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| WEATHER CLIMATE WATER | **World Meteorological Organization**  **COMMISSION FOR OBSERVATION, INFRASTRUCTURE AND INFORMATION SYSTEMS**  **Second Session** 24 to 28 October 2022, Geneva | **INFCOM-2/INF. 6.1(5)** |
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## UPDATE OF THE IMPLEMENTATION PLAN FOR THE WMO-IATA COLLABORATIVE AMDAR PROGRAMME

This high-level Implementation Plan for the WMO-IATA Collaborative AMDAR Programme (WICAP) describes the structures and processes for the development the WICAP based on the WICAP Concept of Operations according to [Resolution 39 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827/#page=138) - Establishment of Collaboration Between the International Air Transport Association and WMO on the Development and Operation of the Aircraft Meteorological Data Relay Programme.

All six WMO Regional Associations have approved decisions to develop a regional AMDAR Programme under WICAP and have all either commenced or completed the establishment of ABO regional work groups. This updated version of the plan (see [annex](#Annex)) details the progress made within the Regional Associations and establishes new timelines for WICAP development considering aviation industry recovery expectations which have impacted WICAP development progress significantly.

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[Annex 1](#Annex)

## Annex

Implementation Plan for the

WMO-IATA Collaborative AMDAR Programme (WICAP)

Version ~~7~~8

Change History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Date of Release** | **Changes Made** | **Reviewer/ Approver** | **Editor** |
| D1 | 5 February 2019 | Version developed by TT-IWCA sub-group | S. Stringer | D. Lockett |
| D2 | 14 February 2019 | Review by TT-IWCA, with input from J. Dibbern, A. Rea Added Annex I – Gantt chart Removed Annex II | TT-IWCA | D. Lockett |
| D3 | 4 March 2019 | Revision based on review by, IATA, Presidents CBS, CIMO, CAeM, IPET-ABO  Updated Annex I | A. Rea | D. Lockett |
| D4 | 23 June 2020 | Timelines of implementation, Communication and Outreach chapter updated, other minor changes | TT-IWCA | M. Huuskonen |
| D5 | 11 Sept | Timeline for WICAP implementation according to expectation the WICAP Data Policy will be approved by Cg-19 | Etienne Charpentier | M. Huuskonen |
| D6 | 3 Nov 2020 | Timeline for WICAP implementation according to the outcomes of EC-72 | Etienne Charpentier | M. Huuskonen |
| 7 | 18 Jan 2021 | Minor adjustments and updates | WICAP Governing Board | F. Rodriguez |
| 8 | 7 Sept 2022 | Update of timelines | CG-WICAP | M. Huuskonen |

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# Introduction

This document provides a high-level Implementation Plan for the WMO-IATA Collaborative AMDAR Programme (WICAP). Its purpose is to describe the development and establishment of the WICAP and its various frameworks, structures and processes as described in the WICAP Concept of Operations (ConOps, Reference 2) and in accordance with the WICAP Working Arrangement between IATA and WMO.

For the purposes of the WICAP Implementation Plan (WICAP-IP), the document will describe the strategy and plans associated with the development and implementation of the following key elements of the WICAP and their associated processes, as described in the ConOps:

1. Programmatic Structure
2. Operational Structure - Regional Operational Structures in each WMO Region (6)
3. Legal Framework
4. Funding Framework

Associated with these elements are the key deliverables and outcomes of the WICAP-IP described in the section below.

It should be noted that, while the establishment of the WICAP was originally scheduled to take place over a relatively short time span from 2020 to 2023[[1]](#footnote-2) and is, therefore, seemingly very ambitious and optimistic, the implementation does not assume or plan that this means that the AMDAR coverage will be optimal at the end of this timeframe. It is recognized that the process of continuous improvement and gradual building of the observing system coverage will take considerably longer than this timeline and, at the end of the WICAP-IP, the framework for supporting this ongoing developmental process will have been established.

In 2020, the impact of the COVID-19 outbreak in the aviation industry has been extremely severe and affected the airline’s expected revenue generations and investing capabilities worldwide. This situation and the expected slow industry recovery[[2]](#footnote-3) may certainly impact the programme expansion plans in the medium term.

Adjusted plans and targets for the expansion of the program, including the recruitment of new partner airlines, will be determined by each Regional Association through the WICAP planning process, and revised periodically

Additionally, in some cases, Regional Associations may elect to take a more cautious approach to the establishment of the supporting regional WICAP framework through the initial implementation in “pilot” mode.

All six WMO Regional Associations have approved decisions to develop a regional AMDAR Programme under WICAP and have all either commenced or completed the establishment of ABO regional work groups. This version of the plan details the progress made within the Regional Associations and establishes new timelines for WICAP development taking into account aviation industry recovery expectations which have impacted WICAP development progress significantly. ~~This version is created based on the outcomes of the Seventy-second Session of the Executive Council. According to the resolution 8 (EC-72) the Session adopted the WICAP Data Policy in principle and the timeline of the implementation plan is adopted accordingly to the timeframe where the WICAP Data Policy will be approved by the Executive Council in 2021.~~

# BackgrounD

The background to the establishment of the ~~initial~~ working arrangement between IATA and WMO is contained within Reference 1. This and other reference documents below provide the full background information on the WICAP and ~~will be~~are referenced throughout the WICAP-IP.

## Reference Documents

1. [Working Arrangement Between the International Air Transport Association (IATA) and the World Meteorological Organization (WMO) On the Establishment and Operation of the WMO-IATA Collaborative Aircraft Meteorological Data Relay (AMDAR) Programme (WICAP)](https://wmoomm.sharepoint.com/:b:/s/wmocpdb/EQ0puHHzd39FvVXZjoAJXOABhsHn6xNU8lZefQJZuys6dw?e=HWxOEz), October 2020
2. [Summary of Concept of Operations](https://wmoomm.sharepoint.com/:w:/s/wmocpdb/EXn92Txs_9NBk0WYwyoJAcoBDm9PfkuILz9yv3_T0iJaog?e=bhkOex), the WMO-IATA Collaboration on the AMDAR Programme
3. [WICAP Data Policy](https://wmoomm.sharepoint.com/:b:/s/wmocpdb/EVIoqSvZ1pZEn3KHyyIyF4kBRSG34BXKauGzLffssmiPEg?e=SdVt4G)

# Governance, Management and Execution of the WICAP-IP

For WMO, primary responsibility for the implementation and operation of the WICAP shall lie with ~~the WMO Executive Council and~~ the Commission for Observation, Infrastructure and Information Systems (INFCOM). The role of ~~WMO EC and/or~~ the INFCOM is to~~will~~:

* establish and appoint working groups to undertake activities and tasks associated with the implementation of the WICAP;
* approve the formation of the WICAP Programmatic Structure;
* approve WMO representation to the WICAP Governing Board; and
* authorize the use of WMO funds to support the implementation of the WICAP

The EC-72 dissolved the EC Task Team on IATA-WMO Collaboration on AMDAR (TT-IWCA) and transferred its remaining role and responsibilities to the Infrastructure Commission under the Standing Committee on Earth Observing Systems and Monitoring Networks (SC-ON), where the responsibility is taken over by the Joint Expert Team on Aircraft-Based Observing Systems (JET-ABO) and its sub-group Coordination Group on WICAP (CG-WICAP) with similar. JET-ABO ~~will~~ reports to the Infrastructure Commission which ~~will~~ reports further to EC on progress made in relation to the WICAP-IP.

WMO ~~will~~ also assigns responsibilities and roles to its various constituent bodies as described in, but not necessarily limited to, the ConOps, Section 4.C.vi (Reference 2).

Following the decision of WMO Congress (Resolution 39, Cg-18), to approve the establishment of the WICAP, the WMO ~~EC~~ INFCOM ~~will~~ ultimately remains responsible for the WICAP-IP and the approval of any future changes on behalf of WMO and its Members.

For IATA, primary responsibility for the implementation and operation of the WICAP shall lie with

The IATA Flight Operations Group (FOG), which will:

* ~~approve the formation of the WICAP Programmatic Structure;~~
* approve IATA representation to the WICAP Governing Board; and
* endorse the WICAP strategy and implementation plans.

WMO and IATA have entered into the ~~new~~ Working Arrangement on the Establishment and Operation of WICAP and the WICAP Data Policy (Reference 3) was attached as an Annex to the Working Arrangement followed by its separated approval process.

The WICAP-IP is deemed to be complete when all Deliverables and Outcomes have been achieved, after which the WICAP will be fully operational.

Formed by IATA and WMO, the WICAP Governing Board has its designated role in the implementation and operation of the WICAP.

# Key Deliverables and Outcomes

The WICAP implementation is undertaken in a phased approach with each RA adapting and setting its own timelines for regional implementation based on those proposed within the WICAP IP below. In this way implementation activities can be undertaken in parallel, both across Regions and within each Region.

The responsibility for defining and developing the individual WICAP Regional Development Plan (W-RDP) and Regional Operational Plan (W-ROP) will rest with the regional working group on Aircraft-Based Observations ~~(WG-ABO-XX, where XX denotes I, II... VI, corresponding to the WMO Region)~~, proposed to be established by each Regional Association in accordance with the WICAP ConOps.

The Regional ~~will~~ plans identify the operational structure for the Region and which Members will be given formal responsibility for operating the Regional WICAP Centres (RWC) for AMDAR Data Processing (ADP) and for AMDAR Planning and Resource Mobilisation (APRM). Once appointed, it will be the responsibility of the RWC-APRMs, in cooperation with the WG-ABO, the RWC-ADPs and the OPCT to coordinate the development of WICAP within the Region through to operational status.

Establishing the Governance structure and adoption of the required frameworks and structures have ~~will~~ begun ~~immediately~~ after the Working Arrangement on the WICAP is put in place by IATA & WMO. ~~Once the~~ The WICAP Governing Board (GB) and ~~is established~~, the WICAP Oversight Planning and Coordination Team (OPCT) ~~will also~~ have been established in 2020.~~, which will~~ The OPCT assists in the development of the standard agreements and the developmental and operational processes in each RA. If, and as necessary, Ad hoc Task Teams (ATTs) to support WICAP implementation will be formed. The OPCT ~~will~~ guides and assists the Regional WIGOS Centres and working groups in developing and implementing WICAP. IATA ~~will~~ plays the major role of ensuring and facilitating an optimal response to meeting the requirements for AMDAR data from partner airlines and the aviation industry.

The WICAP-IP aims to deliver the Key Deliverables and Outcomes associated with the Key Elements of the WICAP-IP as listed below.

| **Element** | **Deliverable** | **Outcomes** | **Responsibility** | **Completed By** | **Status** |
| --- | --- | --- | --- | --- | --- |
| Legal Framework | WICAP Data Policy | WICAP Data Policy established under the IATA-WMO Working Arrangement | ~~TT-IWCA~~CG-WICAP, SG-WMO, DG-IATA | Q2/2021 | ~~On-going~~ Completed |
| Programmatic Structure | IATA-WMO Working Arrangement on the Establishment and Operation of the WICAP | WA in place and signed by both organizations. | ~~TT-IWCA~~CG-WICAP, SG-WMO, DG-IATA | Q4/2020 | Completed |
| Programmatic Structure | WICAP Governing Board | WICAP GB established with Terms of Reference agreed by WMO and IATA within the WA. | DG-IATA, SG-WMO, CG-WICAP | Q4/2020 | Completed |
| Programmatic Structure | WICAP Oversight Planning and Coordination Team | OPCT established and commenced its role to assist in establishment of the WICAP | ~~TT-IWCA~~CG-WICAP, DG-IATA, SG-WMO | Q1/2021 | ~~Not started~~ Completed |
| Legal Framework | Standard Operator/airline Agreement | Template agreement for WICAP Operator/ airline that can be used by RWC-ADPs established | GB, OPCT, ~~TT-IWCA~~CG-WICAP | Q~~3~~4/2022~~1~~ | Ongoing |
| Legal Framework | Standard Operator/Participating Member Agreement | Template agreement for WICAP Operator/Participating Member established that can be used by RWC-PRMs to agree on commitment of resources to support WICAP development and operations | GB, OPCT, ~~TT-IWCA~~CG-WICAP | ~~Q3/2021~~As needed | ~~Not started~~ Not active |
| Programmatic Structure | Ad hoc Task Teams | Any required Ad Hoc Task Teams to support implementation of the WICAP established under the direction of the GB. | GB and OPCT | If required | Not started |
| Programmatic Structure | RA VI Requirements, Regional Development Operational Plans and Budgets | RA VI plans for implementation and operation established | RA VI, RA VI/WG-ABO, OPCT | Q4/2021 | ~~On-going~~ Completed |
| Operational Structure | Establishment of Operational Structure within WMO Region VI | Operational elements of the WMO Region VI WICAP established; Operational global elements of the WICAP established. | RA VI, RA VI/WG-ABO, OPCT | Q~~3~~4/202~~2~~3 | On-going |
| Programmatic Structure | RA V Requirements, Regional Development Operational Plans and Budgets | RA V plans for implementation and operation established | RA V, RA V/ ~~WG-ABO~~TT-WICAP TT-WICAP, OPCT | Q~~4~~2/202~~1~~4 | ~~On-going~~ Start-up Phase |
| Operational Structure | Establishment of Operational Structure within WMO Region V | Operational elements of the WMO Region V WICAP established. | RA V, RA V/WG-ABO, OPCT | Q4/2025~~4~~ | Not started |
| Programmatic Structure | RA III Requirements, Regional Development Operational Plans and Budgets | RA III plans for implementation and operation established | RA III, RA III/WG-ABO, OPCT | Q4~~3~~/2023~~1~~ | Ongoing |
| Operational Structure | Establishment of Operational Structure within WMO Region III | Operational elements of the WMO Region III WICAP established. | RA III, RA III/WG-ABO, OPCT | Q4~~3~~/2024~~2~~ | Not started |
| Programmatic Structure | RA I Requirements, Regional Development Operational Plans and Budgets | RA I plans for implementation and operation established | RA I, RA I/WG-ABO, OPCT | Q4~~3~~/2022~~1~~ | Ongoing |
| Operational Structure | Establishment of Operational Structure within WMO Region I | Operational elements of the WMO Region I WICAP established. | RA I, RA I/WG-ABO, OPCT | Q4~~3~~/2023~~2~~ | Not started |
| Programmatic Structure | RA IV Requirements, Regional Development Operational Plans and Budgets | RA IV plans for implementation and operation established | RA IV, RA IV/WG-ABO, OPCT | Q2/2023~~2~~ | ~~Not started~~ On-going |
| Operational Structure | Establishment of Operational Structure within WMO Region IV | Operational elements of the WMO Region IV WICAP established. | RA IV, RA IV/WG-ABO, OPCT | Q2/2024~~3~~ | Not started |
| Programmatic Structure | RA II Requirements, Regional Development Operational Plans and Budgets | RA II plans for implementation and operation established | RA II, RA II/WG-ABO, OPCT | Q4~~3~~/2023~~2~~ | ~~Not started~~ On-going |
| Operational Structure | Establishment of Operational Structure within WMO Region II | Operational elements of the WMO Region II WICAP established. | RA II, RA II/WG-ABO, OPCT | Q4~~3~~/2024~~3~~ | Not started |

# Achievements 2018-2022

# Activities and Timelines

The establishment of the WICAP Governing Body (GB), Oversight, Planning and Coordination Team (OPCT) and other entities ~~are undertaken over~~ have been completed in 2020-21.

While each RA ~~will be~~ is responsible for establishing their own operational and programmatic structures and planning and budgeting processes, these ~~will~~ all have common elements, allowing the overall WICAP implementation to be defined in terms of a number of discrete work packages (WP) and activities that ~~will be~~ are common on to all RAs. These are:

WP1: Regional Association Decision and Work Group Establishment

1. RA Session in-principle agreement for Regional AMDAR Programme development under WICAP
2. Seek nominations and agreement on members, ToRs & Chair for RA WG-ABO
3. RA WG-ABO develops work plan

WP2: Define Regional Requirements for AMDAR Data

1. RA to develop and approve Regional AMDAR data requirements based on the requirements of the Global Basic Observing Network

WP3: Establish Regional Operational Structure & Plans

1. Based on WICAP ConOps, define regional operational and financial structures and related procedures and processes
2. Designate and establish RWC(s) for AMDAR Data Processing (RWC-ADP) and AMDAR Planning and Resource Mobilisation (RWC-APRM)
3. Determine Participating NMHS and national data requirements
4. Identify new airlines required for participation in WICAP
5. Based on the Aircraft-Based Observations Regional Implementation plan (A-RIP), finalise the WICAP Regional development and operational plans and budgets (W-RDP and W-ROP) as components of the WICAP Global Development and Operational Plans

WP4: Development and Operational Plans Approvals

1. GB to review and approve WICAP global plans
2. RA to review and approve W-RDP and W-ROP
3. Establish agreements/MoUs for NMHS provision of funding

WP5: Implementation of WICAP Regional AMDAR Programme

1. Implement RWC-ADP centre functions as required, including QC & performance monitoring
2. Establish agreements new airlines
3. Establishment agreements with required 3rd parties, including Data Service Providers
4. Comments activities of the RWC-ADP

WP6: Operations and Continuous Development/Improvement

1. Operate the Regional programme
2. Maintain and update requirements
3. Maintain and update regional plans and budgets
4. Introduce new airlines, infrastructure improvements as required

While in the table below, the Regional work packages are listed in order of RAs I through VI, the chronological timelines are based on the expected commencement of Work Package 1 for each region, leading to the following expected timeframe for commencement and provisional and earliest likely estimation of completion:

* RA VI: Q4 2018 – Q4~~3~~ 2023~~2~~
* RA V: Q3 2019 – Q4 2025~~2~~
* RA III: Q1 2020 – Q4~~3~~ 2024~~2~~
* RA I: Q2 2019 – Q4~~3~~ 2023~~2~~
* RA IV Q4 2020 – Q2 2024~~3~~
* RA II: Q1 2021 – Q4~~3~~ 2024~~3~~

In practice and recognizing that Work Package 6 incorporates continuous development and improvement, while the WICAP Implementation Plan is expected to be completed by end-2025, implementation of the operational WICAP will continue beyond.

Based on the series of Work Packages applicable for WMO Regional Associations, the following activities and timeline summarily define the WICAP Implementation Plan.

| **Work Package or Entity** | **Activity** | **Lead** | **Start Date** | **Earliest End Date** | **Status** |
| --- | --- | --- | --- | --- | --- |
| **Global/ Oversight** | | | | | |
| Approval of WICAP | Define & Agree WICAP Data policy | ~~CG-WICAPTT-IWCA~~ | Q3 2018 | Q2 2021 | ~~On-going~~ Completed |
| Develop and establish the IATA-WMO Working Arrangement & supporting documentation for WICAP | ~~CG-WICAPTT-IWCA~~ | Q3 2018 | Q4 2020 | Completed |
| Approval by Cg-18 & IATA | WMO Congress, DG-IATA | Q2 2019 | Q2 2019 | Completed |
| Governing Board | Determine Membership, Chair & establish GB;  Agree ToRs, Frameworks, etc., | SG-WMO, DG-IATA, ~~CG-WICAPTT-IWCA~~ | Q3 2019 | Q1 2021 | ~~On-going~~ Completed |
| OPC | Specify & recruit OPCT roles & establish OPCT | SG-WMO, DG-IATA,  ~~CG-WICAP~~ ~~TT-IWCA~~ | Q1 2019 | Q1 2021 | ~~On-going~~ Completed |
| Develop standard RA Operator/Airline Agreement | OPCT, GB | Q1 2020 | Q4~~3~~ 2022~~1~~ | On-going |
| Develop standard RA Operator & participating Member Agreement | OPCT, GB | As needed | ~~Q3 2021~~ | Not ~~started~~ active |
| Specify, select & appoint Global WICAP Centre for AMDAR Data Optimisation | OPCT, GB | As needed | ~~Q4 2021~~ | Not ~~started~~ active |
| Develop/trial/Operational G-ADOS | OPCT, GB | As needed | ~~Q1 2022~~ | Not ~~started~~ active |
| Appoint Global WICAP Centre for AMDAR Quality Evaluation | OPCT, GB | As needed | ~~Q4 2021~~ | Not ~~started~~ active |
| Appoint Global WICAP Centre for AMDAR Monitoring | OPCT, GB | As needed | ~~Q4 2021~~ | Not ~~started~~ active |
| **RA I** | | | | | |
| WP1 | Regional Association Decision and Work Group Establishment | WMO RA I | Q2 2019 | Q3 2020 | Completed |
| WP2 | Define Regional Requirements for AMDAR Data | RA I MG, WG-ABO-I | Q3 2020 | Q3 2022~~1~~ | ~~On-going~~ Completed |
| WP3 | Establish Regional Operational Structure & Plans | RA I MG, WG-ABO-I, RWC-APRM, OPCT | Q3 2020 | Q4~~3~~ 2022~~1~~ | On-going |
| WP4 | Development and Operational Plans Approvals | GB,  RA I MG | Q4 2022~~1~~ | Q1~~4~~ 2023~~1~~ | Not started |
| WP5 | Implementation of WICAP Regional AMDAR Programme | RWC-ADP, RWC-APRM, WG-ABO-I, OPCT | Q1 2022 | Q4~~3~~ 2023~~2~~ | Not started |
| WP6 | Operations and Continuous Development/Improvement | RWC-ADP, RWC-APRM, WG-ABO-I, OPCT | Q1~~4~~ 2024~~2~~ | Ongoing | Not started |
| **RA II** | | | | | |
| WP1 | Regional Association Decision and Work Group Establishment | WMO RA II | Q2~~1~~ 2021 | Q4~~3~~ 2022~~1~~ | ~~Not started~~ On-going |
| WP2 | Define Regional Requirements for AMDAR Data | RA II MG, WG-ABO-II | Q4~~3~~ 2022~~1~~ | Q2 2023~~2~~ | Not started |
| WP3 | Establish Regional Operational Structure & Plans | RA II MG, WG-ABO-II, RWC-APRM, OPCT | Q1~~4~~ 2023~~1~~ | Q4~~3~~ 2023~~2~~ | Not started |
| WP4 | Development and Operational Plans Approvals | GB,  RA II MG | Q1~~4~~ 2024~~2~~ | Q2~~4~~ 2024~~2~~ | Not started |
| WP5 | Implementation of WICAP Regional AMDAR Programme | RWC-ADP, RWC-APRM, WG-ABO-II, OPCT | Q1 2024~~3~~ | Q4~~3~~ 2024~~3~~ | Not started |
| WP6 | Operations and Continuous Development/Improvement | RWC-ADP, RWC-APRM, WG-ABO-II, OPCT | Q1~~4~~ 2025~~3~~ | Ongoing | Not started |
| **RA III** | | | | | |
| WP1 | Regional Association Decision and Work Group Establishment | WMO RA III | Q4 2018 | Q4 2019 | Completed |
| WP2 | Define Regional Requirements for AMDAR Data | RA III MG, WG-ABO-III | Q4 2019 | Q3~~4~~ 2022~~0~~ | ~~On-going~~ Completed |
| WP3 | Establish Regional Operational Structure & Plans | RA III MG, WG-ABO-III, RWC-APRM, OPCT | Q1 2020 | Q4~~3~~ 2023~~1~~ | On-going |
| WP4 | Development and Operational Plans Approvals | GB,  RA III MG | Q4 2023~~1~~ | Q1~~4~~ 2024~~1~~ | Not started |
| WP5 | Implementation of WICAP Regional AMDAR Programme | RWC-ADP, RWC-APRM, WG-ABO-III, OPCT | Q1 2024~~2~~ | Q4~~3~~ 2024~~2~~ | Not started |
| WP6 | Operations and Continuous Development/Improvement | RWC-ADP, RWC-APRM, WG-ABO-III, OPCT | Q1~~4~~ 2025~~2~~ | Ongoing | Not started |
| **RA IV** | | | | | |
| WP1 | Regional Association Decision and Work Group Establishment | WMO RA IV | Q4 2020 | Q4~~2~~ 2022~~1~~ | On-going |
| WP2 | Define Regional Requirements for AMDAR Data | RA IV MG, WG-ABO-IV | Q1~~2~~ 2022~~1~~ | Q1 2023~~2~~ | ~~Not started~~ On-going |
| WP3 | Establish Regional Operational Structure & Plans | RA IV MG, WG-ABO-IV, RWC-APRM, OPCT | Q1 2022 | Q2 2023~~2~~ | ~~Not started~~ On-going |
| WP4 | Development and Operational Plans Approvals | GB,  RA IV MG | Q2~~3~~ 2023~~2~~ | Q4~~3~~ 2023~~2~~ | Not started |
| WP5 | Implementation of WICAP Regional AMDAR Programme | RWC-ADP, RWC-APRM, WG-ABO-IV, OPCT | Q2~~4~~ 2023~~2~~ | Q2 2024~~3~~ | Not started |
| WP6 | Operations and Continuous Development/Improvement | RWC-ADP, RWC-APRM, WG-ABO-IV, OPCT | Q3 2024~~3~~ | Ongoing | Not started |
| **RA V** | | | | | |
| WP1 | Regional Association Decision and Work Group Establishment | WMO RA V | Q4~~3~~ 2022~~18~~ | Q1 2023~~1~~ | On-going |
| WP2 | Define Regional Requirements for AMDAR Data | RA V MG, TT-WICAP-V | Q1~~2~~ 2023~~19~~ | Q4~~2~~ 2023~~1~~ | ~~On-going~~ Not started |
| WP3 | Establish Regional Operational Structure & Plans | RA V MG, TT-WICAPV, RWC-APRM, OPCT | Q1 2024~~19~~ | Q4 2024~~1~~ | ~~On-going~~ Not started |
| WP4 | Development and Operational Plans Approvals | GB,  RA V MG | Q4~~1~~ 2024~~2~~ | Q1 2025~~2~~ | Not started |
| WP5 | Implementation of WICAP Regional AMDAR Programme | RWC-ADP, RWC-APRM, WG-ABO-V, OPCT | Q2 2025~~2~~ | Q4 2025~~2~~ | Not started |
| WP6 | Operations and Continuous Development/Improvement | RWC-ADP, RWC-APRM, WG-ABO-V, OPCT | Q1 2026~~3~~ | Ongoing | Not started |
| **RA VI** | | | | | |
| WP1 | Regional Association Decision and Work Group Establishment | WMO RA VI | Q3 2018 | Q4 2018 | Completed |
| WP2 | Define Regional Requirements for AMDAR Data | RA VI MG, WG-ABO-VI | Q4 2018 | Q2 2019 | Completed |
| WP3 | Establish Regional Operational Structure & Plans | RA VI MG, WG-ABO-VI, RWC-APRM, OPCT | Q1 2019 | Q4 2021 | ~~On-going~~ Completed |
| WP4 | Development and Operational Plans Approvals | GB,  RA VI MG | Q1 2022 | Q1 2022 | ~~On-going~~ Completed |
| WP5 | Implementation of WICAP Regional AMDAR Programme | RWC-ADP, RWC-APRM, WG-ABO-VI, OPCT | Q2 2022 | Q4~~3~~ 2023~~2~~ | Not started |
| WP6 | Operations and Continuous Development/Improvement | RWC-ADP, RWC-APRM, WG-ABO-VI, OPCT | Q1~~4~~ 2024~~2~~ | Ongoing | Not started |

The above activities and timelines are depicted in the Implementation Plan Timeline within [Annex I](#Annex1).

# Resources

The following resource ~~commitment~~ estimation is expected to be required to finance the establishment of the WICAP global and regional programmatic structures. This does not include the costs of WICAP AMDAR programme implementation and ongoing costs at the regional and global level, which ~~will be~~ are subject to regional planning and funding by WMO participating members and have been broadly estimated within the full Concept of Operations, Section 7. Staff resource estimates is a combination of WMO Member and WMO Secretariat.

| **Element** | **Entity** | **Activity** | **Staff resource estimate** | **~~WMO Member Staff Resource~~** | **~~IATA Staff Resource~~** | **~~WMO Staff Resource~~** | **~~Resource~~ ~~IATA~~ Budget estimate ~~WMO~~ (000s CHF)[[3]](#footnote-4)** | **Budget actual 2020**  **(000s CHF)** | **Budget actual 2021 (000s CHF)** | **Period of Expenditure** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WMO-IATA Working Arrangement | ~~EC TT-IWCA~~  INFCOM SC-ON JET-ABO | Task Team work plan including documentation for Cg-18 | 2 FTE | ~~4 x 0.2 fte4 pa~~ | ~~3 x 0.2 fte pa~~ | ~~1 x 0.5 fte pa~~ |  |  |  | Jun 2018 – Dec 2020 |
| 1 x meetings - held |  |  |  |  |  | 3 |  |
| WICAP Governance | Governing Board (GB) | Operation | 0.3 FTE |  | ~~5 x 0.05 fte pa~~ | ~~5 x 0.05 fte pa~~ |  |  |  | Oct 2020 – Dec 2025~~3~~ |
| 3 x Meetings |  |  |  |  |  | ~~30~~0 |  |
| WICAP Coordination | Oversight, Planning & Coordination Team (OPCT) | Operation, Staffing | 2.5 FTE |  | ~~1 x 1 fte pa~~ | ~~1 x 1 fte pa~~ |  | 60 | 60 | Jan 2020 – Dec 2025~~3~~ |
| Consultation | 1 FTE |  |  |  |  |  | 87 |
| T&S (15k pa) – attend RA meetings + others to support technical development |  |  |  |  |  | 0 | 0 |
| RA I | RA I WG-ABO |  | 0.5 FTE | ~~8 x 0.1 fte pa~~ |  |  |  | 0 | 0 | Jul 2020 – Dec 2023~~2~~ |
| Workshop 15k + logistical cost of 7500 |  |  |  |  | 22.5 |  |  |
| RA II | RA II WG-ABO |  | 0.5 FTE | ~~8 x 0.1 fte pa~~ |  |  |  |  |  | Jan 2021 - Dec 2024~~3~~ |
| Workshop 15k + logistical cost of 7500 |  |  |  |  | 22.5 | 0 | 0 |
| RA III | RA III WG-ABO |  | 0.5 FTE | ~~8 x 0.1 fte pa~~ |  |  |  |  |  | April 2020 – Dec 2024~~2~~ |
| Workshop 15k + logistical cost of 7500 |  |  |  |  | 22.5 | 0 | 0 |
| RA IV | RA IV WG-ABO |  | 0.5 FTE | ~~8 x 0.1 fte pa~~ |  |  |  |  |  | Jan 2021 - Sep 2024~~3~~ |
| Workshop 15k + logistical cost of 7500 |  |  |  |  | 22.5 | 0 | 0 |
| RA V | RA V WG-ABO |  | 0.5 FTE | ~~8 x 0.1 fte pa~~ |  |  |  |  |  | Jul 2019 - Dec 2025~~2~~ |
| Workshop x 2@15k + logistical cost of 7500 |  |  |  |  | 45 | 15 (2019) | 0 |
| RA VI | RA VI WG-ABO |  | 0.5 FTE | ~~8 x 0.1 fte pa~~ |  |  |  |  |  | Oct 2020 – Dec 2023~~2~~ |
|  |  |  |  |  | 0 | 0 | 0 |

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# Risk Management

The risk management is the practice of identifying, evaluating, and preventing ~~or~~ and mitigating risks to the programme. There are identified potential risks, its likelihood and impact to plan actions for mitigating these risks. They are maintained on a regular basis in the WICAP Risk Register which is managed and overseen by OPCT and the Coordination Group on WICAP (CG-WICAP). The risk register is updated on a monthly basis and the Governing Board is informed of any alerting risks.

# Capacity Development

The following capacity development activities and resources ~~will be~~ are required to support the WICAP-IP.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Element** | **Deliverable / Outcome** | **Activity** | **Undertaken by** | **Details** | **Cost** |
| ~~IATA & WMO Aviation Weather Forum~~ Aviation engagement | Interaction with met. and aviation communities on establishment of the WICAP and utilization of ABO data. | ~~3 day conference, workshops, on AMDAR, turbulence monitoring, data use, data impact~~  One-to-one communication or targeted online events as needed | IATA and WMO | ~~Date TBD, no earlier than Q1 2021~~ As feasible per region | ~~TBD~~ None |
| Programmatic Structure | Establishment of regional plans for implementation and operation of WICAP;  Establishment of operational elements of regional operations ~~including~~ under Regional WIGOS Centers. | WMO Regional workshop to support establishment of Regional ~~WIGOS~~ Requirements and Operational Structure for WICAP ~~Centers and the establishment of requirements under WICAP~~ in conjunction with RA WG-ABO meetings. | WMO~~/CBS/IPET~~JET-ABO, WMO JET-ABO, RA WGs on ABO, ~~WMO/DRA/ETR~~ | ~~4~~2 per year undertaken with regional ABO working group meetings, with coordination by WMO/DRA/RO. | 20K per annum ~~supported by AMDAR Operating Fund.~~ |

# Communications and Outreach

For the WICAP-IP, a range of communications and outreach activities ~~will be~~ are planned to:

* Encourage meteorological and aviation partners to participate in and support the IP;
* Ensure the implementation activities and processes are supported by those responsible or those that can assist; and
* Highlights risks and issues associated with the implementation to facilitate their rectification.

Communications associated with programme operation are not included here and the more detailed communication activities are listed in the WICAP Communication Strategy and Plan.

The following related activities are planned:

| **Communications Activity** | **From / to** | **Process** | **Resource Requirements** | **Purpose** | **Frequency** |
| --- | --- | --- | --- | --- | --- |
| Reporting implementation status and issues with IP | ~~EC/TT-IWCA to WMO EC~~ CG-WICAP to INFCOM | Written report | Nil | * Highlight resource or timeline issues * Report against WICAP-IP KPIs | ~~At least annually and~~ as required to highlight important issues. |
| Reporting implementation status and issues with IP  Reporting status and issues with operations that might affect implementation plans | OPCT to GB | Written report | Nil | * Highlight resource or timeline issues * Report against WICAP-IP KPIs | ~~At least annually and~~ as required to highlight important issues. |
| Reporting implementation status and issues with IP | GB to IATA-DG and WMO-SG | Written report | Nil | * Highlight resource or timeline issues * Report against WICAP-IP KPIs | ~~At least annually and~~ as required to highlight important issues. |
| Report on regional progress and status of implementation of regional WICAP | RA/WG-ABOs to WMO Regional Associations | Report to RA session via parent work group. | Nil | * Report on progress of regional implementation of the WICAP * Encourage Member participation * Highlight implementation and operational issues * Report against WICAP-IP KPIs | Each parent WG meeting and each WMO RA session. |
| Request for WMO Members to participate and support the WICAP | RA/WG-ABOs to RA Members | Letter to be sent ~~annually~~ providing progress on regional implementation and to request partnership | Nil | Increase participation in the programme and support its expansion | A~~nnual and a~~s required in lead-up to initial implementation |
| ~~Joint IATA and WMO Aviation Weather Forum Event~~ | ~~IATA and WMO to all possible WICAP stakeholders including:~~   * ~~NMHS experts, managers~~ * ~~Airline key personnel, managers, etc.~~ * ~~Aviation product and service providers, including, aircraft manufacturers, avionics vendors and applications developers~~ * ~~Data users~~ | ~~High~~ | ~~Consultancy for WMO to support programme organisation and coordination, participation, promotion of met. Stakeholders. (20K committed from AMDAR Operating Fund)~~ | * ~~Launch the WICAP~~ * ~~Promote the WICAP~~ * ~~Encourage stakeholder participation~~ * ~~Encourage aviation service and product providers support and participation~~ | ~~Single~~ |
| Request for IATA airline members to participate in the WICAP | SFO Division, including Regional Offices to IATA airlines | Letter to be sent ~~annually~~ providing progress on regional implementation and to request partnership | Nil | Increase participation in the programme and support its expansion | A~~nnual and a~~s required in lead-up to initial implementation |
| Promote WICAP and inform the progress of WICAP implementation in the IATA Regional Coordination Group Meetings | SFO Division, including Regional Offices to IATA airlines | Presentations, WICAP promotion material | Nil | Promote WICAP | Annual |
| Maintain WICAP website ~~Implement an online site for the WICAP and link to WMO, IATA and other key stakeholder websites~~ | WICAP to Stakeholders, Partners and Public  ~~To be developed by WMO, and IATA will provide input and content and link to IATA website.~~ | ~~Initial website construction might be undertaken by the OPCT~~ Maintenance of the website content | ~~Require a host website~~  ~~Initial implementation possibly requires up to 1 month FT work~~  Nil | * Promote WICAP * Provide a point of reference for program partners to promote their participation * Advise on progress of implementation * Provide operational information/statistics/benefits * Support news and newsletter distribution | ~~Initial implementation and ongoing maintenance required~~ Ongoing maintenance |
| ~~Migrate the WICAP website to an independent and lifelong platform~~ | ~~WICAP to Partners, Stakeholders and public~~ | ~~Migrate the current website as an entity over a new platform~~ | ~~Migration requires up to 1 week FT work~~ | * ~~Current license for WICAP website over the Google platform expires~~ | ~~Single action~~ |
| ~~Implement a webpage with general information on WICAP to the respective websites of IATA and WMO. To link it with the stand-alone WICAP website.~~ | ~~WICAP to public~~ | ~~IATA and WMO to implement their own pages with input from the other party~~ |  | * ~~Promote WICAP~~ * ~~Provide an enter point to WICAP~~ | ~~Less maintenance - n o changing information~~ |
| ~~Webinars for Aviation industry and other Partners~~  ~~Topics, e.g. introduction to WICAP, benefits of WICAP, requirements for participation~~ | ~~WICAP to Partners and Stakeholders~~ | ~~Develop short (approx. 15min) webinars with 3-4 languages~~ | ~~Development of around 2 weeks FT~~ | * ~~Promote WICAP for aviation~~ * ~~Provide information on WICAP in modern way~~ | ~~Single action~~ |
| ~~Develop technical report on benefits of WICAP.~~  ~~Consolidate a flyer of benefits~~ | ~~WICAP to Aviation Industry and Partners~~ | ~~Consultant to update the technical report form year 2014 with a targeted perspective~~ | ~~Editorial work of 25 days FT~~ | * ~~Promote WICAP with the latest information~~ * ~~Encourage Airlines to participate to WICAP~~ | ~~Single action~~ |
| Progress report to stakeholders and participants | WICAP to Stakeholders, Partners and Public | Routine information of general interest on the programme - newsletter format  Can likely be accommodated through the [existing WMO newsletter](https://sites.google.com/a/wmo.int/amdar-news-and-events/newsletters), although should be more widely distributed to aviation partners with help of IATA. | Editorial work of around 2 weeks FT for each edition | * Promote WICAP * Advise on progress of implementation * Provide operational information/statistics/benefits * Support news distribution | Twice annually |
| Update sessions to regional IATA teams and WMO members on the progress of the initiative | WICAP to Partners and Stakeholders | Routine information of general interest |  | * Updates on WICAP progress * Boost collaboration and address potential regional blockers | Twice annually |
| Inter-organizational communications via Microsoft Office 365 Tools | WICAP to Operators, WMO RAs, WMO Members and Stakeholders | Sharing of documents and meeting notes.  Forum for discussion within the ABO community. |  | * Routine communication between contributors | Daily basis |

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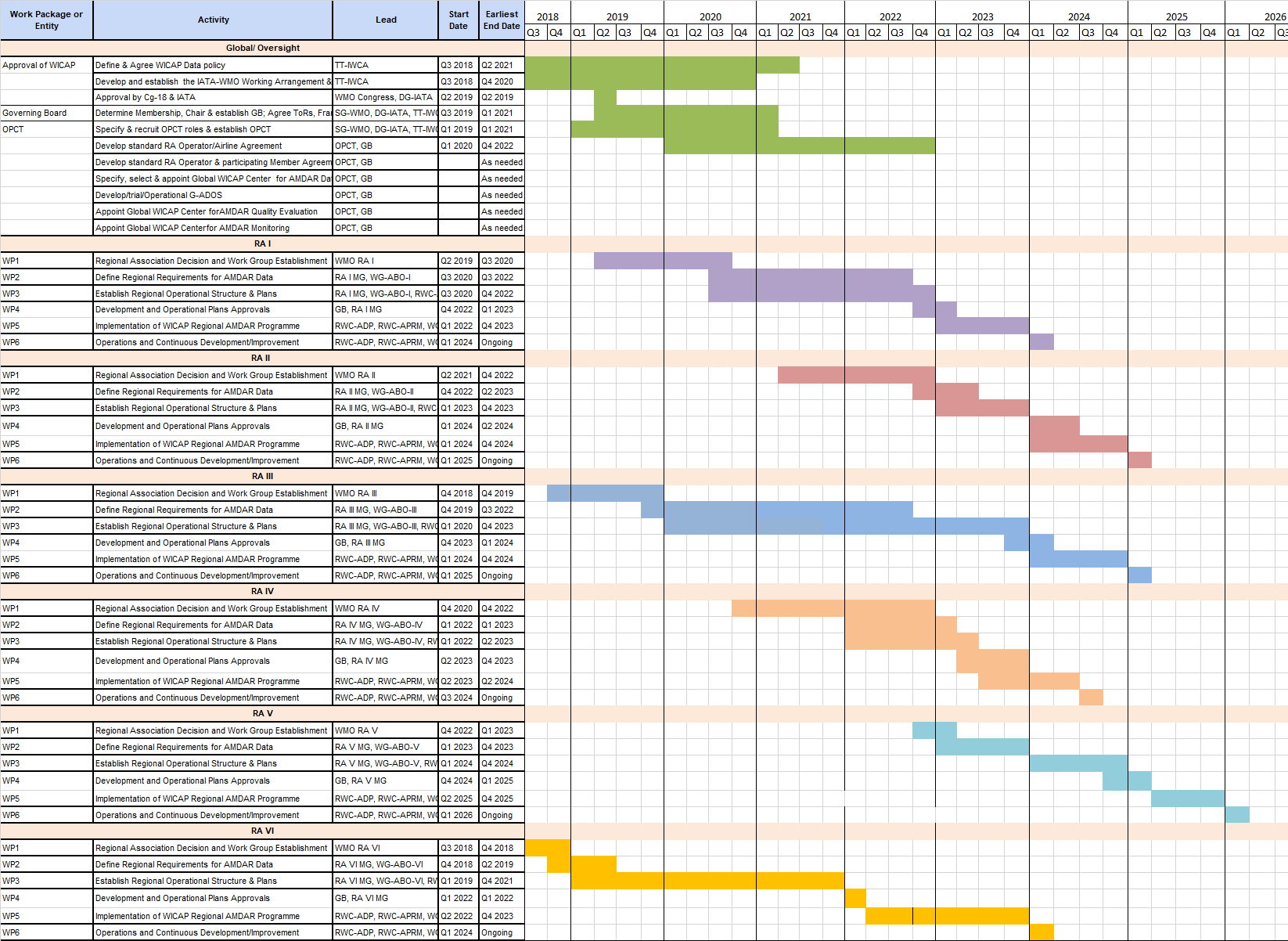
# Monitoring and Evaluation of the IP

The process of monitoring and evaluating progress on the WICAP-IP ~~will be~~ is facilitated through the reporting processes outlined in the previous section on Communications and Outreach. In addition to the more subjective reporting and analysis and the raising of issues that ~~will be~~ are expected within these reports, the monitoring and evaluation process ~~will be~~ is facilitated on a more objective basis through reporting against a set of Key Performance Indicators as outlined below and in relation to the completion or otherwise of each of the Activities above (see Activities and Timeline).

| **Key Performance Indicator (KPI)** | **Element** | **Criteria for Raising as Issue** | **Report by / to** |
| --- | --- | --- | --- |
| Number of WICAP-IP Activities completed of expected | All | Report immediately if Number of Activities is less than expected and important/critical activities are not able to be completed. | ~~EC/TT-IWCA~~ CG-WICAP to WMO ~~EC~~ JET-ABO and INFCOM  OPCT to GB  GB to IATA-DG and WMO-SG |
| Number of Elements established of expected | All | Report immediately if Number of Elements is less than expected and important/critical activities are not able to be completed. | ~~EC/TT-IWCA~~CG-WICAP/JET-ABO to WMO INFCOM~~EC~~  OPCT to GB  GB to IATA-DG and WMO-SG |
| Number of new airlines planned to join program of those targeted | Programmatic Structure (each Region) | Report annually if Number of new airlines is considered significantly less than target number based on targets in Regional Development and Operational Plans and Budgets | ~~EC/TT-IWCA~~CG-WICAP/JET-ABO to WMO INFCOM~~EC~~  OPCT to GB  GB to IATA-DG and WMO-SG  RA/WG-ABOs to WMO Regional Associations |
| Number of new WMO RA Members planned to join WICAP of existing Members | Programmatic Structure (each Region) | Report immediately if Number of new WMO RA Members is less than 80% of RA Members and if those Members with target Airlines have elected not to participate | ~~EC/TT-IWCA~~CG-WICAP/JET-ABO to WMO ~~EC~~INFCOM  OPCT to GB  GB to IATA-DG and WMO-SG  RA/WG-ABOs to WMO Regional Associations |
| Number of established RWCs of those required. | Operational Structure (each Region) | Report immediately if Number of new WMO RWCs is less than the number required | ~~EC/TT-IWCA~~CG-WICAP/JET-ABO to WMO ~~EC~~INFCOM  OPCT to GB  GB to IATA-DG and WMO-SG  RA/WG-ABOs to WMO Regional Associations |
| Number of regional Development and Operational Plans and Budgets of those required | Programmatic Structure | Report immediately if Number of plans is less than the number required | OPCT to GB |

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# Annex I – WICAP Implementation Plan Timeline



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1. The WICAP Working Arrangement signed on October 2020 between WMO and IATA stipulated and initial collaboration of 3 years. [↑](#footnote-ref-2)
2. Global passenger traffic (revenue passenger kilometers or RPKs) will not return to pre-COVID-19 levels until 2024 (*source IATA Economics*) [↑](#footnote-ref-3)
3. [↑](#footnote-ref-4)