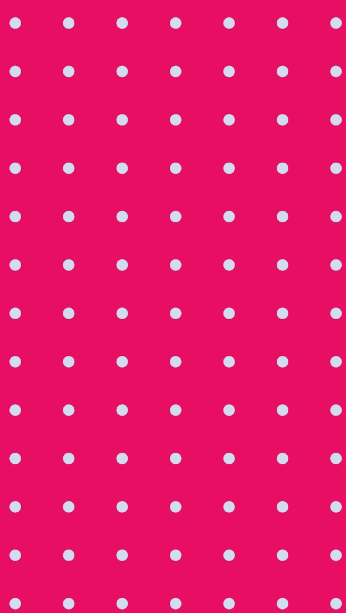




Veranet: R-Shiny meets Network Meta-Analysis and Data Visualisation

Anton Schönstein & Federico Bonofiglio,
Veramed GmbH (Frankfurt am Main, Germany)

Recording for
PHUSE EU Connect: 16-Nov-2022



Network Meta-Analysis as an extension:



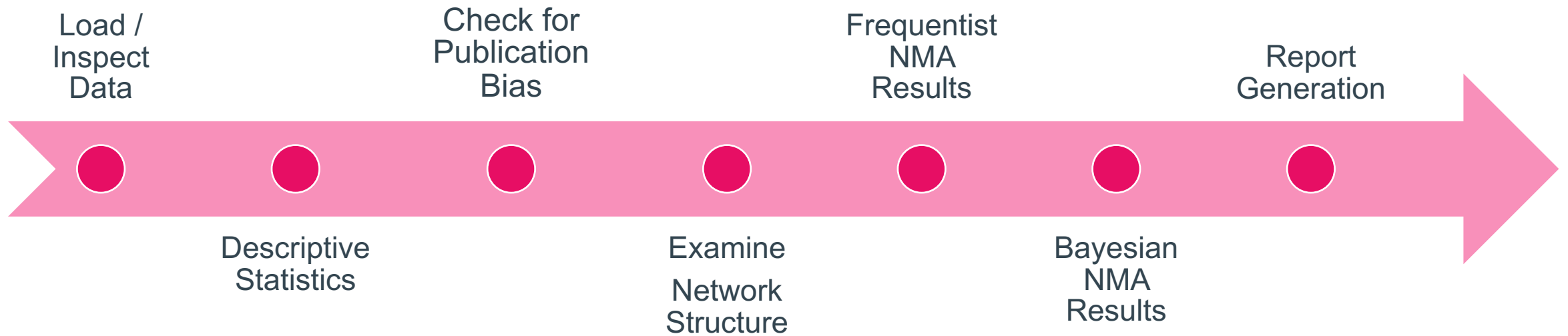
“Is A better than B ?”

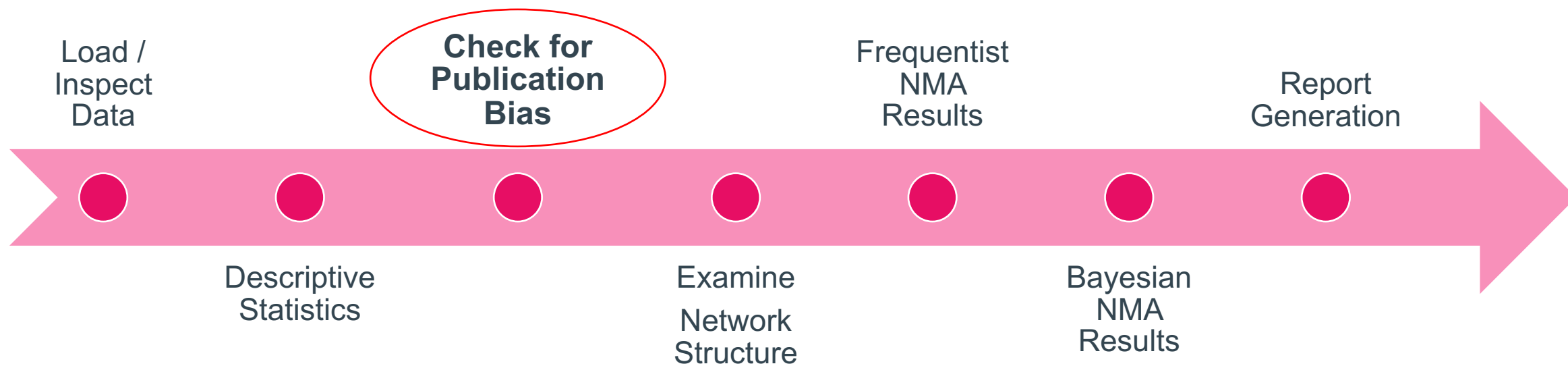
“What is the best treatment?”

Shiny as an emerging tool:

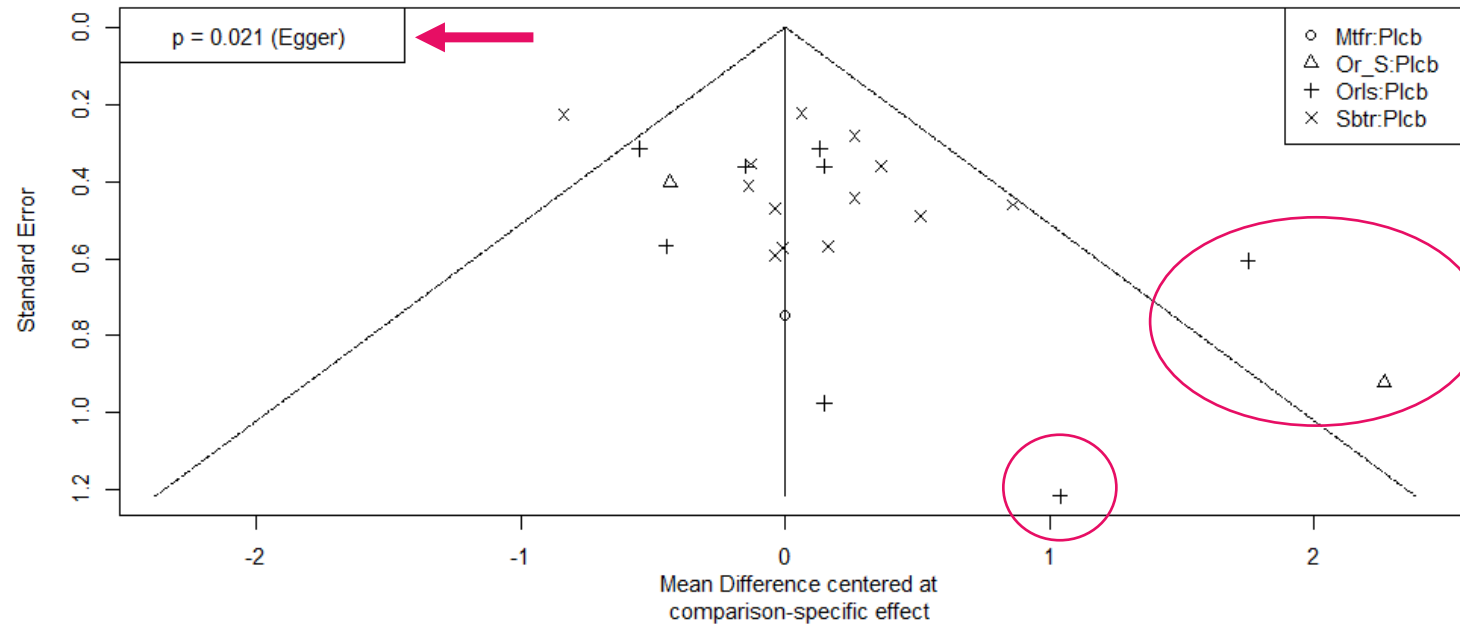


Steps in Network Meta-Analysis





Check for Publication Bias



Enter Shiny



reactive{}

Select model:

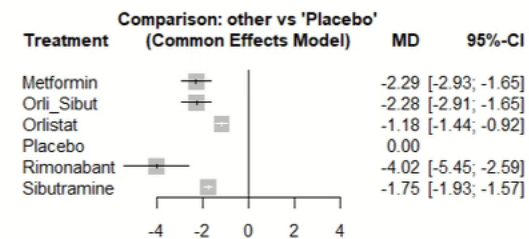
- ☒ Fixed effect
☐ Random effect

Select studies to exclude:

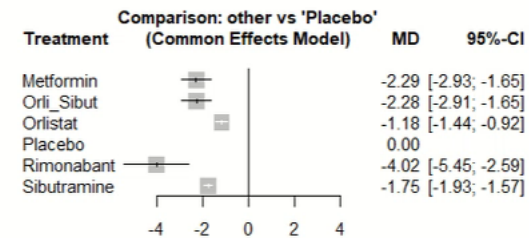
- ☐ Aydin 2004
☐ Beck-Da-Silva 2005
☐ Borges 2007
☐ Cuellar 2000
☐ Derosa 2004
☐ Derosa 2005
☐ Desimone 2005
☐ Florakis 2008
☐ Grudell 2008
☐ Guimaraes 2006
☐ Kaya 2004
☐ Kiortsis 2008
☐ Kuo 2006
☐ Ozcelik 2004
☐ Ozcelik 2005
☐ Sarac 2006
☐ Sari 2004
☐ Sathupalan 2008
☐ Schechter 2006
☐ Scholze 2007
☐ Turker 2006
☐ Vazquez Roque 2007
☐ Wang 2005
☐ Wirth 2006

[Intro](#)[Frequentist NMA](#)[Bayesian NMA](#)[Forest plot](#)[All comparisons](#)[Best treatment](#)[Split & Prediction](#)[Diagnostics](#)[Funnel Plot](#)[Sensitivity](#)

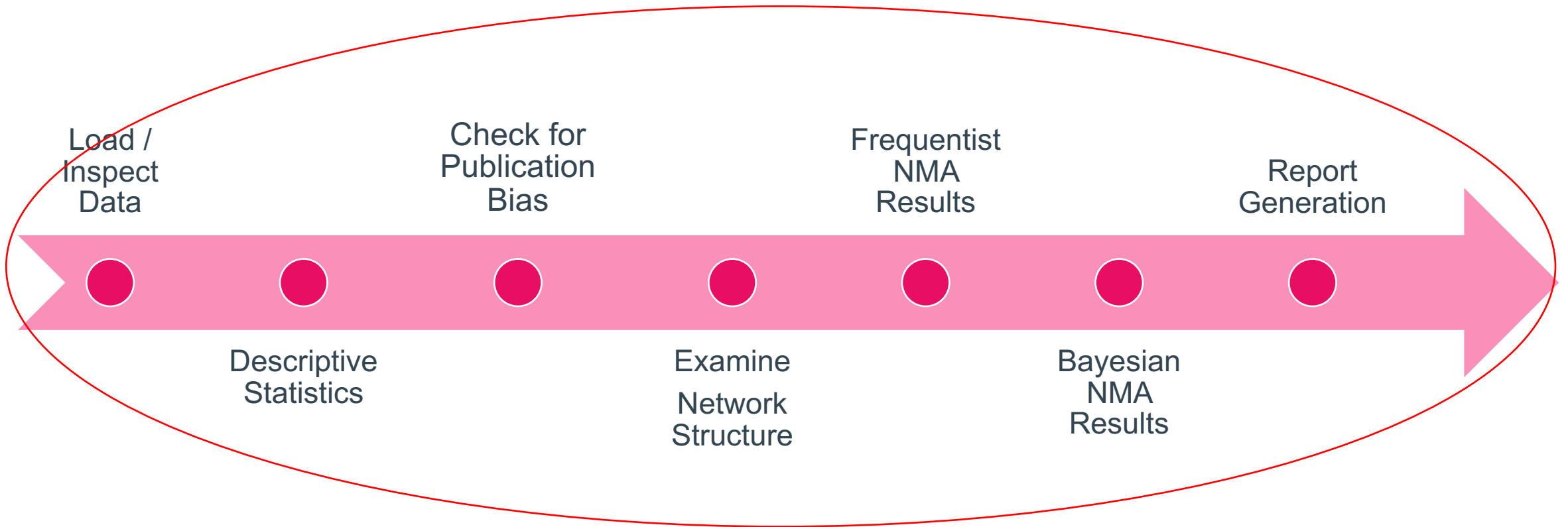
Confidence interval plot for available interventions including all studies



Confidence interval plot for available interventions with studies excluded



How to approach the bigger projects?



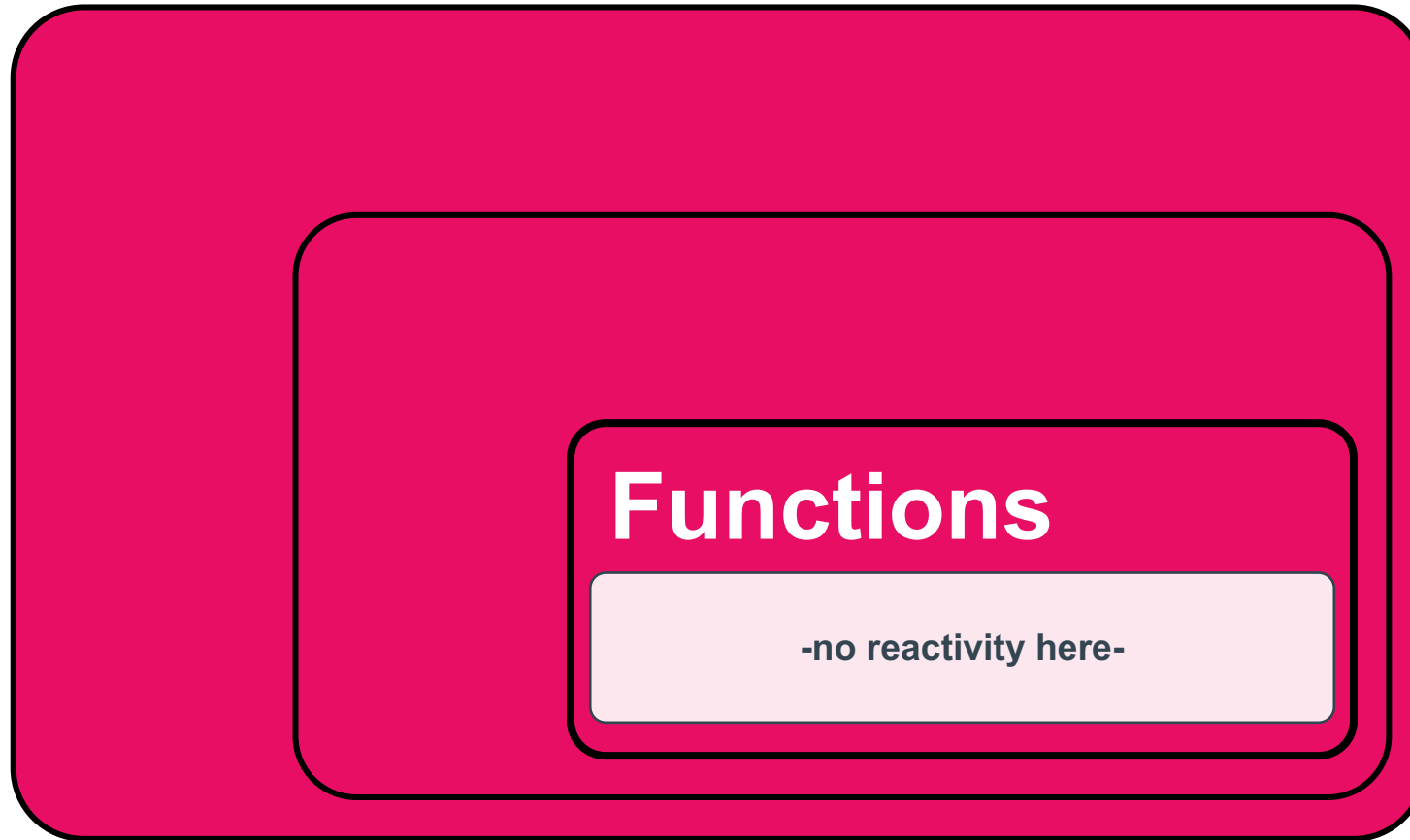
Suggestions on how to approach this:

1. **Code partitioning**
2. Combining R ecosystems
3. Developer Workflows

1. Code Partitioning

- Large project; overwhelming amount of functionalities
- New syntax issues due to reactivity
- “*Divide et impera!*”
- One approach we found helpful is to use *R functions*, embedded in *Shiny Modules*, Organized in the UI by *Tabs*

Structure:



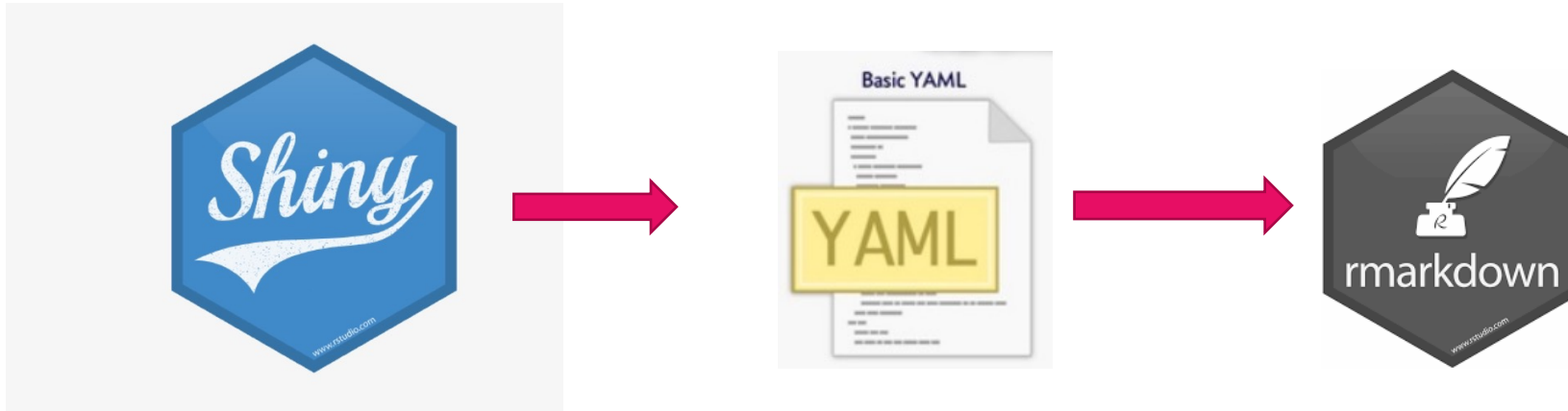
Advantages of using functions and modules to partition Code:

- ✓ Basic R function programming requires limited Shiny knowledge
- ✓ Declutters UI and Server Files
- ✓ Modules can only communicate with associated modules
- ✓ Reusable

Structure:

1. Code partitioning
2. **Combining R ecosystems**
3. Developer Workflows

Combine different functionalities:



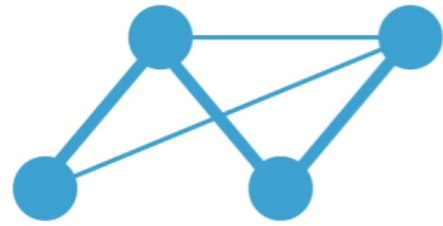
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Load data

Network Meta-analysis

Download report



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a veramed web-app for network meta-analysis

Structure:

1. Code partitioning
2. Combining R Ecosystems
3. **Developer Workflows**

Developer Workflows:

- Statistician suddenly a developer
- Should take advice from developers and use their tools
- If partitioning is taken care of, workflows much easier to adapt

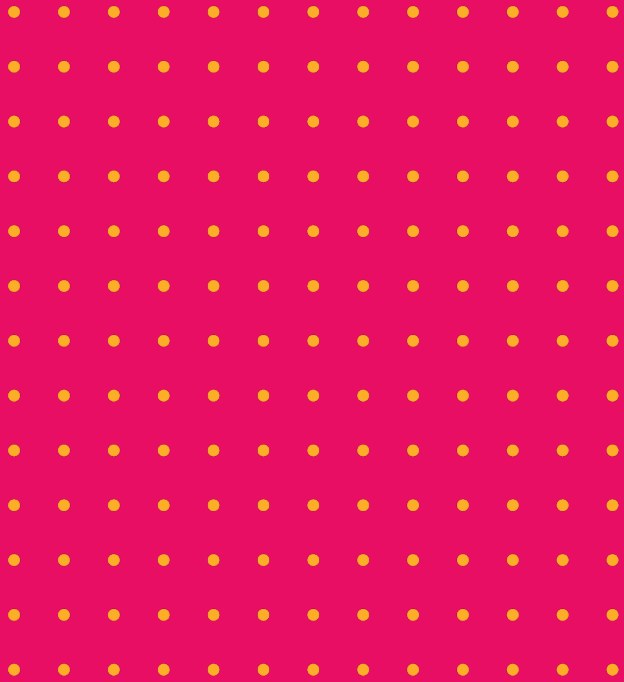
Developer Workflows:

- Version control
- Traceability
- Team work (issues; branches; structured by code partition)



Suggestions on how to approach a large Shiny project:

1. Code partitioning
2. Combining R ecosystems
3. Developer Workflows



Thank you!

Find us at **BOOTH 26**

Demos:

- Data Visualisation
 - Automation
 - Cloud SCE
 - RWE

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