



Five Assumptions African Aviation Needs to Rethink

The risks that matter most are not always the ones we can see.

Victoria Lebogang Mofolo | Founder and Principal Consultant

WHAT ARE WE ASSUMING WILL WORK?

Africa's aviation ambitions are significant. Across the continent, aviation systems are being modernised, connectivity is expanding, digital technologies are becoming more deeply embedded in operations, and regional integration continues to shape the future of air transport.

Much of the conversation understandably focuses on what needs to be built, upgraded, connected or digitised. But perhaps another question deserves equal attention: what are we assuming will work?

Complex aviation systems depend on hundreds of assumptions every day. We assume information is reliable. We assume critical infrastructure will remain available. We assume people will know what to do when normal operating conditions change. We assume responsibilities are understood across organisational boundaries. We assume that because a system is technically available, the operation it supports remains dependable.

Most of the time, those assumptions hold. The challenge begins when they do not.

For aviation leaders, regulators, infrastructure operators and technology decision-makers, resilience may increasingly depend on identifying those assumptions before disruption exposes them. Here are five worth reconsidering.

WHAT ARE WE ASSUMING WILL WORK?

Five assumptions worth testing before disruption tests them for us.

01	TECHNOLOGY WORKING	Service dependable?
02	MODERNISATION	Capability sustained?
03	RISK OWNERSHIP	Interfaces governed?
04	CONTINGENCY PLAN	Readiness demonstrated?
05	RESILIENCE LATER	Too late?

VLM INSIGHT | FROM ASSUMPTIONS TO EVIDENCE

ASSUMPTION 1

If the technology is working, the service is working.

A system can be technically available and still fail to provide the level of operational confidence required by the people depending on it.

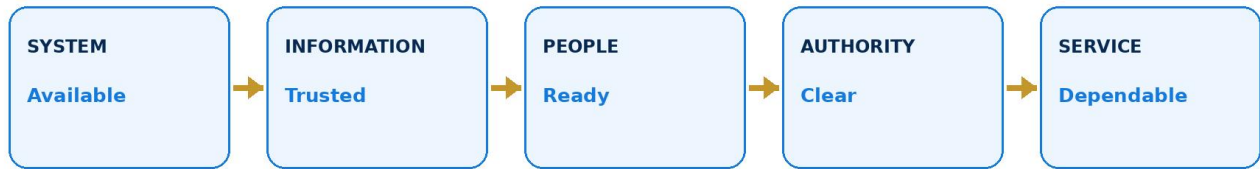
Consider surveillance. The presence of data does not automatically establish confidence in that data. Availability, integrity, timeliness, validation and the operational context in which information is interpreted all matter.

The same principle applies beyond surveillance. A communications platform may be functioning while connectivity elsewhere is degraded. An airport system may remain online while an external dependency limits the service it supports. A digital platform may technically be available while users no longer have sufficient confidence in the information it provides.

As aviation becomes more dependent on integrated information and technology, measuring whether equipment is “up” may tell only part of the story. The more important question may be whether the operation can still make safe, timely and trusted decisions.

A SYSTEM CAN BE 'UP' — AND THE OPERATION STILL BE EXPOSED

Dependability is created across a chain, not by one technical status indicator.



TECHNICAL AVAILABILITY ≠ OPERATIONAL ASSURANCE

The real test: can the operation still make safe, timely and trusted decisions?

TECHNICAL AVAILABILITY IS NOT ALWAYS THE SAME AS OPERATIONAL ASSURANCE.

ASSUMPTION 2

Modernisation automatically creates capability.

New technology can create enormous operational value. It can also create new dependencies.

Every new aviation capability requires an environment capable of sustaining it: maintenance arrangements, specialist competence, cybersecurity, energy, telecommunications, software support, supply chains, regulatory oversight, lifecycle funding and operational procedures.

The acquisition of technology therefore does not represent the end of modernisation. In many respects, it is the beginning.

This matters when systems remain in service for many years while the technologies, suppliers, threats and skills around them continue to change. The strategic question is not simply whether an organisation can acquire a capability, but whether it can sustain the conditions that make that capability dependable throughout its operational life.

Modernisation without sustained institutional capability can leave organisations with sophisticated assets but increasingly fragile dependencies.

CAN WE SUSTAIN THE CONDITIONS THAT MAKE THIS CAPABILITY DEPENDABLE?

ASSUMPTION 3

Someone already owns the risk.

Aviation is built around specialised organisations, functions and responsibilities. But disruption does not always respect those boundaries.

A single operational service may depend simultaneously on an air navigation service provider, airport operator, telecommunications provider, energy supplier, technology vendor, regulator and other external partners.

When everything works, those boundaries may appear clear. When something fails, a more difficult question emerges: who owns the consequence when the risk sits between organisations?

This is where resilience becomes a governance issue rather than simply a technical one. Responsibility for equipment may be defined. Responsibility for the wider operational dependency may be less obvious.

Strong governance therefore requires clarity about decision rights, escalation, information sharing and accountability when disruption crosses technical or institutional boundaries. The gaps between organisations can sometimes matter as much as the systems within them.

WHO OWNS THE CONSEQUENCE WHEN THE RISK SITS BETWEEN ORGANISATIONS?

ASSUMPTION 4

A contingency plan means we are prepared.

Most safety-critical organisations have contingency arrangements. The existence of a plan, however, does not demonstrate that the organisation can execute it effectively.

Real disruption introduces uncertainty. Information may be incomplete. Multiple systems may be affected simultaneously. External support may not be immediately available. Staff may have to make decisions under conditions they rarely encounter during normal operations.

Preparedness therefore has to extend beyond documentation. People need to understand what must be protected first. They need to know who has authority to make decisions. Degraded operating modes must be understood and practicable. Dependencies need to be visible.

Organisations also need ways of determining not only when operations can resume, but whether recovery has actually restored an acceptable level of confidence.

HAVE WE DEMONSTRATED THAT WE CAN OPERATE WHEN NORMAL ASSUMPTIONS NO LONGER HOLD?

ASSUMPTION 5

Resilience can be added later.

This may be the most expensive assumption of all.

Decisions made during procurement, system design, contracting, infrastructure development and institutional planning can determine resilience years before a disruption occurs.

Supplier dependencies are created. Interfaces are designed. Maintenance models are established. Skills requirements emerge. Data relationships are formed. Responsibilities are divided. Budgets establish what will — and will not — be sustainable.

Trying to address these issues only after a weakness has been exposed can be significantly more difficult than considering them when the capability is being designed or acquired.

Resilience therefore should not sit at the end of the conversation as another compliance requirement. It belongs much earlier — in the questions asked before investment decisions are finalised.

THE MOST EXPENSIVE ASSUMPTION MAY BE THE ONE WE NEVER QUESTIONED.

FROM ASSUMPTIONS TO EVIDENCE

None of these assumptions means that African aviation is failing. They point instead to an opportunity.

As aviation systems across the continent continue to evolve, there is an opportunity to become more deliberate about understanding the conditions on which operational performance depends. That means looking beyond individual technologies and asking how infrastructure, people, governance, operations and information interact.

It also means moving from assumed preparedness toward evidence of preparedness.

- **Can critical services continue under degraded conditions?**
- **Are operational dependencies understood?**
- **Are decision rights clear?**
- **Can organisations recognise when confidence in information has changed?**
- **Can people act effectively when normal procedures no longer fit the situation?**
- **When operations recover, how do we know that recovery is complete?**

These are not questions for cybersecurity teams alone. They are leadership questions. They are engineering questions. They are governance questions. They are operational questions. And increasingly, they are strategic questions about the future of African aviation.

Because sometimes the greatest vulnerability is not the failure we have already planned for.

IT IS THE ASSUMPTION WE NEVER THOUGHT TO QUESTION.

Why this matters now

Continental aviation planning is already looking beyond isolated assets toward harmonised, interoperable and integrated air navigation infrastructure. ICAO's 2023 Aviation Infrastructure Gap Analysis for Africa connects future traffic growth and SAATM implementation with coordinated infrastructure, procedures, regulation and technology. The opportunity is therefore not simply to modernise, but to make the assumptions behind modernisation visible and testable.

About VLM Aviation Infrastructure Advisory

VLM Aviation Infrastructure Advisory works at the intersection of aviation engineering, critical infrastructure resilience, cybersecurity, governance and emerging technology. Through research, advisory work and the



African Aviation Resilience Initiative (AARI), VLM is developing practical approaches for understanding and strengthening resilience across Africa's evolving aviation environment.

