



University | School of  
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THE AWARDS  
2020

UNIVERSITY  
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# Human-Centered CDSS

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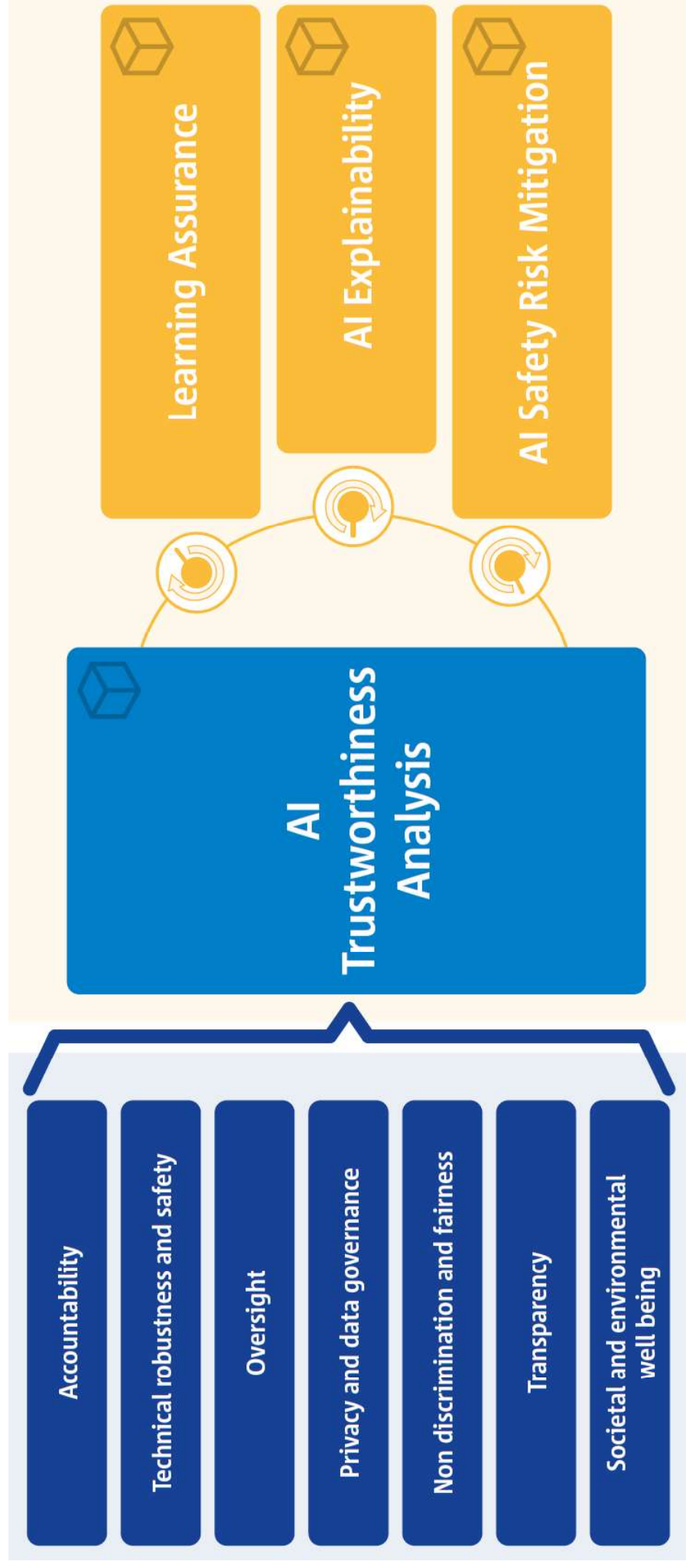
Lead of the Computing Technologies for Healthcare Theme

<https://www.gla.ac.uk/schools/computing/staff/fanideligianni>

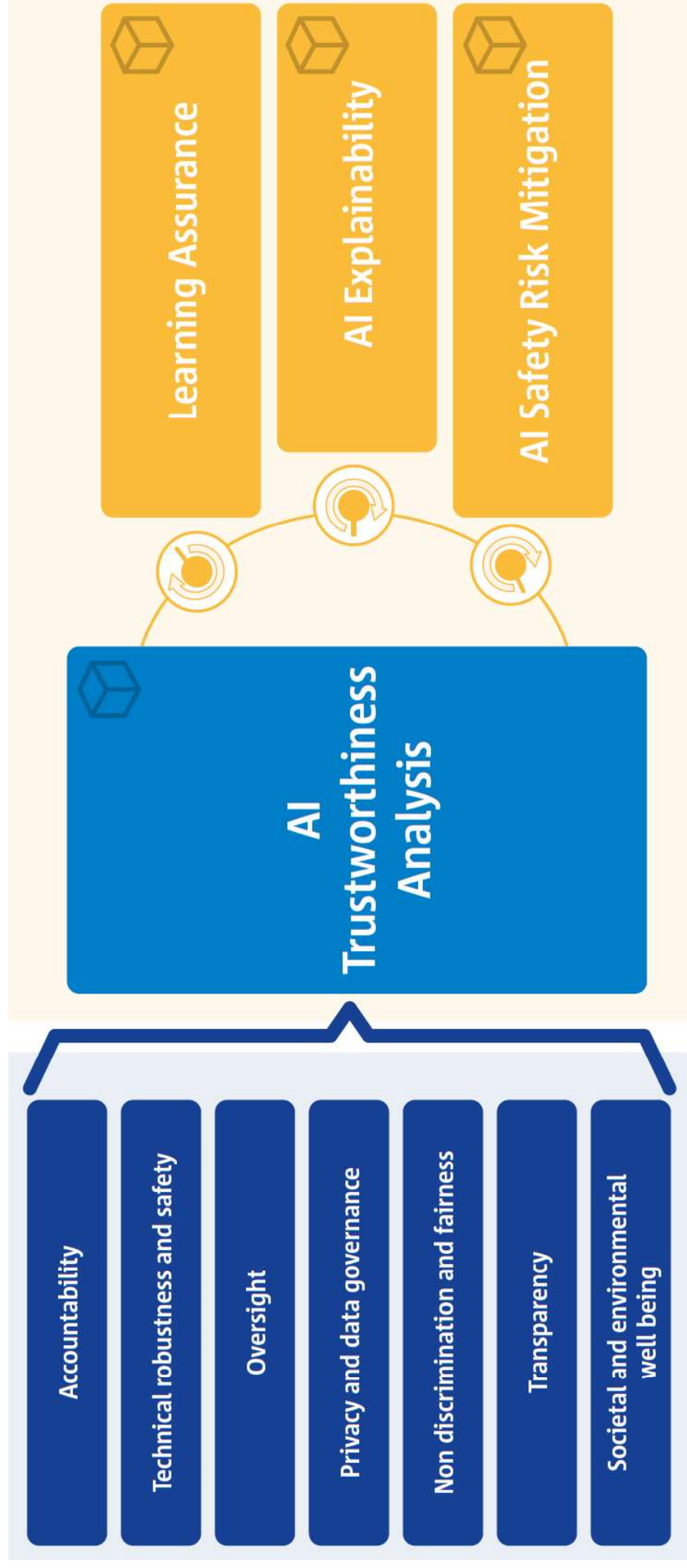
WORLD  
CHANGING  
GLASGOW



# Why do we need Human-Centred CDSS?

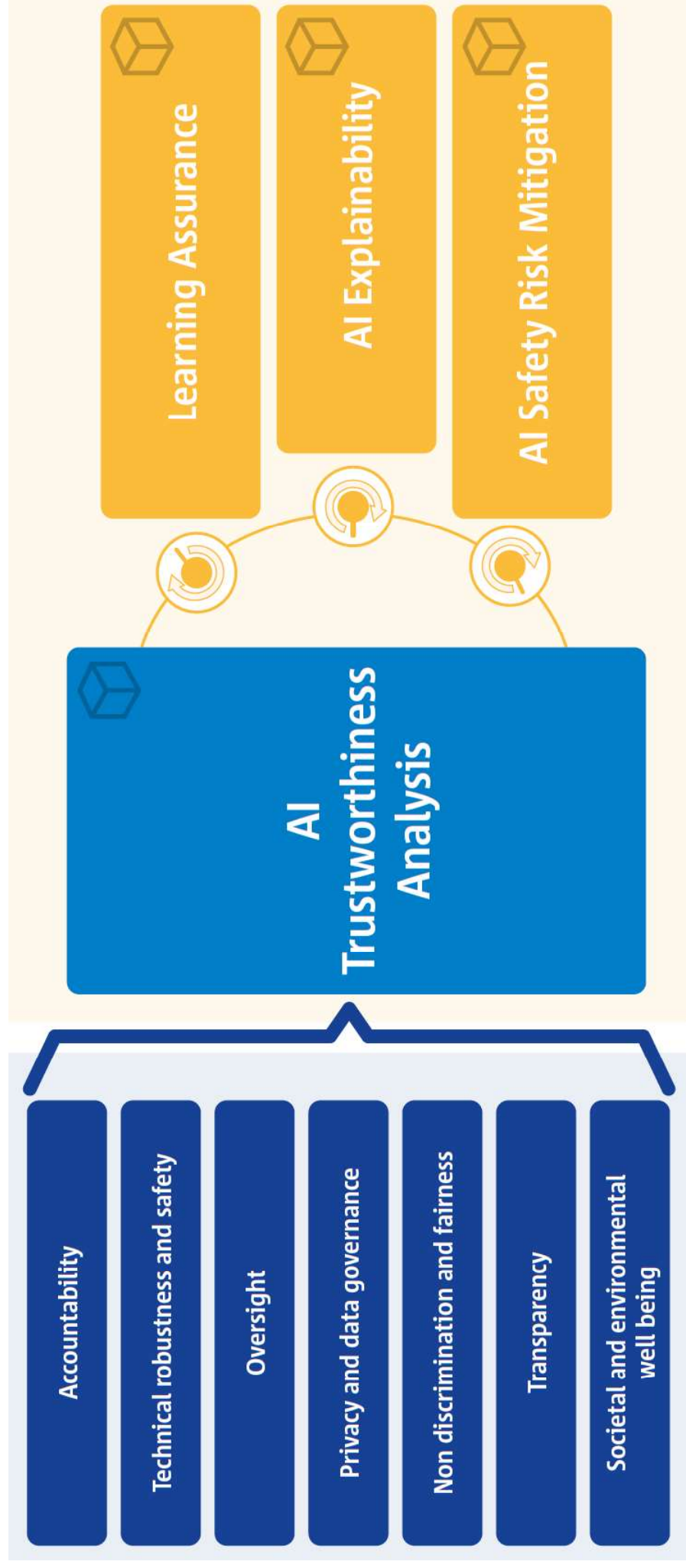


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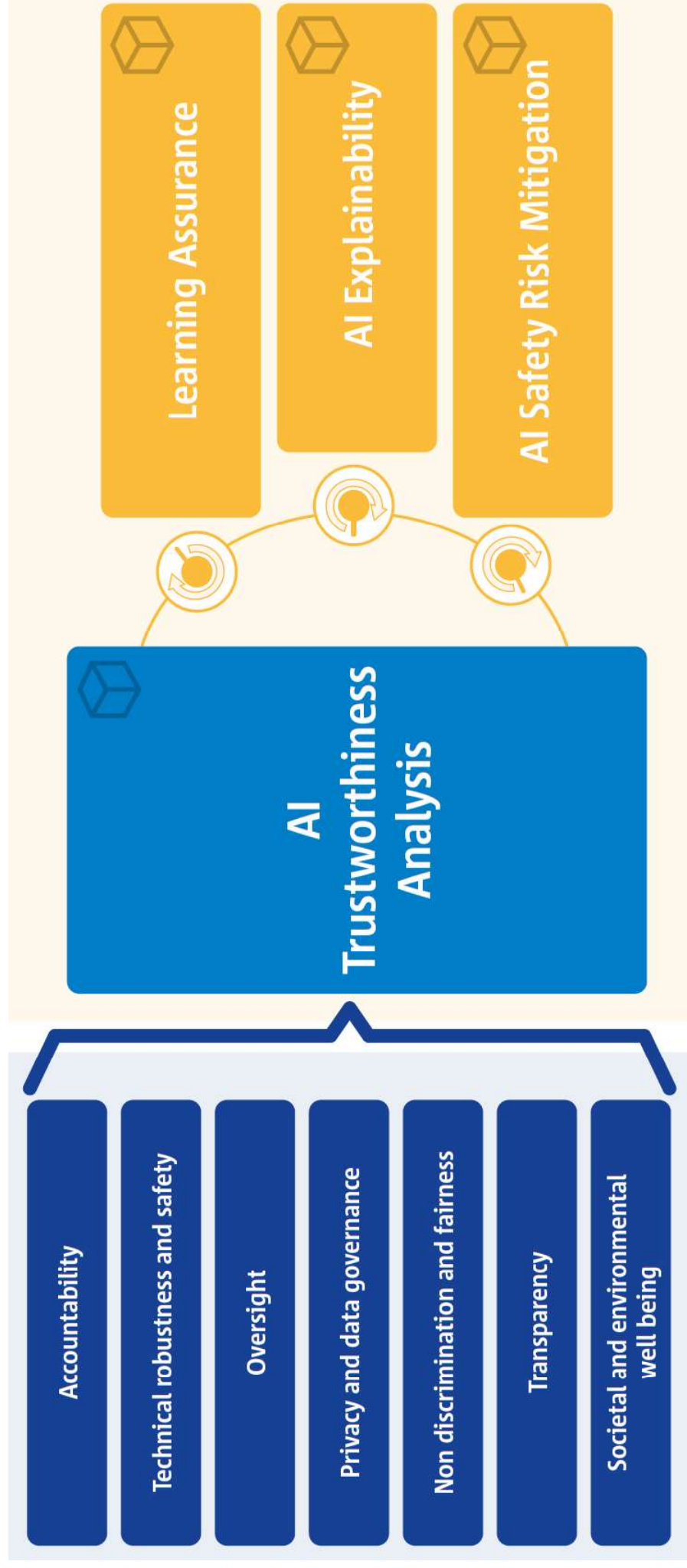




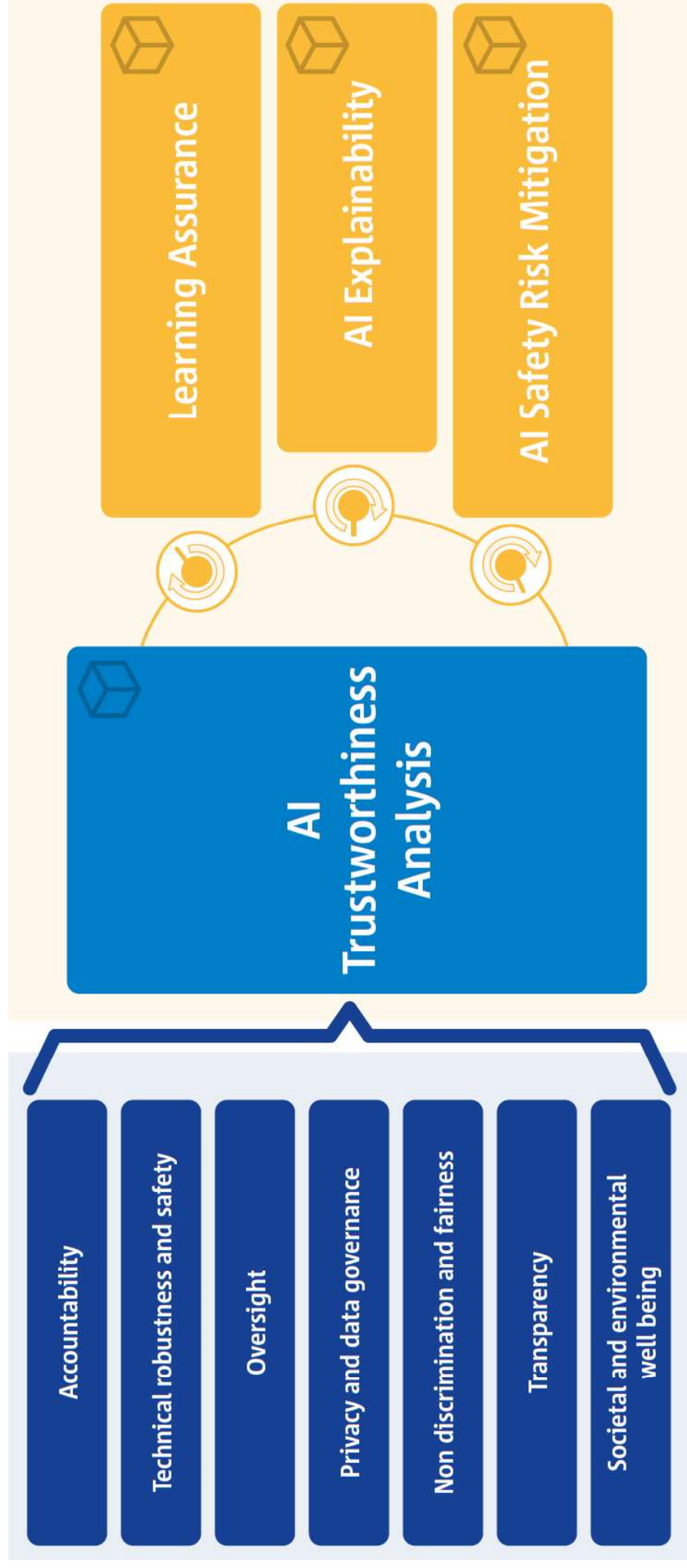
# Why do we need Human-Centred CDSS?



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# Initiative on Ethical AI

- Partnership on AI
- OpenAI
- Foundation for Responsible Robotics
- Ethics and Governance of Artificial Intelligence Initiative
- Montréal Declaration for Responsible Development of Artificial Intelligence



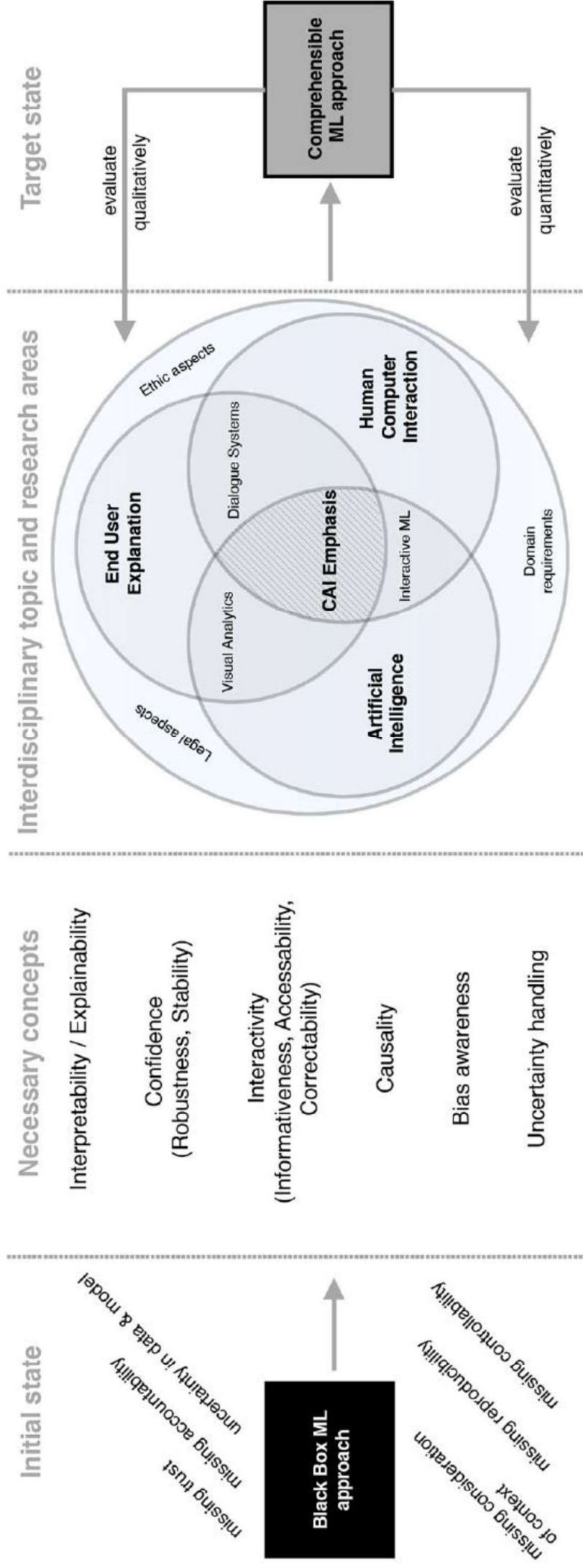
## Reality Check Points – Precision Medicine

- Will machine learning enable automated diagnoses with unprecedented accuracy?
- Would machine learning-powered precision medicine enable identification of the best therapies for individuals?
- What are the pragmatic routes to precision medicine?

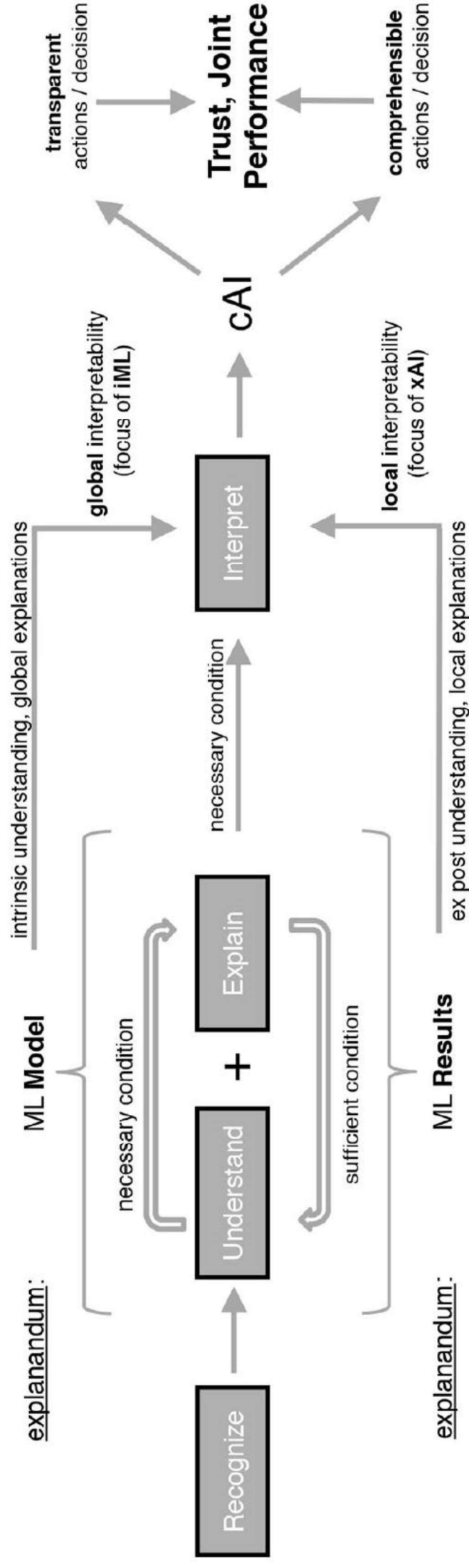




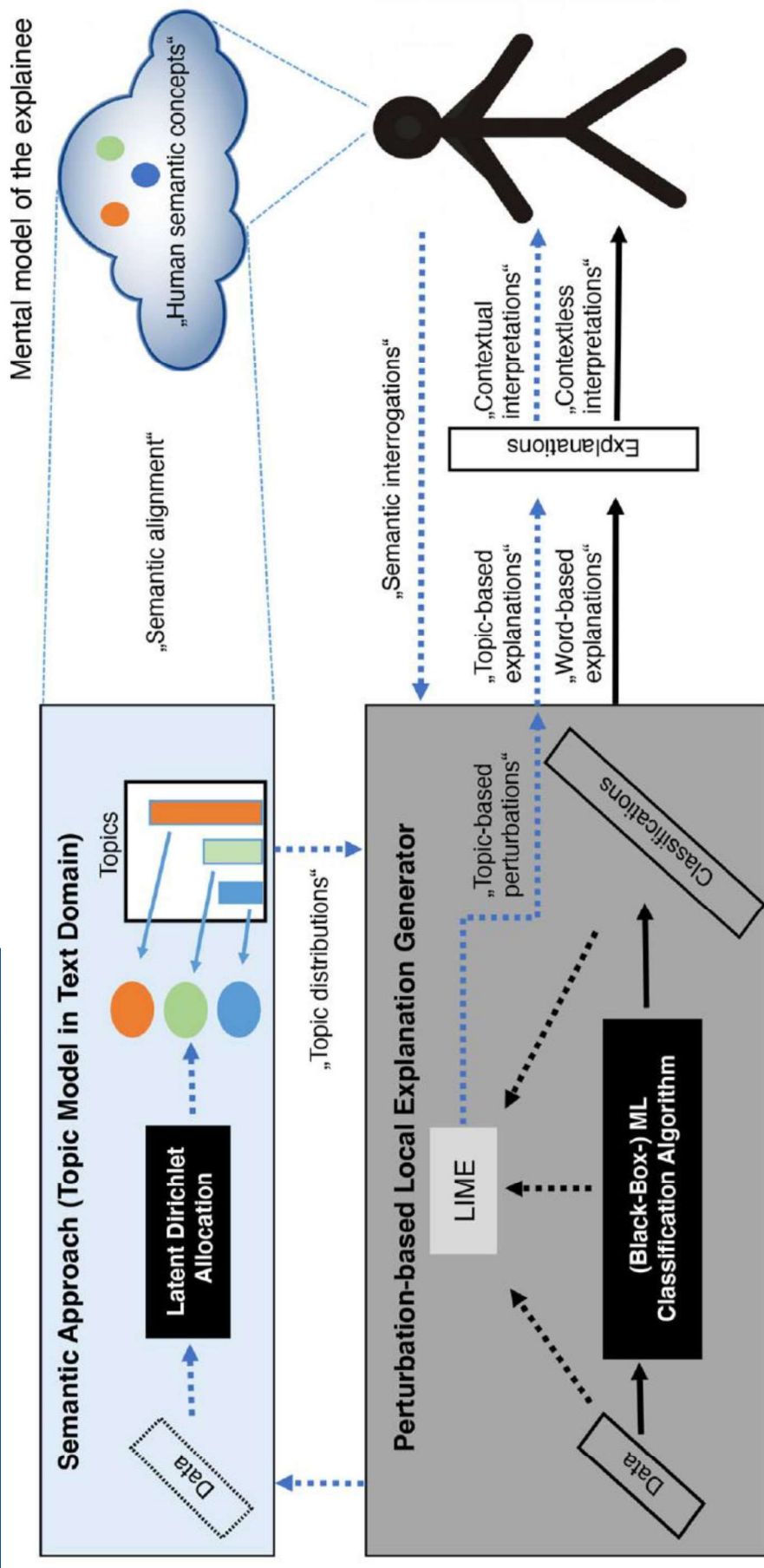
# Trustworthy Clinical Decision Support Systems



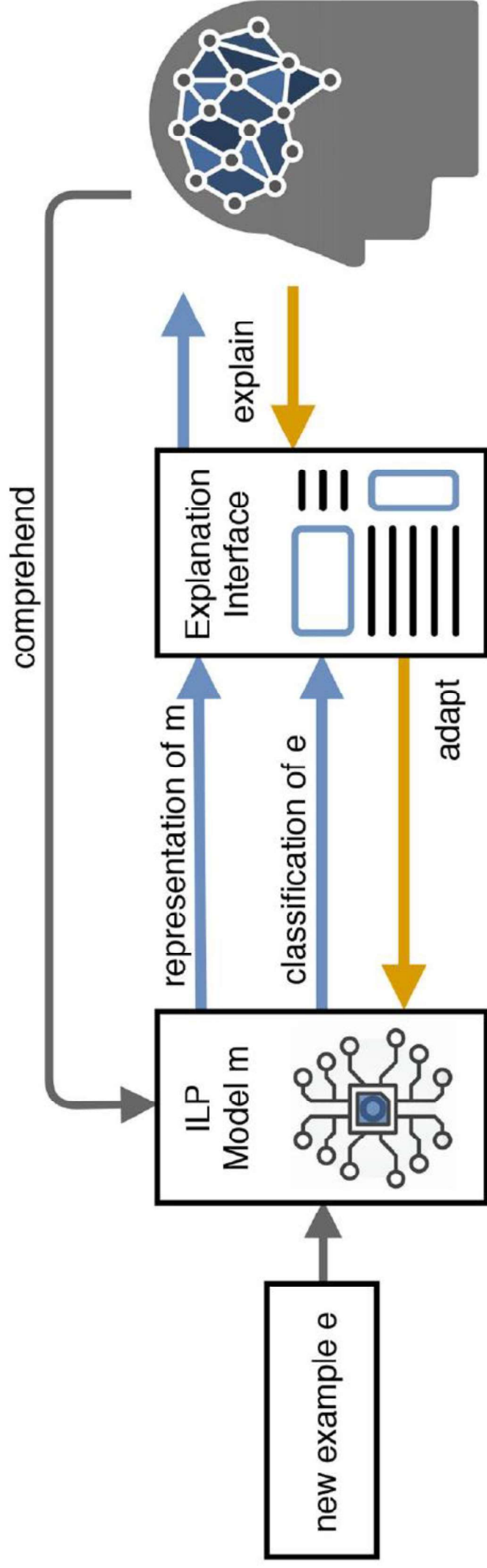
# Next Generation of CDSS: Trust - Transparency



# Semantic Alignment



# Human-Centred CDSS



# Summary

- Ethical consideration in developing Clinical Decision Support Systems based on machine learning
- Key axes of a trustworthy CDSS are clinical usefulness and explainability
- Human centered designs of CDSS are important to realize the full potential of machine learning applications





# References

- Bruckert et al. The Next Generation of Medical Decision Support: A Roadmap Toward Transparent Expert Companions, Frontiers in Artificial Intelligence, 2020.
- Murphy et al. 'Artificial intelligence for good health: a scoping review of the ethics literature', BMC Medical Ethics, 2021.
- Sutton et al. 'An overview of clinical decision support systems: benefits, risks, and strategies for success', NPJ Digital Medicine, 2020.
- Wilkinson et al. 'Time to reality check the promises of machine learning powered precision medicine', Lancet Digital Health, 2020.