

## **Digitalization, AI in Aviation and the Human Factor**

Presented by AFRAA



## **Introduction**

The African continent is a very interesting environment for the development and implementation of industry specific technology, no matter what industry one is interested in. On the one end Africa has been labeled as the least developed continent and the infrastructure and technology across almost every sector lags behind the global trends. And yet, when one considers that Africa leads the world in terms of adoption and utilisation of mobile payment platforms, one then sees a completely different perspective of this vast continent. Telephony and technology have been embraced so much that, in MPesa, Africa has the making of a world beating mobile payment platform.

Africa's technology, and by extension its digitalisation focus is bound to provide the required support structure, indeed the foundation for the infrastructure development for the continent. This attention has led to the increasing policy pronouncements at different tiers of government across the continent.

AFRAA believes that the opportunities for the aviation industry in Africa to be part of the policy development is in line with the requirements for the industry at large. This will enable the entire aviation industry to benefit from the ever developing and dynamic digitalisation platform.

The dichotomy of the African continent is more pronounced with the contradiction in that while telephony penetration is at a very high level, access to the internet per capita is at the lowest level. This is due to the fact that the traditional telephone operators mostly owned and managed by the national governments have not been able to keep abreast with the developments in the ICT sector. That lack of investment in this field led to the burgeoning mobile telephony industry in Africa becoming more than a force to reckon with.

AFRAA therefore encourages its member airlines to embrace the use of Artificial Intelligence as part of their digitalisation strategies in order for the airlines to keep up with the demands of their customers. In reality, digitalization has become inseparable from the Sustainable Development Goals of the United Nations in that for nations to be able to provide the basic human rights they need to develop at the required pace and levels in digitalization.

According to Ann Therese Ndong-Jatta, the Director of the UNESCO Regional Office for Eastern Africa, "More Africans need digital skills to enable them to use Artificial Intelligence. To really benefit, Africa cannot only be user of Artificial Intelligence created elsewhere, but must be a producer of Artificial Intelligence created locally. They need the skills and capabilities within Africa to do this themselves"

## **Sustainable growth**

The aviation industry has been at the forefront of innovation and technology and this continues to be one of the hallmarks of the industry. In Africa there is a need to ensure that the industry keeps

pace with the developments worldwide and remains focused on the sustainability of the environment. Cost is a major factor and must be factored in all the decisions made with respect to the growth of the industry. The digital landscape offers the opportunity for the industry to adopt policies that are geared towards maintaining sustainability. This implies that the human capital development aspects must be at the forefront in order to ensure that there is a correlation between the growth in the industry and the development in the human capital. The sustainability will be ensured by strict adherence to the United Nations sustainable development goals, particularly the following:

Goal 4 – Quality education

Goal 8 – Decent work and economic growth Goal 9 – Industry, Innovation and Infrastructure

These goals are interdependent to the extent that any action or inaction on the one has a direct impact on the other goals. As an airline association, AFRAA chooses to focus on these three goals which can be referred to as fundamental to the growth and development of the aviation industry in Africa.

### **Digital innovation**

There has been a sustained focus on innovation as a prerequisite for organization and communities to grow, and this has been accepted as a must in most environments. In the aviation industry in Africa, there is a noticeable need for the focus to go beyond mere innovation and to become specific to digital innovation. The digital space is where AFRAA believes its member airlines will be able to establish themselves a sustainable competitive advantage. The fact that Africa is not far behind the rest of the world makes it affordable for the airlines to adopt the digital evolution and embrace the 4<sup>th</sup> Industrial Revolution for its own benefit at affordable costs. The biggest advantage being that with the leading role being played by AFRAA where it seeks cooperation and collaboration with other organisations, the learning and adoption costs are minimized and the implementation time-frames are substantially shortened.

The main areas of need for African digitalization are driven by the understanding that the automation of processes and business models requires investment in the appropriate technology and access to information in order to enable appropriately trained people at all levels of the business. In view of the requirements for digitalization, it goes without saying that the transformation of organisations to achieve any level of digitalization is a transformation that requires investment in time, people and financial resources. This transformation requires courage on the part of the investors, the management of the company, the people in the company and the end users or customers of the business. Not only is there a requirement for investment, but there is a real danger that the business can end up losing its customers due to dysfunctional processes and disgruntled employees.

It is therefore important that a systematic process is established and adhered to for the successful implementation of digitalization in airlines.

### **Cost and Complexity challenges**

Airlines do not have to contend with the potential challenges of dysfunctional systems and processes, given the fact that an airline seat is inarguably one of the most perishable commodities which renders airlines susceptible to the slightest shifts in market demand.

AFRAA believes that airlines can start by ensuring that their organizational objectives of digitalization are based on specific outcomes so that their investments are channeled to the appropriate desired outcomes. This begins with the airlines modernising their existing products and services using digital processes. This would entail revision and re-alignment of corporate strategies to ensure that the resources are channeled to the specific areas of the business processes that need to be transformed. Quite a number of airline functions already incorporate digital functions even if it is at different levels, and these functions include flight operations, aircraft maintenance, flight planning, scheduling, revenue management and pricing to name a few. Airlines are served by a plethora of service providers most of whom are very advanced in their digitalization strategies. This makes for a compelling case for airlines to enter into strategic relationships with these service providers who will be able to customize solutions for airlines. Airlines should be able to secure professional assistance and collaboration from these innovative and creative partners so that they can actualise their digital transformation aspirations cost effectively.

### **Dynamics of uncertainty**

The much spoken about concept of disruption is very much a reality in the aviation industry and it continues to be a major cause of uncertainty for many airlines. Technology and digitalization are at the forefront of disruption in the aviation industry because they provide uncertainty on the one end and yet they provide opportunities on the other end. It is therefore very important that the airlines in Africa embrace these disruptions and make it a mission critical requirement to know and understand the extent of the opportunities and benefits of technology at their disposal. This knowledge will enable the airlines to make informed decisions on the investments required in order for them to leverage on the technology and digitalization. Equally important is for the airlines to have a very good understanding of the possible impact of the digitalization and technology that they seek to bring into their business. This approach enables the airlines to manage the uncertainty of digitalization by being able to craft appropriate communication strategies for their various audiences at appropriate times and to utilize the most effective channels of communication.

### **Impact of digitalization – main areas**

Airlines are subjected to the impact of digitalization in every area of their businesses due to the multiplicity of technologies being used and being developed. It is correct to say that there is a pipe of continuous production and roll out of technologies. Every business activity of an airline continues to be under threat of evolving technologies, be it Human Resources, ICT, Procurement, flight operations, MRO, Sales and Marketing, Finance, and Customer Experience are already being managed in a digitalization process in one way or the other.

#### **i) Customer Experience:**

Robotics is the tool that readily lends itself to be deployed mostly in the customer facing environments because of the ease of integration and non-intrusive nature of the interactions with customers. It is important to emphasise that the legal aspects have been taken care of very quickly with the implementation of legislation such as the General Data Protection Regulation (GDPR) in Europe. Where customer information or data is stored, the customer's consent has to be obtained if the business intends to use the said information. Artificial Intelligence applications have multiplied over a very short period of time to the extent that few interactions between an airline and its customer are not effected through Artificial Intelligence.

## ii) Flight Performance

Airlines have been investigating the opportunities for applying technology with the objective of efficiently and effectively performing their operations. Digitalization has enabled the implementation of processes that have taken out substantial costs from airlines without compromising the safety of their operations. Digitalization is gaining importance by enabling the airlines to implement and monitor effective cost containment initiatives in their businesses. At the same time the airlines have been able to reduce their impact on the environment by virtue of the technology enabled planning and operations efficiencies. The sustainable environment has meant reduced costs for the airlines, resulting in a win-win situation.

## iii) Maintenance, Repair & Overhaul

This area of the airline business has witnessed the bulk of the silent revolution of digitalization in that the amount of new technology rolled out has been phenomenal and yet has almost gone unnoticed. Artificial Intelligence applications enable airlines through predictive maintenance schedules as well as real time aircraft operation observation to schedule their maintenance schedules appropriately. This enables the airlines to minimize the downtime and schedule interruptions are minimized. The AFRAA team supports the adoption of these technologies and encourages the digitalization of the MRO through knowledge sharing.

## iv) Sales, Marketing, Pricing

Airlines in Africa face a daunting task of fighting for a fair share of the market and the Sales environment is considered the make and break arena. Artificial Intelligence and digitalization are enabling the early adopters to plan their strategies and implement their tactics as efficiently and effectively as possible. Digitalization has enabled airlines on the continent to embrace the concept of ancillary revenue generation and subsidiary gateways. New payment platforms have been incorporated into the airline offering for the benefit of customers who are now able to effect payment from their handheld mobile devices as well as in retail outlets in shopping malls. By far the biggest positive development has been the mobile money payment platform which enables customers to perform various functions on their mobile phones as they interact with the airlines.

## Challenges

In as much as there is optimism and confidence in the digitalization of business processes amongst African airlines, there is the reality of challenges that need to be addressed effectively in order for the gains of digitalization to be maintained.

## Costs

First and foremost are the crippling costs of financing operations. It is not a secret that most African airlines are struggling financially due to various reasons. The cost of operations is very high on the continent and fuel alone contributes up to 35% of these costs. AFRAA is tirelessly working in conjunction with other stakeholders to address the fuel costs. AFRAA's fuel project contributes a significant amount of bottom line savings to the AFRAA member airlines that participate in the project. Digitalisation in the operations environment complements these efforts and AFRAA encourages its member airlines to evaluate the available technologies and deploy the suitable ones for their own benefit.

AFRAA encourages its members to embrace the concept of digitalization even as the costs in Africa are still much higher than those applicable in other areas of the world. The initial costs of digitalization should be considered as a necessary investment because at the end of the day the improvement in the overall business performance will be amortized in due course. The approach taken by most airlines of going it alone can be quite prohibitive given that they are cash strapped at most times, hence the encouragement from various AFRAA initiatives where collaboration and cooperation are required so as to bring the costs down to manageable levels.

### **Infrastructure**

Technology is readily available due to the number of vendors that have successfully established their operations on the continent. However, the not so up to date infrastructure poses a major concern to the airlines and results in delayed deployment of the technology. Digitalisation efforts are held back until such time as adequate and appropriate infrastructure is in place. This delay in the implementation of the much needed digitalization across the entire aviation landscape leads to the unavailability of technology that would in effect make the operations of airlines minimally optimal at the best and unprofitable at the worst. It is important to reiterate that digitalization is in most cases inseparable from technology, the bedrock on which most of the digitalization processes are based.

### **Operations and Customer Experience**

Digitalisation brings with it an exciting array of opportunities for airlines to meet and exceed the expectations of their customers. Airlines and airports are already embracing Radio Frequency Identification (RFID) for baggage handling in order to enhance the baggage delivery for their customers. The airlines are demanding more technology based navigation services through integrated product innovation amongst the original equipment manufacturers, airlines, and airspace management authorities so as to achieve the desired cost and operational efficiencies. Energy costs are a major focus area for airlines and performance based navigation enabled by digitalization is gaining momentum.

The aircraft manufacturers are embracing the feedback and requirements provided by the airlines resulting in increased use of flight data management and analysis to enhance safety and operational efficiency.

### **Human element**

People are a critical success factor of the digitalization journey and this is more so because of the disruption that is required to happen internally first. There is no doubting that in fact there is an expectation that digitalization and transformation must happen simultaneously. The technology goes through stringent phases from formulation to roll out and in that respect there is not much concern. The people are the biggest aspect of the digitalization process and the people make or break the initiative. The airline business is vulnerable at most times due to the various challenges and competition faced by the airlines. To add the chances of the people in the business posing a threat raises the stakes very high to the extent that it becomes the top priority of any digitalization process. It is therefore imperative that training and development of the people in the airline industry takes center stage and is initiated ahead of any other process. This will enable the airlines through their people to deliver through the deployment of technology and digitalization to meet and hopefully to exceed the expectations of their customers. It is the human capital and the change through digitalization that make for a successful digitalization initiative.

**Process**

It is important that the airline business starts to comprehensively address the need for digitalization and budget for the entire process. The business must ensure that there is clear communication across the business informing the team members of the commitment made by the business to go ahead with the digitalization initiative. The budget for the digitalization must be cast in stone and used exclusively for this initiative. This will enable all parts of the business to start the process by either learning the new processes and implementing the required technology driven processes. The parts of the business that are already at an advanced stage of digitalization must be encouraged to complete their processes as quickly as possible and then they must be motivated through other means to assist other parts of the business that might be lagging behind. There is no one proven way of digitalization because airlines differ from one to the other. As such it is recommended that benchmarking becomes department based and should not be forced on any unit simply to conform to the stipulated time frames. Small projects with minimal impact in the event that things do not work out as planned are recommended as a safe way to start the process.

**Data and digitalization**

It is almost inconceivable that a digitalization initiative can be implemented without putting in place a solid big data management policy in place. The insights drawn from the data are critical for the success of the digitalization effort so much that every effort must be made to ensure that the data is managed efficiently. As the digitalization process picks up pace there is a need to ensure that the data collected and analysed provides the answers and or solutions required for the business. The answers could lead to decisions regarding the acquisition of new technologies at a significant investment. The new technology will create impetus for the people and the organization as a whole will need to embrace the changes.

**Conclusion**

There is no doubt that digitalization has been embraced by the majority of African airlines and AFRAA urges its members to continue with their strategies of finding efficient and effective ways of managing their businesses. The airline business environment demands agility on the part of every operator for them to remain competitive. That is why the way of doing business requires companies to reduce physical assets which cost money in maintenance. Instead the businesses are focusing on data acquisition and mining for effective decision making. This approach is gaining momentum in Africa and the results are very encouraging. The airlines that have embraced digitalization are making headway and improving their performance across the spectrum.

Our focus remains on the need for digitalization as a business improvement strategy based on the ever dynamic and challenging airline business environment. Through digitalization airlines will be able to reengineer themselves in anticipation for the long term benefits of the process.

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