

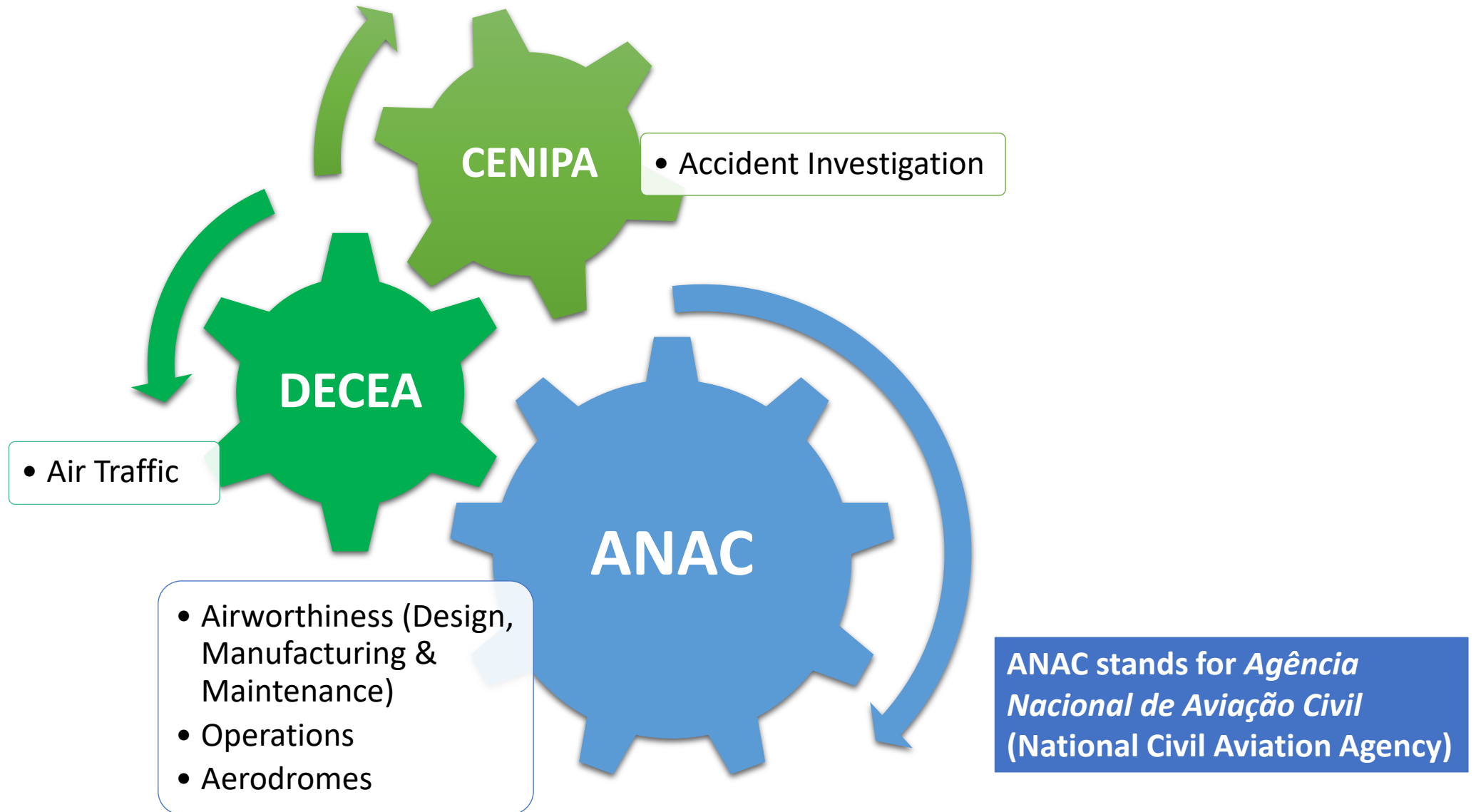
ANAC updates - TSO approval process

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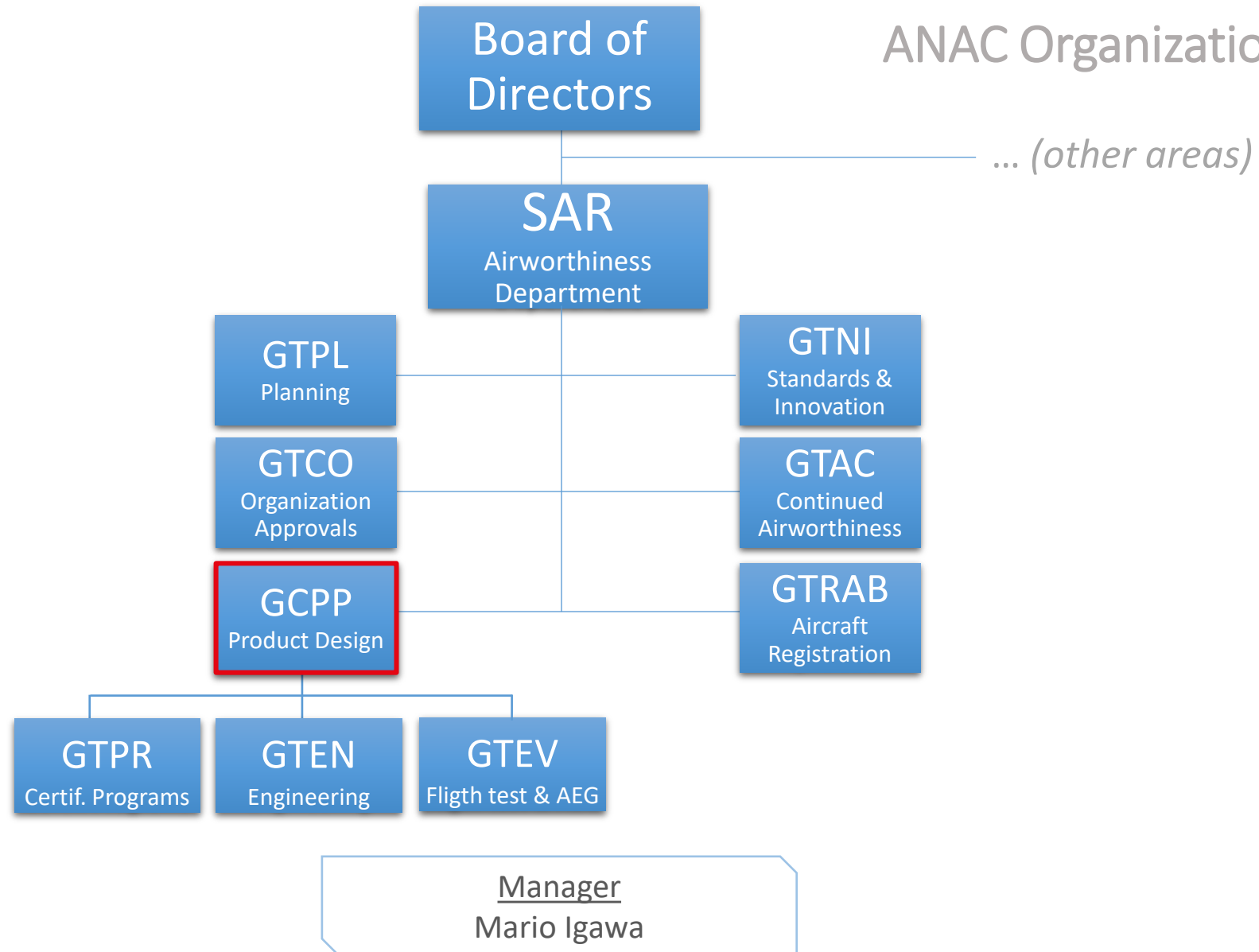
This presentation intends to describe the ANAC process regarding approval of TSO articles in Brazil and bilateral provisions.



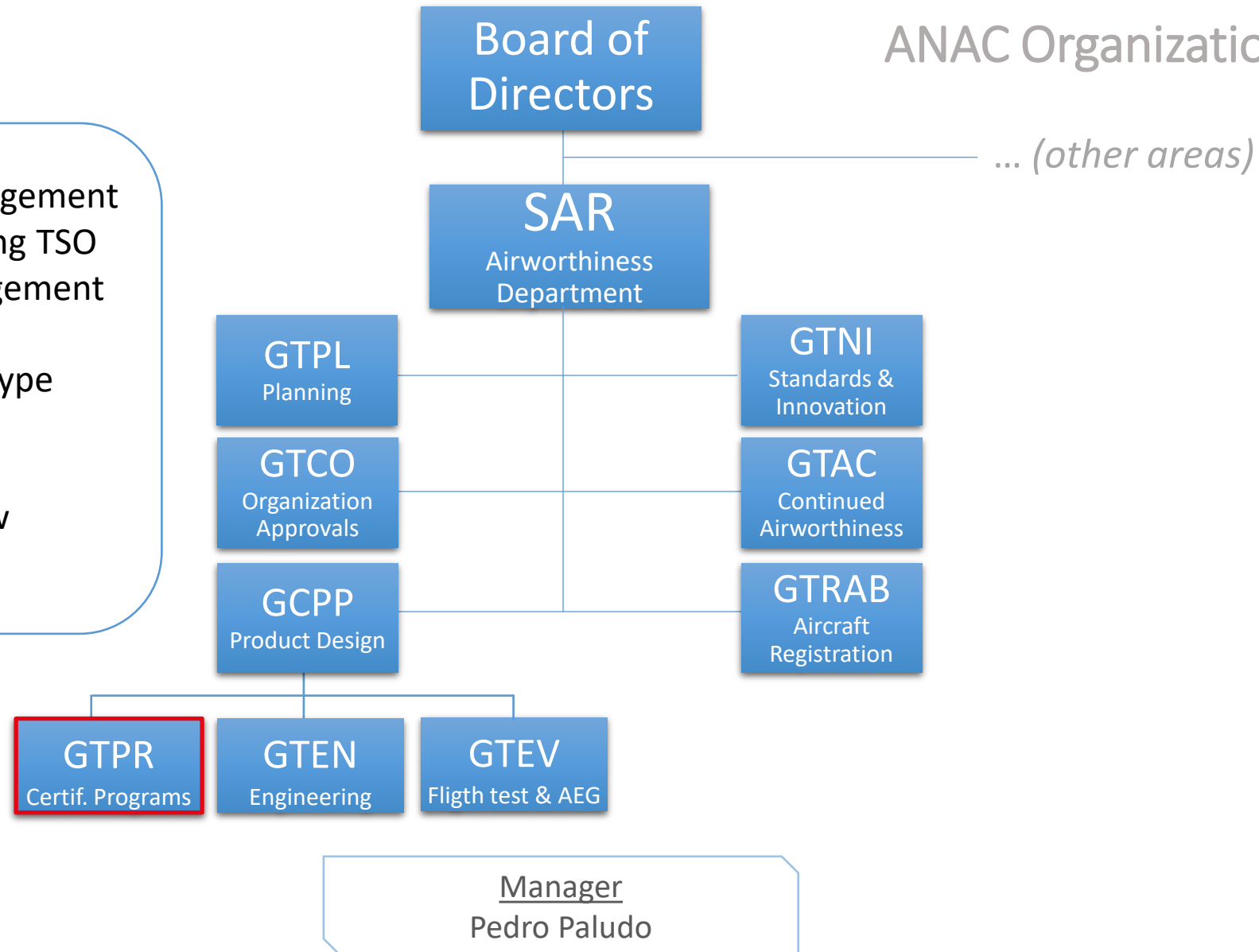
Geographic Distribution



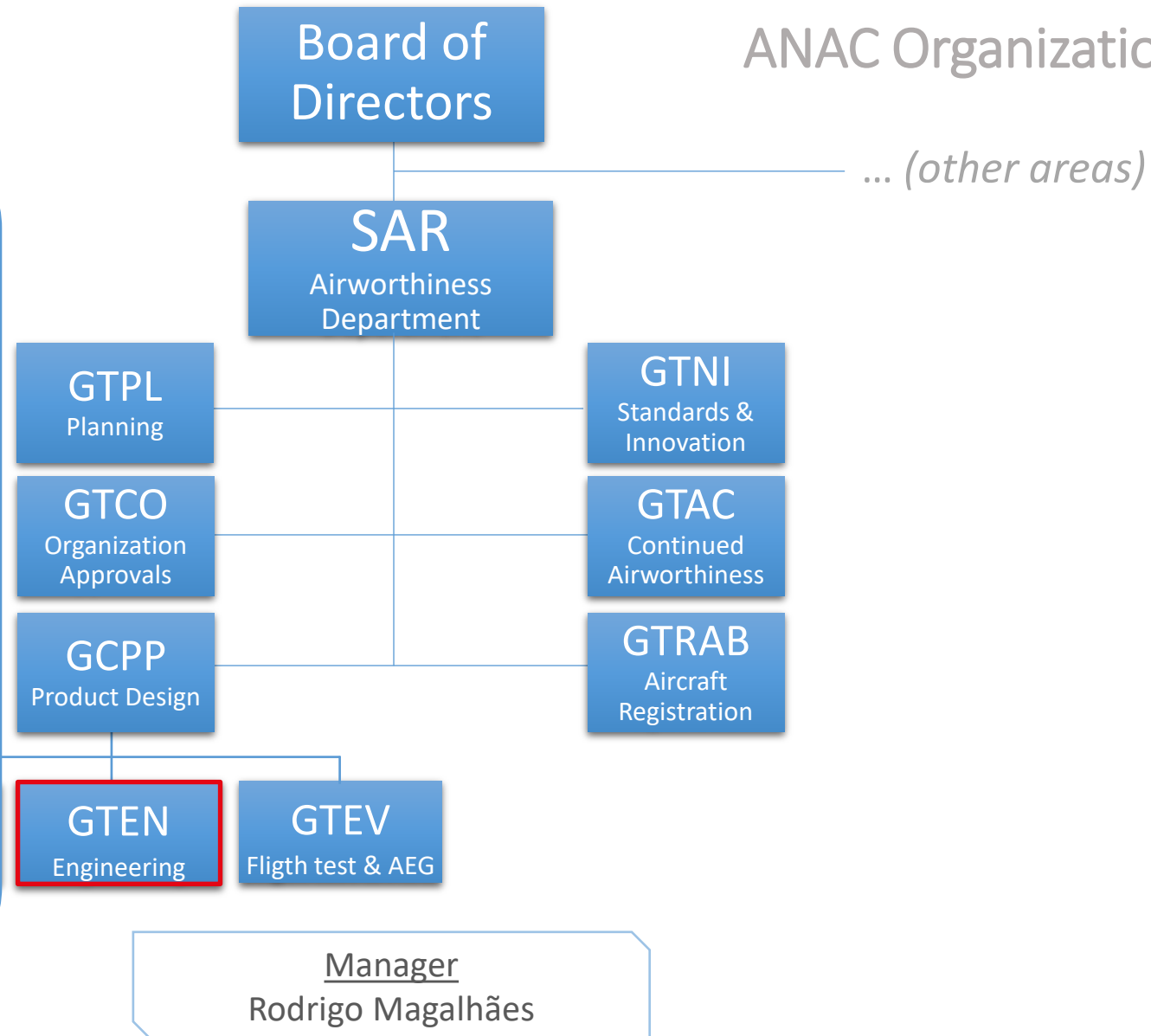
ANAC Organizational Chart



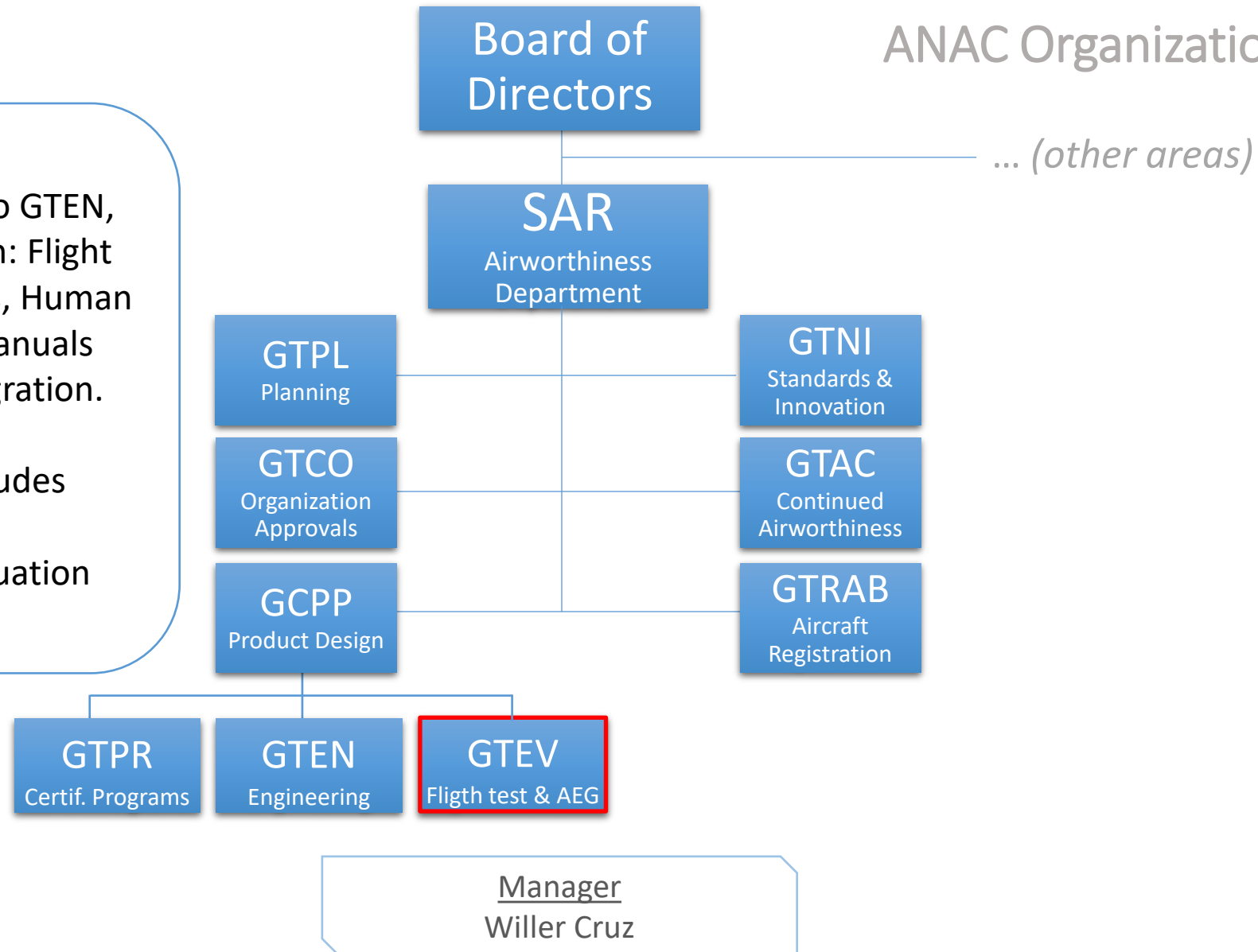
- Programs management (PCMs), including TSO program management
- Supplemental Type Certification
- Drones and new technologies



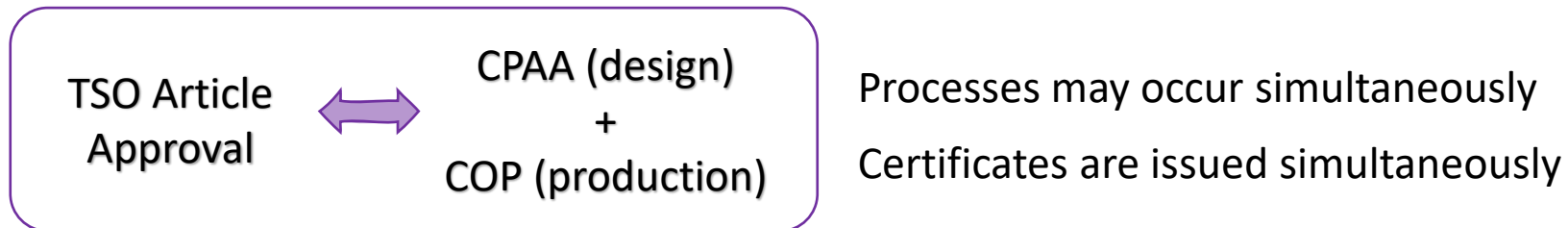
- Engineering teams for most kind of products / technical requirements, including Parts 23, 25, 27, 29, 33, 34, 35, 36 and 38, except STC.
- Include engineering support for TSO processes.
- Include 3 sub-areas of expertise:
 - Electrical&Avionics systems and Sw/AEH
 - Mechanical and Propulsion systems
 - Structures and Interiors



- Similar roles and responsibilities to GTEN, but with focus on: Flight Test, Aeronautics, Human Factors, Flight Manuals and System Integration.
- Additionally, includes MMEL and the Operational Evaluation team.



- RBAC¹ 21 (similar to 14 CFR Part 21) contains the requirements for TSO approvals under Subpart O
 - The Brazilian OTP (*Ordem Técnica Padrão*) corresponds to the FAA TSO
 - Per 21.601(b)(1) ANAC adopts the same standards as the FAA.
 - Two separate approvals:
 - a certificate issued for the design approval (“CPAA”);
 - a certification issued for the production organization associated with the design (“COP”).



¹ RBAC stands for *Regulamento Brasileiro de Aviação Civil*, i.e., Civil Aviation Brazilian Requirements.

- Regarding the design approval, the application process follows the same philosophy as the FAA process according to 21.603
 - Along with the application, the applicant needs to add a statement of conformance certifying it has met the applicable requirements from RBAC 21 and that the article meets the MOPs in the applicable TSOs (effective on the date of application)
 - It is also possible to approve the article as part of and in accordance with the Type Certificate procedures, for limited use under such TC, according the ANAC IS² 21-005A section 5.1.3.

² IS stands for *Instrução Suplementar*, i.e., Supplementary Instruction, and is equivalent to the FAA AC / EASA AMC.

- Per 21.610, the applicant must allow ANAC to inspect its quality system, facilities, technical data, and any manufactured articles and witness any tests, including any inspections or tests at a supplier facility, necessary to determine compliance
 - Usually, ANAC will ask to repeat a test or inspection as deemed necessary. However, it is also possible to adopt an early involvement depending on the complexity of such demonstration, according to the process described in ANAC MPR³ 125.
 - For development assurance processes, it is highly recommended that the applicants involve ANAC at early stages of the design where ANAC could be involved, even before the application, through a risk-based strategy.

³ MPR stands for *Manual de Procedimentos*, i.e., Procedures Manual, and is equivalent to the FAA Orders / internal work instructions.

- Along with the data package, the applicant needs to inform any deviation requested.
- Deviations might include the use of latest standards, including for example DO-178 (newer version) or DO-254.
 - ANAC is also discussing the possibility to record ANAC's review on an additional guidance not part of the TSO standard when ANAC understands that could be beneficial from both parties to avoid rework at installation level.
- Open Problem Reports (OPRs) for software/AEH design processes are assessed.
 - No safety issue is allowed.
 - Process-related OPRs should be evaluated at article-level.
 - Sufficient description should be provided for allowing the installer's assessment.

- In Brazil, for years we didn't have new TSO design approval applications.
 - The cost was deemed prohibitive.
 - Therefore, detailed procedures were not put in place until recently.
- From May 24th 2022, the fee for the CPAA (design approval) has been substantially reduced to 2,000 BRL, approximately 380 EUR (more than 90% of reduction).
- Therefore, currently ANAC has been receiving more demands pursuing TSO applications.
 - For the time being, only for simple articles.
- COP (production approval) fee has also changed to:
 - For manufacturers with less than 99 employees: 3,000 BRL, approximately 570 EUR.
 - For manufacturers with 100 until 499 employees: 9,000 BRL, approximately 1,700 EUR.
 - For manufacturers with 500 or more employees: 21,000 BRL, approximately 4,000 EUR.

- ANAC does not issue an approval for installations located outside of Brazil, unless the situation involves **public interest**, and the location **does not imply an undue burden for ANAC**.
- ANAC IS 21-005 is currently under review.
 - Since ANAC adopts the FAA's TSOs, the work in progress is mostly using the FAA's guidance material and policies as a basis, but with some possible adaptations.

- 22 States with Cooperation Agreements

- ✓ 5 with specific considerations on TSO

- ✓ With Canada, there is an ongoing activity for development of a TA-A planned to be released in June, 2023.

<https://sistemas.anac.gov.br/certificacao/Acordos/AcordosE.asp>

International Agreements		
 Argentina	 Australia	 Canada
 Chile	 China	 Commonwealth of Independent States
 European Union	 Iceland	 India
 Israel	 Japan	 Jordan
 Macedonia	 Norway	 Paraguay
 Russian Federation	 Socialist Republic of Vietnam	
 Switzerland	 Taipei	 Turkey
 United Kingdom	 United States of America	

- **States with no Cooperation Agreement or with a Cooperation Agreement that does not cover TSO:**
 - Requires validation of the article according to applicable ANAC requirements. ANAC will issue a Design Approval Letter per RBAC 21.621(a)(1) that will also encompass the assessment on the quality system (production), as necessary.
- **States with Cooperation Agreement covering TSO**
 - Subject to conditions established under the Agreement.



- **Acceptance of (E)TSO articles** (no application, no VA issuance):
 - Under ANAC bilateral Agreements with **FAA**, **EASA** and **CAAUK** there are provision for **reciprocal acceptance of (E)TSO articles** (ref: EASA TIP 2.8.2.1.; EASA TIP 2.8.4; CAAUK TIP 2.8.3; FAA IPA 2.2.4.3(a)), including any design changes
 - In the **ANAC-EASA TIP**, however, this acceptance is limited to the existing “**Common (E)TSO List**”. For other cases, the TSO approval requires validation. (ref: EASA TIP 2.8.4.4)
 - Noting that, for all situations (all Agreements) the **TSO approval does not constitutes approval of the installation.**
 - **Exceptions:**
 - In ANAC-FAA Agreement (IPA 2.2.4.3(b)) the **APU TSO** is accepted by ANAC, but **requires validation by the FAA**. In the **ANAC-EASA TIP** the “Common TSO List” **does not include APU**.
- **Non-(E)TSO functions.** In ANAC bilateral Agreements with **FAA**, **EASA** and **CAAUK** the **Non-TSO functions are accepted** when (ref: FAA IPA 3.3.2.7; EASA TIP 2.8.3; CAAUK TIP 2.8.2)
 - Functions do **not interfere** with TSO function;
 - Data provided is considered **valid data** by the V.A. policies;
 - Functions are covered under the **holder’s quality system**.



Thanks for the opportunity.

In case of questions or comments:

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