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# Using Spine Toolbox to facilitate a modelling workflow for TradeRES

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# Background

- »» To understand market design options, TradeRES is using multiple models
  - »» Soft coupling of models (optimization and agent-based models)
  - »» Multiple models using partially same input data
- »» Manual coupling error prone
- »» Beneficial if user of model B could also run model A when needed
  
- »» EU project Spine has developed Spine Toolbox (data, scenario and workflow manager)
  - »» TradeRES first project to test it with multiple models
  - »» Partial success → lessons learned to current EU project Mopo further developing Spine Toolbox
- »» <https://github.com/spine-tools/Spine-Toolbox>

# DEMO OF SETTING UP THE TOOLBOX WORKFLOW

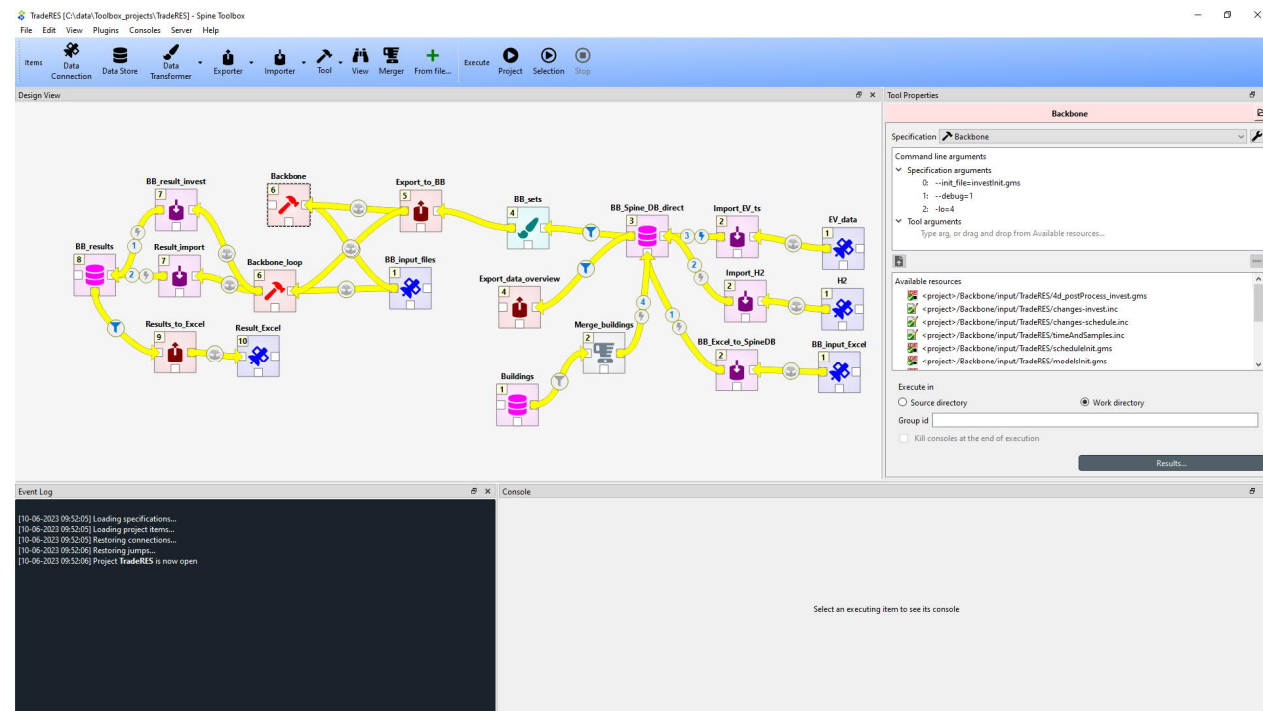
» Demonstration not shown in these slides...

» Importing and exporting data

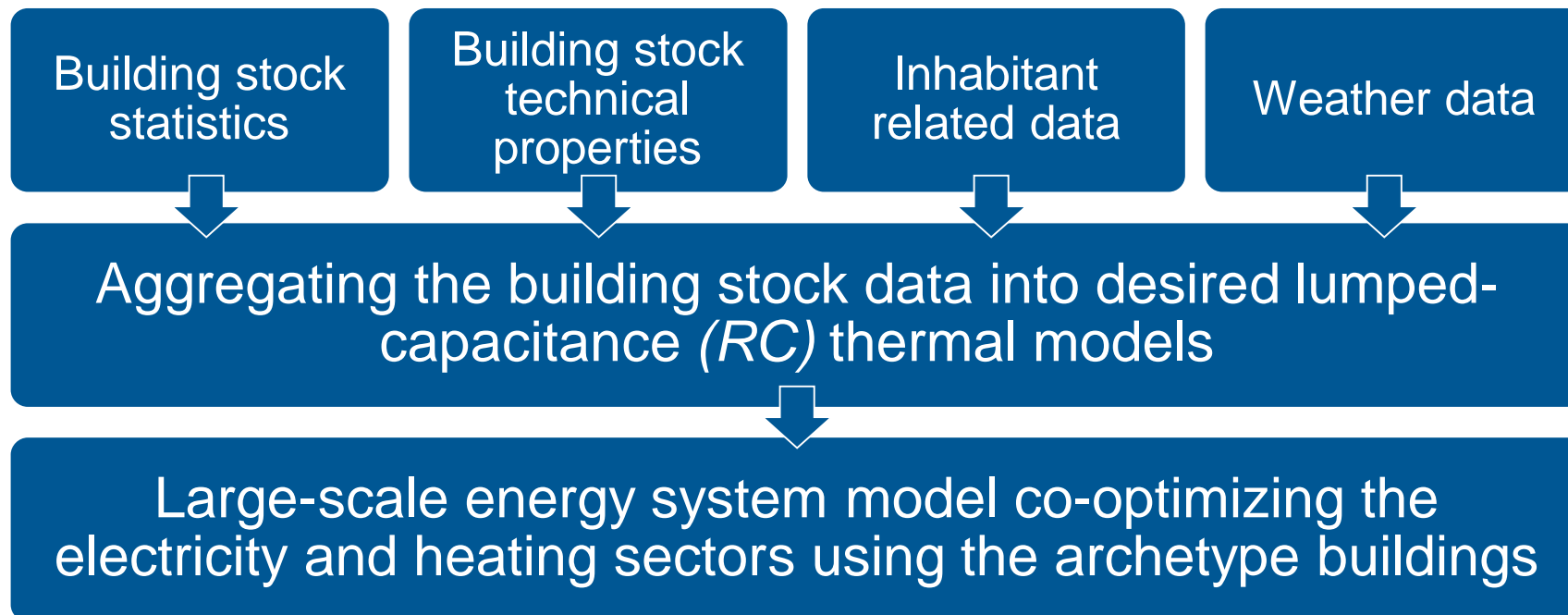
» Using the database, building scenarios from alternative parameter values

» Spine Toolbox workflow for TradeRES/Backbone available at <https://github.com/TradeRES/TradeRES-Backbone-demo>

» Introduction to Spine Toolbox: <https://www.youtube.com/watch?v=oRwXwV9tuSo>

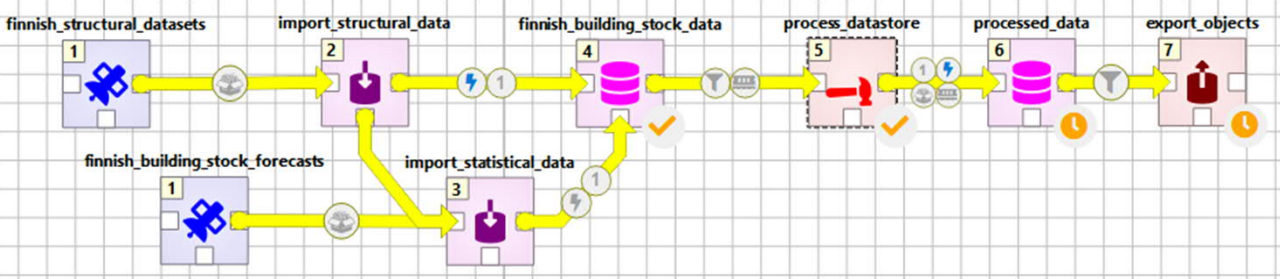


# Representing potential flexibility in building stock



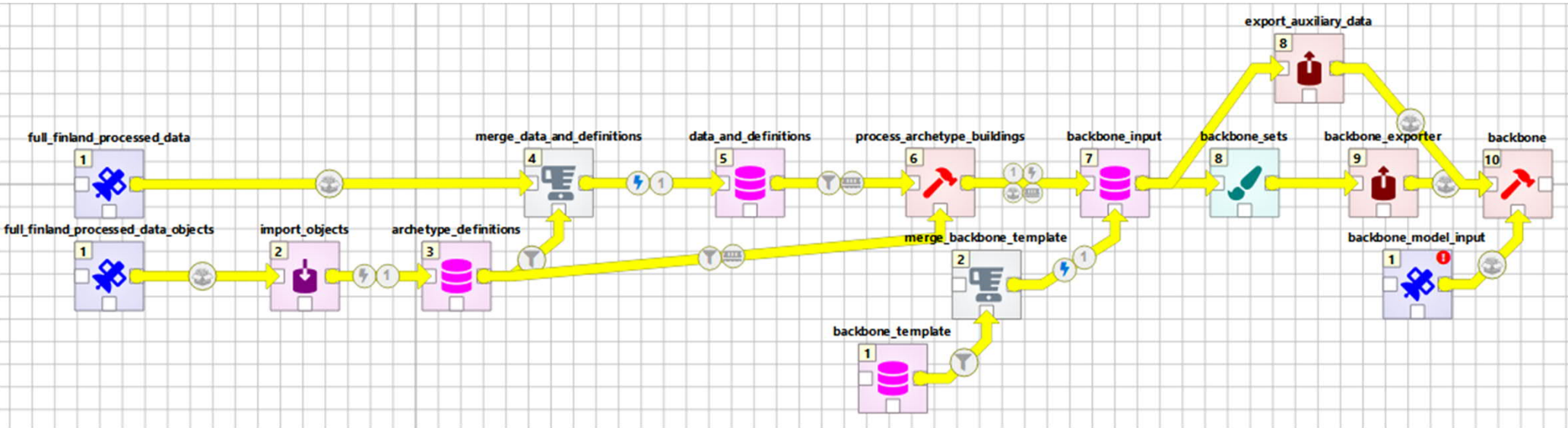


First: Process the raw data into something more manageable



Full Finland building stock data processing workflow

Second: Introduce definitions to aggregate the building stock for the energy system model



## Lastly

- » This was an advertisement
  - » but it's open-source and hopefully useful for modellers
  - » work is on-going and you can experience bumps
- » Development focus on user experience and speed
- » More comprehensive GUI-based data transformers coming
  - » API still there for more complicated stuff
- » High granularity European energy system dataset coming
  
- » <https://github.com/spine-tools/Spine-Toolbox>



**THANK YOU!**  
Questions?

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