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# Use of WAM Tools for the Secure Operation of the Nordic Power System

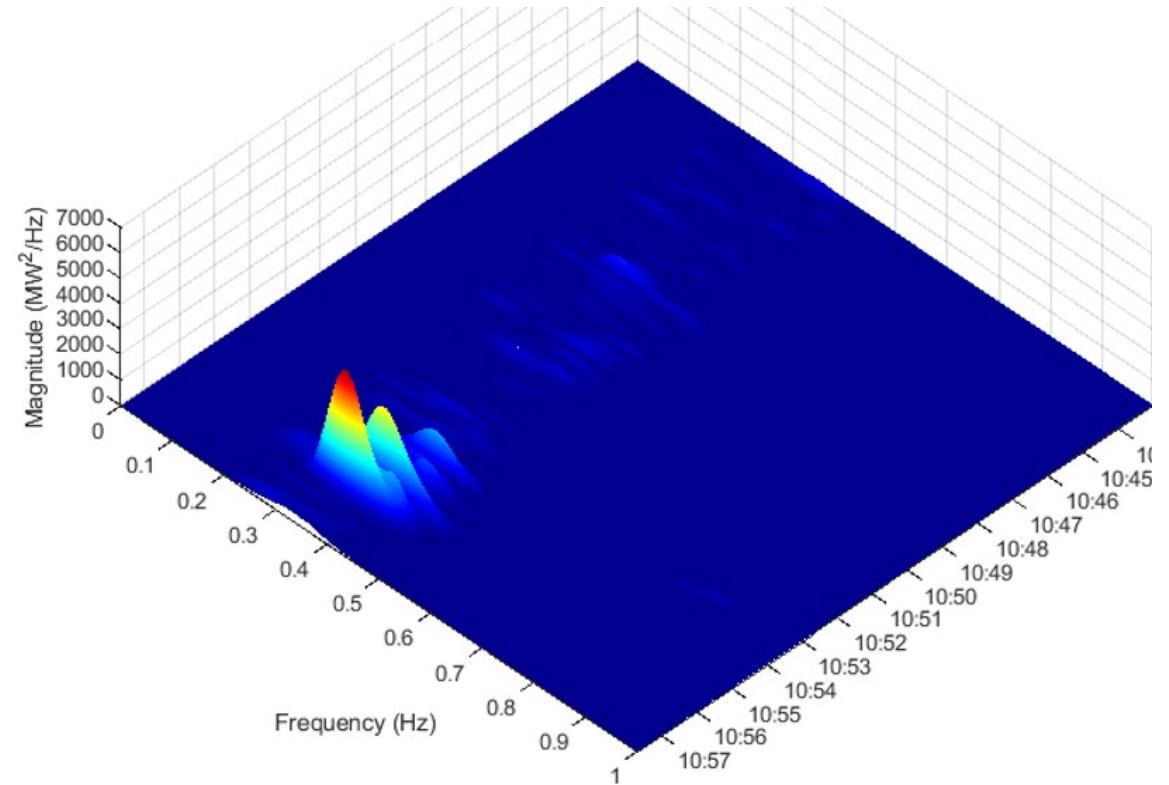
Robert Eriksson



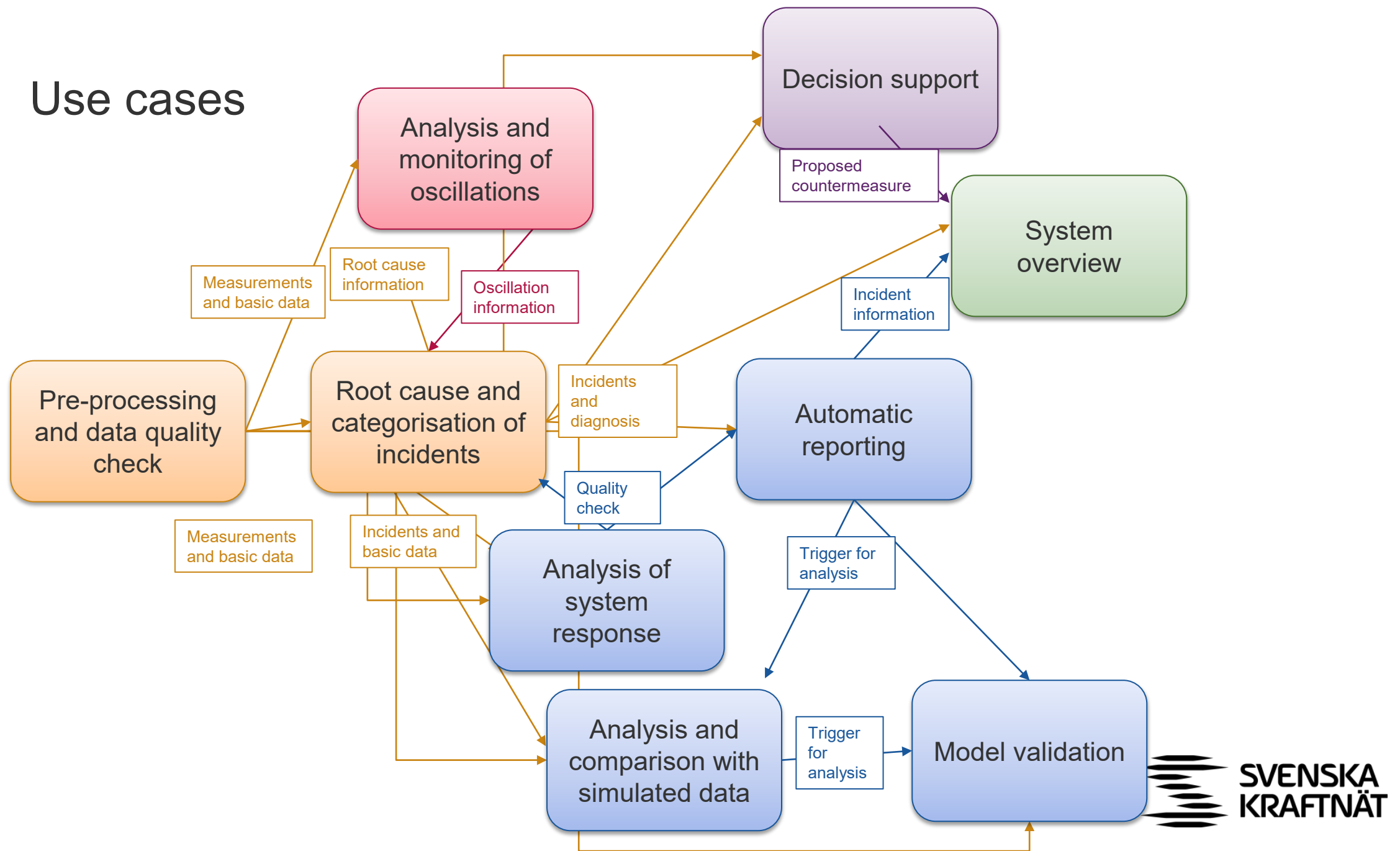
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# Wide area monitoring tools in Sweden

- > Nordic collaboration
  - > Sharing of PMU-data
  - > Sharing of knowledge and development
- > Applications
  - > Oscillation monitoring
  - > Power Corridors
  - > Angle difference
  - > Disturbance monitoring
  - > Model validation
  - > Disturbance monitoring
  - > Automatic reporting (from Fingrid)



# Use cases



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# Root cause analysis and Decision support

> Root cause analysis

- > What happened?
- > Where did it happened?
- > What was affected?
- > What is the status now?

> Decision support

- > How to act?
- > What happens if acting?
- > What happens if not acting?

Monitoring



Decision support



Automatic control

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# NEWEPS – Nordic Early Warning Early Prevention System

- > Data platform, demo and testing
- > Application development
  - > Voltage stability
  - > Oscillations – forced, source location, resonances
- > Coordination of control actions and visualisation
- > Roadmap

