SAFE SKIES.
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FUTURE.

ESAF Regional Aeronautical Meteorology Seminar

Hilton Garden Inn Windhoek, Namibia
4-6 June 2024

Artificial Intelligence (AI) Developments in Meteorology

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ICAO ESAF Regional Seminar on Aeronautical Meteorology
Building capacity & strengthening collaboration

Windhoek, Namibia, 4-6 June 2024

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UN General Assembly Resolution on AI

adopted its first-ever resolution on artificial intelligence (AI) on March 21, 2024.

Titled "*Seizing the Benefits of Artificial Intelligence for All, while Ensuring the Respect for the Rights of All,*" :

- acknowledges the potential of AI to contribute to the achievement of the Sustainable Development Goals (SDGs),
  - but also recognizes the potential risks and challenges associated with its use..
- underscores the importance of developing AI responsibly by prioritizing safety, security, and trustworthiness.
- Closing the Digital Divide and Fostering Collaboration
- human-centric, rights-based, ethical, and ethical AI development.
- promotes fair competition and open business environments in the AI marketplace to ensure equitable access to AI technologies and opportunities.

The Resolution is not legally binding **BUT**

..serves as an important signal of the international community's commitment to addressing the challenges and opportunities presented by AI.

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The principles established by this resolution will be further explored at key upcoming UN events in the roadmap to the Summit of the Future in September 2024

ICAO's Activities in the field of AI

ICAO prioritizes safety in all its endeavors- AI is no exception.

- In the area of aviation, ICAO has engaged in various activities supporting multiple initiatives in the domain of artificial intelligence e.g.
    - Partnering in the UN AI for Good Annual Global summit, presenting work session on AI in aviation as well as participate in mobility sessions
    - Hosting internships, developing in-house deep learning AI models showcasing natural language processing techniques for aeronautical information management as well as document summarization
    - Collaboration with XPrize Foundation by providing AI challenges and participating in the Global Initiative on AI and Data Commons
    - https://www.icao.int/safety/Pages/Artificial-Intelligence-(AI).aspx

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ICAO and the use of AI in aviation

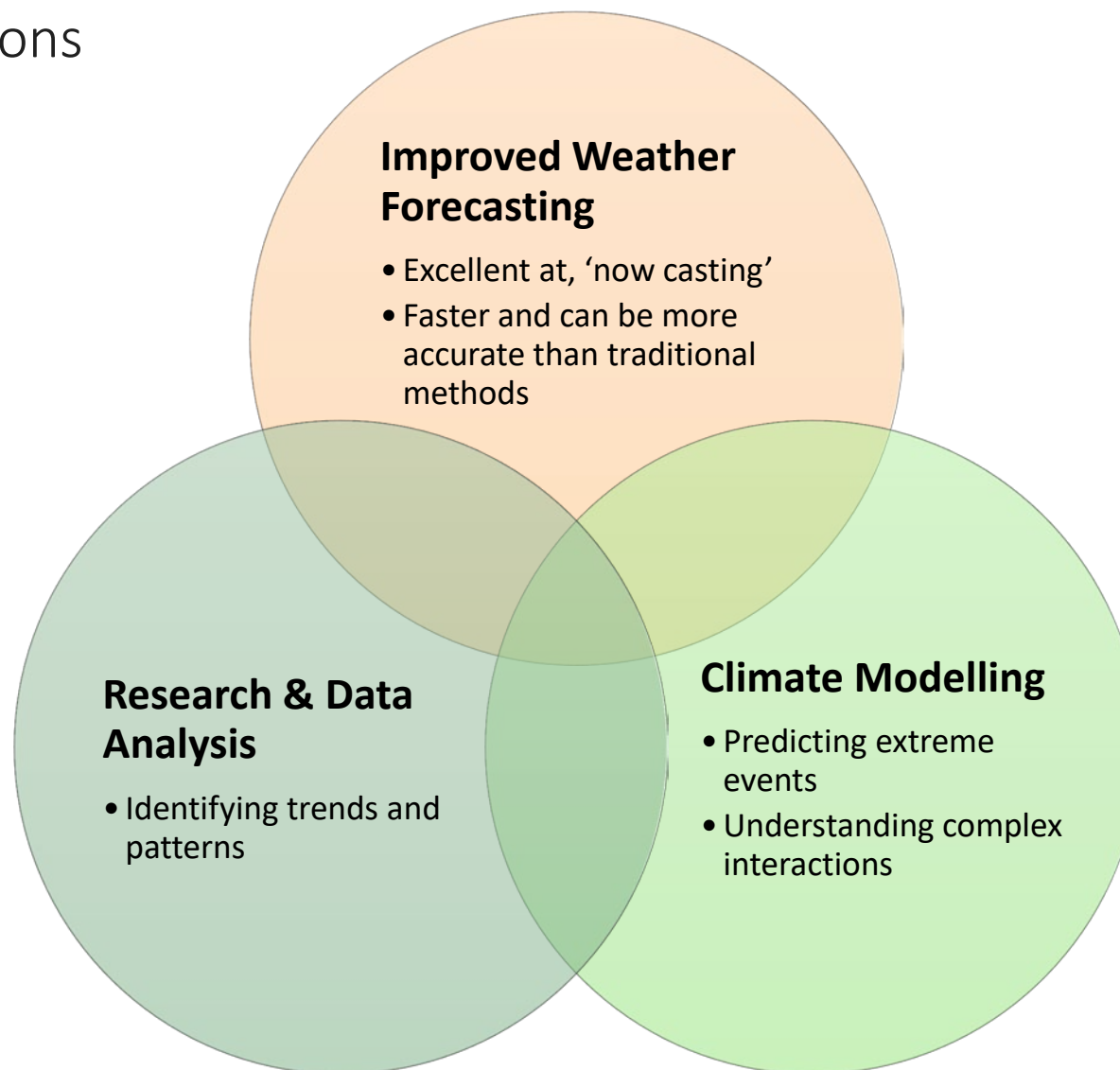ICAO prioritizes safety in all its endeavors- AI is no exception.

- ICAO stresses the need for rigorous testing, validation, and certification of AI systems
  - to ensure they meet the highest safety standards.

- ICAO supports research and development of AI applications for aviation, exploring their potential benefits and risks.

- ICAO's Activities in the field of AI https://www.icao.int/safety/Pages/Artificial-Intelligence-(AI).aspx

- Challenges and Opportunities for Artificial Intelligence (AI) in Aviation Innovation Webinar (1 March 2023) https://www.icao.int/Meetings/innovation-series/Pages/Challenges-and-Opportunities-for-Artificial-Intelligence-(AI)-in-Aviation.aspx
  - Available on ICAOTV

Potential use of AI in meteorology

Some key applications

Improved Weather Forecasting

- Excellent at, 'now casting'
- Faster and can be more accurate than traditional methods

Research & Data Analysis

- Identifying trends and patterns

Climate Modelling

- Predicting extreme events
- Understanding complex interactions
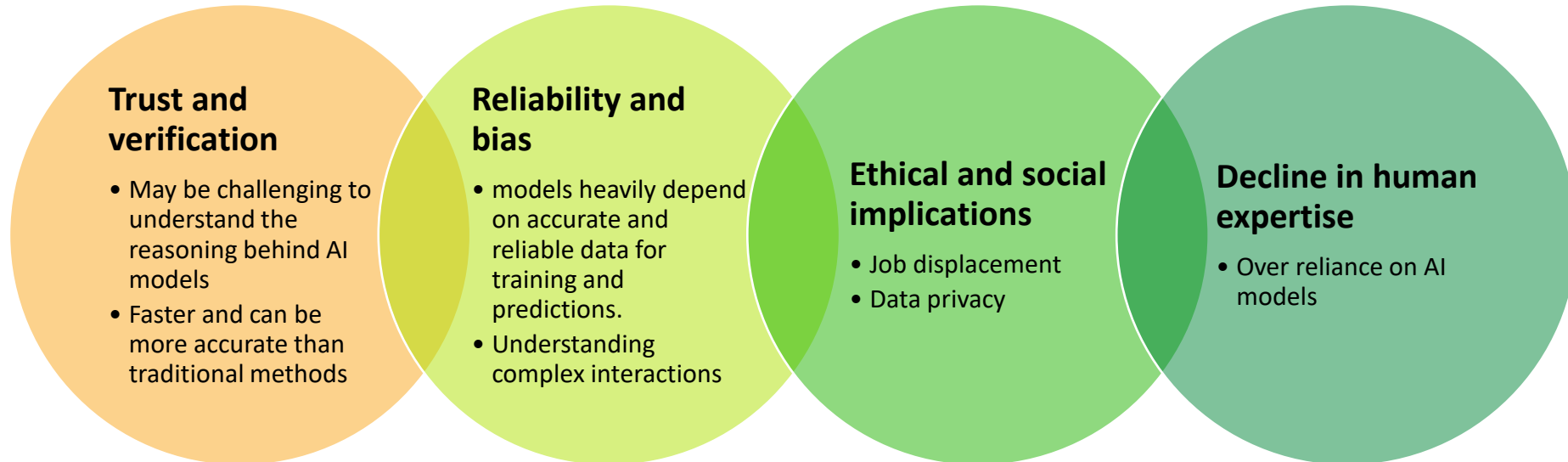
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Challenges and consideration on the use of AI in meteorology

several challenges and considerations need to be addressed

Trust and verification

- May be challenging to understand the reasoning behind AI models
- Faster and can be more accurate than traditional methods

Reliability and bias

- models heavily depend on accurate and reliable data for training and predictions.
- Understanding complex interactions

Ethical and social implications

- Job displacement
- Data privacy

Decline in human expertise

- Over reliance on AI models

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Conclusion

- AI promises groundbreaking advancements in meteorology.
- However, there are several challenges and considerations that need to be addressed to ensure its responsible and effective implementation

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Questions?

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Thank You!