

Key Theme 3 Summary



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What we expected

- Simulations play a key role to clarify properties of methods
 - Likewise, synthetic data may have potential for data sharing
 - The two topics have some relationship
 - Both are important in all of STRATOS' TGs
 - See how these topics link to the concept of Phases of methods research and what impact this may have
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- → we expected lively discussions about those topics

The preparation...

23:00 Donnerstag 19. Sep. overleaf.com

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Images

- literature.bib
- main.tex
- SessionSuggestions.tex
- slides_pitch.tex
- slides_planning_meeti...

File outline

- Background: Simulation s...
- Background: Generation ...
- Phase III neutral simulatio...
- Phase IV neutral simulati...
- Diagnostic for phase IV m...
- Plenary morning session
- Synthetic data generation
- Further topics
- Overview
- References

Keeping track of suggested sessions for Key Theme 3 in Leiden.

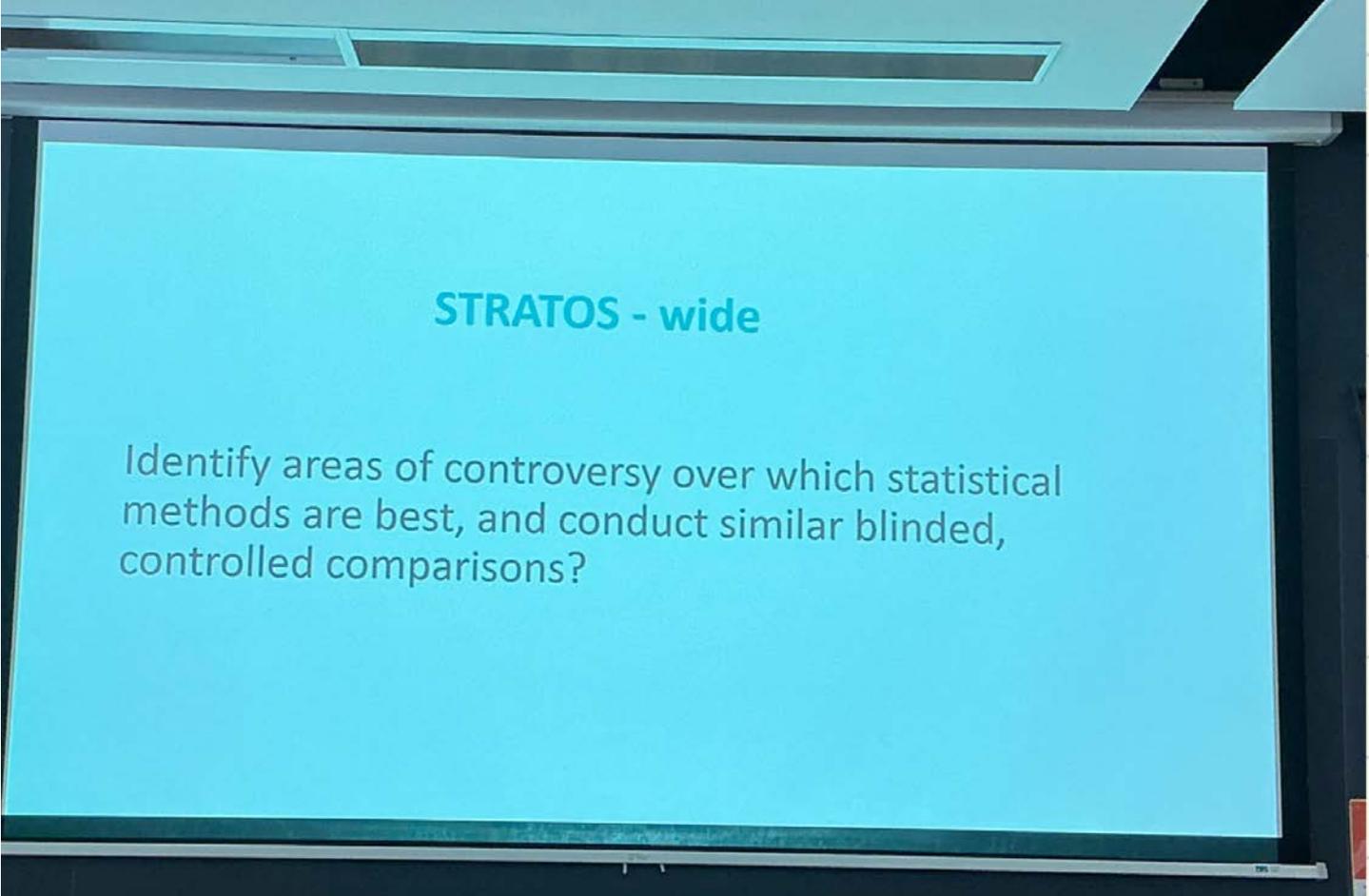
Suggester/presenter	Suggestion	Time
Us	Pitch on KT 3	Monday 10:30– 11:30
Laurence Freedman	Example of a Phase 3 neutral simulation study: TG2-TG4 collab on Measurement error and splines	1h Monday pm
Sabine Hoffman & Anne-Laure Boulesteix	Planning of a neutral comparison study with complex measurement error structure	Monday pm
Tim Morris	How to evaluate ‘diagnostics’ in phase IV methodological research	1h Tuesday pm
Sabine Hoffmann	Generation of synthetic data	Wed/Thu?
Daniela Dunkler	Presentation/visualisation of complex simulation results	Suggested Thu?
Willi Sauerbrei	‘Simulation profiles’ Registration of simulation studies	?

Day 1

- Workshop session 1:
 - Presentation of Laurence Freedman about TG2-TG4 project
 - Neutral comparison study
 - Different methods teams (experts), Data generation team
 - Methods teams developed code, data generation team runs it
 - Allows to extend the simulation study dynamically
 - Not: one group doing all the simulation study
- Workshop session 2:
 - Presentation of Sabine Hoffmann about the planning of a Phase III neutral comparison study with complex measurement error structure
 - "N of 1" trial: targeting a specific scenario

Day 1

- Take home of Day 1:



STRATOS - wide

Identify areas of controversy over which statistical methods are best, and conduct similar blinded, controlled comparisons?

Day 2

- Workshop session 3:
 - Tim Morris: How to evaluate ‚diagnostics‘ in phase IV methodological research
 - Is it Phase IV for method or Phase I for (new) diagnostic?
- Take home:
 - **STRATOS TGs should be thinking about giving guidance on diagnostics**
 - How to do diagnostics for methods
 - How to interpret diagnostics
 - Which action if diagnostic "fires"
 - How costly is the implementation of such actions? (see Faraway, On the cost of statistical analysis)

Day 3

- Key theme 3 main presentations
- Workshop session 4:
 - Sabine Hoffmann led a discussion about synthetic data
 - Synthetic data and simulated data – what's the difference?
 - Use of synthetic data for IPD meta analyses?
 - Examples of uses of synthetic data
 - Purpose of use of synthetic data
 - Data privacy
- Take home:
 - Be careful!

Day 4

- Workshop Session 5: Visualization of complex simulation results
 - Daniela Dunkler: on the design of a TG2 simulation study
 - Theresa Ullmann: Visualization using a purposeful Shiny App
 - Michael Kammer: Nested Loop Plots
 - Tim Morris: Further ideas on visualization
- Take home:
 - Closer collaboration between Visualization Panel and Simulation Panel?
 - Guidance for visualizing and presenting simulation results (for different audiences)?

Conclusion



Our digital twins –
look similar but may behave unexpectedly