financial risk. For the operating carrier, again, cooperation would increase load factor and yield.

- **Noted, but no action required: Practicalities of Approach** - The regions currently not connected well (South America, the Indias, the Far East, and Southeast Asia) fall on a Global Southeast-west axis. For these to be connected end-to-end implies flight distances of 13 800 km (Mumbai-São Paolo) to 18 500 km (Hong Kong-Buenos Aires). These are at the upper end of the range of aircraft such as B777 or A350, which can reach up to 16 000 km (if not in LR/long-range configuration), implying that a technical and/or refuelling stop-over would be required. There are runways (in excess of 3 500 m) capable of handling intermediate stops all along East and Southern Africa, in locations with good connections into Africa, the Gulf, and Europe. However, few of these locations can compete with South Africa (Johannesburg and Cape Town) in terms of an attractive local economy proposition, tourism offering, and standing in terms of, e.g., BRICS. An appealing offering in terms of flight rights and local passenger uplift could reasonably attract such long-haul flights to operate via South Africa and, in so doing, expand the airfreight connectivity opportunities.

Intervention 7: Maintain South Africa's position as a compliant source/destination player in international airfreight by ensuring continued compliance with international prescriptions regarding security by the relevant agencies performing the necessary inspections and certifications.

DOT should, within its policy mandate, direct, participate in and support the lead agencies (ATNS and SACAA) to maintain, strengthen and implement:

- **Action 15: Cargo Security** - Monitor, control and maintain the application of cargo security measures at all airports with cargo operations, especially the three primary airports that currently serve regional and international markets.
- **Action 16: Establish "green channels"** that align with USA and EU standards to facilitate the expedited movement of cargo meeting these standards. These channels should be designed to minimise delays and streamline the clearance process for compliant shipments.

5.2.4 Licensing Interventions

Intervention 8: Improve turnaround times regarding the consideration and approval of authorisations and licence requests through strengthening administrative systems and capacities.

The DOT should, within its policy mandate, improve support for, and thereby, the turnaround performance of the following:

- **Action 17: International Air Services Council** - It has not been possible to obtain data regarding applications for air service licences, permits and allocations, including the timing of applications and the duration of processing

of applications. It can, therefore, just be noted that in consultation, the IASC itself acknowledged that there was a backlog after COVID-19 due to delays in appointing the Council and that it inherited a weak administrative support system. Stakeholders also pointed out the slow turnaround times of the IASC. It is, therefore, a trite conclusion that the IASC requires additional administrative support and improved systems.

The DOT should, within its policy mandate, direct an improved situation regarding:

Intervention 9: The application of the use-it or lose-it principle to open rights to other players through notifications to the market and application of the principle.

At present, SAA occupies all intercontinental frequency allocations but operates none. These rights have been non-operational (far) in excess of the timeframes allowed in the International Air Services Act. The aim of securing the survival (business rescue) of an SOE appears to take precedence over allowing others to enter the market. However, it is acknowledged that potential participants have complained of favouritism; is not clear that they have the means to operate or have actually applied for such unused rights. In any case, it is difficult to show whether the positioning of SAA has an adverse effect on intercontinental cargo flows, and the Airfreight Strategy is, therefore, unlikely to influence the treatment of SAA markedly.

The consideration of reallocating frequency allocations to be included for new licence applications.

5.2.5 Other Interventions

Intervention 10: Airfreight Data – Insufficient airfreight data is collected and published to allow analysis and informed decision making by regulatory and airfreight stakeholders. An intervention is required to improve collection and publication of airfreight data.

Action 18: Airfreight Data – based on the ICAO form C, all commercial operators at South African airports (domestic and international) should be obliged to report annually on airfreight capacity and utilisation. These reports are submitted to the DOT; the reports need to be anonymised and made available on the DOT website. Further, a consolidated annual statistical summation of the individual reports should be published on the DOT website.

Intervention 11: Airfreight in emergency situations – The airfreight facilities need to be made available during emergency events. It is not incumbent on the commercial airfreight operators and agents to plan for and provide emergency services infrastructure. However, the facilities of airfreight operators and agents should be immediately available in response to emergency events.

Action 19: Airfreight in emergency situations - The DOT should promote the management of airfreight necessities associated with emergency situations as part of the **South African disaster management framework** and not as part of ongoing commercial airfreight operations. This is to be implemented by the DOT through the introduction of emergency airfreight on the agenda of the disaster management system structures.

Intervention 12: Drone/UAV operations - drone operational models and associated regulations need to be developed with due consideration of at least the following:

- regulations should acknowledge that drones and drone operations are often distinct from traditional aircraft operations. The traditional arrangements should only be applied where there is a risk of conflict between the two dispensations.
- an increased consideration of the risk assessment and classification specifically relating to drone operations.
- where drones are operated distinctly from traditional aviation, the process of establishing drone airspace should be simplified.
- control of drone airspace does not necessarily have to be done by the existing ANSP (namely ATNS), and a distinct self-financing arrangement may be more appropriate.

Consideration to be given to:

- An easily accessible electronic or digital register for all RPAS intended to be operated within the national airspace, distributed, or sold within the boundaries of South Africa
- Controlled access and distribution of RPAS in the Republic
- Except those operated for recreational purposes, all RPAS must be installed with a device to monitor and track it.
- Government must establish a levy structure for all RPAS registered and operated in the Republic, especially those operated for economic or commercial purposes.

In non-aviation areas, regulatory changes are required in:

- Broadcasting, including spectrum frequency allocation by ICASA (drone C2 links for aircraft-controller communication), the ICASA drone certification process, and registration of drone C2 links.
- SAQA National Qualifications Framework, specifically aligning SACAA regulations with the NQF so that bursaries and Government funding structures can be accessed.
- Appropriate third-party liability insurance products are required for the different categories of drone operation, but probably not for very small UAs.

Action 20: Drone/UAV risk classification - Following international practice, redefine types of drone operation based on inherent risks of the aircraft and operations involved, specifically to enable Category B “specific” operations (including BVLOS, operations over people, transporting of objects).

Action 21: Drone/UAV Airspace - In principle, drone corridors should be established where justified – segregated from but coordinated with and overseen by standard air traffic management arrangements. The process for creating such corridors should be simplified to be more responsive to users’ requirements. The development of the drone innovation corridors should proceed as testing ground for such arrangements and procedures.

Action 22: Drone/UAV Registration - To ensure controlled access and distribution of RPAS, establish an electronic register for all RPAS distributed or sold in South Africa. In addition, all RPAS of determined minimum specifications must be installed with a device to monitor and track it.

Intervention 13: Coordination

The DOT should, within its policy mandate, direct actions necessary for improved coordination and representativity of stakeholders in airfreight through the establishment of a stakeholder forum of Government stakeholders and industry representative bodies overseen by the DOT to coordinate airfreight interests and perspectives.

Action 23: Coordination - DOT should, within its policy mandate, direct actions necessary for improved coordination and representativity of stakeholders in airfreight through the establishment of a stakeholder forum of Government stakeholders and industry representative bodies overseen by the DOT to coordinate airfreight interests and perspectives.

6 IMPLEMENTATION PLAN

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6.1 INTRODUCTION

This implementation plan provides clarity on each of the identified actions in the Airfreight Strategy under the following:

- Action: setting out the broad description of the action as identified in Section 5.
- Key performance measures: the range of component tasks or outputs for implementation.
- Resourcing: how the action will be resourced.
- Roles and Responsibilities: which department or organisation is responsible for managing the implementation process, inclusive of communications, stakeholder engagement, progress monitoring and reporting thereon.
- Communications and stakeholder engagement: specific tasks relating to communications and stakeholder engagements for this action.
- Risks: risks to be managed in the implementation process.
- Timeframes are categorised as follows:
    - Short-term: these are actions that can be launched typically within a year and may continue into the medium term. Generally, these actions can be implemented with current DOT resources.
    - Medium-Term: these actions can only be addressed fully in the medium term, given precursory actions that need to be in place for their implementation.
    - Ongoing: these actions will be required immediately and on an ongoing basis, depending on demands from the market.

The implementation action plans are set out in the following sections.

6.2 ACTIONS

Table 6-1: Action 1 - On Airport - Guidance for Airfreight Strengthening

ACTION - 1					
The Airfreight Strategy for South Africa provides guidance regarding airfreight considerations for airport upgrades, expansions or new airports. The task will be for the DOT and its agencies to consider, in the context of the Strategy, applications from interested current or future airport owners and or developers for necessary approvals and/or licences as and when these are received.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Strategy for South Africa is published. Timely consideration by the DOT and its agencies for approvals and licensing pertaining to the airfreight strategy as and when submissions are made for consideration. (Refer also to Table 6-3: Action 3 - Adequate Infrastructure)	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of airfreight specialists to assist them in reviewing technical aspects submissions.	The DOT will provide leadership and guidance informed by the Strategy. Airport owners, operators, and developers to submit applications for consideration regarding such developments.	The Strategy is to be communicated to the airfreight industry by circulation to the known industry associations and placed on the DOT website for general access.	Limited risks, given that upgrade and development plans will need to be self-funding per the Strategy. No consideration is given to government financing of such.	Short term: Publication of the Airfreight Strategy. Medium term: Provide ongoing guidance to airports in terms of functionality, infrastructure and equipment recommended for airports, as may be requested by the industry.

Table 6-2: Action 2 - Investment and Competition At ACSA-Owned Airports

ACTION - 2					
The regulation of the revenue and lease component of airfreight facilities and processing at airports is to be strengthened to avoid the stifling of airfreight.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Review the costs and revenue model and the implementation plans of the O.R. Tambo International Mid-field terminal capital expenditure project to ensure that the interests of the airfreight industry are adequately safeguarded.	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of an airfreight specialist to assist the DOT in reviewing the plans.	Leadership for this action is to be provided by the DOT as a Shareholder to stimulate appropriate infrastructure investments by ACSA as guided by the Strategy. The Regulating Committee is to obtain and review (supported by appropriate consultations with affected parties) the financial model and assessment of the O.R. Tambo International Mid-field terminal capital expenditure (CAPEX) and make determinations accordingly. DOT to support the representative of the shareholder ministers by reviewing and advising on the O.R. Tambo International Mid-field terminal implementation plan and the financial model and plan in accordance with the airfreight strategy. Airport owners, operators, and developers to implement associated enhancements.	Obtain financial model and assessment of the O.R. Tambo International Mid-field terminal capital expenditure (CAPEX) project from the Regulating Committee. Obtain the O.R. Tambo International Mid-field terminal implementation plan from ACSA. Provide guidance to ACSA to ensure airfreight strategy objectives are met.	Limited risks given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such.	Short term: Guidance to O.R. Tambo International Mid-field terminal capital expenditure (CAPEX) project.

Table 6-3: Action 3 - Adequate Infrastructure

ACTION - 3					
Make available the preferred airfreight infrastructure at airports that are processing airfreight or plan to process airfreight. This action is aimed at all airports, especially at airports with substantial airfreight volumes.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Provision of guidance on the functionality, infrastructure and equipment recommended for airports for airfreight processing. Consideration is to be given to small, medium and large airports.	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of airfreight specialists to assist the DOT in reviewing the plans submitted for inputs by airport owners or developers.	The DOT, through the Strategy, provides leadership and guidance in terms of recommended airfreight functionality, infrastructure and equipment for airports. Airport owners, operators, and developers to implement associated enhancements.	Provide guidance to airport owners and operators to ensure airfreight strategy objectives are met.	Limited risks given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such enhancements or new developments.	Short term: Publication of the Airfreight Strategy. Medium term: Provide ongoing guidance to airports in terms of functionality, infrastructure and equipment recommended for airports as may be requested by the industry.

Table 6-4: Action 4 – Competition

ACTION - 4					
A clear framework for third-party cargo handling, competition in cargo handling and commercial rules at airports is needed. This should contribute to efficient and competitive arrangements where the economics are justified and acknowledging constraints such as cost of entry for new private sector agents and ground handlers at airports.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Preparation of a framework for third-party cargo handling, competition in cargo handling and commercial rules is developed and implemented. The policy to consider small, medium and large airports.	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of airfreight specialists to assist the DOT in reviewing the plans.	The DOT will provide leadership and guidance in the development of terms for recommended third-party cargo handling, competition in cargo handling and commercial rules. The representative of the shareholder ministers for ACSA and SAA and the Regulating Committee will provide guidance to the entities for such third-party cargo handling considerations to be strengthened. Airport owners, operators, and developers to implement associated enhancements.	Through the Strategy, shareholder guidance and Regulation provide guidance to airport owners and operators to ensure airfreight strategy objectives are met.	Limited risks given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such.	Short term: Preparation of a framework for third-party cargo handling, competition in cargo handling and commercial rules. Medium term: Provide ongoing monitoring and guidance to airports in terms of compliance regarding third-party cargo handling.

Table 6-5: Action 5 - Bypass Channels

ACTION - 5					
The Strategy sets out the preferred airfreight bypass infrastructure to be provided at airports that are processing airfreight or plan to process airfreight. This action is aimed at all airports, especially at airports with substantial airfreight volumes. The bypass shall provide ICAO (CATS 139) compliant and efficient movement of pre-built ULDs onto and from the airport.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Implementation of actions as identified in the Strategy to strengthen bypass facilities that further comply with SA-CATS 139, ICAO, and IATA regulations. Such to consider: Airfreight security Customs clearance Airfreight processing efficiency All weather operations and ULD storage.	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of airfreight specialists to assist the DOT in reviewing the plans for such improvements that may be submitted by airport owners, operators or developers regarding bypass facilities inclusion and design.	The DOT provides leadership and guidance on bypass facilities through the published strategy and the review of plans that may be submitted for review and comment to ensure bypass facility strategy objectives are met. Airport owners, operators and developers to implement associated enhancements.	Referring to the industry to the Strategy and to sources of appropriate regulations such as from SARS, SACAA and users.	Limited risks given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such.	Short term: Referral of interested parties to the Strategy and agencies for other regulatory requirements. Medium term Provide ongoing guidance to airports in terms of compliance with the bypass inclusion and requirements.

Table 6-6: Action 6 - Express Cargo

ACTION - 6					
Strengthening of arrangements for efficient handling of express or just-in-time (JIT) cargo given the ongoing increase in international and domestic E-commerce traffic requirements.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Implementation of actions as identified in the Strategy to strengthen the processing of Express Cargo. Support airports to improve Express Cargo processing.	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of airfreight specialists to assist the DOT in reviewing the enquiries and plans that may be received in this regard.	The DOT will provide leadership and guidance in the review of Express Cargo facilities and to make recommendations. Airport owners, operators, and developers to implement associated enhancements.	Referring the industry to the Strategy. Provide guidance to airport owners and operators to improve Express Cargo procedures.	Limited risks given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such.	Short term: Review and make recommendations to improve Express Cargo facilities. Medium term: Provide ongoing guidance to airports in terms of Express Cargo processes.

Table 6-7: Action 7 - Eliminate Congestion

ACTION - 7					
Management of landside and airside movement platforms to ease congestion at especially O.R. Tambo International Airport, including improved housekeeping practises and following international guidelines, as well as best practice benchmarks.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Review of landside and airside movement platforms at the three primary airports and request plans to improve efficiency. Support airports to improve landside and airside congestion.	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of airfreight specialists to assist them in reviewing the plans.	Leadership for this action is to be provided by the representative of the shareholder minister to stimulate appropriate optimisations at ACSA airports. The DOT will provide guidance regarding the technical aspects for improved landside/airside movement.	Referring the industry to the Strategy that provides guidance regarding landside/airside process improvements.	Limited risks given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such.	Short term: Improved landside and airside airfreight congestion at airports. Medium term: Provide ongoing guidance to airports in terms of congestion.

Table 6-8: Action 8 - Integrated Land Use Planning

ACTION - 8					
Airport owners are to participate actively in the development of SANRAL's roads plans, provincial integrated transport master plans (ITMPs) and local authority integrated transport plans (ITPs) to ensure adequate airport access, especially focusing on access by road.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Strengthened long-term airport access plan focusing on freight movements and needs	No extraordinary resourcing is required for the work of the DOT or its Entities.	DOT structures to support improved collaboration with airports in the integrated planning processes (national, provincial and local). Airport owners to identify needs for submission to and engagement with (road) planning agencies based on their active monitoring and assessment of freight-related traffic trends, peaks and access needs and projections.	Maintain active relationships with relevant national, provincial and local planning agencies. Airport operators remain engaged with cargo community (consignors, agents, transporters) to identify changing needs.	Competing priorities in plans which demote airport and freight requirements (e.g. compared with public transport).	Short term: Stimulation of airports in the road master planning processes (national, provincial and local). Medium Term: Periodic participation in transport master planning.

Table 6-9: Action 9 - Improved Access and Efficiency

ACTION - 9					
Execution of specific road freight access projects					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Airport freight access design/s. Project execution on time and in-budget	No extraordinary resourcing is required for the work of the DOT or its Entities. Resources to be provided by airport owners/operators for specialist design capacity.	Airport representative/s to design projects in liaison with relevant road agency/ies.	Project-level engagement with road agencies for execution of freight access projects.	Financial responsibility and participation by airport. Affordability by airport and/or freight users (and lack of mechanism to charge cost through to freight beneficiaries).	Medium term: Preparation of freight access design/s as needed.

Table 6-10: Action 10 - Public Participation

ACTION - 10					
Airports that do not yet have widely representative and active freight stakeholders and planning forums should establish such with the aim of including constructive proposals in future planning.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Establish and activate stakeholder planning forum (or extend brief of existing stakeholder forum to include planning for freight).	Minimal DOT resources required periodically to give guidance to the sector. Airport owners are to develop improved public participation with their own resources.	Airport authorities are to establish/extend planning/freight for the airport. Airport authorities are to invite, consolidate, contextualise and circulate airfreight proposals and concepts for stakeholder consumption.	Early needs identification and later-stage practical execution. Guidance on approaches provided in the Strategy.	High and unaffordable expectations by freight community. Trade-offs between freight and other needs at airports. Freight communities are small, apart from major airports, and useful participation may be limited.	Periodic (biennial) structured engagements.

Table 6-11: Action 11 - Regional Air Services

ACTION - 11					
Continue to follow the liberal awarding of regional air service rights in compliance with South Africa's commitment to SADC, the Yamoussoukro Decision, the Single African Air Transport Market and the African Free Trade Area.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Speedy award of IASLs and FOPs for regional and continental air services.	No additional resourcing required (apart from Action 17: Support to IASC).	International Air Services Council remains responsible.	No specific communications/stakeholder engagements.	Non-reciprocal treatment and opportunistic behaviour by regional and continental counterpart countries.	Continuous

Table 6-12: Action 12 - Long-Haul Air Service Rights

ACTION - 12					
A more considered approach should be followed to evaluate the national benefit of opening selected routes in the case/s where South Africa is not able to participate in operating such route/s.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Identified key intercontinental freight (and passenger aircraft for belly freight) routes unlikely to be served by a South African IASL holder in the medium and longer term.	Specialist route planning consultancy to advise on candidate routes (if not done in-house by DOT). Marketing campaign to expose opportunities.	DOT to identify candidate routes. DOT to market key routes to prospective international carriers (FOP holders). DOT to identify factors constraining take-up of route opportunities.	Engagement with local carriers (IASL holders) on their alliance partners' interest in operating routes. Identification of and engagement with airlines with Southern African expansion objectives.	Routes not judged to be financially viable by candidate operators. Once operational, viability risks carried by operators. National policy position on strategic air access and national carrier to be amended.	Continuous: Policy change can be taken up in imminent updated Civil Aviation Policy.

Table 6-13: Action 13 - Granting of 5th Freedoms

ACTION - 13					
Encourage long-distance flights to transit through South Africa, supported by the granting of 5th freedom rights to collect and set down South Africa-originating passengers en route.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Identified intercontinental routes with 5th freedom potential.	No additional resources required other than possible contracting of a specialist route planning consultancy (can be developed as part of Table 6-12: Action 12 - Long-Haul Air Service Rights).	Initiative led by DOT.	Engagement with long-haul east-west carriers in South-East Asia, Asia and South America.	(As for Table 6-12: Action 12 - Long-Haul Air Service Rights)	Continuous: Anchor initiative in updated Civil Aviation Policy.

Table 6-14: Action 14 - Airline Cooperation

ACTION - 14					
As a means to secure local interest and participation in FOP long-haul service rights (Action 5.4) and 5th freedom FOP services (Action 6.1), make code sharing, block purchases and other forms of airline cooperation with IASL holders a condition on selected routes (routes that attract interest from FOP holders).					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Extent of local carrier cooperation agreements.	No additional resources required other than possible contracting of a specialist route planning consultancy (can be developed as part of actions Table 6-12: Action 12 - Long-Haul Air Service Rights and Table 6-13: Action 13 - Granting of 5th Freedoms).	Initiative led by DOT	(As for actions- Table 6-12: Action 12 - Long-Haul Air Service Rights, Table 6-13: Action 13 - Granting of 5th Freedoms)	Mismatch of respective carrier alliances between FOP and IASL holders. Lack of interest by FOP and/or IASL holders.	Continuous: Anchor initiative in updated Civil Aviation Policy.

Table 6-15: Action 15 -Cargo Security

ACTION - 15					
Monitor, control and maintain the application of cargo security measures at all airports with cargo operations, especially the three primary airports that currently serve regional and international markets.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Review compliance with international air cargo security measures. Support airports to comply with current air cargo security requirements and assist with implementation of future air cargo security requirements. Special attention is required for the air cargo security of Bypass Facilities.	No extraordinary resourcing is required for the work of the DOT or its Entities. The DOT is to consider the appointment of an airfreight specialist to assist them in reviewing the performance and plans.	The DOT will provide leadership and guidance in the review of air cargo security requirements and to make recommendations for future changes. Ongoing compliance monitoring by DOT entities (ATNS and SACAA). Airport owners, operators and developers to implement associated enhancements.	Obtain current airport air cargo security provisions, and match with international requirements. Provide guidance to airport owners and operators to improve air security equipment and procedures.	Limited risks given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such.	Short term Review and make recommendations to improve air cargo security at airports. Medium term Provide ongoing monitoring and guidance to airports in terms of air cargo security.

Table 6-16: Action 16 - Establish "Green Channels"

ACTION - 16					
Establish "green channels" that align with countries that have more onerous security and screening standards (such as USA and EU) to facilitate the expedited movement of cargo meeting these standards.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Identification of opportunities for green channels to strengthen the processing of cargo at airports. Implementation of actions as identified in the Strategy for airfreight green channels at air cargo facilities.	No extraordinary resourcing is required for the work of the DOT or its Entities.	Airport owners, operators and developers are to implement associated enhancements in compliance with SACAA guidelines and best practices for airfreight green channels at air cargo facilities.	The Strategy provides the framework for enhancements such as green channels.	Limited risks, given that upgrade and development plans will need to be self-funding as per the Strategy. No consideration is given to government financing of such.	Short term: Airport owners/operators identify green channel opportunities. Medium term: Implement viable green channels.

Table 6-17: Action 17 - International Air Services Council

ACTION - 17					
The IASC is to be supported in its mandate – including further requirements under activities (Table 6-12: Action 12 - Long-Haul Air Service Rights, Table 6-13: Action 13 - Granting of 5th Freedoms, Table 6-14: Action 14 - Airline Cooperation) – by improving its information technology, administrative and research capacity.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Turnaround time of IASL and FOP (especially for freight-related services) applications. Fast-tracked application procedures for seasonal and emergency freight services by FOP holders.	ASLC, with DOT support, is to strengthen its operational capacity (to be determined in a more detailed functional review, but affected exporters are likely to provide support where required).	DOT to carry out functional review of IASC and quantify additional resource needs. DOT to engage other government agencies and departments (OGDAs) to remedy causes of delays in their approvals as required by the IASC.	Forum of IASC-related stakeholders, including OGDAs and key exporting sectors.	Delays by OGDAs in amending their own processes, e.g. possible legal changes required.	Short term: IASC needs assessment to commence immediately, and improved processing capacity is to be installed.

Table 6-18: Action 18 - Airfreight Data

ACTION - 18					
Based on the ICAO form_C, all commercial operators at South African airports (domestic and international) should be obliged to report annually on airfreight capacity and utilisation. These reports are submitted to the DOT; the reports need to be anonymised and made available on the DOT website. Further, a consolidated annual statistical summation of the individual reports should be published on the DOT website.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Notice to be issued regarding airfreight data reporting requirements. Returns received from licenced operators, processed and published.	No additional DOT resources are required. Existing internal departmental and IASC resources will prepare and issue the notice and process and publish the returns.	IASC to publish the notice for freight data returns as a condition of licences. DOT to receive, process and publish the return data on the departmental website.	Existing notification channels are to be used to inform licence holders of the additional obligations (existing and new applicants).	Minimum risks are expected given that the data is already required for international operations by ICAO and is anonymised to protect the specific commercial interests of operators. Further, the data reporting burden is limited, given the annual return cycle.	Short-term

Table 6-19: Action 19 - Airfreight in Emergency Situations

ACTION - 19					
The promotion of the management of airfreight necessities associated with emergency situations as part of the South African disaster management framework and not as part of ongoing commercial airfreight operations. This is to be implemented by the DOT through the introduction of emergency airfreight on the agenda of the disaster management system structures.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Introduction of emergency airfreight on the agenda of the disaster management system structures. Communication and coordination with key departments on the role of airfreight in disaster situations (e.g. the Department of Defence).	No additional resources are needed for this action.	Staff of national and provincial transport departments.	Guidance to be provided to departmental representatives regarding this obligation, as set out in the Strategy. Information to be shared with the Department of Defence regarding the strategic approach for their awareness.	Limited risks, given the established disaster management structures and protocols and participation of the DOT in the system.	Short-term

Table 6-20: Action 20 - Coordination

ACTION - 20					
Improved coordination and representativity of stakeholders in airfreight to be implemented through the establishment of a stakeholder forum of Government stakeholders and industry representative bodies overseen by the DOT to coordinate airfreight interests and perspectives.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Stakeholder forum established and meets periodically.	DOT and its Entities to utilise existing resources.	Leadership for this action is to be provided by the DOT, including invitations to the forum, the agenda and frequency of meetings. DOT is to host the airfreight forum.	The purpose of and establishment of arrangements for the forum to be communicated to the airfreight industry by circulation to the known stakeholders and industry associations and placed on the DOT website for general access.	Limited risks, given that industry associations will be included, thus minimising the dominance of individual commercial interests on the airfreight agenda.	Short Term: The establishment actions. Annual meetings.

Table 6-21: Action 21 - Drone/UAV Risk Classification

ACTION - 21					
Following international practice, redefine types of drone operation based on inherent risks of the aircraft and operations involved, specifically to enable Category B "specific" operations (including BVLOS, operations over people, and transporting of objects).					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Re-categorised drone operations in terms of JARUS categories A, B & C.	No additional resources required by the DOT or its entities. Largely an administrative intervention, making modifications to material already developed. Consideration is to be given to the appointment of specialists to assist.	CAA to lead the initiative in cooperation with ATNS.	Drone forum to be established, involving CAA, ATNS, OGDAs, DOT, registered drone operators, and drone associations (CUAASA, PDASA, etc.).	The aim of the initiative is to better align the type of regulation with the nature of the applicable drone operating risk.	Continuous: Update of relevant parts of CARs required first. Re-registration of operations, pilots, aircraft, etc., to follow.

Table 6-22: Action 22 - Drone/UAV Airspace

ACTION - 22					
In principle, drone corridors should be established where justified – segregated from but coordinated with and overseen by standard air traffic management arrangements. The process for creating such corridors should be simplified to be more responsive to users' requirements. The development of the drone innovation corridors should proceed as a testing ground for such arrangements and procedures.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Criteria for the establishment of drone corridors approved. Procedure for application and approval of drone corridors available.	No additional resources required by the DOT or its entities. Ongoing ATNS corridor design and testing to be concluded within designated budget. Application, approval and related corridor operating costs to be recovered from applicants/users. Consideration is to be given to the appointment of specialists to assist.	ATNS is to continue leading the drone corridor initiative.	Drone forum (Activity Table 6-21: Action 21 - Drone/UAV Risk Classification) to be involved.	Hasty operationalisation with a potential threat to non-drone civil aviation. Discouragement of the drone industry by protracted investigation and rigid procedures.	Continuous: Lower-risk corridors (motivated by users) to be expedited and included in "innovation" cases. Learnings to be codified in relevant regulations and technical standards in the short to medium term.

Table 6-23: Action 23 - Drone/UAV Registration

ACTION - 23					
To ensure controlled access and distribution of RPAS, establish an electronic register for all RPAS distributed or sold in South Africa. In addition, all RPAS of determined minimum specifications must be installed with a device to monitor and track it.					
Key Performance Area	**Resourcing**	**Roles and Responsibilities**	**Communications and Stakeholder Engagement**	**Risks**	**Timeframes**
Drone register established and activated.	No additional resources required by the DOT or its entities. Creation and activation of register with associated communication/ marketing funded by DOT budget. Ongoing costs to be funded by drone registration and renewal fees. Consideration is to be given to the appointment of specialists to assist.	CAA to lead initiative and identify minimum specifications for qualifying drones (coordinated with risk-based approach in Activity Table 6-21: Action 21 - Drone/UAV Risk Classification). CAA to design, create, house and maintain drone register. DOT to promulgate regulations regarding application for registration and record-keeping, including registration and renewal fees payable, as well as consequences of infringements (including penalties).	Engagement with all registered drone operators. Advertisement of obligations on drone vendors. Sensitisation of Customs/SARS, SABS and relevant OGDAs.	Public ignorance of requirements. Evasion and complexity of enforcing registration (penalties must disincentivise non-compliance).	Continuous: Promulgation of governing regulations is on critical path. Creation of register (but not activation) can commence already.

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