IMPLEMENTATION OF SMS IN ASECNA

4th Safety Symposium
Gaborone, May 2017

By ASECNA

SCOPE

❑ To give an overview of SMS implementation in ASECNA and the intended integration of all the management systems into a single Integrated Management System (IMS).

❑ To focus on the challenges and the benefits of the SMS implementation on the services provided by ASECNA.

CONTENT

❑ SMS implementation in ASECNA

  ✓ Planification of SMS and QMS implementation

  ✓ SMS implementation through an Integrated Management System (IMS)

❑ SMS status

  ✓ Main activities for implementation

  ✓ Operations et oversight

❑ Impact of SMS on safety performance
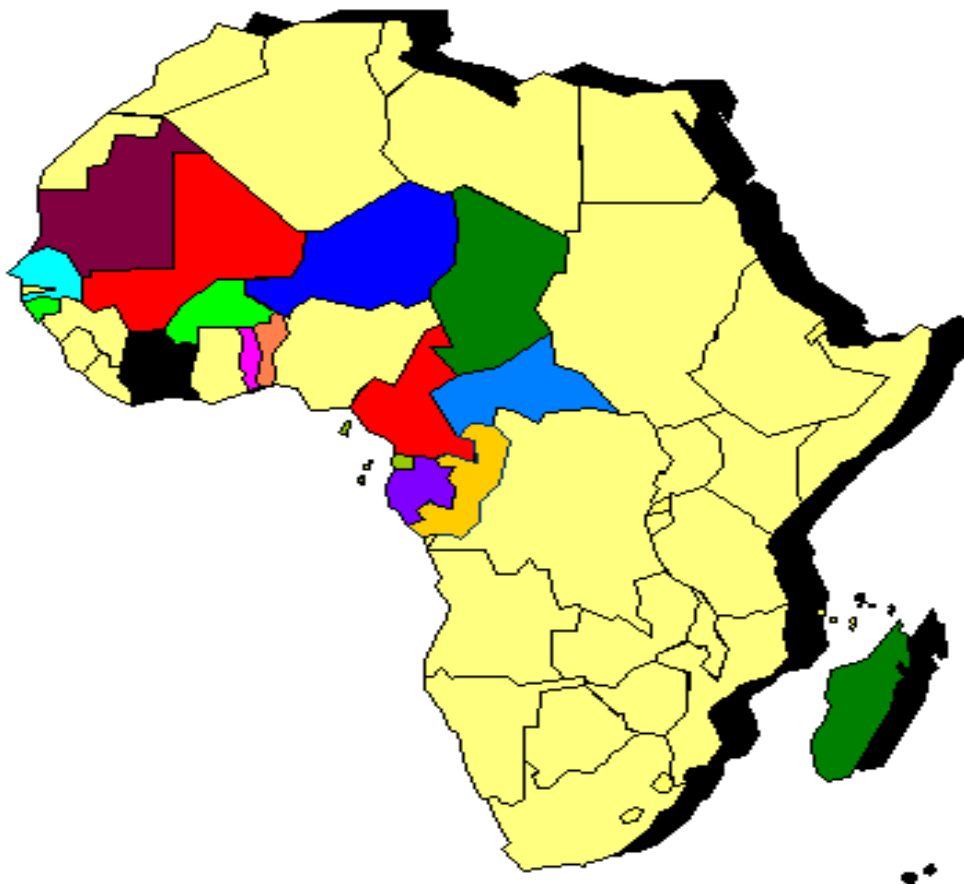
❑ Challenges and conclusion

ASECNA IN A FEW WORDS

ASECNA : Member States

18 MEMBER STATES
Benin
Burkina
Cameroun
Centrafrique
Comores
Congo
Cote d'Ivoire
France
Gabon
Guinee Bissau
Guinee Equatoriale
Madagascar
Mali
Mauritanie
Niger
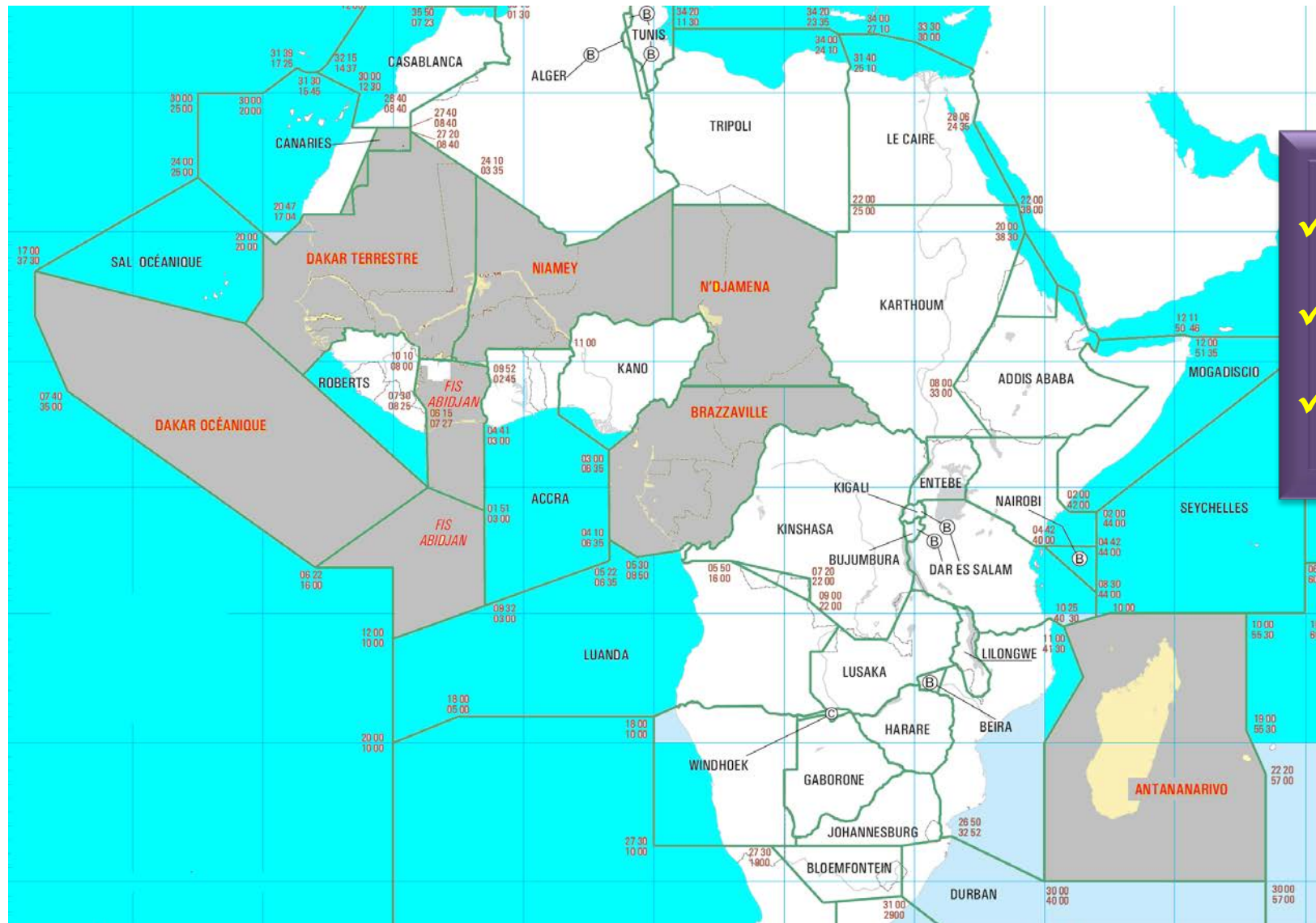Senegal
Chad
Togo

❑ **Goal** : to provide Air navigation services within airspace and aerodroms of member states

❑ **Activities**
  ➢ ATS
  ➢ MET services
  ➢ AFFS
  ➢ TELECOM services
  ➢ AIS/MAP and PANS-OPS
  ➢ CNS (including installation and maintenance of equipment, calibration)
  ➢ Training : 3 centers in Dakar, Douala, Niamey
  ➢ Airport operations

ASECNA airspace

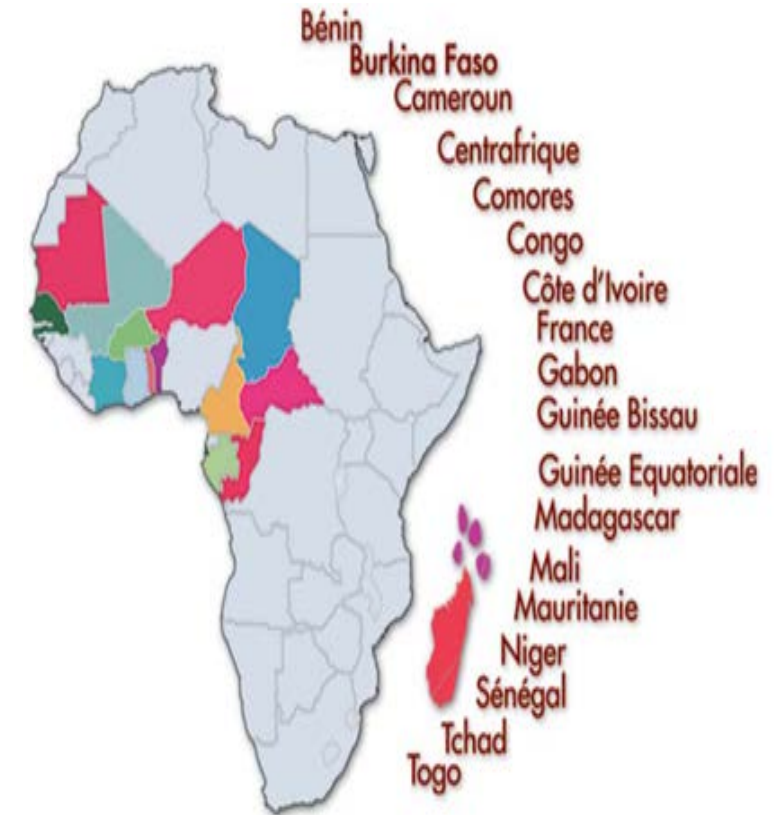- ✓ **More than 16 M km²**
- ✓ **6 FIR**
- ✓ **30 main aerodroms**

✈ IMPLEMENTATION OF SMS IN ASECNA

SMS IMPLEMENTATION IN ASECNA

- ❑ In 2005, the Board of Ministers of ASECNA, by the Resolution No. 2005/CM 44-7, adopted a Document affirming a general policy statement for safety management.

- ❑ Throughout that document, the Statutory Authority requires ASECNA to establish a Safety Management System.

- ❑ In July 2011, by the Resolution No. 2011 CA 120-10, ASECNA's Board of Directors requested that ASECNA headquarters achieve, by 31 December 2014, a certification level of SMS/QMS as required

Bénin
Burkina Faso
Cameroun
Centrafrique
Comores
Congo
Côte d'Ivoire
France
Gabon
Guinée Bissau
Guinée Equatoriale
Madagascar
Mali
Mauritanie
Niger
Sénégal
Tchad
Togo

✈ SMS IMPLEMENTATION PROJECT

- In july 2011, the SMS implementation plan had been developed and approved by the Director General

- The achievement of this plan's activities was projected in the period from 2011 to 2014, including four phases.

- These **4** phases were not necessarily deployed sequentially: several activities from different phases performed simultaneously as they were not interdependent.
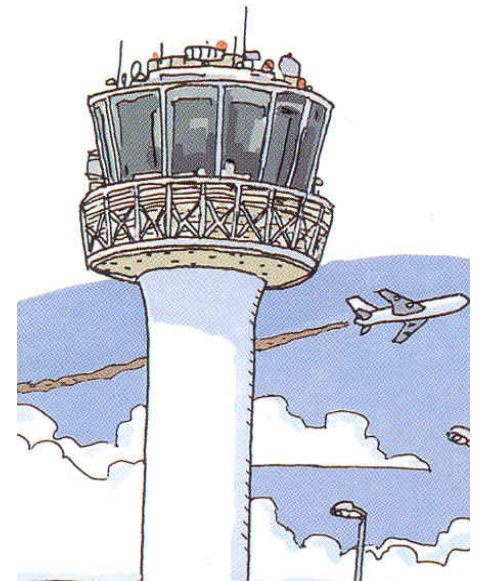
PLANIFICATION OF SMS IMPLEMENTATION

PHASE 1
- PLANNING

PHASE 3
- Development, training and deployment of proactive and predictive processes

SMS IMPLEMENTATION PROJECT

PHASE 2
- Development, training and deployment of reactive processes

PHASE 4
- Development, training and deployment of safety surveillance
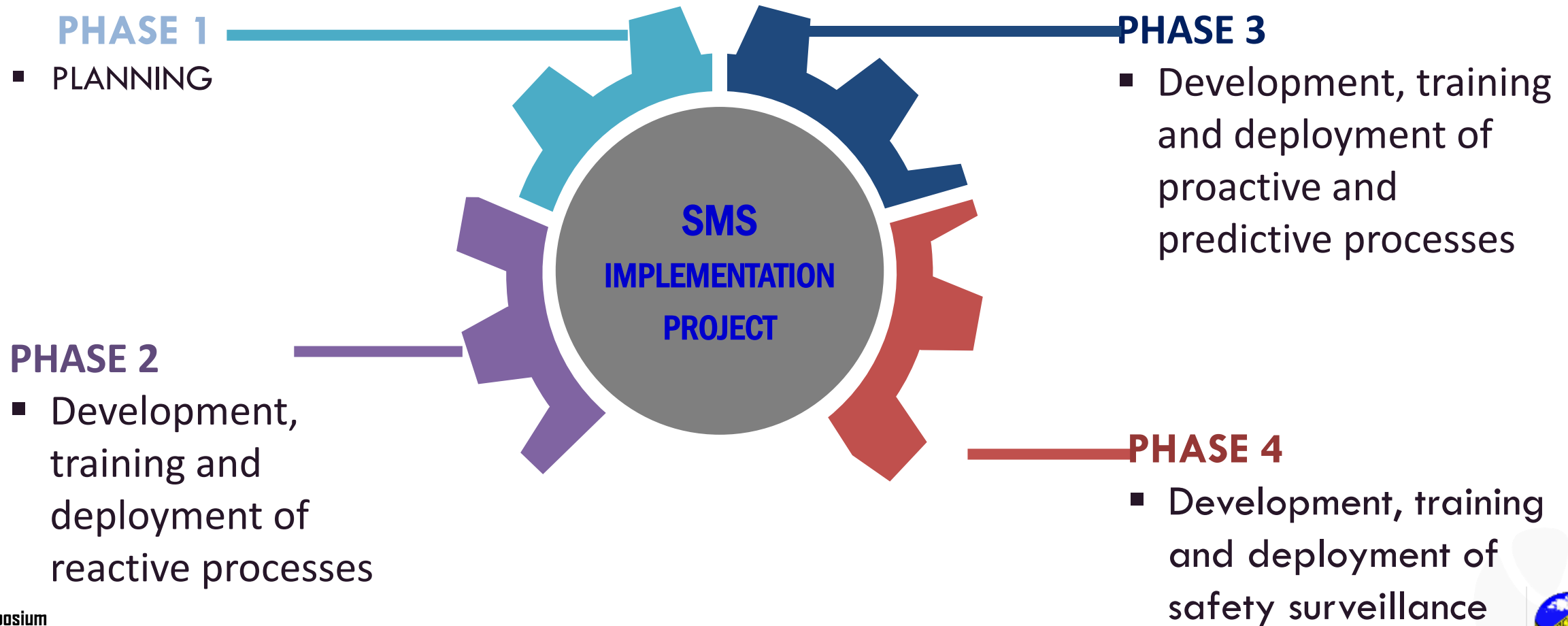
IMPLEMENTATION OF QMS

✈ **QMS IMPLEMENTATION PROJECT**

- ■ ASECNA started to implement QMS in 1996, without including all his activities

- ■ In july 2011, the QMS implementation plan has been developed and approved by the Director General
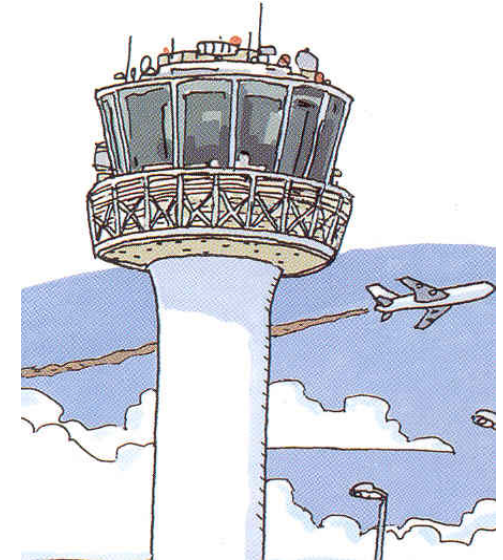
IMPLEMENTATION OF QMS

In this project, activities were planned in three phases as follows:

PHASE 1
- Planning

PHASE 2
- Development, training and deployment of quality processes and procedures

QMS IMPLEMENTATION PROJECT

PHASE 3
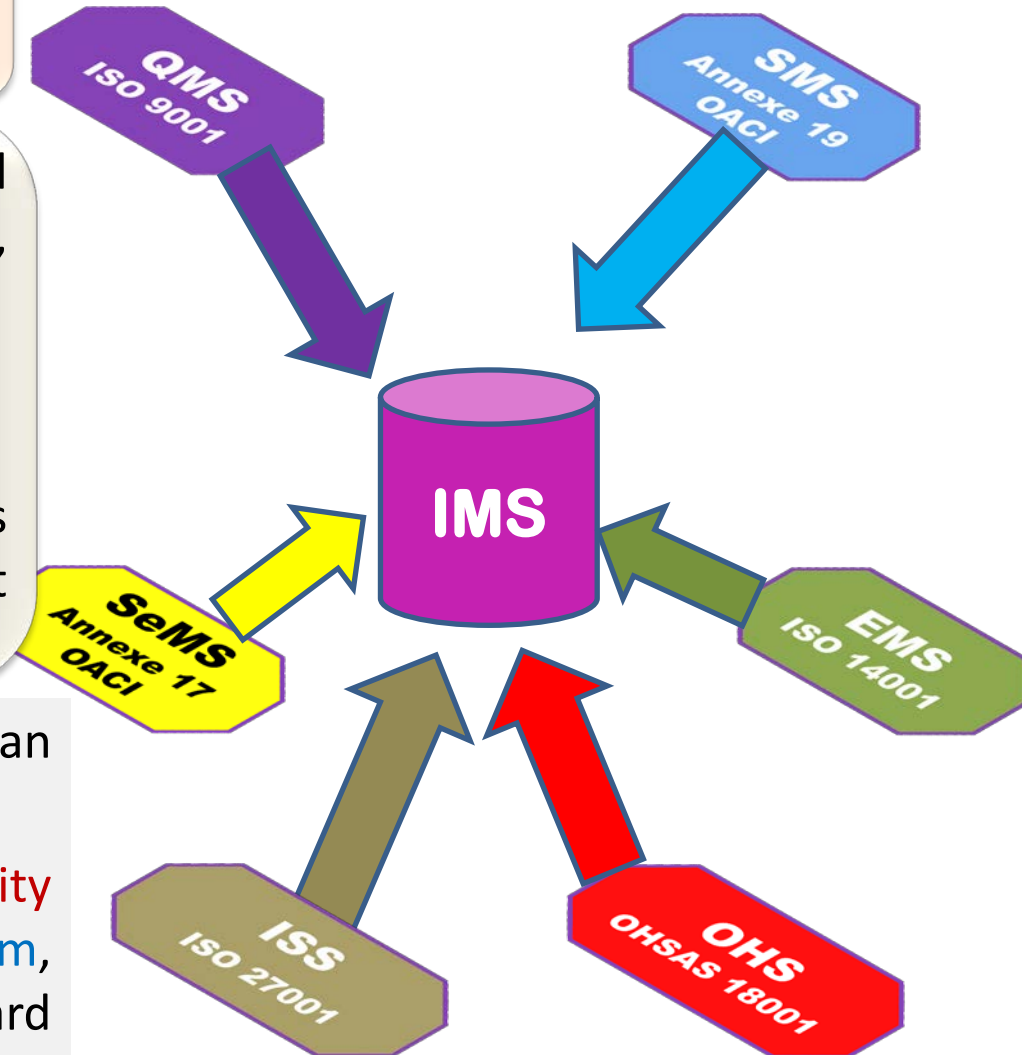- Development, training and deployment of quality assurance
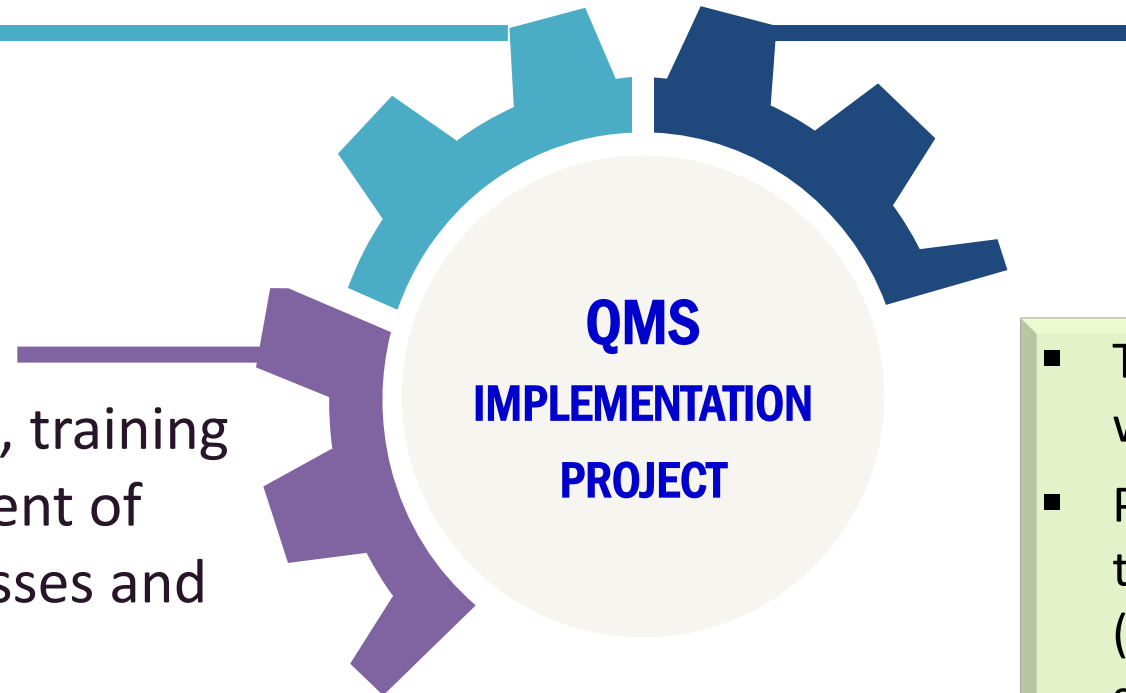
- The achievement of QMS activities were planned from 2011 to 2014.
- Particular emphasis was placed on the QMS in meteorological services (MET) and aeronautical information services (AIM), this to meet the ICAO requirements in these areas.

Implementation of SMS through an Integrated Management System (IMS)

Separeted implementation of SMQ and SMS clearly shows :
- an interdependence between SMS and QMS
- SMS performance is affected by QMS and vice versa

- ASECNA is committed to the implementation several Systems : Safety, Quality, Security, Environment, Occupational Health and Safety
- interdependence between all these systems
- Need to reduce the cost of implementation
- Moreover, achieving a good level of performance always needs a risk assessment related to Security, Environment and Occupational Health and Safety

- ASECNA decided to implement all these systems through an Integrated Management System (IMS).
- ASECNA Is developing plans for environment, security management of Technical Installations, Information System, Occupational Health and Safety, including standard operational procedures related to each domain.

QMS ISO 9001

SMS Annexe 19 OACI

SeMS Annexe 17 OACI

IMS

EMS ISO 14001

ISS ISO 27001

OHS OHSAS 18001

BENEFITS OF IMS

- All the systems are coherently implemented through IMS

- The Integration of these systems may lead to greater efficiency and ensure good performance.
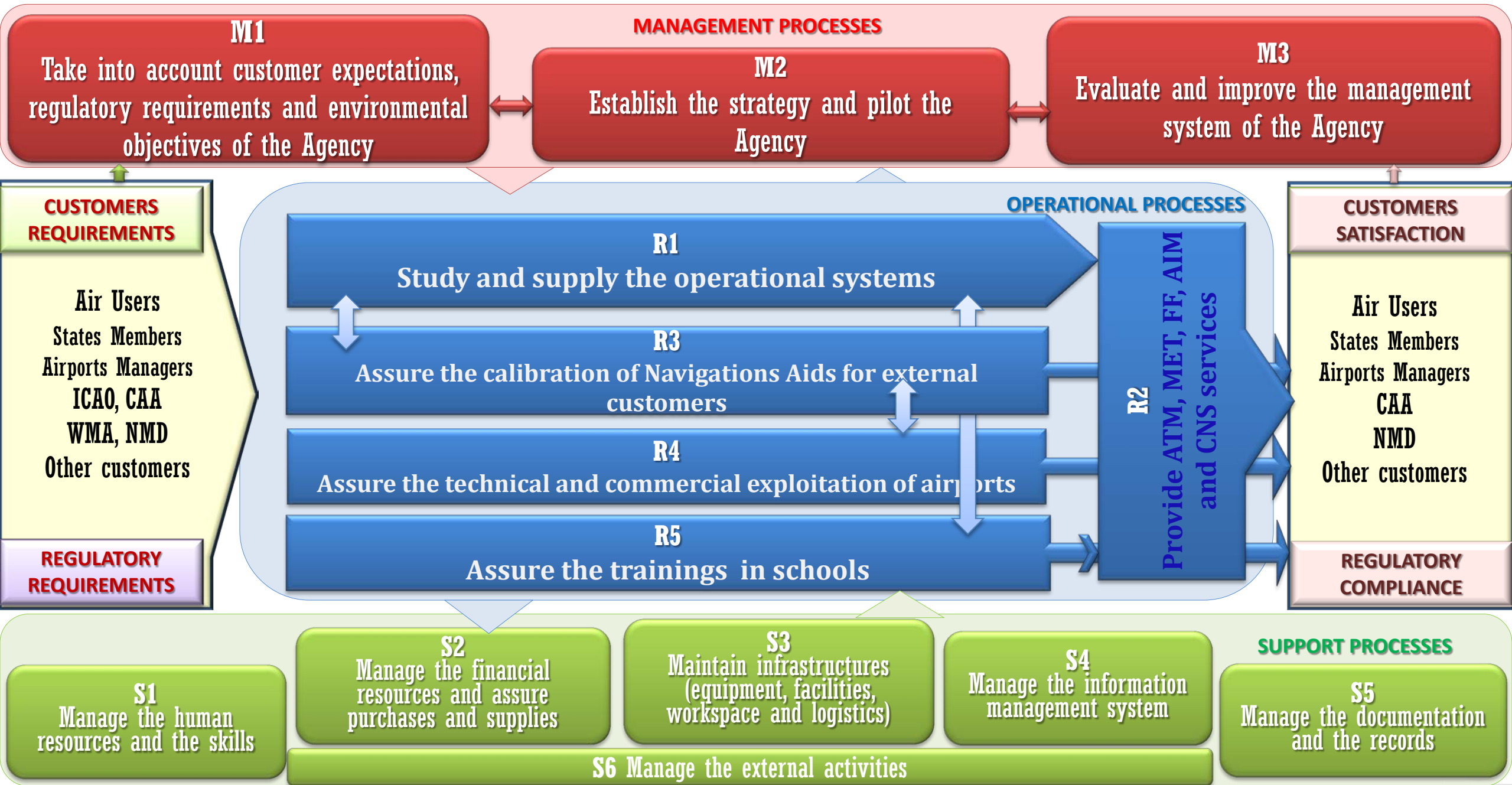
- QMS principles are used by the others systems, as support.
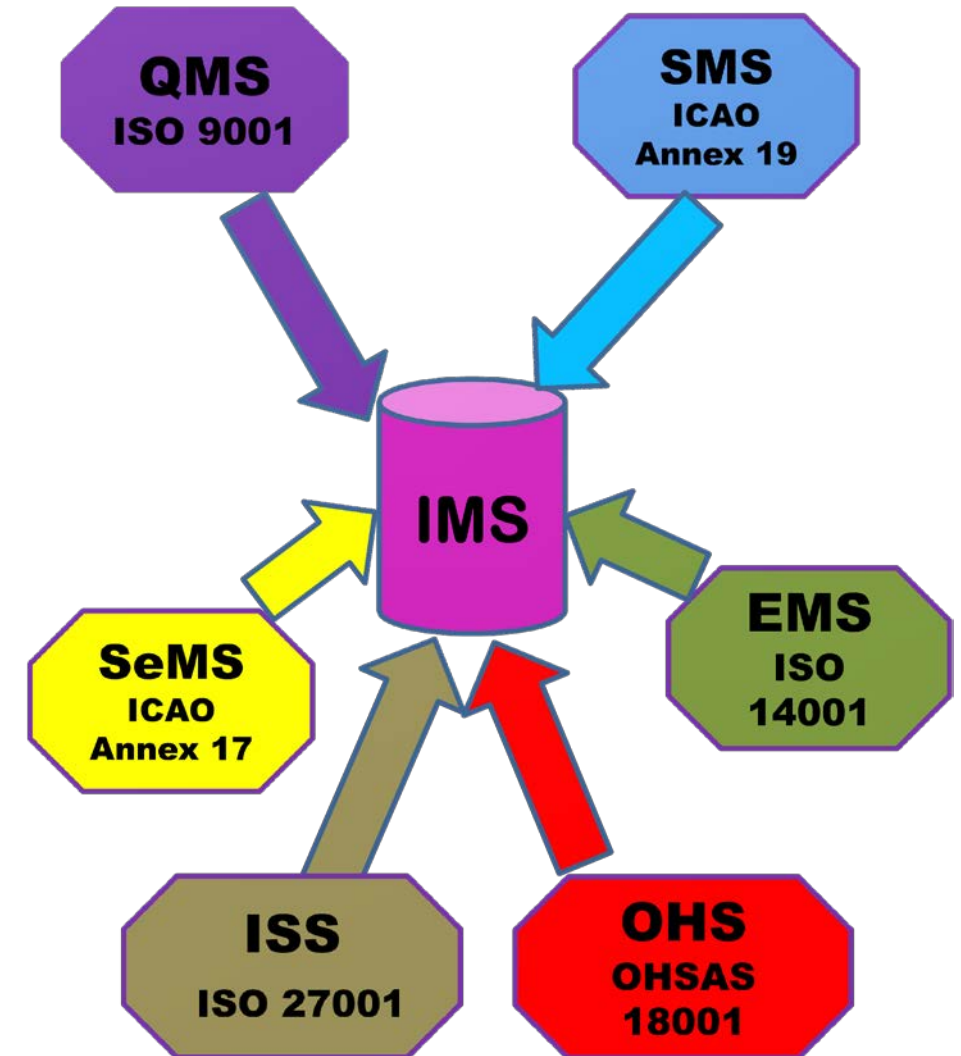
Process Approach : Global Mapping of activities in ASECNA

M1
Take into account customer expectations, regulatory requirements and environmental objectives of the Agency

M2
Establish the strategy and pilot the Agency

M3
Evaluate and improve the management system of the Agency

CUSTOMERS REQUIREMENTS

Air Users
States Members
Airports Managers
ICAO, CAA
WMA, NMD
Other customers

REGULATORY REQUIREMENTS

OPERATIONAL PROCESSES

R1
Study and supply the operational systems

R3
Assure the calibration of Navigations Aids for external customers

R4
Assure the technical and commercial exploitation of airports

R5
Assure the trainings in schools

R2
Provide ATM, MET, FF, AIM and CNS services

CUSTOMERS SATISFACTION

Air Users
States Members
Airports Managers
CAA
NMD
Other customers

REGULATORY COMPLIANCE

SUPPORT PROCESSES

S1
Manage the human resources and the skills

S2
Manage the financial resources and assure purchases and supplies

S3
Maintain infrastructures (equipment, facilities, workspace and logistics)

S4
Manage the information management system

S5
Manage the documentation and the records

S6 Manage the external activities

COVER OF THE REQUIREMENTS OF ANNEXE 19 BY THE PROCESSES OF THE MAPPING OF ASECNA

Processus du SMI →

Exigences de l'Annexe 19 (composantes du SMS) ↓

			M1	M2	M3	R1	R2	R3	R4	R5	R6	S1	S2	S3	S4	S5	S6
1. Politique et objectifs de sécurité	1.1	Engagement de la direction		X													
	1.2	Obligations de rendre compte en matière de sécurité		X	X						X						
	1.3	Nomination du personnel clé chargé de la sécurité		X								X					
	1.4	Coordination de la planification des interventions d'urgence		X													
	1.5	Documentation relative au SMS														X	
2. Gestion du risque de sécurité	2.1	Détermination des dangers			X	X					X						
	2.2	Evaluation et atténuation des risques				X					X						
3. Assurance de la sécurité	3.1	Suivi et mesure de la performance de sécurité			X												
	3.2	Gestion du changement				X					X						
	3.3	Amélioration continue du SGS	X		X												
4. Promotion de la sécurité	4.1	Formation et sensibilisation					X			X	X						
	4.2	Communication en matière de sécurité				X					X				X		

STATUS OF SMS IMPLEMENTATION IN ASECNA : ACTIVITIES

SMS IMPLEMENTATION : MAIN ACTIVITIES CARRIED OUT (1/2)

- Adoption of a Safety Policy by the relevant authorities of ASECNA

- Adoption of the new organization chart of ASECNA taking into account the implementation and the operation of SMS and the internal safety oversight

- Gap analysis between the existing practices in ASECNA and the provisions of ICAO's Doc 9859

- Development of a comprehensive plan for SMS implementation

- CEO's Commitment for safety

- Creation of steering bodies for the implementation of SMS

- Creation of SMS operational follow up bodies (Safety Action Group)

- Appointment of officials responsible for the management of safety and quality in ASECNA's Headquarters, its schools and its Operational Centers in the Member States

- Development of a SMS Manual

- Establishment and publication of safety-related accountabilities for all ASECNA personal

- Development and implementation of proactive and reactive processes and relevant procedures

✈ **STATUS OF SMS IMPLEMENTATION IN ASECNA : OPERATIONS**

- The SMS is fully implemented in ASECNA through the **three major functions** of safety management which are:

  ✓ Risk Management

  ✓ Safety Assurance

  ✓ Safety Promotion

Voluntary and mandatory reporting systems

According to ICAO Annex 19, ASECNA set up voluntary and mandatory reporting systems full operational (Manuel of safety events investigation and associated procedures)

Safety data and safety information analysis

ASECNA establish and maintain a process through a Manual (MANSECU), to analyze the safety data and safety information. Creation of Safety local bodies in each center and a Central one at Headquarter

Feed-back
(Users, ATS Centres, ASECNA schools)

Results from investigations are distributed, including feedback to:
- ✓ Users : **For corrective and preventive actions and lessons to be learned**
- ✓ ATS Centres : **For Corrective and preventive actions, lessons to be learned and also on site training**
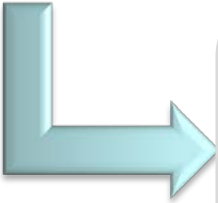- ✓ ASECNA schools : **For lessons learned to be included in training**

Corrective and preventive actions

Corrective preventive actions are implemented and followed up by relevant structures, as per as elevant procedures
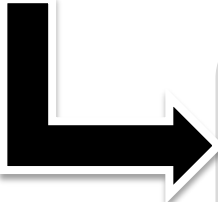
SAFETY ASSESSMENT

Safety assessment (hazards identification, risk assessment and mitigation)
for Project/Change

- ✓ Safety assessments are conducted before any significant safety-related project/change to the ATM system.
- ✓ Safety cases are reviewed and accepted by the relevant states CAA.

Safety assessment (hazards identification, risk assessment and mitigation)
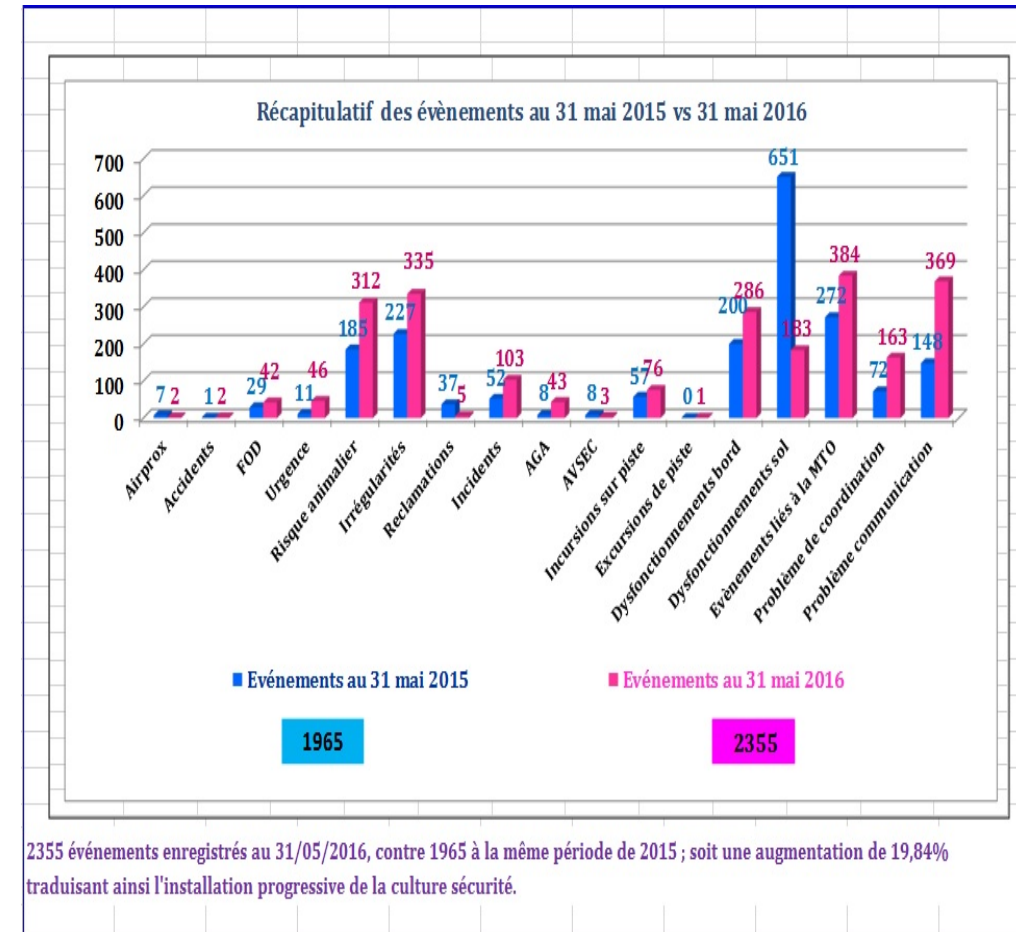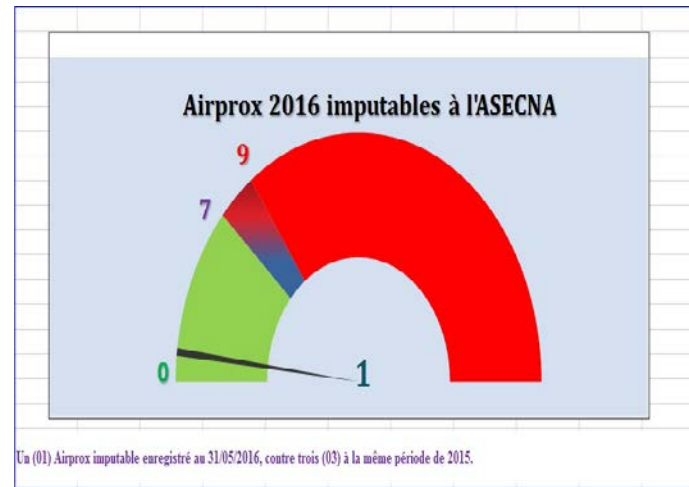**Unit Safety Case**

Safety assessment before any significant :
- ✓ safety-related maintenance operations
- ✓ Safety-related modification in ANS units

- Monitoring of established safety performance indicators

- Periodic Review Meetings to evaluate the level of both the SMS implementation and the safety performance of the Agency;

Airprox 2016 imputables à l'ASECNA

Un (01) Airprox imputable enregistré au 31/05/2016, contre trois (03) à la même période de 2015.

Récapitulatif des évènements au 31 mai 2015 vs 31 mai 2016

Airprox	Accidents	FOD	Urgence	Risque animalier	Irrégularités	Reclamations	Incidents	AGA	AVSEC	Incursions sur piste	Excursions de piste	Dysfonctionnements bord	Dysfonctionnements sol	Evènements liés à la MTO	Problème de coordination	Problème communication

Evénements au 31 mai 2015 : 1965
Evénements au 31 mai 2016 : 2355

2355 événements enregistrés au 31/05/2016, contre 1965 à la même période de 2015 ; soit une augmentation de 19,84% traduisant ainsi l'installation progressive de la culture sécurité.

INTERNAL AUDITS
(INTERNAL AUDITORS)

SMS AUDIT
(INDEPENDENT EXPERTS, SAFETY AUDIT COMMITTEE)

PEER REVIEW
ATNS, ...

ISO CERTIFICATION AUDIT
(BUREAU VERITAS CERTIFICATION)

OVERSIGHT AUDIT
(STATES : CAA)

SAFETY PERFORMANCE

- The performance of the system is constantly improved through :
  - ✓ the implementation of the corrective and preventive actions
  - ✓ the sharing of experience feedback from internal strategic audits, external audits as well as peer review, CAA SMS and independant audits .

- Results of audits and evaluations:
  - ✓ Maturity of the growing system
  - ✓ Level of SMS certification reached in 2014
  - ✓ ISO certification 9001:2008 in 2014
  - ✓ Improvement of indicators safety

SMS PROMOTION : STAFF TRAINING

In several areas

- ANS and ISO standards
- ANS and ISO Audit
- Safety assessment
- Safety events analysis
- SMS, QMS, EMS, SeMS
- Specific task forces…

SMS PROMOTION: COMMUNICATION

- **Sharing and exchange of the safety informations on the best practices, such as the outcomes of safety-related events analysis and safety audit results**

- **Periodic communication actions are conducted**

**Flash-Info
(Internal newspaper)**

**Aviation Safety
(Internal newspaper)**

Information display

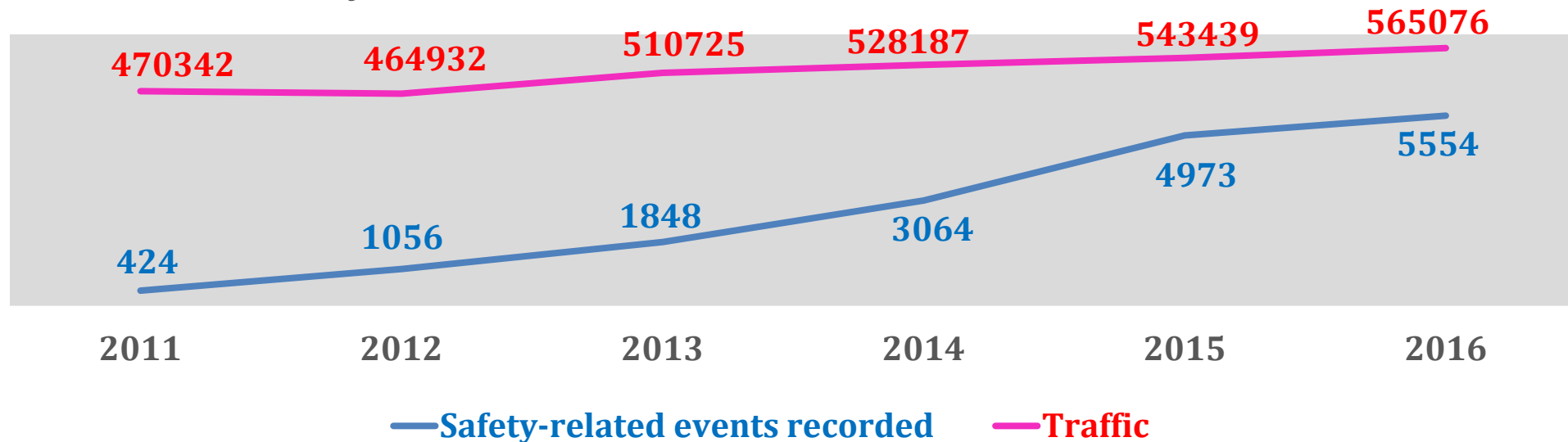**Safety-critical informations are distributed**

✈ IMPACT OF SMS IMPLEMENTATION ON SAFETY PERFORMANCE

IMPACT ON SAFETY-RELATED EVENTS RECORDED

Safety-related events recorded and traffic 2011-2016

- The number of safety-related events increased from 2011 to 2016 as follows : 75% from 2012 to 2013, 64% from 2013 to 2014, 60% from 2014 to 2015, 12% from 2015 to 2016.

- ASECNA did not establish any objectives concerning safety events increase, but it was expected as a positive response to the gradual introduction of the Safety Culture, including increase in voluntary reporting of safety-related events.

- As an example; the rate of voluntary reporting of Airprox by Air Traffic Controllers increased as followed: 43% in 2012, 59% in 2013, 74% in 2014, 83% in 2015 and 80% in 2016

DECREASE OF AIRPROX RECORDED
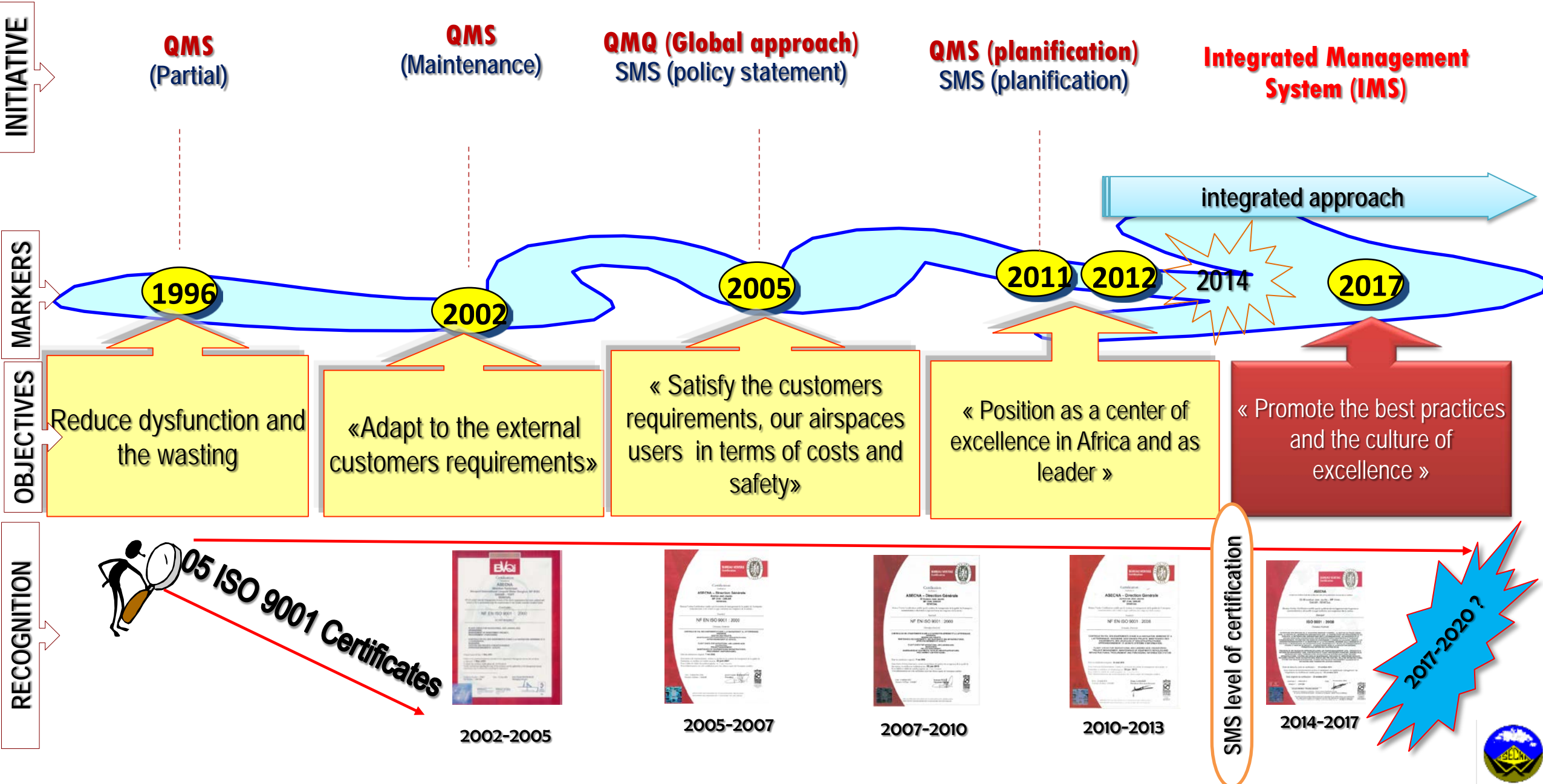
Evolution of airprox 2011-2016

Legend: —— Total aiprox —— ANSP-attribuate airprox

Data points — Total aiprox (blue): 2011: 28, 2012: 23, 2013: 29, 2014: 19, 2015: 18, 2016: 11

Data points — ANSP-attribuate airprox (red): 2011: 23, 2012: 19, 2013: 21, 2014: 14, 2015: 11, 2016: 6
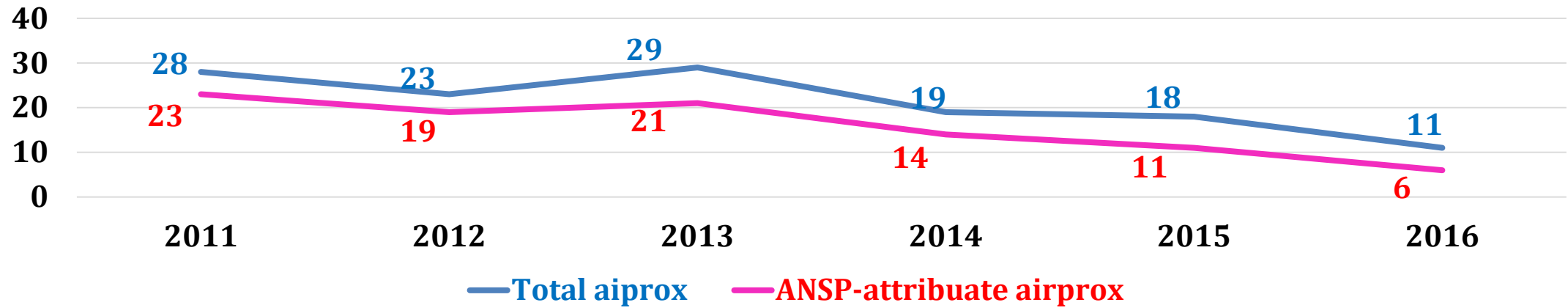
- The number of Airprox decreased by 34% from 2013 to 2014, by 5% from 2014 to 2015, by 36% from 2015 to 2016, despite the increase of the number of safety-related events and the traffic one.

- This downward trend of Airprox is due to the effective implementation of corrective actions plans as identified from the safety-related events analysis, but also to preventive implementation of safety requirements from change safety cases.

- These safety performances were the positive consequences of the effective implementation of SMS, including safety management principles in ASECNA services.

History of a progressive implementation of a management system in ASECNA

INITIATIVE

QMS
(Partial)

QMS
(Maintenance)

QMQ (Global approach)
SMS (policy statement)

QMS (planification)
SMS (planification)

Integrated Management
System (IMS)

MARKERS

integrated approach

1996

2002

2005

2011 2012 2014 2017

OBJECTIVES

Reduce dysfunction and the wasting

«Adapt to the external customers requirements»

« Satisfy the customers requirements, our airspaces users in terms of costs and safety»

« Position as a center of excellence in Africa and as leader »

« Promote the best practices and the culture of excellence »

RECOGNITION

05 ISO 9001 Certificates

SMS level of certification

2002-2005

2005-2007

2007-2010

2010-2013

2014-2017

2017-2020 ?

CHALLENGES

- Reduce the costs of SMS implementation and operations

- Maintain the full commitment of human resources, including the top management and the staff

- Common safety oversight and certification as ANSP, by member states, on the basis of a common regulation (the effective functioning of the AAMACs is an opportunity)

- ISO 9001 :2017 certificate the activities of ASESCNA by the end of 2017

- Finalize and implement an environmental management plan and another plan for security management of Technical Installations, buildings and Information System, including standard operational procedures related to each domain

- as well as the optimization of relevant documents

- Generalize risk management in the areas

CONCLUSION 1/2

❑ The implementation of SMS by an ANSP is a major challenge in achieving the ICAO Safety Strategic Objective.

❑ From experience, it is clear that management systems such as SMS, SeMS, EMS, OHS and QMS have many similarities and are interdependent because the first three ones use the principles of QMS as support. In addition, the safety performance could be affected by security and environmental issues. The integration of these systems may lead to greater efficiency and ensure good performance.

❑ With regards to the scope of the activities of ASECNA and their dissemination in the 17 Member States, creating a structure in charge of safety management was the more appropriate option for the safety management of such a broad organization; as result that option allows to effectively deal with all the relevant responsibilities.

❑ The main challenges in improving continuously of the ASECNA SMS should include the cost control, the staff commitment, the maintenance of ISO 9001 certification, the effective implementation of the Environment, Safety and OHS components, as well as the setting up the mechanisms of a common oversight by the member states

❑ ASECNA is available to share its experience with any Air Navigation Services Provider (ANSP) who may wish to have this information

THANK FOR YOUR ATTENTION