国 际 民 用 航 空 组 织

工 作 文 件

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大会 — 第 41 届会议

技术委员会

议程项目 30： 航空安全和空中航行政策
议程项目 30.2： 与全球空中航行计划（GANP）有关的最新发展

空中航行的全面战略：
核准经更新的《全球空中航行计划》

（由国际民航组织理事会提交）

执行摘要

国际民航组织大会在其第 39 届会议上，同意视情况，通过 3 年作出一次次要更新和 6 年作出一次重大更新的方式，来扩展全球空中航行计划的生命周期，以便提供稳定性。尽管大会第 40 届会议核准的《全球空中航行计划》第六版是一次重大更新，载有若干次要更新的第七版建议在国际民航组织大会第 41 届会议加以核准。特别是，本提案包括对全球空中航行计划绩效框架的安全关键绩效领域的更新，以及使其保持最新的维护过程。文件强调强有力的空中航行系统对于实现预期的安全和复原力水平的重要性，并将基本构建组块（BBB）框架中概述的基本服务映射到普遍安全监督审计计划（USOAP）的规程问题（PQs）。此外，还提议对基本构建组块框架和航空系统组块升级（ASBU）框架进行次要更新，并着重提及基于航空业界为实现全球空中航行计划愿景所面临的挑战，而针对第八版的拟议要点。

行动：请大会：

a) 核准《全球空中航行计划》（GANP，Doc 9750 号文件）第七版，在全球空中航行计划门户网站可获取交互式格式；

b) 要求各成员国、地区规划和实施小组（PIRGs）以及航空业界所有成员根据全球空中航行计划不断改进空中航行系统，使其能够及时和有序地适应全球、地区和地方的机遇和挑战；和

c) 通过本文件附录 B 所载的大会 A40-1 号决议中提及全球空中航行计划的拟议修订。

战略目标：	本工作文件涉及安全及空中航行能力和效率的战略目标。
财务影响：	本文件中提及的各项国际民航组织活动，预期依据国际民航组织 2023 年至 2025 年业务计划的指导，在 2023 年至 2025 年经常方案预算和/或来自预算外捐助的可用资源范围内进行。

参考文件：	Doc 10160 号文件：《COVID-19 高级别会议（2021 年 10 月 12 日至 22 日，蒙特利尔），报告》 Doc 10140 号文件：《大会有效决议》（截至 2019 年 10 月 4 日） Doc 10118 号文件：《全球航空安保计划》 Doc 10115 号文件：《第十三次空中航行会议，2018 年 10 月 9 日至 19 日，蒙特利尔，报告》 Doc 10004 号文件：《全球航空安全计划》 Doc 9883 号文件：《空中航行系统全球绩效手册》 Doc 9854 号文件：《全球空中交通管理运行概念》 Doc 9750 号文件：《全球空中航行计划第六版》 GSG-GIPEG/2-SD 号文件附录 C：《编制对全球航行计划中安全绩效框架的拟议更新》（icao.int）

1. 引言

1.1 国际民航组织大会在其第 39 届会议上，同意视情况，通过 3 年作出一次次要更新和 6 年作出一次重大更新的方式，来扩展全球航空安全计划的生命周期，以便提供稳定性。虽然大会第 40 届会议核准的《全球空中航行计划》第六版是一次重大更新，特此建议核准载有若干次要更新的第七版。

1.2 国际民航组织大会在其第 40 届会议通过了 A40-1 号决议：国际民航组织关于安全与空中航行的全球规划，核准了《全球空中航行计划》第六版[1]（GANP，Doc 9750 号文件）。本版《全球空中航行计划》认识到以绩效驱动、服务导向和技术先进的全球空中航行系统对于实现全球航空行业的可持续性至关重要。此外，它将安全连同环境、安保和经济可持续性一起视为是航空绩效的基本原则之一。

1.3 除了这些基本航空原则之外，空中航行系统还必须满足一些绩效要求，例如容量和效率等领域，以满足航空业界和整个社会的期望。2020 年由 COVID-19 大流行引起的危机凸显了航空系统复原力的重要性，它在经济可持续性和安全管理方面，不仅作为一项绩效要求，也作为一项基本原则，以确保安全风险得到有效解决。虽然预计未来几年因大流行病而减少的经济资源可能会影响空中航行系统的现代化以及危及绩效监测，但如果没有强有力的空中航行系统，则安全和复原力的预期都无法实现。要实现这样一个系统需要两个关键方面：提供基本空中航行服务；并监督这些服务。

1.4 自国际民航组织大会第 40 届会议以来，《全球空中航行计划》第七版更新侧重于全球技术层面，这是全球空中航行计划研究小组（GANP-SG）及其两个工作组，即航空系统组块升级专家项目组（ASBU PPT）和全球空中航行计划绩效专家组（GANP-PEG），取得的成果。

[1] 载于全球空中航行计划门户网站：https://www4.icao.int/ganpportal/

2. 《全球空中航行计划》第七版

更新全球空中航行计划绩效框架 — 安全

2.1 《全球空中航行计划》第六版包含全球空中航行计划绩效框架，其中在全球战略层面包括 11 个关键绩效领域（KPAs）[2]内的一系列绩效目标，载于《全球空中交通管理运行概念》（Doc 9854 号文件）。在全球技术层面，该框架详细说明了容量、效率和可预测性关键绩效领域内的各重点领域、绩效目标和关键绩效指标（KPIs）。

2.2 为了加快绩效方面的工作，第十三届空中航行会议（AN-Conf/13）的建议 4.3/1 — 提高空中航行系统的绩效呼吁国际民航组织考虑在全球空中航行计划研究小组下设立一个绩效专家组。因此，国际民航组织成立了全球空中航行计划绩效专家组（GANP-PEG），前身为全球国际民航组织绩效专家组（GIPEG），以维护和发展全球空中航行计划的绩效框架，重点关注航空业界所有成员在地区和国家层面的有效应用。全球空中航行计划绩效专家组的任务之一是扩展全球空中航行计划绩效框架以涵盖 11 个关键绩效领域，特别是促进与全球空中航行计划、《全球航空安全计划》（GASP，Doc 10004 号文件）和《全球航空安保计划》（GASeP，Doc 10118 号文件）共享的绩效管理方面相关的连贯性和一致性。

2.3 国际民航组织呼吁安全专家与全球空中航行计划绩效专家组合作，根据《空中航行系统全球绩效手册》（Doc 9883 号文件），更新安全绩效框架并纳入《全球空中航行计划》第七版，以便：确保对绩效管理采取综合方法；提供全球空中航行计划与全球航空安全计划之间的联系；根据 COVID-19 高级别会议（HLCC-2021）的要求，提供一种协调的安全绩效衡量方法。拟议的安全绩效框架确定了一项共同高级别安全绩效雄心和多个重点领域、多项绩效目标和若干关键绩效指数（KPIs），涵盖了航空系统的所有方面，使全球空中航行计划能够以综合方式考虑其他 10 个关键绩效领域中的安全。同时，它为全球空中航行计划和全球航空安全计划提供了共享的安全相关术语，以促进这两个全球计划之间的一致性。

2.4 对全球空中航行计划绩效框架安全关键绩效领域的拟议更新摘要，包括一项新的绩效雄心和多个重点领域、多项绩效目标和若干关键绩效指数，载于本工作文件附录 A。进一步详情可参阅：https://www4.icao.int/ganpportal/GIPEGSafetyPerformanceFrameworkAnalysis。

2.5 为使全球空中航行计划绩效框架保持最新并提高透明度，提出了与航空系统组块升级框架经批准的维护进程（见第 2.13 段）一致的全球空中航行计划绩效框架的维护进程。拟议的全球空中航行计划绩效框架的维护进程载于全球空中航行计划门户网站（单击此处）。

基本构建组块（BBBs）和普遍安全监督审计计划（USOAP）

2.6 《全球空中航行计划》第六版包括了基本构建组块框架，该框架通过确定根据国际民航组织标准为国际民用航空提供的基本服务，概述了任何强有力的空中航行系统的基础。这些基本服务在机场、空中交通管理、搜寻和援助、气象和航空信息领域界定了范围，并根据地区空中航行计划实施。

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[2] 全球空中航行计划的11个关键绩效领域（KPA）：安全、安保、环境、成本效益、容量、效率、灵活性、可预测性、准入和公平、空中交通管理的参与和全球互操作性。

除了各项基本服务之外，基本构建组块框架还确定了这些服务的最终用户以及提供基本服务所需的资产（通信、航行和监视（CNS）基础设施）。

2.7 1999 年，国际民航组织启动了普遍安全监督审计计划（USOAP），以回应全世界对航空安全监督有效性的广泛关注。普遍安全监督审计计划审计侧重于通过评估该国是否能够有效和一致地实施安全监督系统的各关键要素（CEs）来提供安全监督能力。这使国家能够确保实施国际民航组织的安全相关标准和建议措施（SARPs）以及相关程序和指导材料。

2.8 为在提供国际民用航空基本服务与国家对这些服务进行监督的能力的这两个任何强有力的空中航行系统的基本方面之间建立联系，国际民航组织已将基本构建组块框架中概述的基本服务映射到普遍安全监督审计计划的规程问题（PQs）。此映射的结果表明，基本构建组块主要与第六项“CE-6 执照颁发、认证、授权和/或批准义务”和第七项“CE-7 监督义务”的关键要素相关，细节载于网址 https://www4.icao.int/ganpportal/bbbsusoapmapping 。这种映射有助于分析提供基本空中航行服务及其监督这些服务的能力对安全绩效的影响。空中航行服务提供者提供的基本空中航行服务是通过地区空中航行计划中的各项缺陷来衡量的，而各国监督所述的提供能力是通过有效实施（EI）来衡量的。安全绩效这两个方面的结果可以通过本文件附录 A 中提议的各关键绩效指标衡量。

航空系统组块升级（ASBU）框架和基本构建组块（BBB）框架

2.9 国际民航组织大会在第 40 届会议期间批准了全球空中航行计划门户网站提供的航空系统组块升级框架的维护进程（单击此处）。根据这一进程，该框架将以三年为周期进行更新，目前的更新被认为是次要更新。

2.10 在上述维护进程之后，航空系统组块升级框架已经由一项活动得以更新，该活动的范围是从事实角度更新航空系统组块升级框架的内容，例如进程延迟、变更描述；审查一致性、完整性和理解性；及为下一次（重大）更新制定范围/计划。该活动的报告及其成果载于全球空中航行计划门户网站（单击此处）。对航空系统组块升级框架的审查也导致了对基本构建组块框架的更新，也列于报告中。

3. 对《全球空中航行计划》第八版的展望

3.1 全球空中航行计划的全球战略层面认识到，数字信息管理和在航空互联网实现全面互联是向总体绩效管理体系迈进的关键步骤。[3]在全面互联的数字空中航行系统中，对在线行为和趋势的分析表明，网络威胁在持续演进，对航班运行的安全性造成了亟待解决的风险。除了安全，全球空中航行计划所认可的基本航空原则还有环境和安保。

3.2 事实证明，COVID-19 危机对航空系统的安全和复原力构成挑战。此外，COVID-19 大流行对航空行业的经济影响使得地区和国家层面不得不重新评估各优先事项，这可能导致无法实现全球空中航行计划愿景。

[3] 参见全球空中航行计划战略（英文）— 概念性路线图|前往（icao.int）

3.3 为确保空中航行系统的演进持续取得进展，提议采取新的方法以实现全球空中航行计划中概述的愿景和绩效雄心。因此，提议下一版《全球空中航行计划》侧重复原力和环境，并纳入以下结构方面的提升：

a) 建立全球战略和技术层面之间的联系；

b) 纳入创新相关的机遇，以包容新兴技术和新进的行业成员；

c) 完善绩效维度，以确保资源的最优分配；

d) 构建多种演进情景为所谓的交互跃进提供机会，通过直接采用现代化系统而省略各中间步骤，推动快速的现代化进程；和

e) 继续确保全球空中航行计划与其他国际民航组织全球计划相一致。

4. 大会决议

4.1 根据大会决议 A40-1，全球航空安全计划和全球空中航行计划支持国际民航组织的战略目标。本文件附录 B 所载的部分决议草案着重讨论全球空中航行计划，并取代 A40-1：《国际民航组织关于安全与空中航行的全球规划》。

4.2 在审查附录中的决议时，出于本文件的目的，请只参照序言和具体与全球空中航行计划有关的附录 B。

5. 结论

5.1 以绩效驱动、服务导向和技术先进的全球空中航行系统对于实现全球航空行业的可持续性至关重要。认识到安全是航空绩效的基本原则之一，以及复原力在高度连接的航空生态系统中日益重要，《全球空中航行计划》第七版提出更新后的安全绩效框架和维护进程，强调拥有强有力的空中航行系统基础的重要性，并对基本构建组块框架和航空系统组块升级框架进行了次要更新。

5.2 同时，基于航空业界在实现全球空中航行愿景方面的多重挑战，建议《全球空中航行计划》第八版制定侧重复原力和环境的新方法，同时致力于推动一个完全互联的空中航行系统的数字化进程。

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APPENDIX A

PROPOSED UPDATE OF THE GANP PERFORMANCE FRAMEWORK

Note. — Please note that only the bolded text with a grey highlight are proposed to be included in the seventh edition of the GANP.

1. The proposed update to the Global Air Navigation Plan (GANP) performance framework focuses on safety, one of the eleven Key Performance Areas (KPAs) of the GANP. The sixth edition of the GANP includes a safety performance ambition and safety performance objectives related to the operational improvements defined in the Aviation System Block Upgrade (ASBU) framework.

2. The main goal of this update to the safety performance framework in the GANP is to contribute to the coherency and consistency related to performance management aspects shared by the GANP, the Global Aviation Safety Plan (Doc 10004) and the Commercial Aviation Safety Team (CAST)/ International Civil Aviation Organization (ICAO) Common Taxonomy Team (CICTT)[1].

3. **Safety performance ambition**

3.1 Performance ambitions are outlined in the Global Strategic Level of the GANP. They are qualitative statements providing global priorities on the performance evolution of the global air navigation system. They should not be seen as a target to continuously monitor and report performance against, but rather as a catalyst for change.

3.2 Both the safety performance ambition and the aspirational safety goal, in the GANP and the GASP, respectively, seek the improvement of safety performance. However, the current safety ambition in the GANP[2] *"Zero ANS-related accidents and a significant 50 per cent reduction of –ANS-related- serious incidents"* shows a difference in scope from the aspirational goal defined by the GASP *"Achieve and maintain zero fatalities in commercial operations by 2030 and beyond"*. In particular: while the performance ambition covers all types of operations, the aspirational goal focuses on commercial operations; while the ambition focuses on air navigation service (ANS)-related causes, the aspirational goal covers all causes and contributing factors to occurrences; and while the ambition covers zero accidents and a reduction in incidents, including the amount of damage and its secondary impact, the aspirational goal focuses on zero fatalities.

3.3 In order to ensure a common direction in safety performance, it is important to harmonize the scope of the safety performance ambition in the GANP to address the combined scope of the GANP and the GASP. Therefore, the safety performance ambition in the sixth edition of the GANP is proposed to be updated as follows:

"Achieve continual safety performance improvement in aviation in each ICAO region"

[1] Historically, in accident and incident investigations, safety occurrences are categorized in a different way namely using the CICTT occurrence categories Welcome (intlaviationstandards.org).

[2] While the highest safety expectation was referred to as safety performance ambition in the GANP, in the GASP it was called aspirational safety goal.

4. Safety focus areas

4.1 Focus areas are outlined in the global technical level of the GANP. They identify and delineate the broad areas in which there are intentions to establish a performance policy via the definition of performance objectives. There is a need for a minimum number of focus and sub-focus areas to attach the performance objectives within the sixth edition of the GANP and the goals in the GASP as well as to cover the areas in which safety data is collected and reported related to the CICTT.

4.2 The sixth edition of the GANP did not define safety focus areas. Therefore, in order to avoid overlapping of performance policies, the following focus and sub-focus areas within the safety KPA are proposed to be included in the seventh edition of the GANP:

KPA: Safety

Operational safety outcomes

- **Flight operations safety**
  - **Safety of traditional operations**
  - **Safety of new entrants**
    - **Safety of remotely piloted aircraft systems (RPAS) operations**
    - **Safety of very low level operations (typically operating below 500ft AGL)**
    - **Safety of higher airspace operations**
    - **Safety of advanced and urban air mobility**
- **Aerodrome operations safety**
- **Air navigation service provision safety**
- **Aircraft maintenance safety**
- **Design and manufacturing safety**

Organizational safety processes

- **State safety programme (including safety oversight)**
- **Safety management system**
- **Safety collaboration**

Provision of infrastructure and aviation services

- **Basic Building Blocks**
- **Operational safety improvements**

Note.— The scope within the operational focus areas is limited to aviation safety. For example, while each time an aircraft design flaw is identified during operations would count as an aviation safety occurrence under design and manufacturing safety, an occupational health and safety event at the manufacturing premises of an aircraft is outside the scope of the design and manufacturing

focus area and would not count as an aviation safety occurrence. Processes that impact the aviation safety outcomes should be found under organizational safety.

5. **Safety performance objectives**

5.1 Performance policy is defined through a set of specific, measurable, achievable, relevant and timely (SMART) objectives.

5.2 The performance objective for the safety KPA in the sixth edition of the GANP is to maintain or improve safety. Aligned with this performance objective, the following generic sub-objectives are defined within the proposed safety focus and sub-focus areas:

Note.— Sub-objectives in bold with grey highlights are new and are proposed to be included in the seventh edition.

- **Maintain or improve operational safety outcomes**
    - **Maintain or improve safety of flight operations**
        - **Maintain or improve safety of traditional operations**
        - **Maintain or improve safety of new entrants**
            - **Maintain or improve safety of remotely piloted aircraft systems (RPAS) operations**
            - Maintain or improve safety of very low-level operations
            - Maintain or improve safety of higher airspace operations
            - **Maintain or improve safety of advanced and urban air mobility**
    - **Maintain or improve safety of aerodrome operations**
    - **Maintain or improve safety of the air navigation service provision**
    - **Maintain or improve safety in aircraft maintenance**
    - **Maintain or improve safety in design and manufacturing**

- **Maintain or improve organizational safety processes**
    - **Strengthen State safety oversight capabilities**
    - **Increase the implementation of States' safety programmes**
    - **Improve safety management systems implementation**
    - **Increase safety enhancement initiatives**
    - **Improve safety collaboration at global, regional and national levels**

- **Maintain or improve the provision of infrastructure and aviation services**

- **Enhance the implementation of the Basic Building Blocks**
- **Optimize the implementation of operational safety improvements within the ASBU framework**

5.3 These performance objectives and sub-objectives allow for the mapping of the goals outlined in the GASP as follows:

a) Goal 1 of the GASP "*Achieve a continuous reduction of operational safety risks*" was mapped to the safety performance sub-objective "Maintain or improve safety of traditional flight operations" since the scope of Goal 1 was not limited to the set of five High Risk Categories (HRC) but covered all risk categories (the HRC are a subset of the full set of risk categories);

b) Goal 2 of the GASP *"Strengthen States' safety oversight capabilities"* was mapped to the sub-objective "Strengthen State safety oversight capabilities";

c) Goal 3 of the GASP *"Implement effective State safety programmes"* was mapped to the sub-objective "Increase the implementation of States' safety programmes";

d) Goal 4 of the GASP *"Increase collaboration at the regional level"* was mapped to two sub-objectives "Increase safety enhancement initiatives" and "Improve safety collaboration at global, regional and national levels";

e) Goal 5 of the GASP *"Expand the use of industry programmes and safety information sharing networks by service providers"* was mapped to two sub-objectives: "Improve safety management systems implementation" of the industry and "Improve safety collaboration at global, regional and national levels"; and

f) Goal 6 of the GASP *"Ensure the appropriate infrastructure is available to support safe operations"* was mapped to the sub-objectives: "Strengthen States' safety oversight capabilities", as well as "Enhance the implementation of the Basic Building Blocks" and "Optimize the implementation of operational safety improvements within the ASBU framework" under the sub-objective "Maintain or improve the provision of infrastructure and aviation services".

5.4 In addition, in order to address the CICTT occurrence categories as well as to integrate the safety performance sub-objectives of the GANP sixth edition and the expected safety outcomes from the implementation of certain operational improvements in the ASBU framework, the following performance sub-objective tree is proposed under "Maintain or improve safety of traditional operations":

Note.— Sub-objectives in bold with grey highlights are new and are proposed to be included in the seventh edition of the GANP; New sub-objectives from the mapping of the two approaches are marked with (*); those marked with (**) have safety contributions from ASBU Elements.

- **Maintain or improve safety of traditional operations**
  - **Maintain or improve safety on the ramp (aircraft not moving)**
  - Maintain or improve safety during surface movement (**)

- **Reduce the risk of taxiway and apron aircraft/aircraft collisions**
  - Improve collision avoidance during taxi operations (safety net) (**)
- **Reduce the risk of other collisions while using taxiways and aprons**
  - **Avoid collisions with ground vehicles and mobile equipment on taxiways and aprons (*)**
  - **Avoid collisions with animals or humans on taxiways and aprons (*)**
  - **Avoid collisions with obstacles and buildings (*)**
  - **Avoid encounters with FOD and/or patches of poor taxiway or apron condition (*)**
- **Reduce the risk of non-collision related occurrences associated with incorrect or unsafe usage of taxiways and aprons**
  - Avoid incorrect taxiing (cases of non-conformance with clearance) (**)
  - Avoid flights attempting to land/take-off on/from taxiways
  - Improve early detection of conflicting ATC Clearances (CATC) related to taxi operations (**)

- Maintain or improve safety on the runway (**)
  - **Reduce the risk of runway aircraft/aircraft collisions**
    - Improve runway collision avoidance (safety net) (**)
  - **Reduce the risk of other collisions while using the runway**
    - Improve runway collision avoidance (safety net) (**)
    - **Avoid bird strike while on the runway (*)**
    - **Avoid collisions with animals or humans on the runway (*)**
    - **Avoid encounters with FOD and/or patches of poor RWY condition (*)**
    - **Avoid wake vortex encounters on the runway (*)**
  - **Reduce the risk of non-collision related occurrences associated with incorrect or unsafe usage of runways**
    - Reduce number of runway incursions
      - Avoid incorrect entries of aircraft or vehicles onto the runway protected area (without or contrary to ATC clearance or due to incorrect ATC clearance) (**)

- Avoid incorrect presence of vacating aircraft or vehicles onto the runway protected area (**)
- Avoid incorrect runway crossings by aircraft or vehicles (without or contrary to ATC clearance or due to incorrect ATC clearance) (**)
- Avoid incorrect spacing between successive arriving or arriving and departing or departing and arriving or successive departing aircraft
- Avoid landings without ATC clearance
- Avoid landings on wrong runway at right airport
- Avoid landings at wrong airport
- Avoid take-offs without ATC clearance

▪ Improve early detection of conflicting ATC Clearances (CATC) related to runway usage (**)

▪ Avoid runway excursions

- **Maintain or improve safety in the air**
  - **Reduce the risk of mid-air collisions (aircraft/aircraft)**
    - Improve mid-air collision avoidance (safety net) (**)
    - Improve separation provision (at a planning horizon > 2 minutes) (**)
    - Improve early detection of conflicting ATC Clearances (CATC) (en-route / departure / approach) (**)
  - **Reduce the risk of other collisions while airborne**
    - **Avoid bird strike while airborne (*)**
    - Avoid vertical & lateral navigation errors during flight (cases of non-conformance with clearance) (**)
    - Avoid unauthorized penetration of segregated airspace (**)
    - Avoid controlled flight into terrain (CFIT) and obstacle collision risk (**)
  - Reduce the risk of non-collision related occurrences
    - Avoid hazardous weather (including turbulence)
    - Avoid volcanic ash
    - Avoid en-route wake vortex encounters (**)
    - Avoid exposure to hazardous space weather

- **Avoid exposure to laser light (*)**
- **Avoid being shot down (*)**
- **Avoid flight into conditions which are in itself non-hazardous, but beyond the capabilities of aircraft or crew (*)**

- **Maintain or improve safety on-board**

Note.— The GANP performance framework is a living framework to be updated through a proposed Maintenance process (see paragraph 2.5 of the working paper). Performance indicators can be mapped at any level of the performance objectives and sub-objectives tree, however, they should be mapped at the lowest level possible

6. Safety key performance indicators (KPIs)

6.1 Some objectives require precisely defined numerical performance indicators, which serve to establish quantitative measures that, collectively, will indicate progress towards achieving an objective. In order to facilitate this task, the sixth edition of the GANP contains, in its global technical level, a list of 19 KPIs[3] within the KPAs of capacity, efficiency and predictability. These KPIs are associated to the generic performance objectives in the GANP and can be tailored to regional and national instantiated performance objectives.

6.2 The following safety KPIs are proposed to be included in the seventh edition of the GANP:

KPI ID	**KPI20**
KPI Name	**Number of aircraft accidents**
Definition	'Accident' is defined in ICAO Annex 13, Chapter 1-Definitions ADREP: Accident Data Report
Measurement Units	Number of accidents / year
Operations measured	Aircraft accidents during all flight phases that occurred in a year within the State/Region of occurrence.
Variants	Variant 1 (GASP): Aircraft MTOW > 2 250 kg 1.1 National accident occurrence level 1.2 Regional accident occurrence level Variant 2: All aircraft 2.1 National accident occurrence level 2.2 Regional accident occurrence level
Object(s) characterized	The KPI is typically computed for individual State, or Region (selection/grouping based on geography)
Utility of the KPI	High-level measurement of safety performance of the aviation system as a whole.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Occurrence Category State of occurrence
Data feed providers	ICAO ADREP database iSTARS Application "ADREP et al."
Formula/	Count accidents if:

[3] The list and details of the KPIs are available at https://www4.icao.int/ganpportal/ASBU/KPI.

KPI ID	KPI20
algorithm	a) The local date of occurrence is in between 01 January and 31 December of the year in question; b) It is of the type that is notifiable to ICAO; c) The circumstances of the accidents match the definition of Annex 13 definition of 'Accident'; and d) If variant 1, the aircraft involved in the accident is of maximum take-off mass of over 2 250 kg.
References and examples of use	ADREP: Accident Data Report https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/en/epublication/admin/Publication%20History/Civil%20Aviation%20Regulations%20(CARs)/CAR%20PART%20VIII%20-%20AIR%20NAVIGATION%20REGULATIONS/CAR%20PART%20X%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20Issue04rev00.pdf) https://www.gcaa.gov.ae/en/epublication/admin/Library%20Pdf/Civil%20Aviation%20Advisory%20Publication%20(CAAP)/CAAP-22%20-%20INCIDENT%20REPORTING%20-%20ISSUE%2005.pdf

KPI ID	KPI21
KPI Name	**Number of runway incursions**
Definition	Number of occurrences at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft. (CICTT Taxonomy definition)
Measurement Units	Number of runway incursions / year
Operations measured	The actual number of runway incursions at an aerodrome
Variants	None
Object(s) characterized	The KPI is computed for individual aerodrome
Utility of the KPI	This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Airport of occurrence
Data feed providers	Airports and airlines
Formula/ algorithm	Count number of runway incursions: a) the local date of occurrence in between 01 January and 31 December of the year in question; and b) the circumstances of the occurrence match the definition of CICTF 'RI'; or the occurrence category has been determined to be runway incursion – vehicle, aircraft or person (RI-VAP).
References and examples of use	https://www.mot.gov.sg/docs/default-source/default-document-library/runway-incursion-by-vehicle-in-seletar-airport-7-apr-2018-final-reportcecc69af7fde4718ad39b5127822a05f.pdf https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.gcaa.gov.ae/en/epublication/admin/Publication%20History/Civil%20Aviation%20Regulations%20(CARs)/CAR%20PART%20VIII%20-%20AIR%20NAVIGATION%20REGULATIONS/CAR%20PART%20X%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20Issue04rev00.pdf) https://www.gcaa.gov.ae/en/epublication/admin/Library%20Pdf/Civil%20Aviation%20Advisory%20Publication%20(CAAP)/CAAP-22%20-%20INCIDENT%20REPORTING%20-%20ISSUE%2005.pdf

KPI ID	KPI22
KPI Name	**Number of runway excursions**
Definition	Number of veer offs or overruns of the runway surface.
Measurement Units	Number of runway excursions / year
Operations	• Only applicable during either the takeoff or landing phase.

KPI ID	KPI22
measured	• The excursion may be intentional or unintentional. For example, the deliberate veer off to avoid a collision, brought about by a Runway Incursion. In this case, code both categories. • Use RE in all cases where the aircraft left the runway/helipad/helideck regardless of whether the excursion was the consequence of another event.
Variants	None
Object(s) characterized	The KPI is computed for individual aerodrome
Utility of the KPI	This KPI gives an indication of the incorrect or unsafe usage of the runways and of the safety performance improvement on the runway.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence Airport of occurrence
Data feed providers	Airports and airlines
Formula/ algorithm	Count number of runway excursions: a) the local date of occurrence in between 01 January and 31 December of the year in question; b) the circumstances of the occurrence match the definition of CICTT 'RE'; and c) the Occurrence Category has been determined to be runway excursion (RE).
References and examples of use	https://www.mot.gov.sg/docs/default-source/default-document-library/t-50-runway-excursion-in-changi-airport-6-feb-18-final-report.pdf https://www.eurocontrol.int/archive_download/all/node/12148 https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/en/epublication/admin/Publication%20History/Civil%20Aviation%20Regulations%20(CARs)/CAR%20PART%20VIII%20-%20AIR%20NAVIGATION%20REGULATIONS/CAR%20PART%20X%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20Issue04rev00.pdf) https://www.gcaa.gov.ae/en/epublication/admin/Library%20Pdf/Civil%20Aviation%20Advisory%20Publication%20(CAAP)/CAAP-22%20-%20INCIDENT%20REPORTING%20-%20ISSUE%2005.pdf

KPI ID	KPI23
KPI Name	**Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC)**
Definition	Number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight.
Measurement Units	Number of airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC) / year
Operations measured	• Includes all collisions between aircraft while both aircraft are airborne. • Both air traffic control and cockpit crew separation-related occurrences are included. • Genuine TCAS alerts are included here.
Variants	Variant 1: Number of airproxes Variant 2: TCAS alerts Variant 3: loss of separation Variant 4: near midair collisions Variant 5: midair collisions (MAC)
Object(s) characterized	The KPI is computed for volumes of airspace as designated by the State.
Utility of the KPI	This KPI gives an indication of safety performance improvement in the air.
Parameters	None
Data requirement	For each reported occurrence: Date of occurrence FIR of occurrence
Data feed providers	ANSPs and airlines
Formula/ algorithm	Count number of airproxes, TCAS alerts, loss of separation as well as near collisions or collisions between aircraft in flight:

KPI ID	KPI23
	a) the local date of occurrence in between 01 January and 31 December of the year in question; b) the circumstances of the occurrence match the definition of CICTT 'MAC'; and c) the Occurrence Category has been determined to be airprox/TCAS alert/loss of separation/near midair collisions/midair collisions (MAC).
References and examples of use	https://www.eurocontrol.int/archive_download/all/node/9360#page45 https://www.easa.europa.eu/sites/default/files/dfu/easa_asr_2020.pdf https://www.gcaa.gov.ae/en/epublication/admin/Publication%20History/Civil%20Aviation%20Regulations%20(CARs)/CAR%20PART%20VIII%20-%20AIR%20NAVIGATION%20REGULATIONS/CAR%20PART%20X%20SAFETY%20MANAGEMENT%20SYSTEM%20(SMS)%20Issue04rev00.pdf) https://www.gcaa.gov.ae/en/epublication/admin/Library%20Pdf/Civil%20Aviation%20Advisory%20Publication%20(CAAP)/CAAP-22%20-%20INCIDENT%20REPORTING%20-%20ISSUE%2005.pdf

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附录 B

拟由大会第 41 届会议通过的决议草案

A41-xx：国际民航组织关于安全与空中航行的全球规划

鉴于国际民航组织致力于通过各成员国和其他利害攸关方之间的合作，来实现民用航空安全和有序发展的目标；

鉴于为实现这一目标，本组织制定了战略目标，包括安全和能力及效率的目标；

认识到一个全球框架对于支持国际民航组织战略目标的重要性；

认识到基于该全球框架有效实施地区和国家计划和举措的重要性；

认识到通过在国际民航组织领导之下，与所有利害攸关方的伙伴关系，采取合作性、协作性和协调的做法，才能最好地实现在改进全球民用航空安全、能力和效率方面的进一步的进展；和

注意到理事会批准了全球航空安全计划（GASP）~~第三版~~ 2023－2025 年版和批准了全球空中航行计划（GANP）~~第六版~~第七版；

大会：

1. 核准全球航空安全计划（GASP）~~第三版~~ 2023－2025 年版和全球空中航行计划（GANP）~~第六版~~第七版分别作为安全和空中航行的全球战略方向；

2. 决定国际民航组织应当实施全球航空安全计划和全球空中航行计划（GANP）并保持其常新，用以支持本组织的相关战略目标；

3. 决定应当与所有有关的利害攸关方密切合作与协调来实施这些全球计划并保持其常新；

4. 决定这些全球计划应当提供一个框架，在此框架内将制定和实施地区、次地区和国家计划，从而确保旨在增强国际民用航空安全、能力和效率的努力得以协调一致；

5. 敦促各成员国制定可持续的安全解决办法，以充分履行其安全监督和空中航行的责任，这可以通过资源共享、使用内部和/或外部资源，例如地区和次地区安全监督机构以及其他国家的专长，来做到这一点；

6. 敦促各成员国显示出采取补救行动所必要的政治意愿来处理包括普遍安全监督审计计划（USOAP）审计所查明的安全和空中航行缺陷在内的那些缺陷，通过采用全球航空安全计划、全球空中航行计划和国际民航组织地区规划进程来做到这一点；

7. 敦促各成员国、业界和供资机构为协调的实施国际民航组织全球航空安全计划和全球空中航行计划提供必要的支持，避免重复努力；

8. 要求各国并请其他利害攸关方合作，根据全球航空安全计划和全球空中航行计划框架制定并实施地区、次地区和国家计划；

9. 指示秘书长促进、提供和有效传播全球航空安全计划和全球空中航行计划；和

10. 宣布本决议取代国际民航组织关于安全和空中航行的全球计划的 ~~A39-12~~ A40-1 号决议。

附录 A

全球航空安全计划（GASP）

……

附录 B

全球空中航行计划（GANP）

鉴于增强航空运行的安全、能力和效率是国际民航组织战略目标的一项关键内容；

通过了 ~~A40-4~~ A41-xx 号决议 — 具体与空中航行有关的国际民航组织持续政策和相关做法的综合声明；

认识到全球空中航行计划作为运行战略与达到国际民航组织二氧化碳排放全球理想目标整体措施组成部分的重要性；和

认识到许多国家和地区正在为本国空中航行的现代化制定新的空中航行计划；

大会：

1. 指示理事会利用全球空中航行计划（GANP）中的指导，以便制定国际民航组织在空中航行领域的技术工作方案，并将其列为优先事项；

2. 敦促理事会为各国提供全球空中航行计划中宣布的标准化路线图，作为国际民航组织工作的一个基础；

3. 要求各国、地区规划和实施小组（PIRGs）和航空业界使用全球空中航行计划所提供的指导进行规划和实施活动，这些活动在顾及运行需要的情况下，根据全球统一的目标确定各项优先次序、目标和指标；

4. 呼吁各国在实施运行改进时考虑全球空中航行计划指导原则，作为减少国际航空二氧化碳排放在内之环境影响的国家战略的一部分；

5. 呼吁各国、地区规划实施小组（PIRGs）和航空业界及时向国际民航组织提交并相互提供关于全球空中航行计划执行情况的信息，包括从实施其规定中吸取的经验教训；

6. 邀请地区规划和实施小组利用国际民航组织的标准工具或妥当的地区工具来监测并且与国际民航组织合作分析空中航行系统的实施状况；

7. 责成理事会在地区绩效显示板~~和年度全球空中航行计划~~中公布分析结果，起码包括提供关键的实施优先工作和与航空系统组块升级框架中概述的运行改进实施相关的所有取得的环境效益；

8. 敦促正在为各自的空中航行现代化制定新的空中航行计划的国家，要及时与国际民航组织协调和配合其计划，以确保地区和全球兼容与协调一致；和

9. 指示理事会继续制定全球空中航行计划，并使其与日益发展的技术和运行要求保持同步。

— 完 —