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Integrating SWIM into a global TBO/FF-ICE service architecture: Challenges and vendor perspectives

ICAO Asia/Pacific SWIM Seminar, Bangkok, May 19, 2025

Agenda Items

- SWIM and TBO/FF-ICE overview
- Mixed-Mode environment: SWIM and legacy communication systems
- Challenges integrating SWIM with TBO/FF-ICE
- Mitigation strategies from Frequentis perspective

Introduction to SWIM and TBO/FF-ICE

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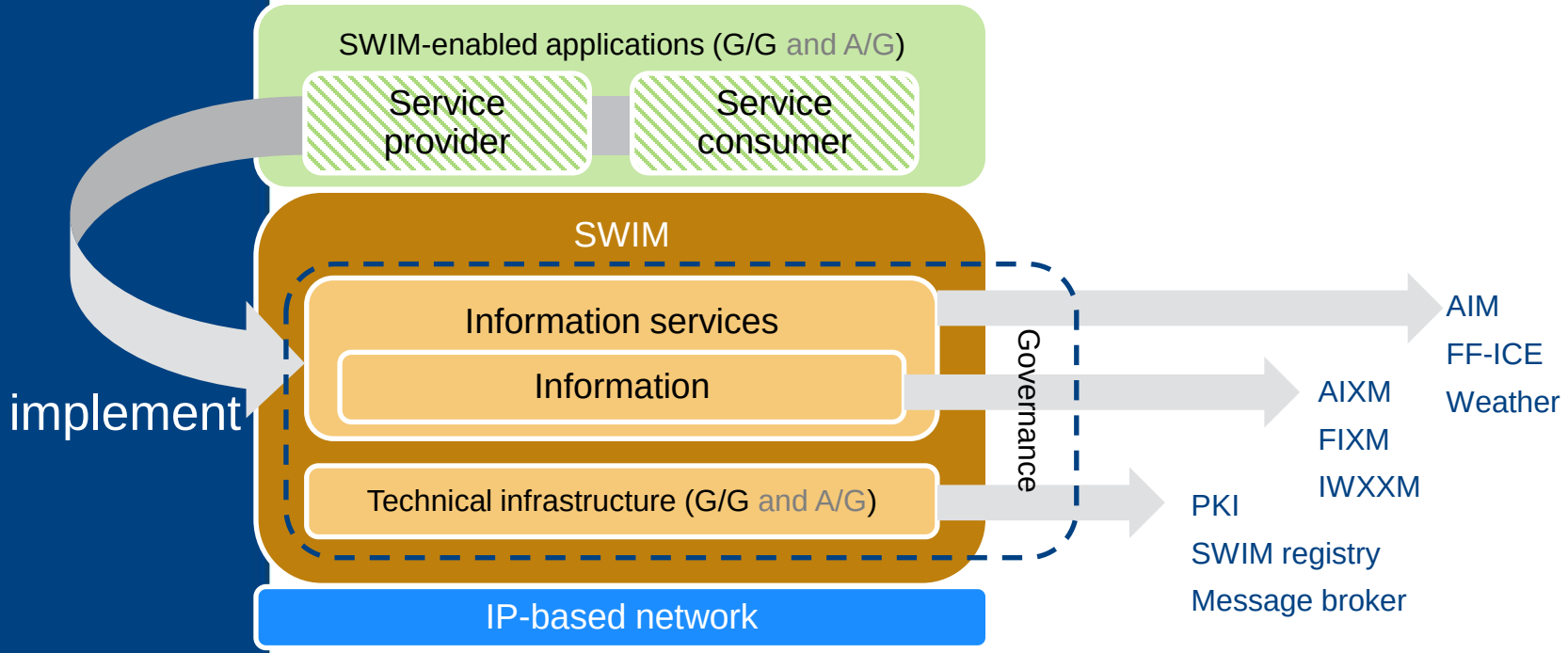
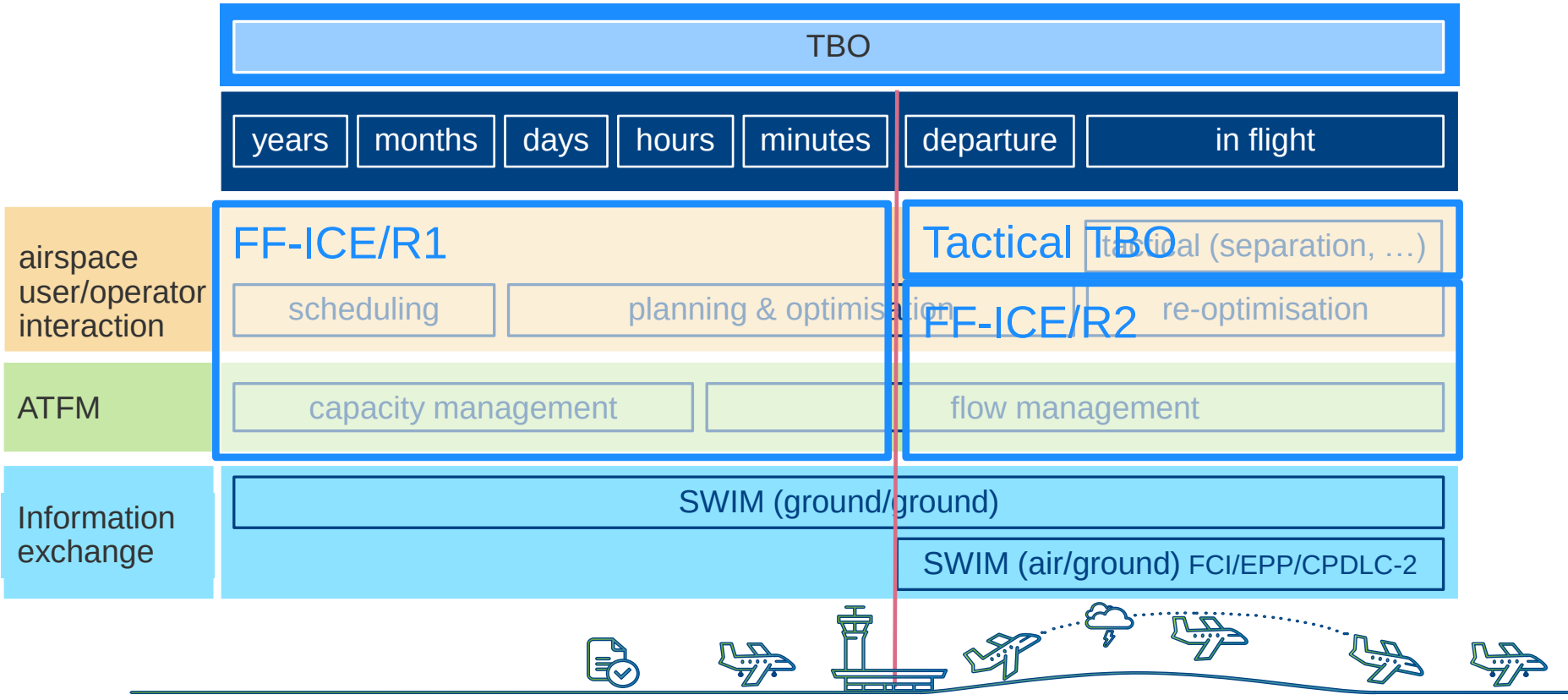
SWIM definition - ICAO Doc 10039



TBO/FF-ICE timeline of activities for a flight (ICAO Doc 9965 Vol II)



Mixed-Mode environment: SWIM and legacy communication systems

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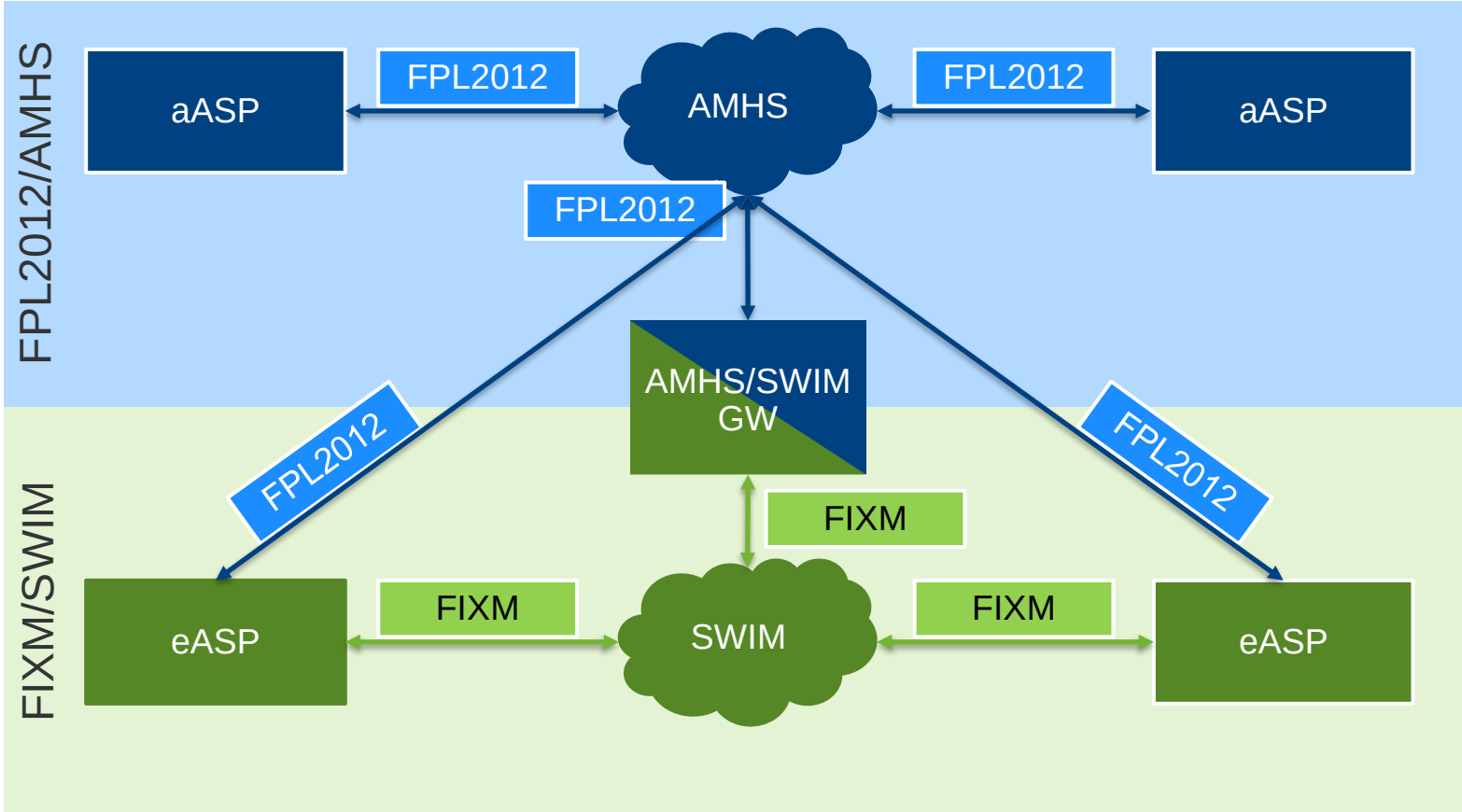
Communication network and mixed-mode messaging scenarios



Challenges integrating SWIM with TBO/FF-ICE

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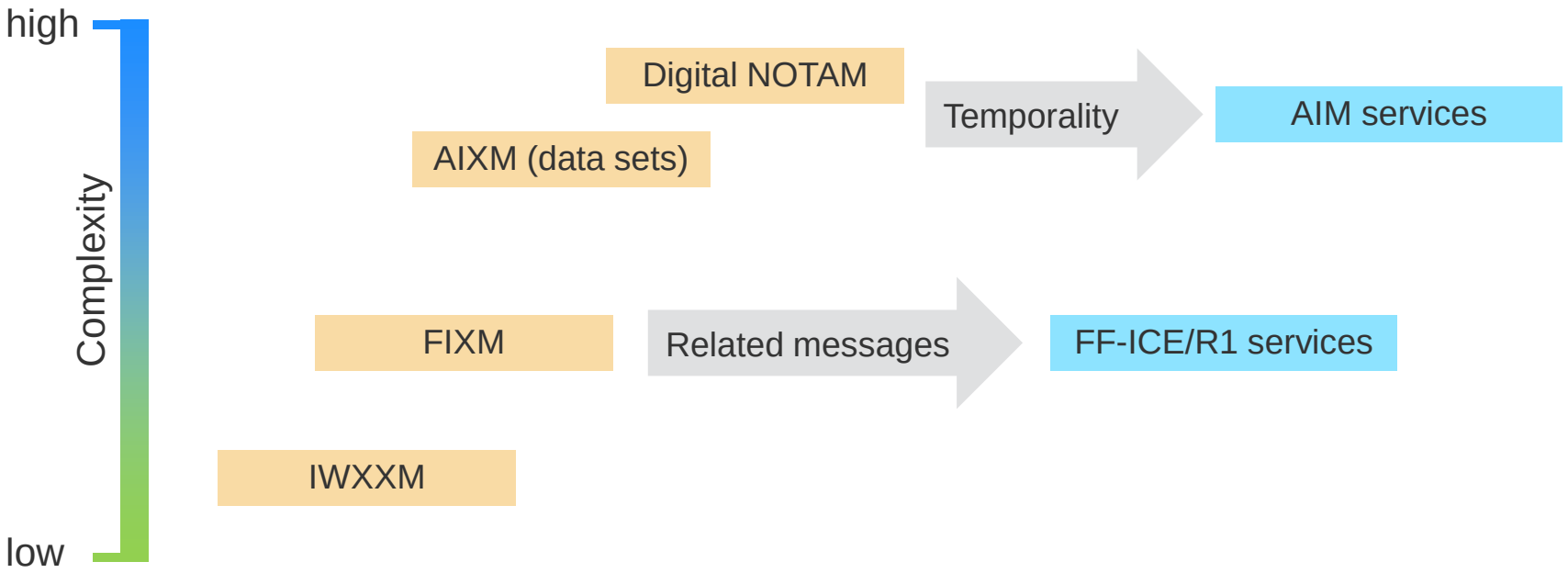
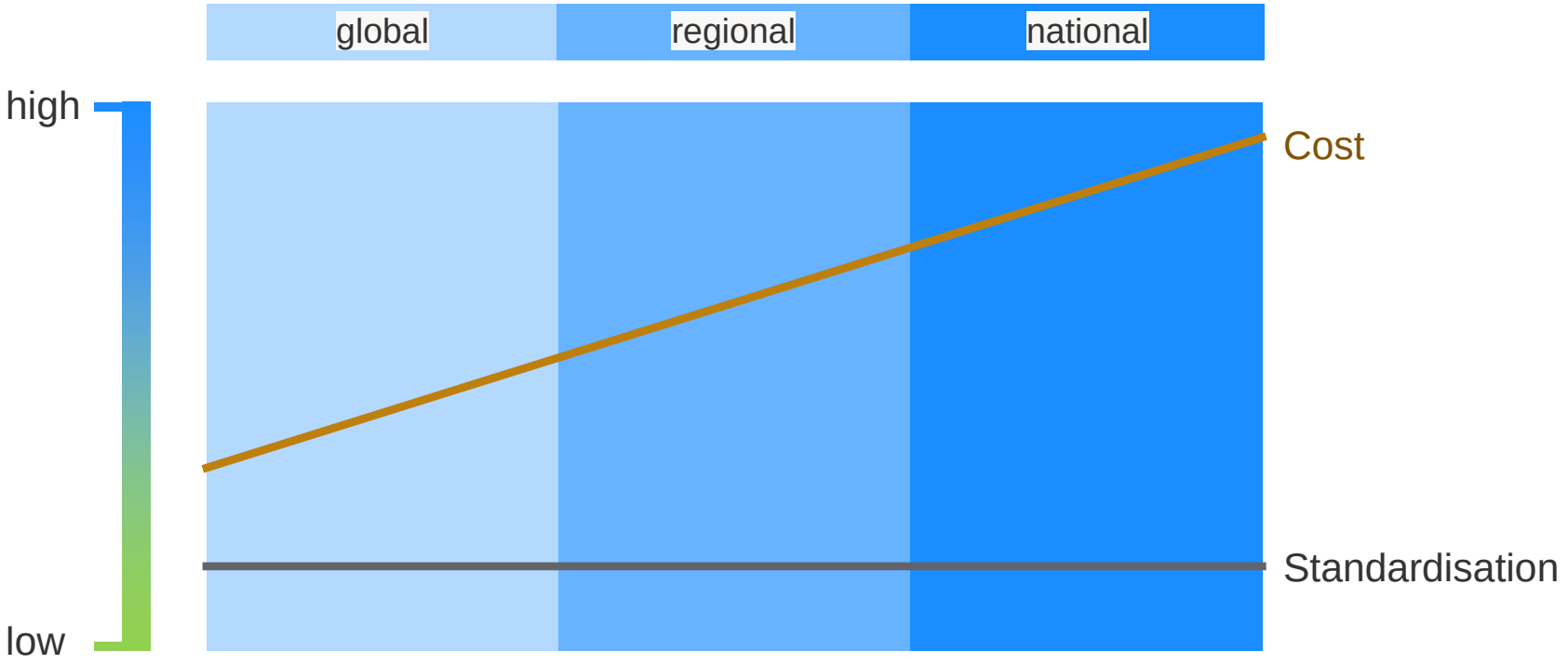
SWIM information and information service complexity



SWIM information & services standardisation vs system costs



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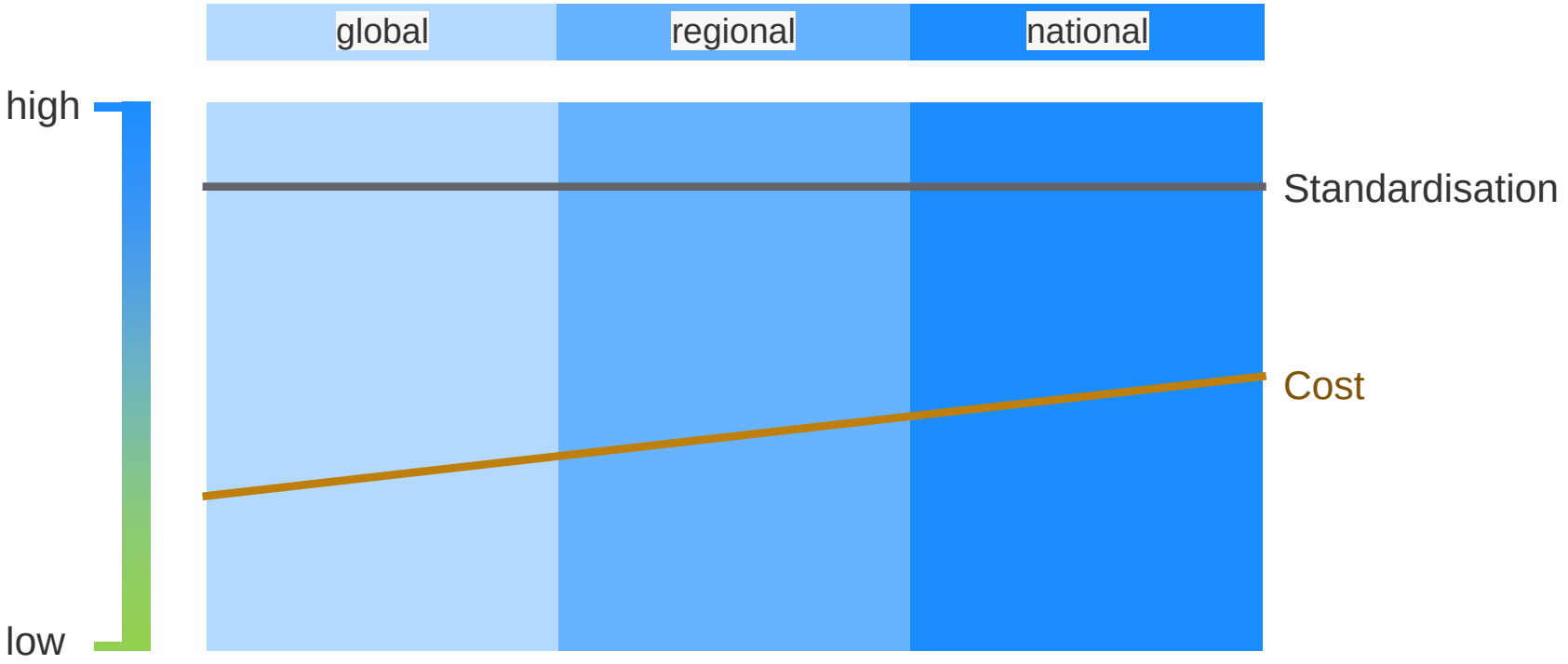

Mitigation strategies from Frequentis perspective

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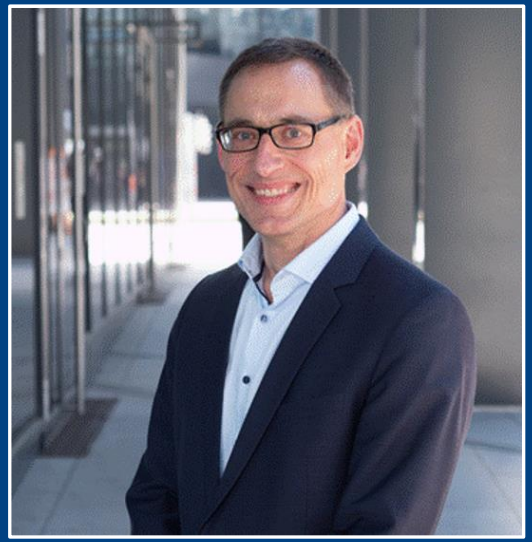
Risk and cost mitigation strategies from Frequentis perspective

- Strong international cooperation for harmonising regional implementations
- ANSPs and industry collaboration during standardisation phase to lower system costs
- AMHS/SWIM gateways work for IWXXM but not for digital NOTAM/AIXM and FIXM
- Local system adapters instead of national or regional gateways for mixed-mode environments
- Review current service definitions and information exchange models (e.g. digital NOTAM and AIXM data sets) for ICAO compliant improvements
  - Example: Encoding a digital NOTAM adding NOTAM scenario specific data set information results in a “full-context digital NOTAM” compliant with ICAO and the Eurocontrol digital NOTAM event specification. It can be interpreted by an automated systems without any additional information, potentially resulting in simpler and more robust system and software architectures

Thank you



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