



Keynote Address by the Deputy Minister of Transport, Honourable Ms Sindisiwe Chikunga (MP) at the *Next Generation Aviation Professionals* Global Summit, in Shenzhen, China, on 12-13 December 2018

TOPIC: *WHAT DO WE NEED TO KNOW FOR THE 21ST CENTURY?*

INTRODUCTION

It is a privilege and an honour to address you today at this highly relevant Summit of aviation specialists, managers and all the young aviation enthusiasts in attendance here today and participating in the Model ICAO Forum.

The invitation is indeed a great honour Secretary General and the rest of the ICAO leadership. Thank you.

I must also give our warmest gratitude from South Africa for the welcome we have received among the people of Shenzhen, the people of China,

But before I proceed, Programme Director, we also wish to sincerely commend ICAO for the opportunities that shall be enhanced and nurtured through the Model ICAO Forum.

ICAO's involvement of young people in finding aviation solutions is a gigantic step forward.

It is these very young delegates that shall contribute to some of the answers to the theme question of the day, which reads:

“What do we need to know for the 21st century?”

Or we might have been asked whether we have a sustainable skills pipeline of aviation professionals with the tools suited to maximising opportunities or to mitigating the challenges we are likely to face in future.

This has implications for development of human capital solutions at the centre of which must be a sufficient corpse of Next Generation of Aviation Professionals adequately and appropriately skilled to resolve the opportunities, challenges and demands of the future.

It is my hope that with ideas shared among this generational mix of delegates over the duration of this Summit we shall surely plot a brighter path ahead of us.

We meet here for two reasons amongst others: that is, to spell out the opportunities lying ahead of us for the development of air transport services and to devise globally acceptable means to resolve obstacles that may arise.

We believe that partnerships across all sectors of our societies are imperative if we are to realise meaningful outcomes from initiatives that will emanate from the discussions this week.

Such partnerships lead to informed decisions, and enable the pooling of much-needed resources including research based knowledge, capital and human resources.

WHAT DO WE NEED TO KNOW FOR THE 21ST CENTURY?

Programme Director, so **what is it that we need to know in order for our industry to thrive in the 21st century and beyond?**

1. Innovation is key in aviation

The first thing we need to know is what is aptly articulated in a quote made famous by Bill Keene, which says: “Yesterday is history, today is a gift, and tomorrow is a mystery.”

In other words, we cannot be certain about what tomorrow is going to bring except that things would somehow have changed.

Agility, flexibility and innovation have always been at the core of the sustainability of aviation as innovation allows the sector to continuously re-invent and modernise its technologies.

To drive the point home, ladies and gentlemen, perhaps let us pause for a minute and look back at the history of flight, when mankind decided to take to the skies with a powered mechanical device.

Through our ingenuity as humanity, 42,000 days, or 115 years ago the Wright brothers made four brief, yet gritty, flights at Kitty Hawk conquering vertical distance convincingly for the first time by soaring up into the skies.

Now, fast forward that by almost 1,380 months and we currently have aircraft that travel at supersonic speed.

Human innovation drives aviation development and will continue long after our generation has retired and we have laid down our aviator sunglasses.

Ladies and gentlemen, it is the very innovative nature of aviation that creates increasing demand for air transport services. Similarly, it is the very same demand that brings socio economic benefits.

Innovation improves safety and security and the efficiencies required, while consistently providing opportunity for entry by new participants.

Innovation and passengers

I wish that we approach the matter holistically. Not only should we consider innovation in areas of aviation safety and security, we should also consider innovation with regard to associated industries, such as those affecting facilitation.

To put this in perspective let me ask this question- what is the value of developing the fastest aircraft if the passengers are going to be stuck at immigration, due to the use of archaic systems?

The passenger must remain at the core of all innovation meant for the sector and the skills acquired in line with innovation, must finally be geared towards passenger needs of the 21st century.

2. Fourth Industrial Revolution

It is the very inventiveness and innovative spirit of humanity that has been the source of the 4th Industrial Revolution gripping the world today, characterised by the fusion of data-driven technologies.

We are however sensitised to the unintended consequences of the 4th Industrial Revolution, including the seeming unguarded proliferation of remotely piloted aircrafts commonly referred to as drones or the displacement of human action by Artificial Intelligence (AI).

These have implications for the stability of global aviation safety and security.

This is notwithstanding opportunities in the transportation of critically needed goods as with the adaptation of drones for the delivery of medicines to remote areas unreachable by land transport.

We are also aware of the impacts of Artificial Intelligence in the displacement of human action and its impending downgrade of certain human capacities.

This calls for increased retraining and re-skilling of personnel for alignment with new technologies.

We need to be prepared for a future in which the familiar human phrase used by the cockpit crew of “sit back, relax, and enjoy the flight” will not only be directed to passengers, but will be applicable to the flight crew as well, guided by artificial intelligence.

Impact on human capital

On the other hand ladies and gentlemen, more and more organisations, especially in the technological fields, are finding it hard to attract entry-level employees with the relevant skills and so it is with aviation.

You would perhaps agree that the shortage of skills is no longer a looming crisis but a glaring reality.

Programme Director, as we reflect on the issue of skills, it is also important to take note of the following key pointers:

1. In order to succeed in the 21st Century, everyone needs to collaborate and connect digitally.
2. We need to also acknowledge that an industrial-age curriculum will not fully equip future aviators, who will have to work and thrive in a data- and information- driven society and work environment.
3. The fast-changing job market may render many skills irrelevant; begging the question: are the current education systems aligned to the new technological advances?
4. Have we identified what skills the next generation of aviation professionals will need to meet the demands brought by aviation technological needs?
5. This era of unprecedented change in a Volatile, Uncertain, Complex and Ambiguous (VUCA) world requires agility and speed in order for the aviation industry to remain competitive advantage.
6. A good intergenerational balance is also important, as millennials need mentors, and organisations need to retain organizational memory and experience for consistency and sustainability.

7. The next generation of professionals is different from you and me, and I may add that they are different from all generations before us.

One Jay Gilbert once wrote that millennials are skilled in technology, are able to multi-task, have plenty of energy, and are self-confident.

Moreover, millennials are inspired by challenges, but do value a work-life balance. In fact, they regard work-life balance as very important.

They value experiences in all aspects of their lives, and not just careers; meaning if the work environment does not leave them fulfilled, they will walk away.

So, as in most sectors, this sector will need to make major changes in its Human Capital Management in order to attract and retain talent.

We commend ICAO for publishing a forecast to assist States to quantify human resource requirements; this indicates that the industry will need:

- 620 thousand pilots (67 new pilots per day for aircraft with greater than 100 seats);
- 125 thousand air traffic controllers (13 new ATC's a day); and
- 1.3 million aircraft maintenance personnel by 2036.

In IATA's 2018 edition of "The Future of Airline Industry", it is stated that the new era brings different opportunities to the nature and environment of work with a shift towards on-demand work enabled by new technologies and the ability for professionals to work where and when they want.

It is therefore clear that the jobs in the aviation sector are rapidly evolving. This means States would have to add technology related educational systems to infrastructure development.

Furthermore, Programme Director, we are taking note of developments around smart airplanes that can self-diagnose and repair during a flight; and that can also notice and compensate for pilot stress and fatigue.

There has also been talk of systems for achieving the correct aircraft response to the pilot's commands, which begs the following questions:

- Will our pilots be mere technology systems monitors, just focused on monitoring the performance of the aircraft, with limited human intervention?
- Will our maintenance engineers be relegated to being parts fitters due to aircraft self-diagnosis, self-repair, and apply required solutions?
- Would there be a need for warm-body air traffic controlling or will we only need someone to punch in the data and let the data systems intelligence and the aircraft systems determine the best flight path?

So, very soon, auto-piloting will become a real thing, and not only in relation to certain aspects of the journey, but the entire flight; from the time the engine starts until the aircraft is parked and the engine is switched off.

SOME SOLUTIONS TO ADDRESS NGAP CHALLENGES!

Ladies and gentlemen, as I alluded earlier, we know a bit about what opportunities and challenges we will face in the near future, but there is still a huge grey area that requires precise solutions, or at least educated and well-researched guesses and choices.

SOME KEY CONSIDERATIONS

We must ensure that policy is aligned to the efforts of those that are trying to develop the industry and not become a hindrance to advancement.

- We cannot hope to entice the youth to aviation when they are about to enter the job market. **We need to start early.**

- In order to ensure a consistent pipeline of human capital, we need to make aviation as well as **STEM** (i.e. Science, Technology, Engineering and Mathematics) as fashionable and exciting as possible, from an early age at school foundation phases.

If we do not, we will not win the youth over, as aviation has to compete with other career fields that are as exciting and fulfilling. **Planting a seed earlier**, will position aviation as a sought-after industry for young job seekers.

We have to start interventions at school level to excite learners about aviation as a career of choice, such as with a Robotics Academy for school learners.

- Educational institutions will continue to be the repository of knowledge for our societies. However, they need to realise that the **new challenges necessitate new and innovative approaches, given that the new generation constitutes a very different type of student.**

Unfortunately they can't do it alone; therefore collaboration between governments, industries and academia / education institutions needs to be facilitated with governments at the helm.

Education systems as a whole will need to be reviewed so that they are more flexible yet focused and address specific training needs for a highly-skilled workforce, of creative, and life-long learning individuals.

- **The era of organisations expecting employees to come to work will soon require a thorough review.**

There will be more emphasis on virtual teams, with organisations interested in getting the right skills and use technology to connect to required skills.

This would mean that employees would be scattered all over the world and using technology to connect and work together.

- Programme Director, as we look at what we need to know in the 21st century, **DIVERSITY remains key!** This became very evident at the inaugural Global Aviation Gender Summit in South Africa in August.

Speaker after speaker indicated the need for gender equity and diversity of gender and age for greater productivity.

Therefore efforts towards creating the next generation of aviation professionals and ensuring gender diversity cannot be mutually exclusive.

Perhaps we should challenge ourselves at this juncture and pause to ask the question: **what is my organisation doing to ensure diversity?!**

- We cannot talk about the 21st century without reflecting on some **barriers that will inhibit us from achieving what we are seeking to achieve.**

One of the challenges of aviation is the cost of training aviators, especially pilots, whether we are talking numbers or the different skills we require. Many are denied opportunities by extremely high costs.

Because of the difficulty to control the output of privately-owned providers of training services interested solely in profit, States need to facilitate accessibility by working with Regulators and the industry at large.

- In **South Africa, through the Civil Aviation Authority, we are funding students** ranging from pilots, aeronautical engineers to mechanical engineers; however, this is still a drop in the ocean.

We need to do more, hence it's important to galvanise support from all stakeholders including collaboration between states.

We need, through PPPs to start regional aviation academies with Universities so that we sustainably educate and train the next aviation specialists (pilot, aircraft engineers, flight managers etc) to meet the Fourth Industrial revolution (4IR) opportunities for developing countries.

- Both industry and Government need to work together to **fund aviation training through instruments like bursaries**, etc.

In addition, our collaboration should include the need to **exploit State-to-State agreements** and break down borders and share resources as well as the load of training provision at regional levels and internationally.

There's no sector that can remain competitive without **strong leadership**. The aviation sector also needs to build aviation leaders of the 21st century who possess knowledge of a dynamic sector.

- **E-learning solutions** should be considered to increase the accessibility of aviation careers.
- Outreach programmes should be run across all sectors of society in every State in order to demystify aviation as an elite preserve.

CONCLUSION AND SUMMARY OF KEY POINTS

Programme Director,

Because socio-economic development depends on the development of the aviation sector; therefore, this calls for states to build not only the hard infrastructure, but with equal measure to develop the softer capacities for the 21st century and beyond.

As States we need to reflect on how we regulate the industry and to what extent the regulations enable learning and innovation in this fast-changing environment.

On the other hand we are bound to ask ourselves: If cyber risks continue to threaten the sector more prominently than terror attacks, what skills should we impart to the next generation professionals and what institutions are there to educate and train against aviation cybercrimes?

The collaboration we want leaves no country behind not only in terms of compliance but also in relation to the development of the Next Generation of Aviation Professionals.

Programme Director, I wish that at the end of the Summit we are able to draft an action plan on how we can enhance and increase the human capital development of next generation aviation professionals. That should be one of our Legacy Projects of ICAO. South Africa is committed to this.

Together we can do more.

I THANK YOU....