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# Interfacing with Regulation and Certification Bodies

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**RTCM Paper 089-2018-SC134-008**

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# A Common framework for Regulation and Standardization

- **Aviation:**
  - ICAO
  - EUROCAE
  - EUROCONTROL
  - RTCA
- **Automotive:**
  - SAE (Society of Automotive Engineers): **J2735 Messages contains RTCM Messages**
  - Highways Administration (e.g. FHA)
- **Rail:**
  - ERTMS (European Rail Traffic Management System)
  - FRA (Federal Railway Administration)
- **Maritime:**
  - IMO
  - IALA
- **Regulation Bodies:**
  - Ministries of Transport
  - Mapping Agencies

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# Horizontal Standardisation Organizations

- **International Electrotechnical Commission**
  - Safety Integrity Level (SIL) definition
  - IEC/EN 61508 Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related Systems (E/E/PE, or E/E/PES)
  - IEC 62279 Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
- **ISO:**
  - ISO 26262 Road vehicles – Functional safety, IEC 61508 adaptation for automotive
  - ISO 17123-8: Field procedures for testing geodetic and surveying instruments - Part 8: GNSS field measurement systems in real-time kinematic (RTK)
- **ETSI:**
  - Specification of Cooperative Awareness Basic Service – EN 302 637-2
  - Specification of Decentralized Environmental Notification Basic Service EN 302 637-3
- **ARAIM Working Group C:**
  - International Cross-Table for ARAIM standard and ISM Messages definition

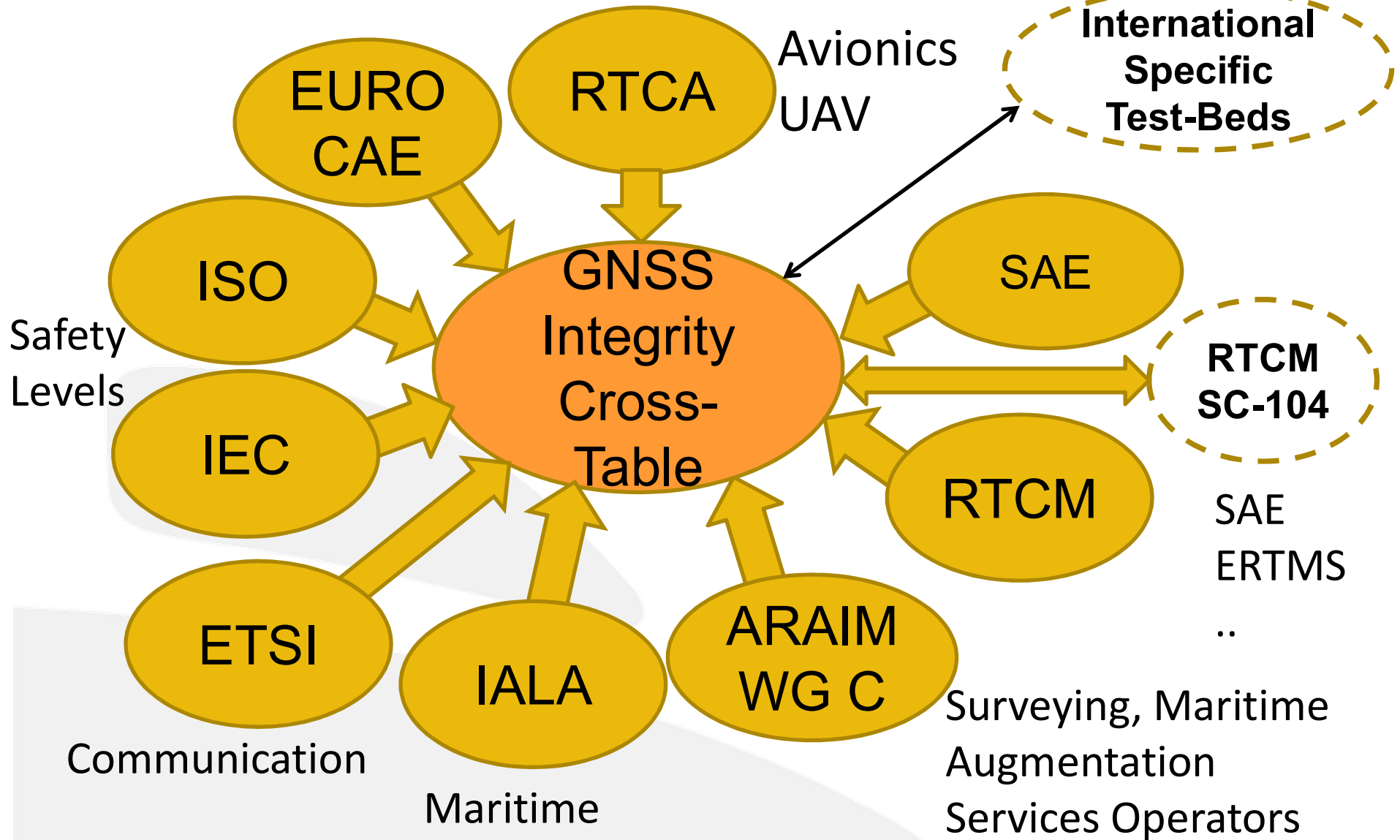
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# Motivation for a Cross-Table

- Different terminologies and Integrity metrics (e.g. Integrity Risk, THR, ..)
- Avoid Cost duplication: currently different Augmentation Systems for different application sectors
- Cooperative ITS concept: RTCM Messages in the V2x Communication format
- Interoperability of different Integrity Monitoring and FDE Systems

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# GNSS Integrity Cross-Table



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## Possible themes for the Cross-Table

- Harmonisation on Integrity Requirements and Metrics and Harmonization of terms
- List of Vertical Applications to be tackled
- Extension of existing Standards to multi-constellation
- Extension of Integrity concepts to High Accuracy Augmentation Systems (e.g. NRTK and PPP)
- Definition of Common Guidelines and Recommendations
- Adoption of agreed concepts and decision in single Standards

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# Integrity Augmentation Cross-Table Establishment

- Short-term:
  - Definition of main objectives to be tackled: Safety Level and Integrity Metrics catalogue
  - Definition of a proposal for common work to be forwarded to interested organizations
  - Definition of a list of contacts to be addressed for single standardization bodies
- Medium-term:
  - Contact single Organization Bodies
  - Agreement on Cross-Table organization and meetings
  - Dissemination on relevant Media
- Long-Term:
  - Work Development
  - Technical Notes and Guidelines release

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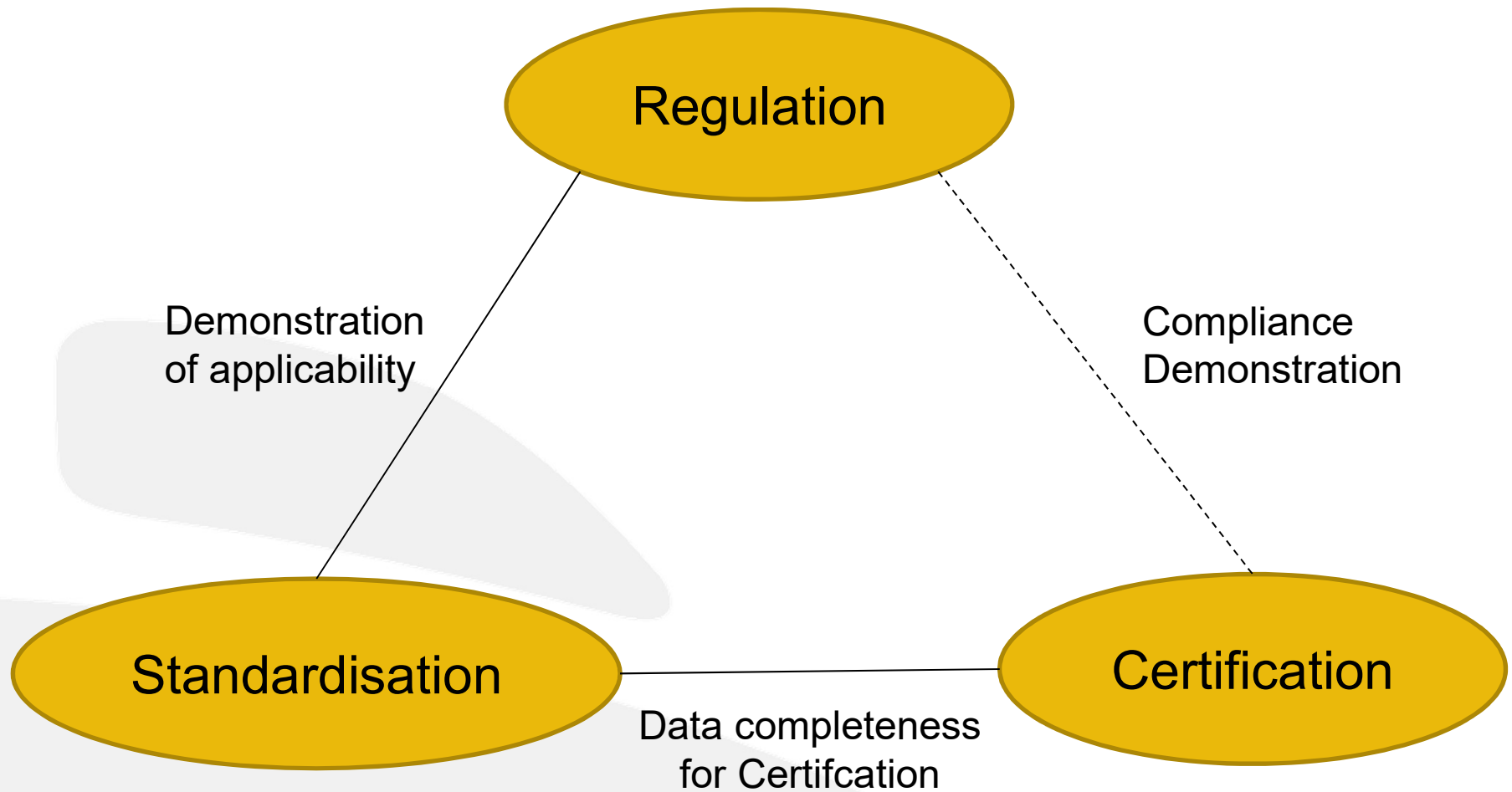
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# The Golden Triangle



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# Possible Activities

- Collection of Regulations impacting on SC-134 by application sector
- Analysis, identification of relevant Regulations and Certification requirements by application
- Liason with Application Specific Regional/Continental Regulation Bodies for exchanging information about relevant standardisation processes and objectives
- Exchange of recommedations concerning data contents completeness for Test-Bed setup and for facilitating application specific certification processes

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# Regulation Bodies by Application Sector

- **Aviation:**

- FAA
- National Aviation Authorities

- **Rail:**

- FRA, ERA, ..
- National Railways Authorities
- Rail Safety Authorities
- Regional Certification Bodies

- **Automotive:**

- Ministry of Transport
- Highways Authorities
- Certification bodies (e.g. IATF)

- **Maritime:**

- IMO
- IALA

## **Horizontal Organisations:**

- National Mapping Agencies
- Geodetic Agencies
- .....

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