



EASA

European Aviation Safety Agency

T4S - Technology for Safety

A 'net safety benefit' approach to certification

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STC WORKSHOP

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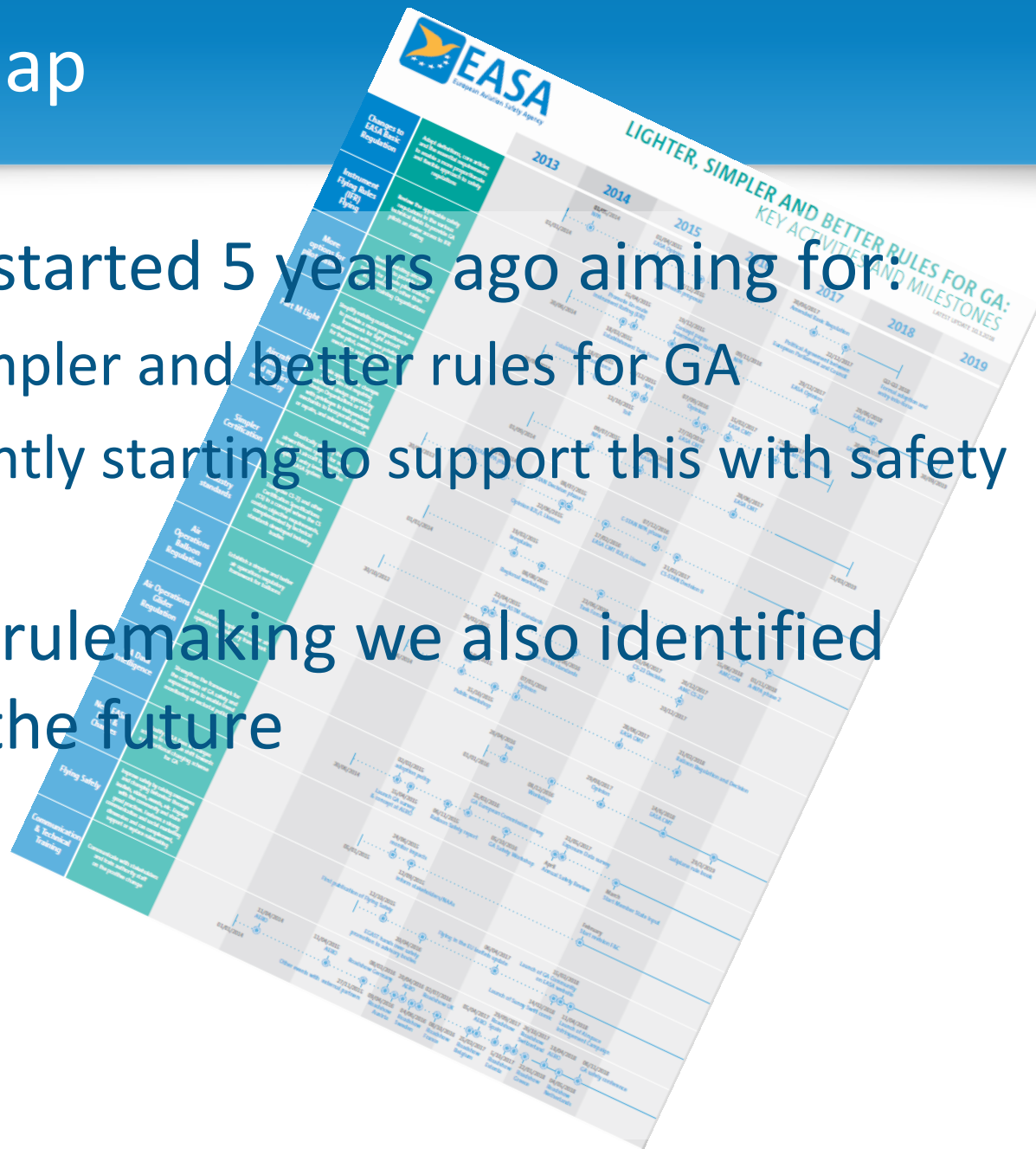


GA Roadmap

GA Roadmap started 5 years ago aiming for:

- Lighter, simpler and better rules for GA
- More recently starting to support this with safety promotion

In addition to rulemaking we also identified potential.. In the future





T4S – Technology for Safety

- T4S is an initiative under the GA Roadmap umbrella to assess safety benefits that new technology can bring to the lower end of GA.
- T4S aims at introducing an accelerated approval of safety enhancing equipment installations under clear and simple conditions.
- T4S is inspired by the FAA's NORSEE¹ policies, but not bound by the NORSEE limits.
- A working group has been established with selected representatives from Industry (Garmin, Pipistrel), Operators (Air Sports Europe) and EASA. Chaired by Sasha Oliver Schott (FS 2.3).

¹ NORSEE = NOn-Required Safety Enhancing Equipment



T4S – Technology for Safety

➤ Example technologies:

➤ Low cost autopilots

- Reduction of Workload
- Upset recovery [LEVEL pushbutton]



➤ AOA indication & alerting

- Stall prevention



➤ ADS-B Out/In

- Traffic awareness / avoidance

➤ Terrain/Weather displays

- Terrain, obstacle & adverse weather avoidance
- Possibly on Tablet/iPad





T4S – Technology for Safety

➤ Leading principle:

- The new regime should balance risks and safety benefits rather than focussing on failure risks and their mitigation alone.

➤ Deliverable:

- Guidance to EASA PCMs, Experts, Managers and Industry on balancing risks vs. benefits for applications for installation of safety enhancing equipment. Possibly a Certification Memorandum.
- In Addition: Safety promotion, training guidance, etc.



T4S – Technology for Safety

➤ Example: **Garmin G5**

- No ETSOA
 - Not designed to ED-12/DO-178
 - ASTM F3153-15 applied
-
- Replaces vacuum driven Attitude & Direction Indicators (ADI) that are notoriously unreliable (approx. 500 FH MTBF).





➤ Example: **Garmin G5** [Cont'd]

- The ASTM F3153-15 standard is far from perfect:
The absence of a requirement for a solid S/W design process is a clear omission.
 - EASA expert assessed that Garmin's S/W design processes were not much different from those supporting ETSOA.
- Excellent in-service record (non-certified market).
- Operational mitigations carefully assessed & accepted.
- **All Model List STC Approved.**



The Net Safety Benefit Approach

Five Steps:

- Step 1: Assessment of the safety benefits.
- Step 2: Assessment of potential failure conditions.
- Step 3: Scoring the safety benefits against the risks.
- Step 4: Agency agreement.
- Step 5: Compliance demonstration.



T4S – Technology for Safety

- T4S Working Group Reports to GA Roadmap Steering Committee
 - First proposals in Q2 2018.
 - Next: Expansion to CS-27 Rotorcraft.

- Suggestions welcome:
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Thank you.

Questions ?

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