

Open Data considerations for the
implementation of the digital
twin of the ocean: MarCOSIO use case

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AfricaGIS 2025



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Contents

- Background
- Context
- Methods
- Lessons learned
- Conclusion

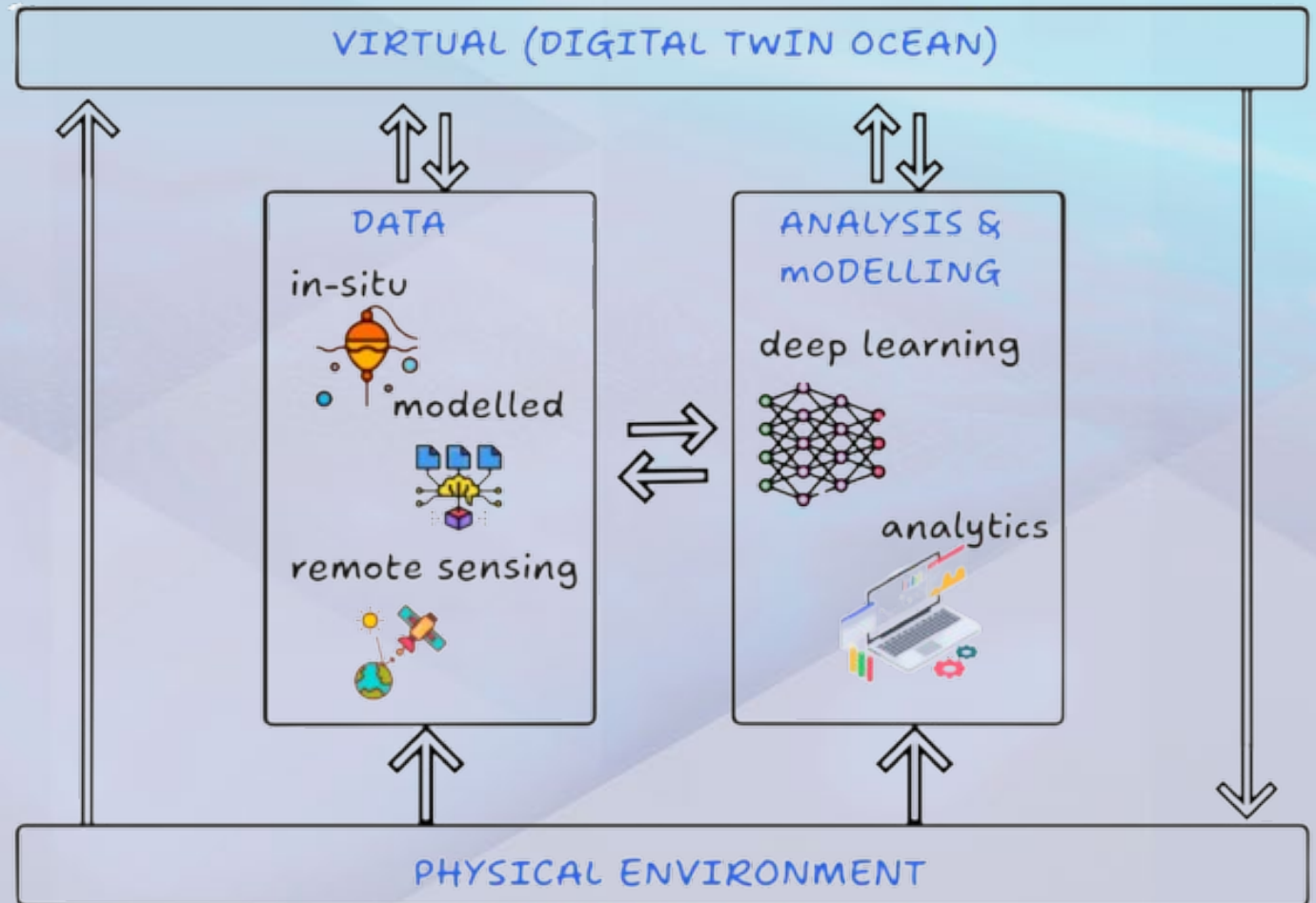


Data boundaries

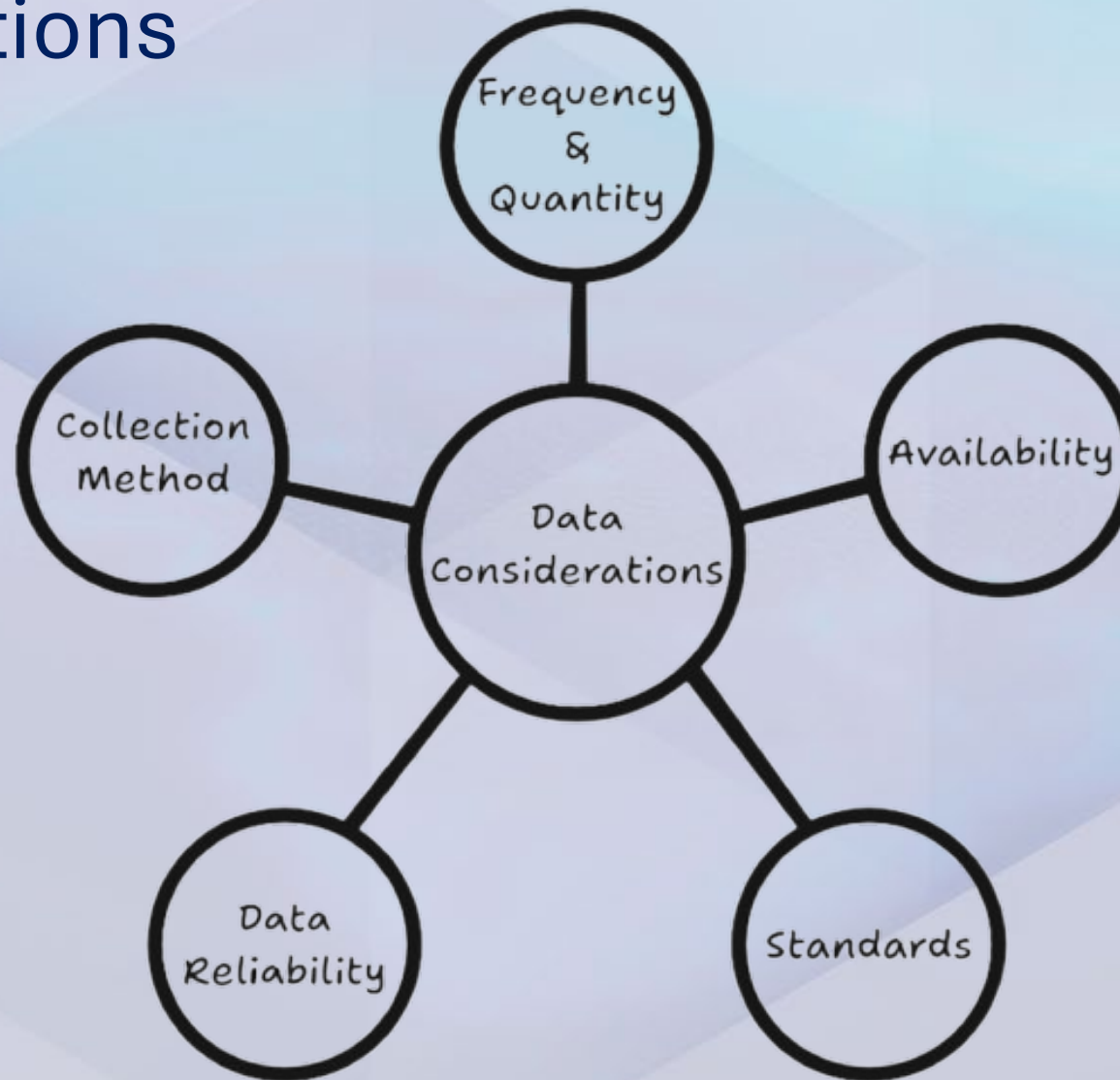


DTO conceptual model

- Virtual representation to mimic physical entities
- Heavy reliance on quality and accurate data
- Real time analysis, ML, IoT



Data considerations



Data sources

In-situ data



Remote sensing data



Digital Twin of the Ocean

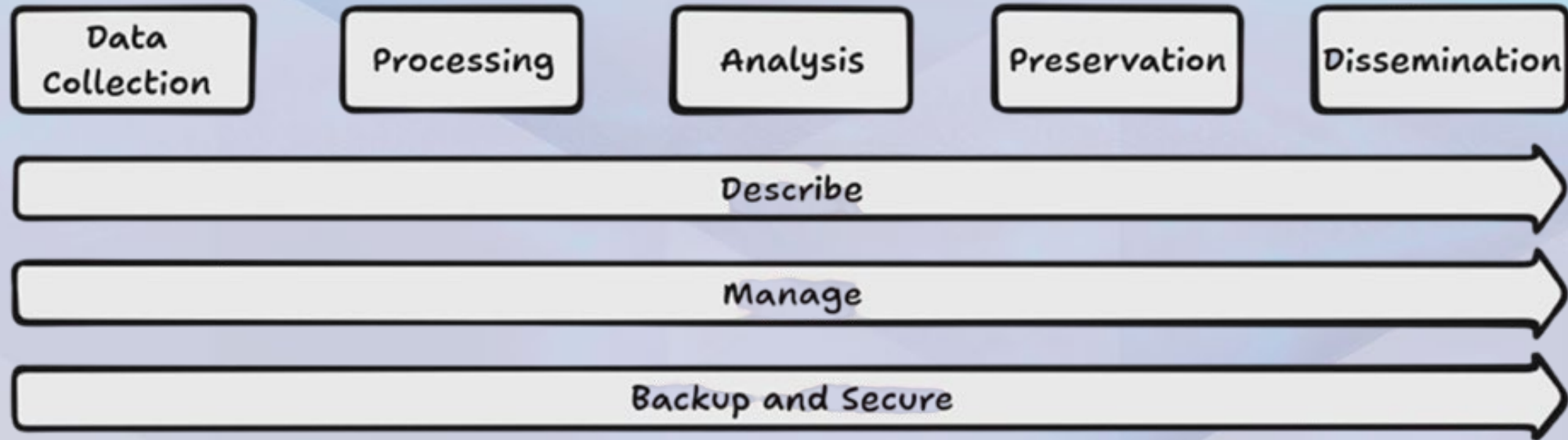


Modelled data

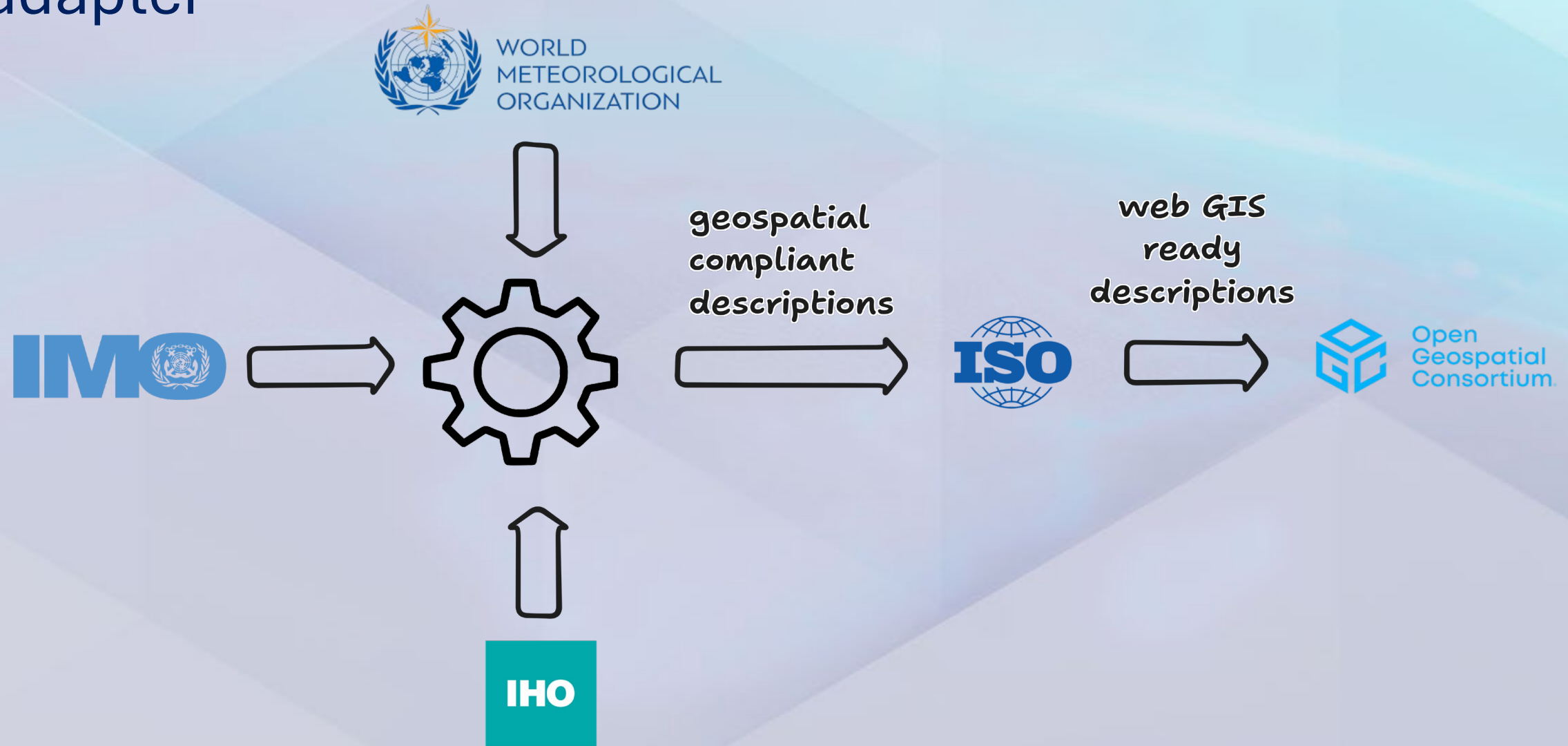


Ancillary data

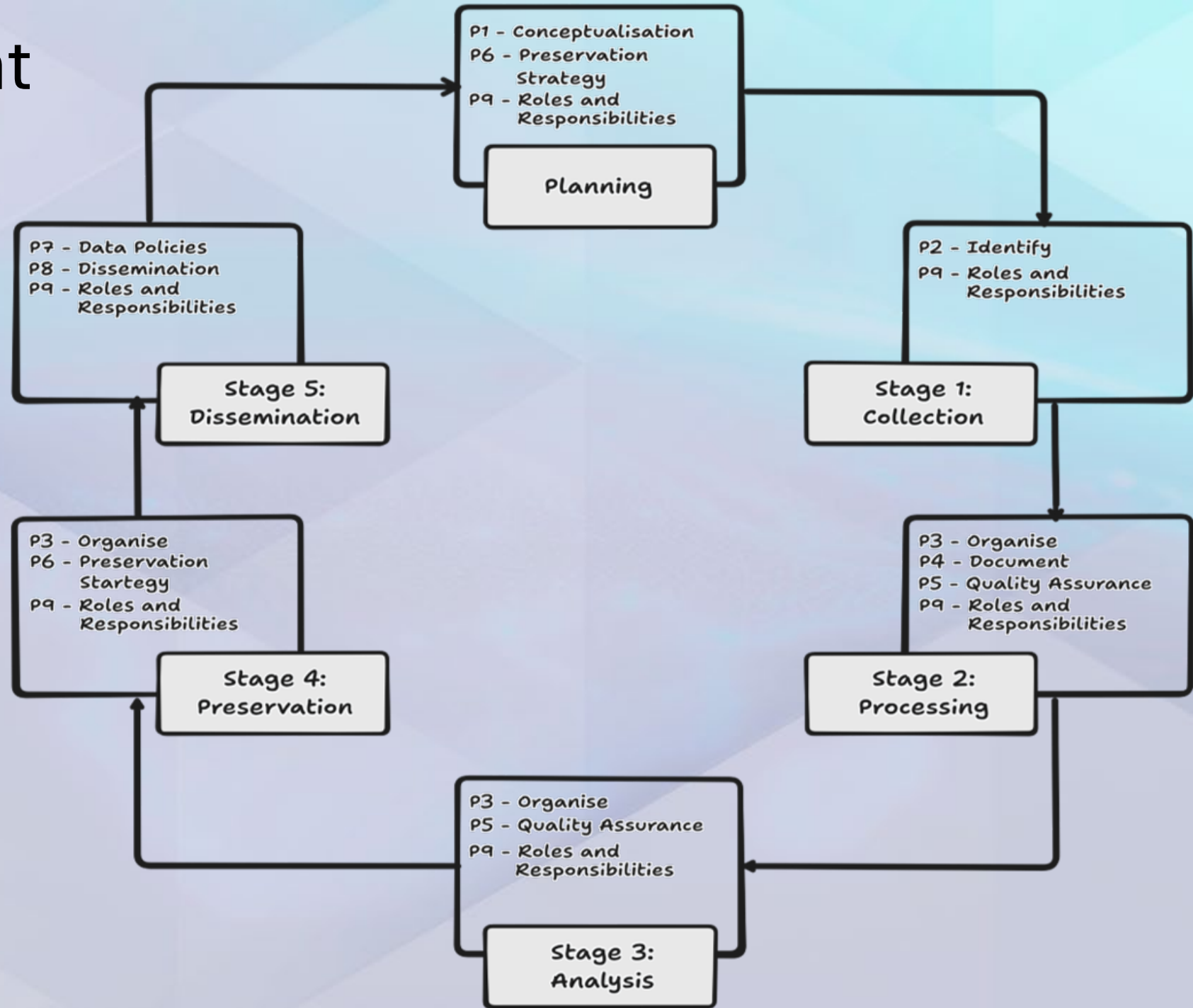
Data life cycle in the DTO



Data adapter



Data management



Challenges and lessons

- Temporal, spatial, alignment and resolution harmonisation.
- Additional processing (transformation) prior to any fusion.
- Harmonisation and data provenance maintained for transparency or the credibility
- Policy alignment from intergovernmental agencies to ensure full TRUST compliance.
- Membership of international bodies, organisations and regional conventions - overcome the data governance and policy mismatches.
- Partial openness - partially described and shared under certain conditions
- Levels of classification poses security risks if used by unauthorised persons (licensing and disseminating)



Conclusion

“In the absence of agreed policy baseline – we use this framework to harmonise data sharing regionally without borders” - Dr. BHS



Acknowledgements





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Thank You



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