



mantid as a Project

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2025 Mantid User Meeting - part of Mantid Developer Meeting and User Workshop 3-6th Nov 2025

6th Nov 2025



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ISIS Neutron and
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SciSoft
Scientific Software Group

Outline of talk

How we got to where we are

- Origins
- Evolution

Why it is successful

- Technical
- People



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Origins

2006 - Origins

- WISH at ISIS Target station II
- Reduction software no longer an adjunct
- Some of the technical model of Genie – but properly engineered and resourced
 - Data analysis framework
 - Multi-dimensional data visualisation
 - Future for all ISIS instruments

Explored various solutions

- Inside ISIS, RAL + DL
- LAMP
- ROOT (CERN)
- External contractors



2007 - Development started



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Origins

2007 - Development started

2010 - SNS joined to make a collaboration

2013 - Formal governance structure

- Common project manager (Nic Draper)
- Project Management Board
- Rules for new members

2014 – 2019 Additional collaboration partners

- 2015 ESS **Observer**
- 2016 ILL
- 2019 CSNS

Other contributors: ANSTO, FRM-II, SINQ

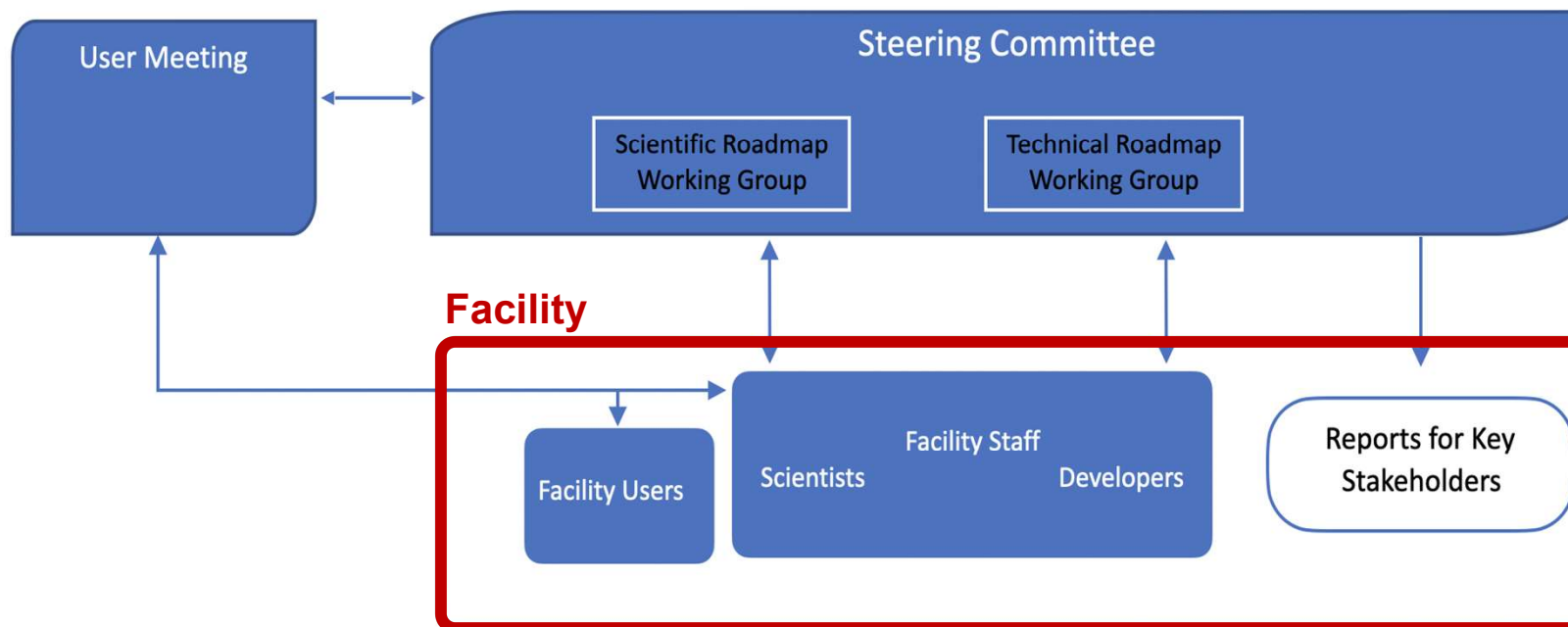


Origins

2021 - Change in governance structure to reflect new realities of development

- **Two partners (2010) → five partners (2019)**
 - Commonality of framework works well
 - Workspaces, algebra, units conversion,
 - Data processing history
 - Instrument view
 - Workbench
 - Common analysis workflows not possible
 - Technical reasons
 - Lack of agreement on workflows at scientific level
 - Unique instruments
 - Exploratory technique development
 - Different facility priorities, funding / development models
- **Monolith model → facility-centric development**
 - Project Management Board and formal governance model no longer applicable
 - Does not promote collaboration where it benefits a subset of contributors
 - Fractured governance sows distrust

Origins



Why has Mantid been so successful ?

Reduces duplication of code; bigger than one person

Professional software engineering

- Robust and trustworthy: Huge functionality; Can be just one component
- Framework for growth
- No single points of failure

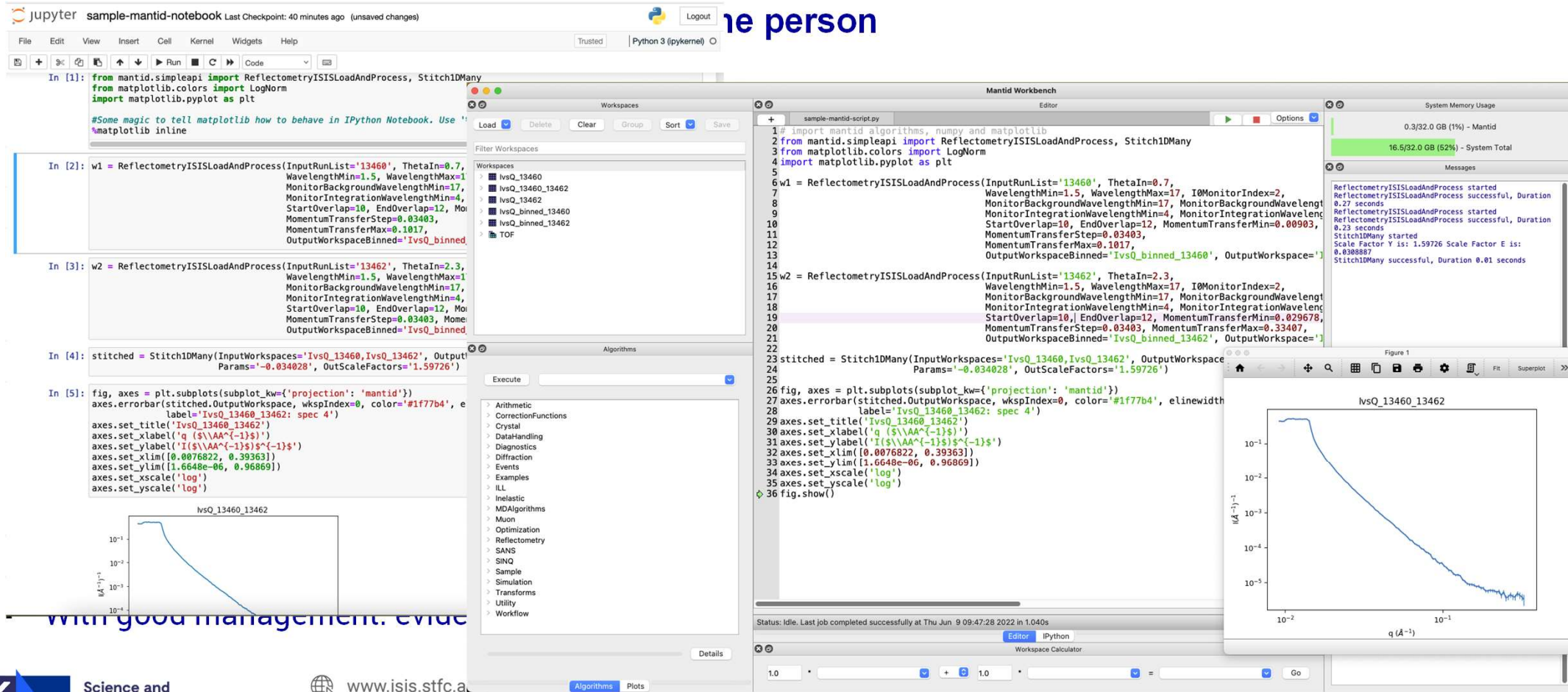
Responds to changes in software practices and user requirements

- Monolith to ecosystem
- Autoreduction
- New set of “users” Instrument scientists, autoreduction, control, machine learning ...

Comprehensive

- ISIS: almost all the instruments use
- Calibration, diagnostics, reduction, analysis
- With good management: evidence-based prioritisation

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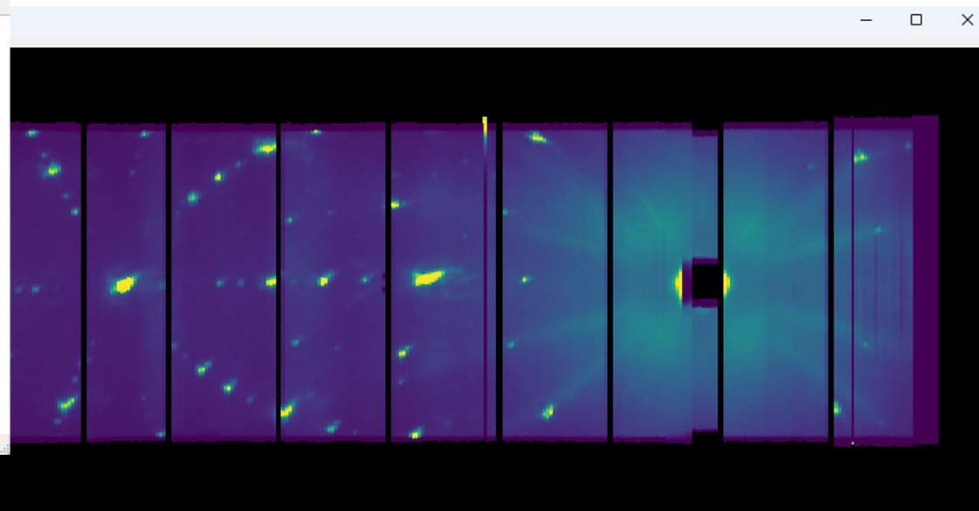
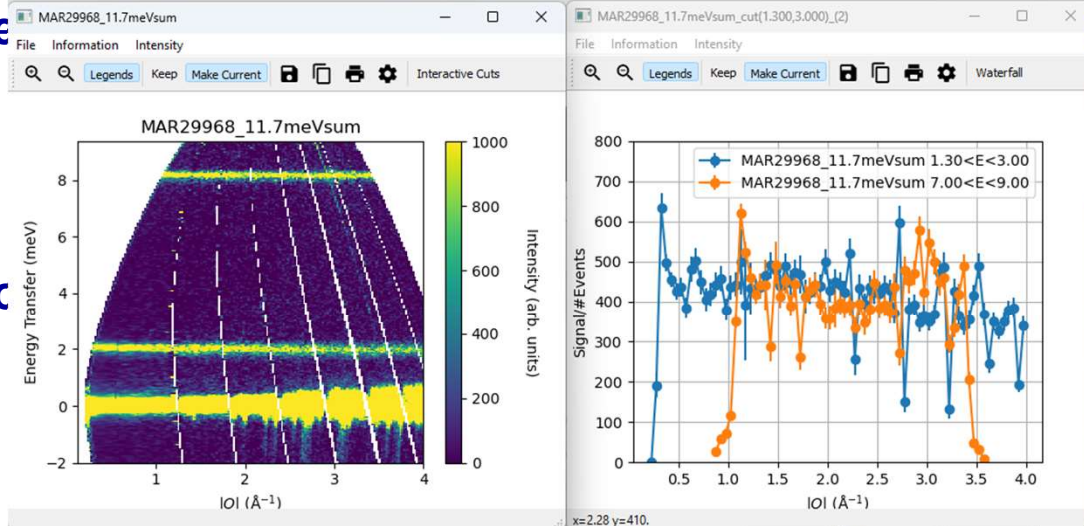
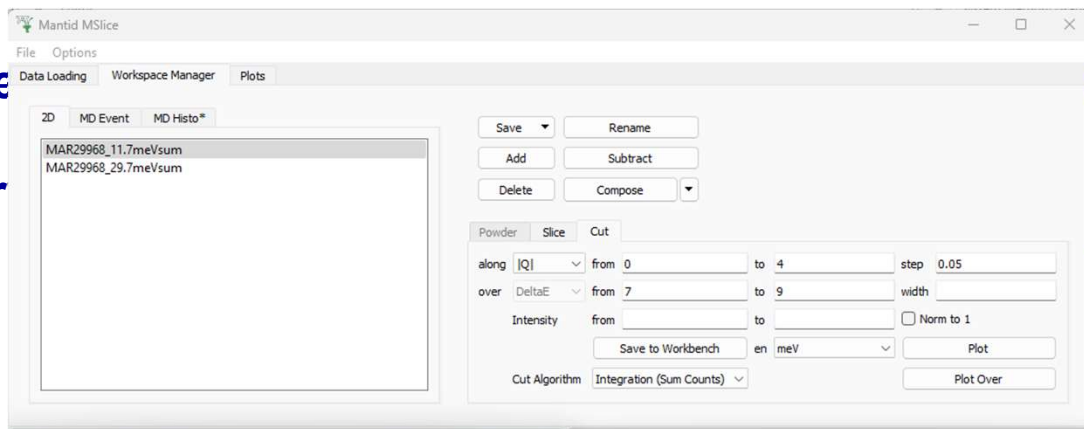
Reproducible

Proven

Component

Reproducible

Component



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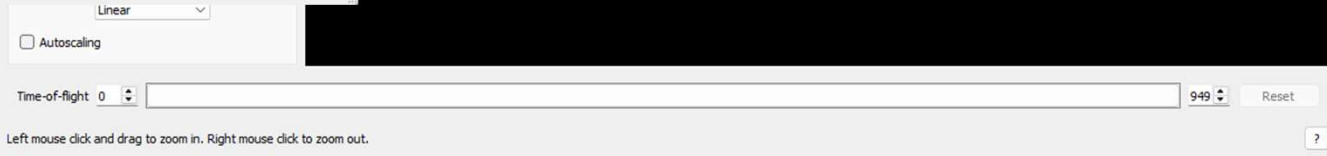
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Why is it successful ?

People

- Self-supporting cohort ISIS Mantid team: 12 FTE
- Broad set of skills; Can try out new technologies
- Flexible set of skills
- Career opportunities ISIS RSE team similar size

Mission-critical software building is like instrument building

- Software engineering and mechanical engineering
- Scientists do build with Mantid: but at a higher level e.g. ISIS Excitations rebuild; in ML
- Its's always faster to hack ...
- Instrument scientists can concentrate more on science

The End

Load

Reduce

Analyse

Render

Prepare

Publish