



*Procedures for Air Navigation Services  
(PANS)- Aeronautical Information  
Management (PANS-AIM, Doc 10066)  
(Council Subject 14.1.2)*

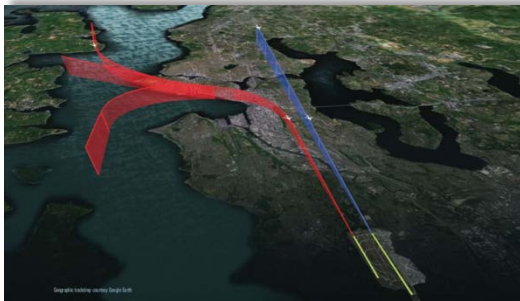
Interregional EUR/MID PANS AIM Workshop,  
Paris, France, 10.-12. July 2018



# PANS-AIM - Impact on implementation - what is the difference?

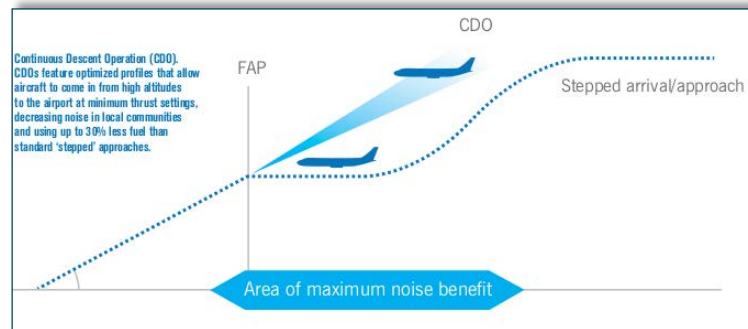
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# Why?



- It is all about

- GANP / ASBU support
- Priority no. 1 = PBN (RNP)
- CDO, CCO, AMAN/DEMAN
- Aircraft performance
- Environmental sustainability
- Noise reduction



# Trends to A40

GANP, ASBU, AIM, IM

// GANIS & SANIS Industry Meeting  
10. - 15.12.2017, Montreal,  
Canada

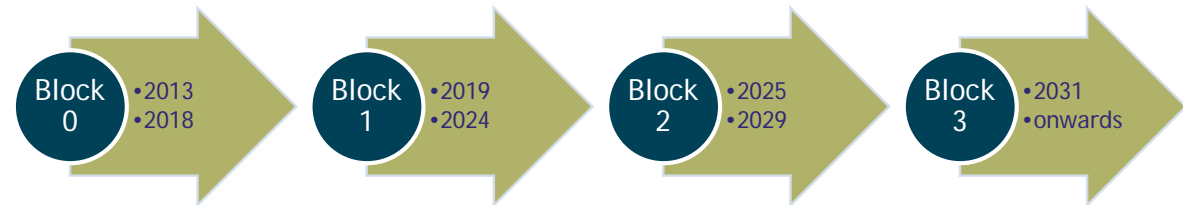
// AN-Conf/13 9. - 17.10.2018

// ICAO A40 in Q/3 2019

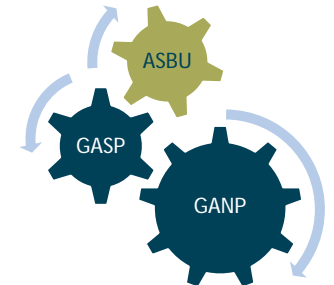
// Unchanged: Main Priority of  
ICAO is implementation of PBN

// Therefore we need Digital AIM

## Aviation System Block Upgrads (ASBU)



- GANP - Global Air Navigation Plan
- GASP - Global Aviation Safety Plan
- ASBU Document



# Content / Discussion

// 01 Rational for a PANS-AIM

// 02 AIS-AIMSG Focus

// 03 What is the difference?

// 04 National Planning



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# // 01 Rational for a PANS-AIM

# Rational

- Annex = performance based SARPs
- PANS = technical & procedural provisions
- Elevate certain procedures from guidance to PANS
- Support data centricity with processes & procedures
- Support interoperability
- PANS deviation to be published in AIP only
  - Supports stepwise transition/migration
- Best practice example is PANS-ATM (Doc 4444) which exists since 1946 (Annex 2 & 11 contain no formats)

# Timeline (How did we get there)

- Initial ideas on AIS-AIMSG/3, Montreal, Nov 2010
- ANC on site May 2011
- Ad hoc group PANS-AIM on AIS-AIMSG/4, Bordeaux, May 2011
- Data and information scope in AIS-AIMSG/7, Montreal, Jan 2014
- Since then involvement of IFPP/IWG
- Origination & Terminology on AIS-AIMSG/9, Tokyo, April 2014
- DQR on AIS-AIMSG/10, Montreal, Nov 2014
- Final on AIS-AIMSG/12 in Oct 2015



# AIS → AIM



150 pages

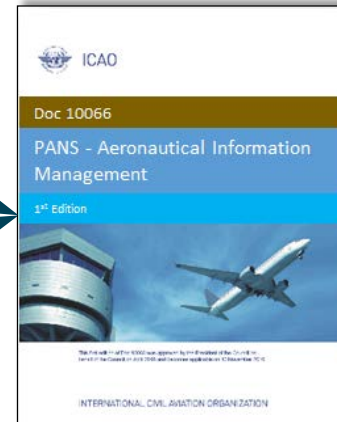


480 pages (190 AIP)

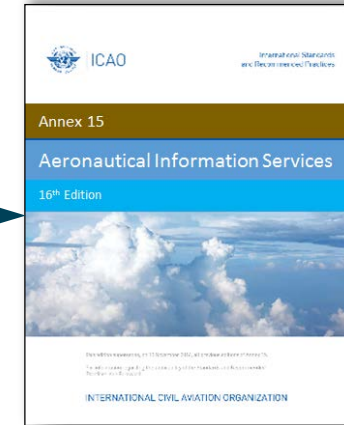
State provisions  
(or „what“)

Operational Provisions /  
„AIM Practitioners“ instructions  
(or „how to“)

Guidance / Explanations



118 pages



41 pages



??? pages (190 AIP)



## // 02 AIS-AIMSG Focus

# Focus

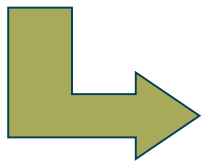
- Split of data origination from data publication requirements
- Introduction of the Aeronautical Data Catalogue
- Digital data sets
- Aeronautical information product (standard or electronic)
- Data quality requirements at one place (PANS-AIM)
- New terminology
- NOTAM improvement proposal
- CRC performance-based requirements

# Focus: Data Centric Approach

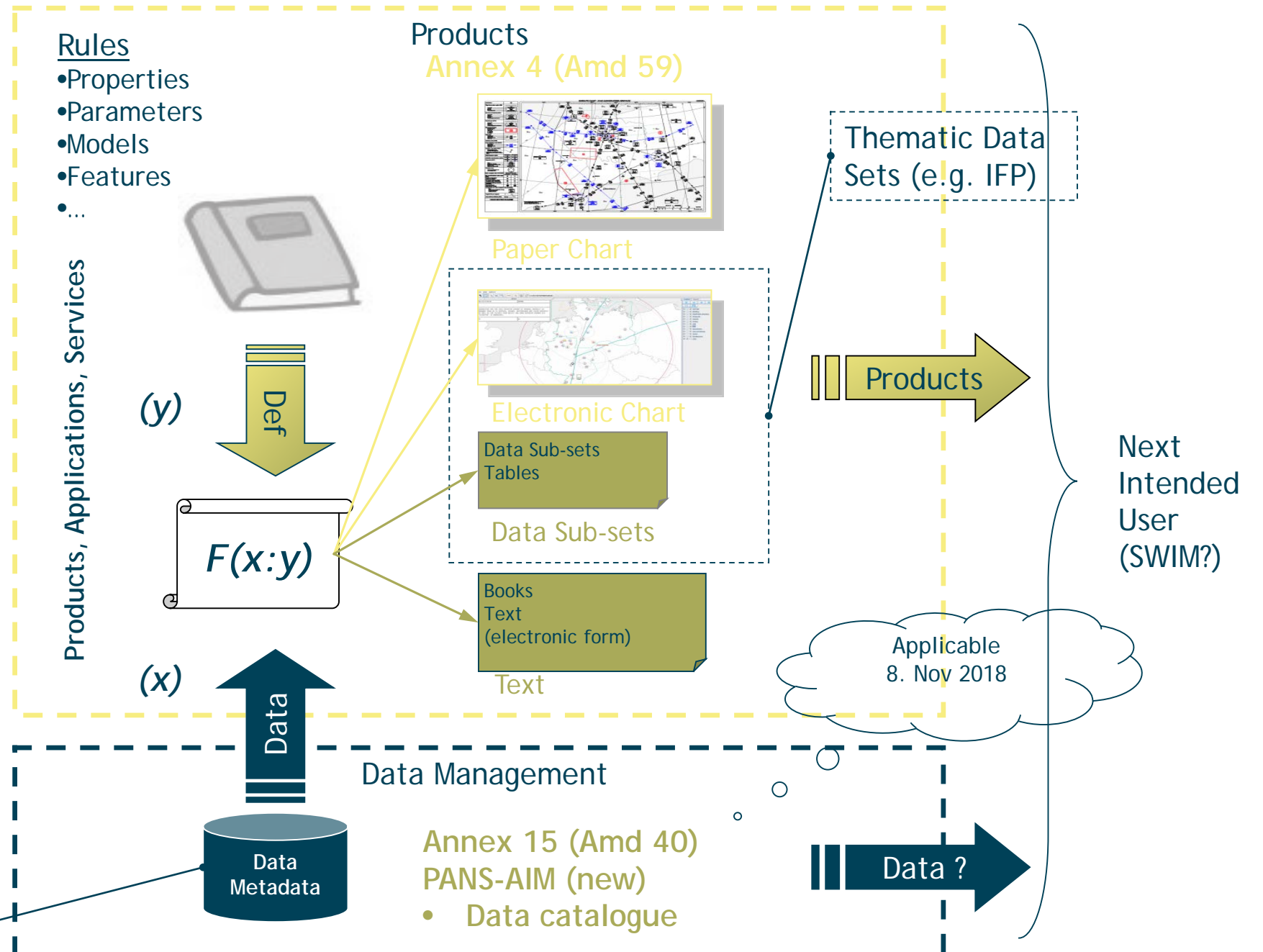
## Source

- Annex 2, 3, 4, 5, 7, 9, 10v1, 10v2, 10v3, 10v5, 11, 12, 13, 14v1, 14v2, 15, 16v1, 16v2, 17, 18, 19
- PANS-OPS

Origination



Super Set



# Focus: Data Catalogue (Example AD/HP)

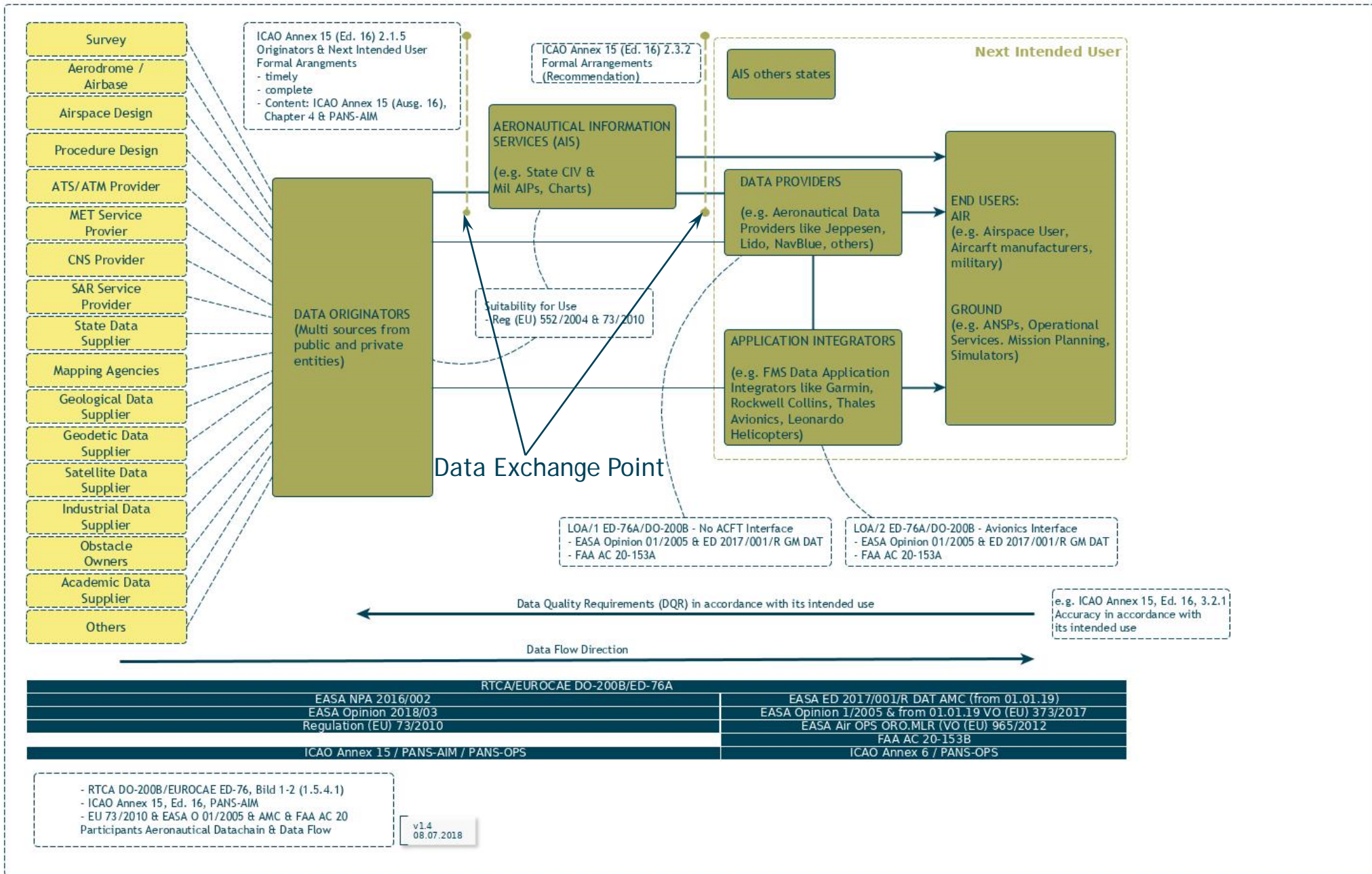
GeoInfo Daten als LuftF Daten - Analyse  
Anlage F

ICAO PANS-AIM  
Aeronautical Data Catalogue

Table A 1-1 Aerodrome/Heliport data

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.	
Runway				A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft. (Annex 14)							
	Designator		Text	The full textual designator of the runway, used to uniquely identify it at an aerodrome/heliport. E.g. 09/27, 02R/20L, RWY 1.							
	Nominal length		Distance	The declared longitudinal extent of the runway for operational (performance) calculations.		1 m	critical	surveyed	1 m or 1 ft	1 m	
	Nominal width		Distance	The declared transversal extent of the runway for operational (performance) calculations.		1 m	essential	surveyed	1 m or 1 ft	1 m	
	Geometry		Polygon	Geometries of RunwayElement, RunwayDisplacedArea and RunwayIntersection							
	Centre line points										
		Position	Point	The geographical location of runway centre line at each end of the runway, at the stopway and at the origin of each take-off flightpath area, and at each significant change in slope of runway and stopway	Definition from Annex 4 3.8.4.2	1 m	critical	surveyed			
		Elevation	Elevation	The elevation of the corresponding centre line point.		0.25 m	critical	surveyed			
		Geoid undulation	Height	The geoid undulation at the corresponding centre line point							
	RWY exitline										
		Exit guidance line	Line	The geographical location of the runway exitline		0.5 m	essential	surveyed	1/100 sec	1 sec	
		Colour	Text	Colour of runway exit line							
		Style	Text	Style of runway exitline							
		Directionality	Code List	Directionality of RWY exit line (one-way or two-way)							
	Surface type										
Strength											
	PCN	Text	Pavement classification number								
	Pavement type	Text	Pavement type for aircraft classification number — pavement classification number (ACN-PCN)								
	Subgrade category	Text	Subgrade strength category								

# Focus: Processes & Data Chains





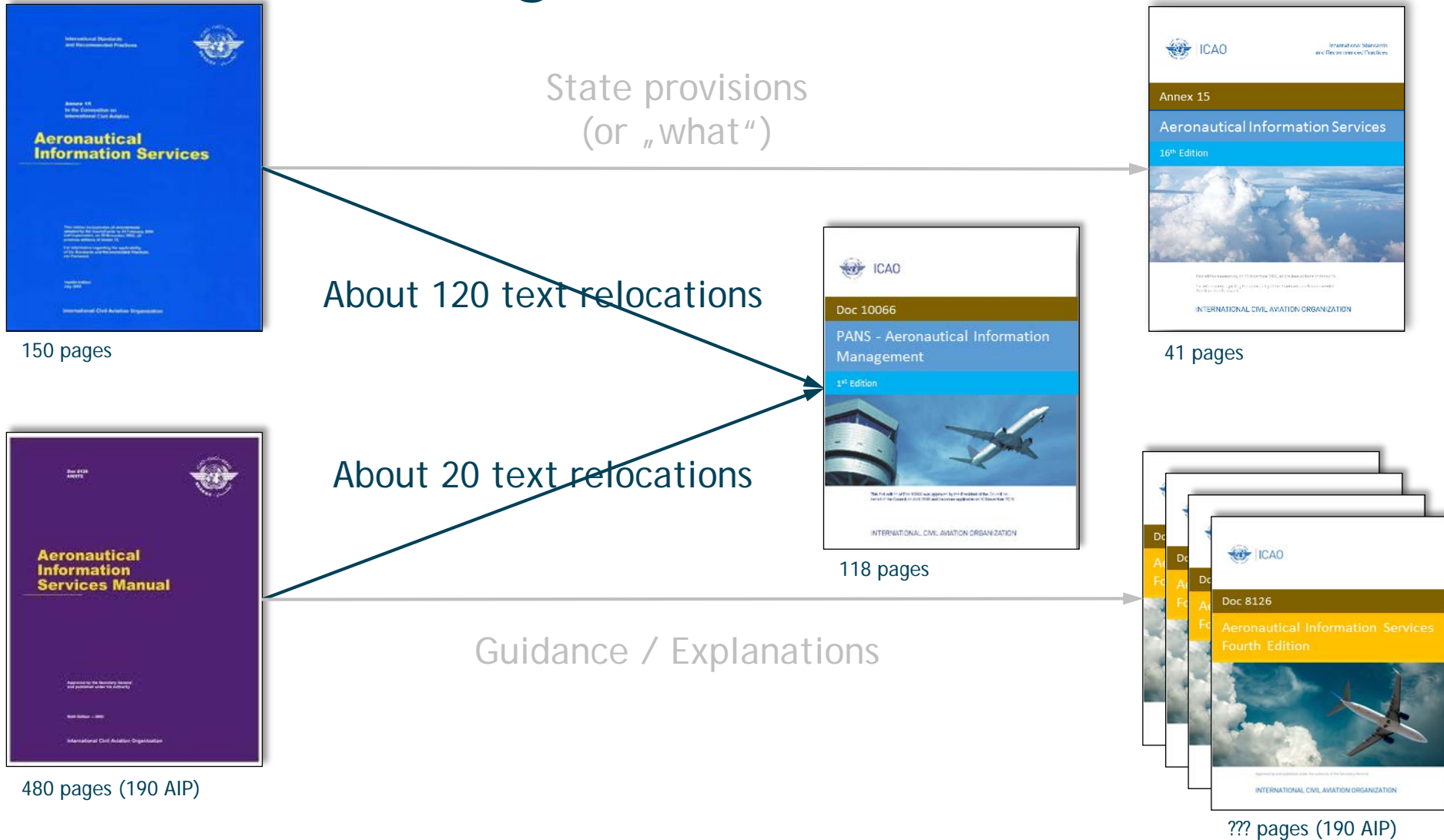
## // 03 What is the difference?

What moved where?

What is new?

What is the effort to understand that?

# Changes in PANS-AIM





# Assessment of Changes (1)

- **About**

- 100 text relocations from Annex 15
- 20 text relocations from AIS Manual
- 70 deleted text phrases
- 240 new text phrases

- **Effort will be different**

- Relocated text is known, no new provisions
- Some chapters have little change
- A lot of changes is because of changed references
- Need: to understand what is really NEW!

# Assessment of Changes (2)

		Titel	Relocation (Known)		Amendment (New)		Total New	Effort
			Annex 15	AIS Manual	Deletions	New		
Chapter	1	Definitions	1	0	8	18	26	Middle
	2	AIM	5	0	0	9	9	Middle
	3	QM	3	0	3	3	6	Small
	4	Aeronautical Data Requirements	6	0	3	4	7	Middle
	5	Aeronautical Products and Services	66	21	15	62	77	High
	6	Aeronautical Information Update	9	0	2	13	15	Middle
Appendix	1	Aeronautical Data Catalogue	--	--	--	all	--	High
	2	AIP Content	1	0	15	65	80	High
	3	NOTAM Format	1	0	1	2	3	Small
	4	SNOWTAM Format until 04.11.2020	1	0	0	3	3	Small
	4	SNOWTAM Format from 05.11.2020	0	0	24	60	84	High
	5	ASHTAM Format	1	0	1	1	2	Small
	6	Terrain & OBST Attributes	1	0	0	0	0	Small
	7	PDAI for NOTAM	1	0	0	0	0	Small
8	Terrain & OBST Data Requirements	1	0	1	0	1	Small	
Total			97	21	73	240		

# State Letter could be used

- Identification & understanding what is really NEW is most important



**AERONAUTICAL DATA REQUIREMENTS**

**4.1 Data Origination Requirements**

**4.1.1- New text**

4.1.2 The order of accuracy for aeronautical data shall be as specified in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc.), calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (e.g. flight information region boundary points).

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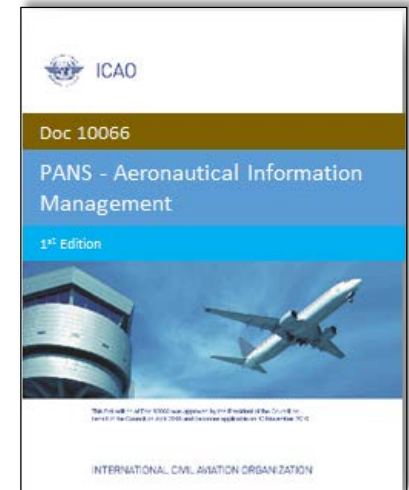
*Editorial Note.*— 4.1.2 is relocated text from Annex 15, 3.3.1

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4.1.3 World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

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*Editorial Note.*— 4.1.3 is relocated text from Annex 15, 1.2.1.1



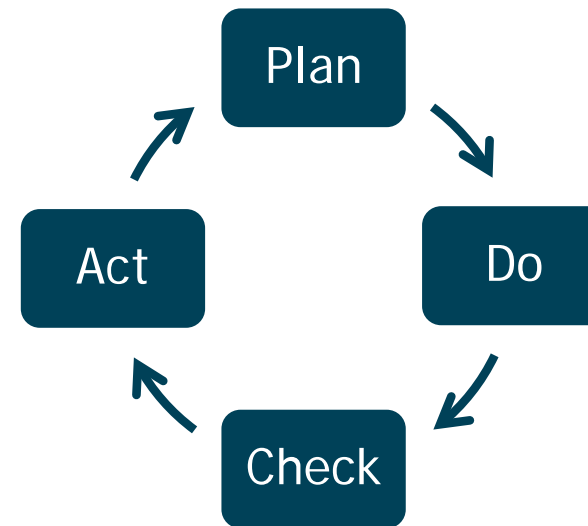


# // 03 National Planning & Implementation

# Initial steps to move

- Get your management on board
- Think about your natural internal alleys
  - Talk to them
- Get your regulator on board
- Initiate a work shop
- Plan the work, work the plan

- PANS-AIM & the paradigm shift AIS → AIM support the GANP & PBN
- AP, airlines, MIL, ...

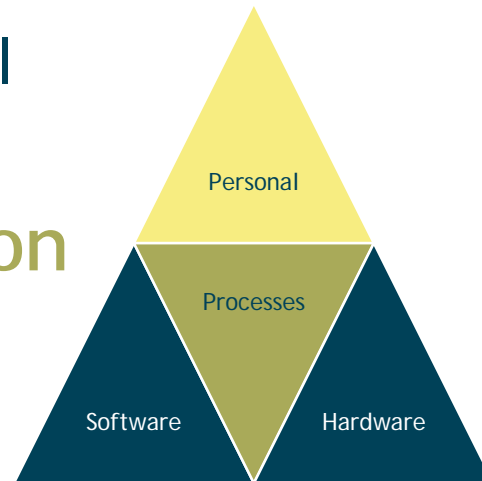


# Next Steps (1 to 5 years)

- Understand information management requirements in PANS-AIM (para 2.1)

- Collection
- Processing
- Quality Control
- Distribution

- Assess impact on



- Make an implementation plan with firm dates for

- Personal (training)
- Processes (modelling, if not yet available)
- Software (procurement)
- Hardware (procurement)

- Publish the plan in AIP GEN 1.7 when knowledge of differences is important for the safety of air navigation

# Continue - Keep going!

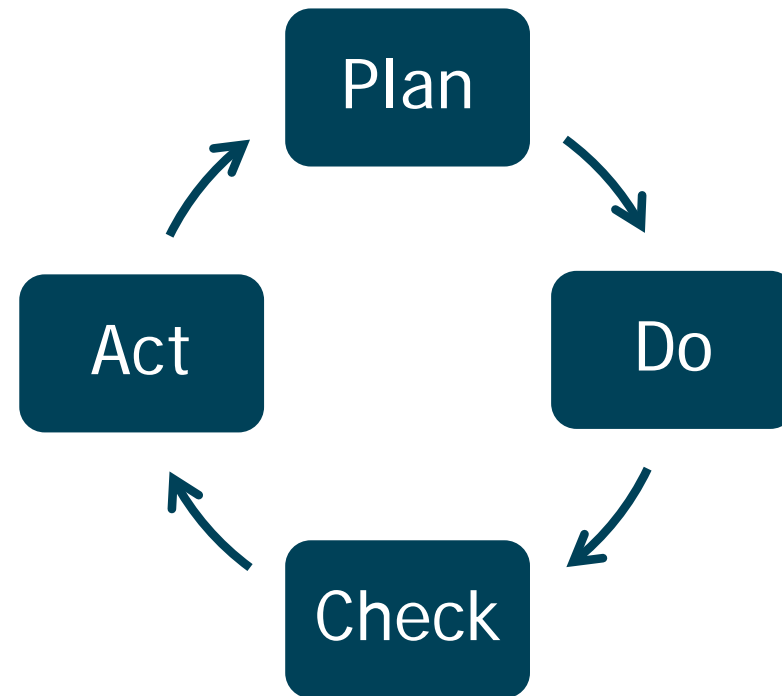
- **Further work shops with:**

- your natural allies,
- your regulator

- **Keep informed your managament**

- Justify investment where needed

- **Verify your work**



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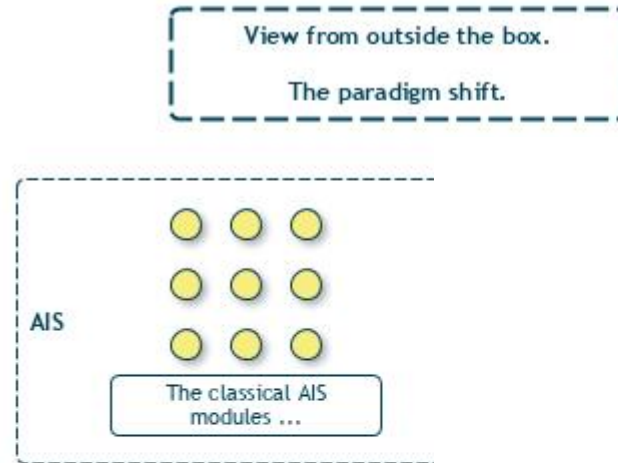




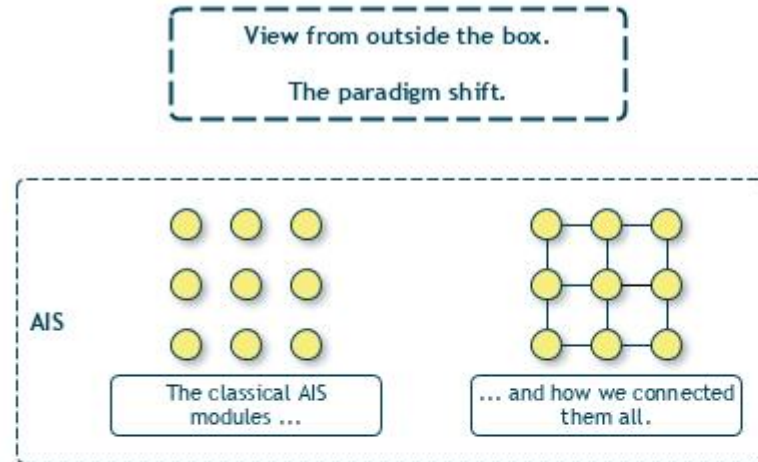


# Back-Up Slides Paradigm Shift Visualisation

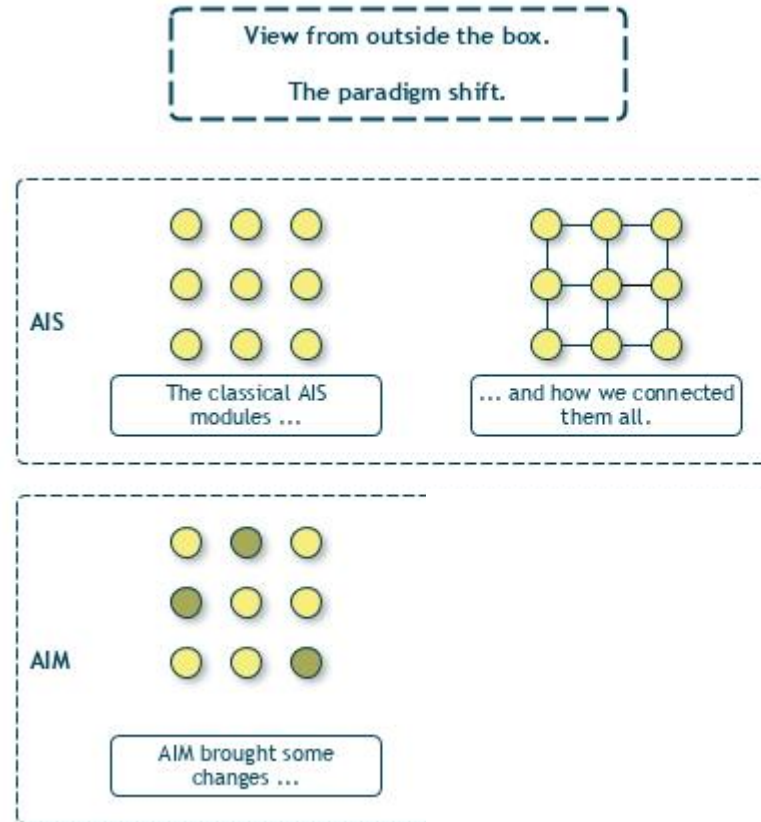
# Paradigm Shift AIS - AIM



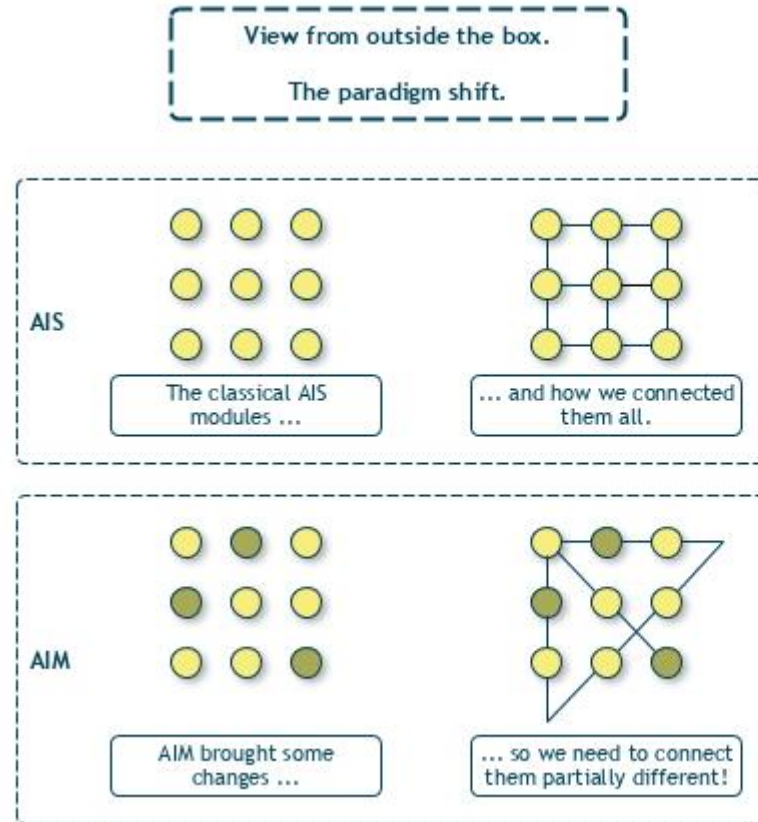
# Paradigm Shift AIS - AIM



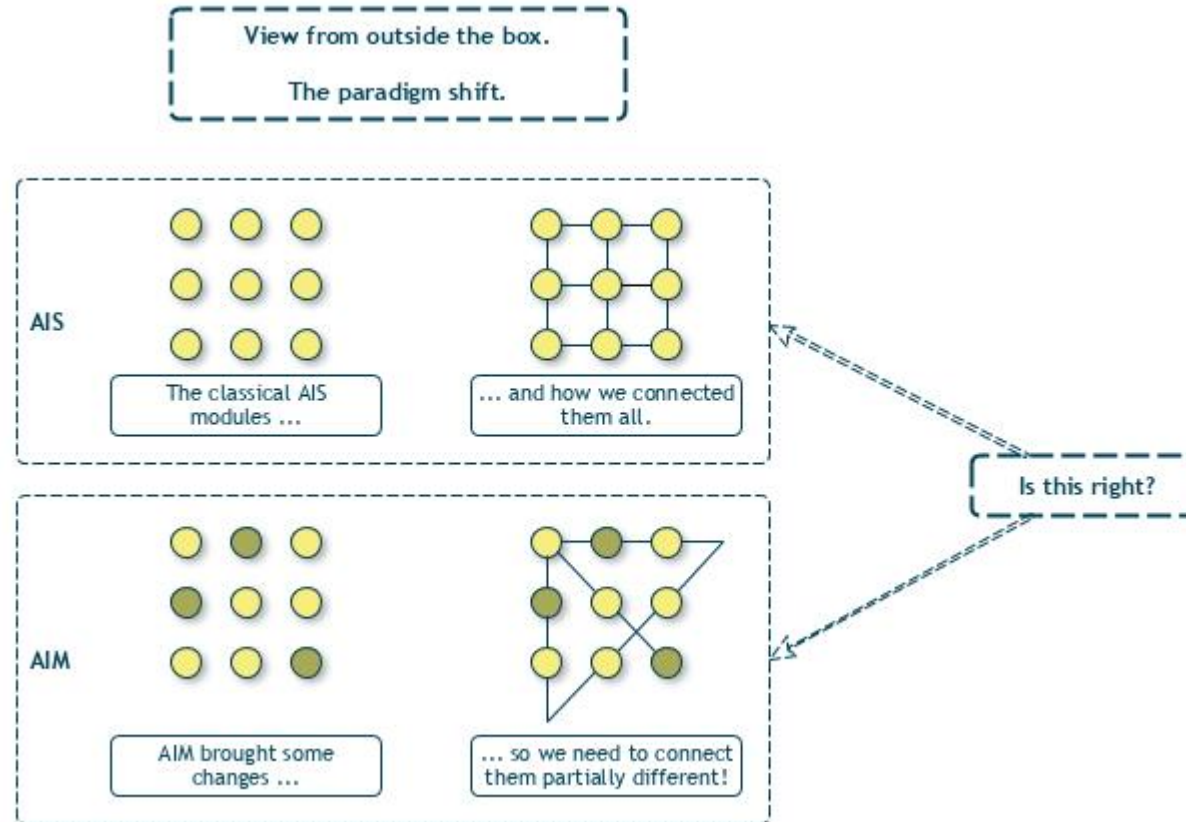
# Paradigm Shift AIS - AIM



# Paradigm Shift AIS - AIM



# Paradigm Shift AIS - AIM



## Trends - AIM

// Data Centric Approach

// Data Sets instead of AIP pages

// Incentives for States

// 3 Types of Services

// Data Chain: Origination → AIS →  
Next Intended User

// New Annex 15 totally restructured

// New PANS-AIM / Data Catalogue

// 4 Volumes AIS Manual

### Three Types of Service for AIS:

1. Aeronautical Information in standardized presentation (not AIP)
2. Data Sets
3. Distribution (what ever form/way)

### Other considerations:

1. ATS Routes are step by step disappearing
2. Ground based navigational aids are replaced by GNSS
3. Area related data get reduced
4. Aerodrome data getting more (AMDB provision in new Annex 15/PANS-AIM/Data Catalogue)
5. PBN IFP getting more, an IFR approach can be designed for any location (THR) on earth

### Time line (planned)

1. ANC Pre-Liminary Review Nov 2016
2. State Letter
3. ANC Final Review Autumn 2017
4. Publication July/August 2018
5. Applicability Nov 2018