

# Take home messages:

- The SKA<sub>1</sub> operational model will drive software cost directly
- More use cases / flexibility magnify risks
- SKA<sub>1</sub>'s requirements will push ~2020 COTS hardware capabilities
- Purpose-built hardware solutions also subject to exascale challenges, e.g. energy for interconnect
- All calibration and imaging processing software must be rewritten for exascale; focus on data management
- Integration into end-to-end data pipeline is underway for pathfinders and precursors, but scalability to SKA<sub>1</sub> remains to be evaluated
- New algorithms need to be created for visibility processing
- **Software and computation will limit SKA<sub>1</sub> science**
- Essential to adopt a full systems-based approach to analysing the data flow and requirements
- Data flow needs to reflect operational requirements: operations model/plan
- CyberSKA demonstrates development process:  
requirements → operations model → analysis → architecture ...