

# IRIS & other things

GridPP41 Meeting  
29 Aug 2018  
Ambleside

Pete Clarke  
University of Edinburgh

## STFC Directorates

National  
Laboratories  
Directorate

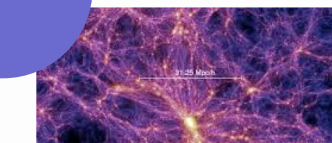
Programmes  
Directorate

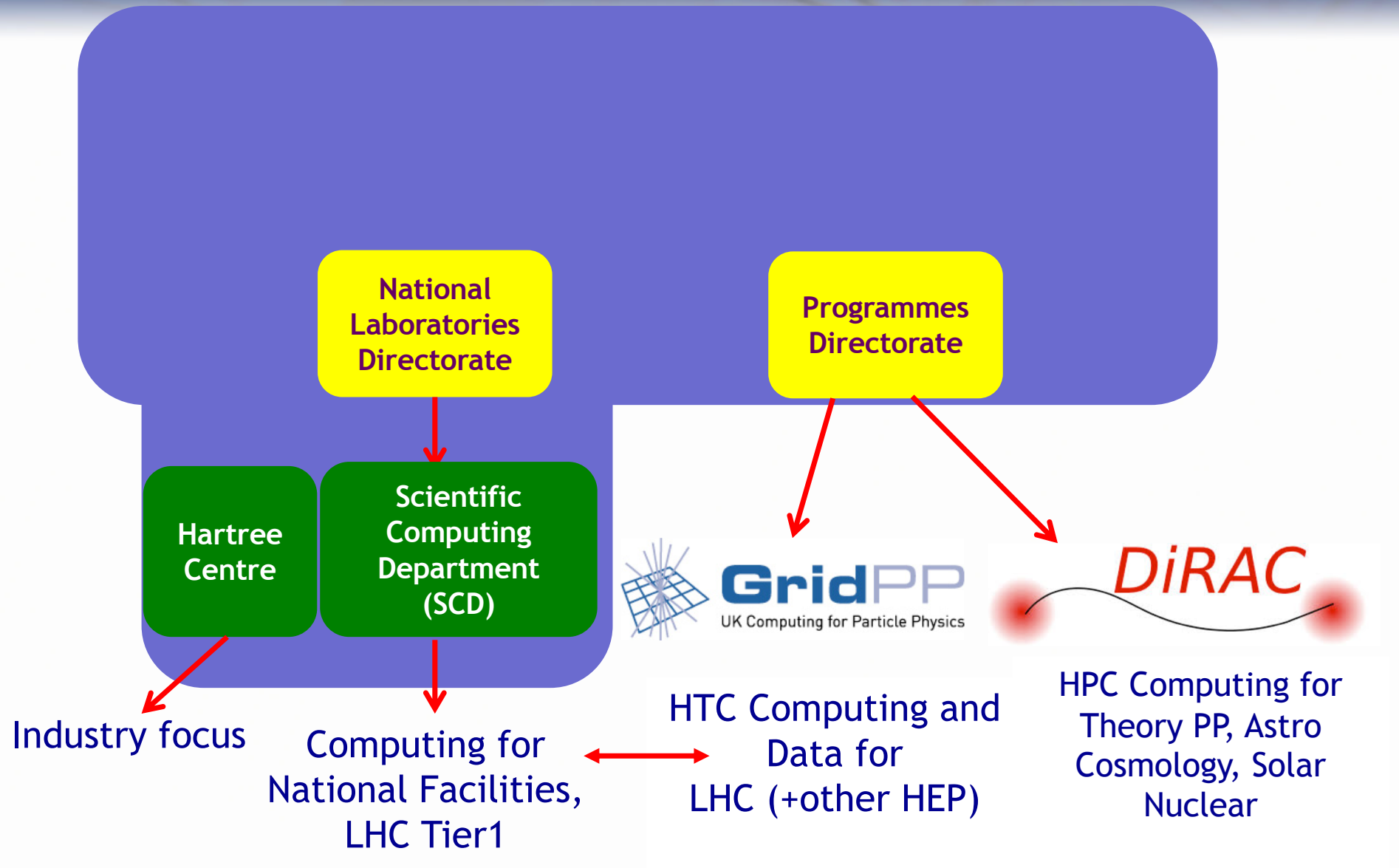
Runs National Facilities:

Diamond Light Source  
ISIS (neutrons)  
Central Laser Facility  
RAL Space

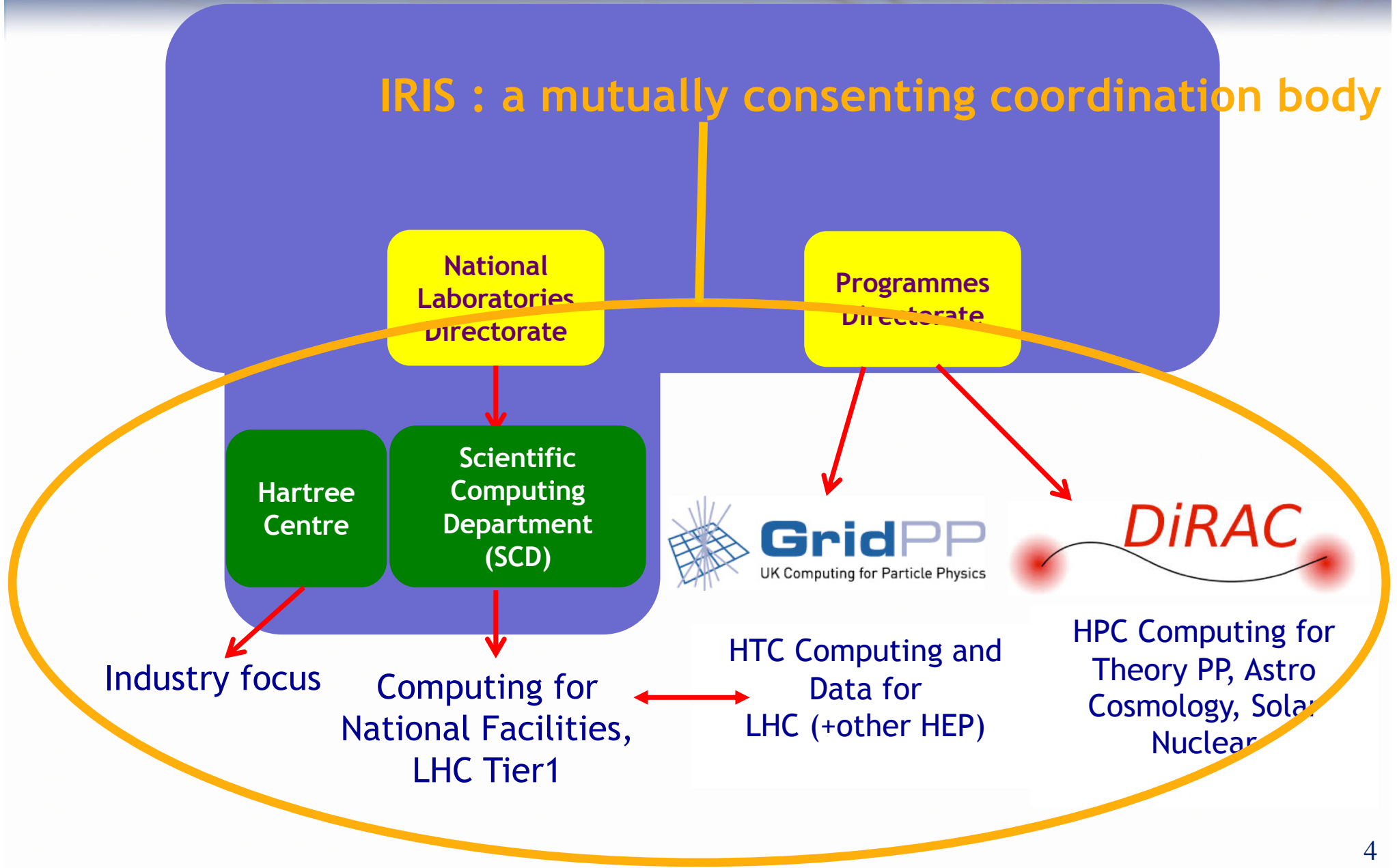
Supports programmes in:

HEP,  
Astronomy,  
Astro-Particle, Nuclear





# IRIS : a mutually consenting coordination body





# A Community Initiative

- It is an association of peer partners (PPAN + National Facilities + Friends)
  - Particle Physics: GridPP, LHC + other PP experiments
  - DiRAC
  - National Facilities: Diamond Light Source, ISIS
  - Astro: LOFAR, LSST, EUCLID, SKA, ....
  - Astro-particle: LZ, Advanced-LIGO, CTA
  - STFC Scientific Computing Dept (SCD)
  - Nuclear (growing demand)
  - CCFE (Culham Fusion)
  - Anyone else in STFC needing science computing
- It is a mutually consenting coordination body
  - A cooperative “owned” by its partners
  - Agile and responsive to science needs
- Was called UKT0 - now trading as IRIS
  - Dave B won the prize for the rename  
elInfrastructure for Research and Innovation for STFC



# IRIS is owned by its partners and coordinates



Coordinates Interests & Brokers sharing of resources





# IRIS “argues” for resource



Represents elnfarastructure collective up the chain

Argues for resources





- **\*\*You\*\*** helping several other communities
  - GridPP staff have, in their usual way, just been very helpful
    - LSST
    - SKA
    - EUCLID
    - DUNE
  - This has done us a lot of good. Thanks to all of you involved



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    - SKA
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    - DUNE
  - This has done us a lot of good. Thanks to all of you involved
- Obtained £1.5M from STFC for hardware in 2017/18
- Wrote successful BEIS business case for £16M hardware in 2018: “IRIS4x4”
  - £4 p.a. for 4 years → IRIS4x4
  - Capital only → £11M for hardware / £5M for Ada Lovelace Centre for Nat. Facilities
  - Not really for LHC (as funding line exists) but includes other HEP



£1.5M from STFC in 2017/8

- **Hardware**
  - CPU: 3000 Cores [RAL, Manchester]
  - Disk: 4 PB deployed [RAL, Manchester]
- **High performance database archive/development testbed deployed [Edinburgh]**
- **Digital asset (staff) effort deployed**
  - ALC: Data Movement Service & Virtual Machine Manager [RAL]
  - StackHPC company contracted : OpenStack federation [Cambridge]

- IRIS also manages the disbursement of BEIS £16M award (£4Mx4years)
  - This a capital only award
  - To “keep lights on” and “not miss time limited opportunities”
  - To mitigate the most critical shortfalls
  - No resource
- IRIS has responsibility to ensure funds are used in best interests of STFC science

**IRIS:**  
Community Coordination body

IRIS 4x4

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**IRIS:**  
Community Coordination body  
IRIS 4x4

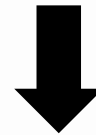
- IRIS 4x4 is not a Facility like DiRAC, GridPP or a department like SCD or Hartree
  - It is not another DiRAC or GridPP
  - It does not have any resource for staff for operations, software support or user support
  - It does not own and run equipment itself
- IRIS 4x4 is perhaps more like the SKA Project Office? Or an internal funding agency ?



# IRIS commissions from providers

IRIS 4x4

Commissions from providers on behalf of its partners



SCD

GridPP

DiRAC

University  
sites

ALC

Other  
Providers

Commercial  
Cloud

....



## What is planned for the IRIS 4x4 (£16M)

- **FY18 disbursement of £4M**

• ALC digital asset creation	0.9M
• Main bulk HTC Cluster+storage	1.9M
• SCARF Storage	0.2M
• Astronomy Archives	0.05M
• Networking	0.05M
• Other Digital Assets	0.3M
• Cloud	0.2M
• Reserve	0.4M
• <i>Total</i>	<i>4.0M</i>

900k HTC cluster @ RAL-SCD (inc 3 PB)  
500k HTC Cluster @ DiRAC/Cambridge (inc 1 PB)  
250k HTC cluster @ GridPP/Lancaster (inc 1 PB)  
250k HTC cluster @ GridPP/Imperial (inc 1 PB)

- **FY19 - 21**

- £7.5M left for hardware
- £4.5M left for digital assets



## First tranche of staff effort to “create digital assets”

- I said IRIS has no staff to first order
- That said, IRIS put aside a small amount (300k) in first year for some “digital assets”
- Bids submitted from
  - RAL for Monitoring and accounting (APEL)
  - RAL for a multi VO instance of RUCIO
  - RAL for identity management
  - Imperial for DiRAC work for other Vos
  - Manchester for Vcycle hardening
- This is good as it starts to be a small payback to GridPP - improving things we use but which are of use outside of HEP
- But it is NOT a set of staff to support a full software stack or support user communities.

SCD

GridPP

DiRAC

~~IRIS~~

- IRIS is NOT a project like GridPP or DiRAC
  - IRIS does not have any staff
  - IRIS does not develop/run software to first order
  - IRIS does not support end users to first order.
- 
- IRIS can work directly with providers
  - IRIS can work directly with any activity which has some sort of computing team which provides in-house support to their respective communities
  - It cannot provide turn-key computing, nor formally hand hold small projects/individual users with no in house computing support
  - Its not the role (funded) role of IRIS (or GridPP) to do this at present  
(It is its role to help argue the case for such people of course - but at present that is all)





# Big projects use of IRIS resources

**IRIS 4x4**

Provides additional resources via (note: these are not the only resources of course)

**SCD+ALC**

**GridPP**

**DiRAC**

**Hartree**

Contracted help

Best efforts help

**HEP experiments**

**LZ**

**LIGO**

**LSST**

**SKA**

This “sort of” works because the user activities (red) all have at least a few people with computing responsibility and core computing knowledge - so it is a peer relationship at technical level



iris

# PPAN: Small projects/exploitation/individual

IRIS 4x4

Provides additional resources via (note: these are not the only resources of course)

SCD+ALC

GridPP

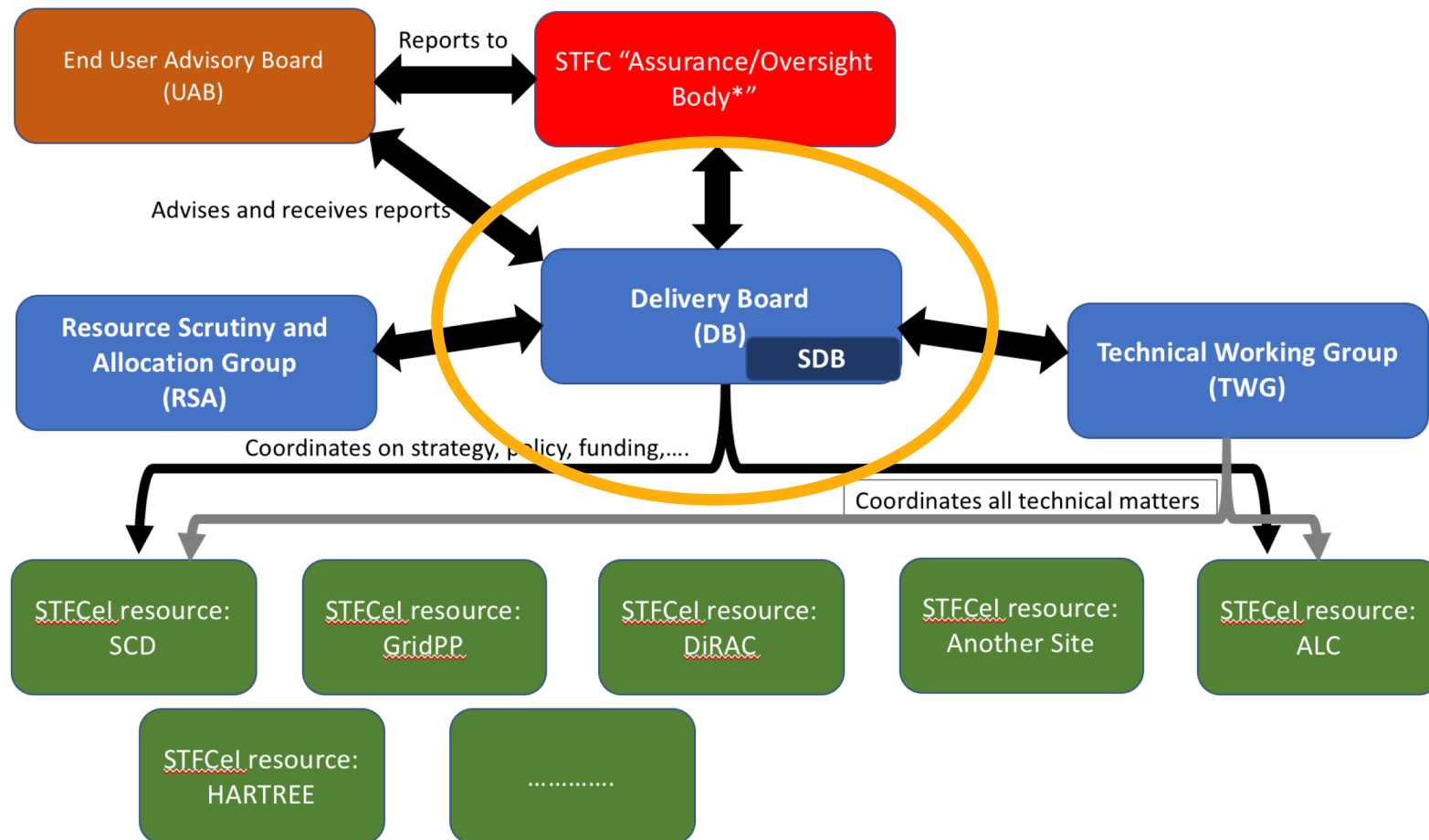
DiRAC

Hartree

Who fills this help role ??????  
It is not GridPPs remit to fill this hole, but it may  
choose to help on best efforts

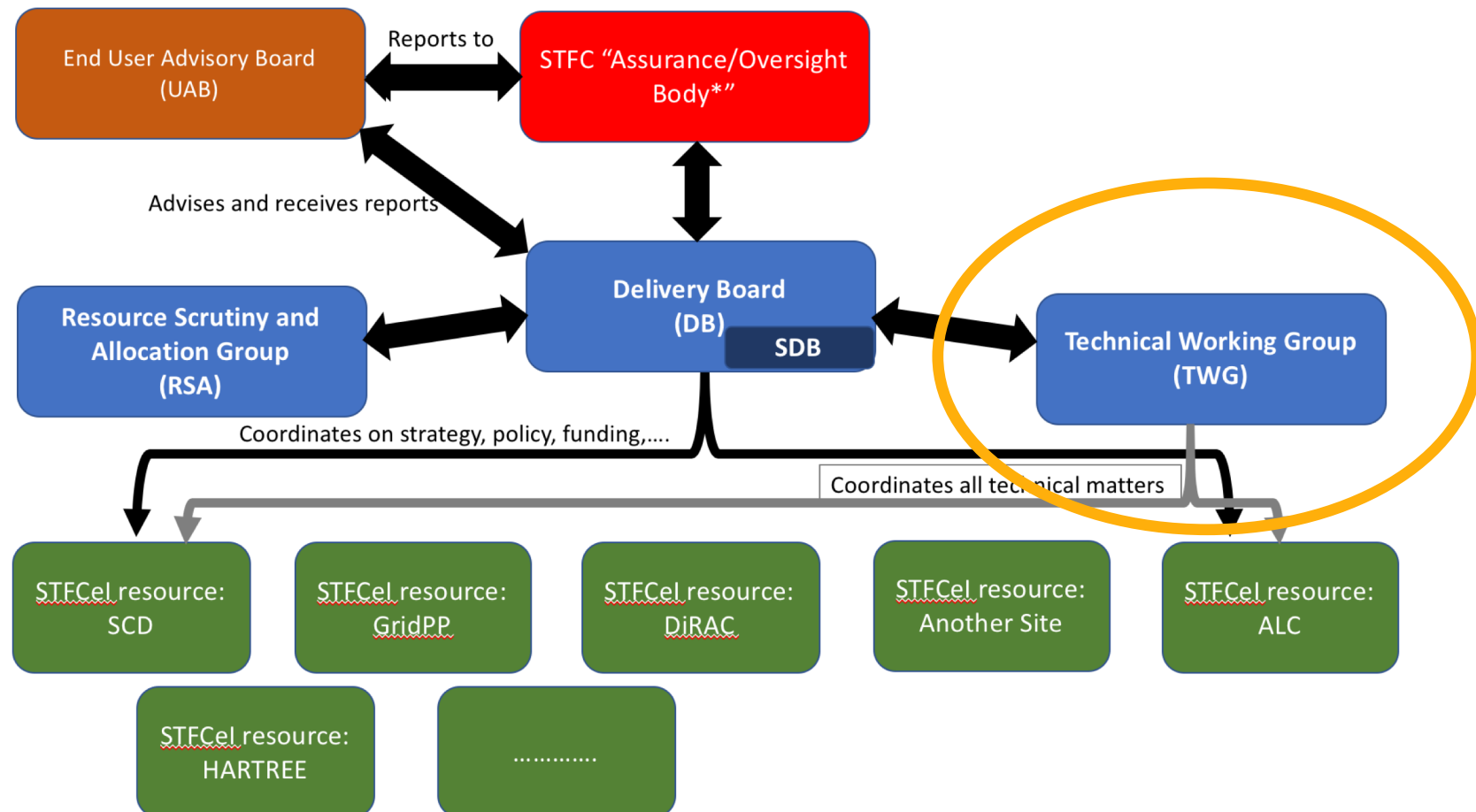
It is not IRIS remit to fill this hole

Other (non-HEP) projects with no computing group



The Delivery Board exists and is fully functioning (Chair P.C, A.S)

SBD = sub-DB : small group to meet weekly - at present no distinction needed



The TWG exists and is fully functioning (Chair A.Sansum)



# Other Things



# STFC Call for Big Ideas (1)

- New STFC Executive Chair : Mark Thomson
- Asked for STFC bodies to prepare “big ideas” (projects)
- This is not a call. There are no funds available at present. This is so that STFC can argue for funds from different sources as they (may) arise
- PPAP (PP Advisory Panel) is submitting PP experiment/theory oriented projects (Roger Jones on PPAP)
- Separately an STFC eInfrastructure group was called together to formulate eInfrastructure projects
- On this group (from our sector) are
  - From GridPP: PC, Andrew Sansum, Dave Britton, Dave Colling, Andrew McNab,
  - From DiRAC: Mark Wilkinson, Clare Jenner, Debora Sijacki, Jeremy Yates

## Projects to be submitted

- DiRAC-III (HPC)
  - To ask for the next gen DiRAC - badly needed by theory/cosmology
  - Lead: Mark Wilkinson
- HTC Project
  - Possibly this will be in effect an IRIS-II
  - Lead: Dave Colling
- College of Research Software Engineers
  - Asking for ~£15M over 5 years to fund RSEs/RIEs
  - Lead: Pete Clarke
- ExaCellent (DiRAC-IV)
  - To ask for a mega-DiRAC HPC machine
  - Lead : Debora Sijaki
- Data Wrangling
  - Preparing data
  - Lead: Anna Scaife



# UKRI eInfrastructure Group

- UKRI has initiated an Infrastructure Roadmap Group
  - Run by Mark Thomson
- As part of this there is a UKRI eInfrastructure Roadmap group
  - Run by Susan Morell (Head of ARCHER HPC at EPSRC)
  - Charged with coming up with a Roadmap for what the eInfrastructure for UKRI should look like
  - On this group from our sector are: PC, Dave Britton, Andrew Sansum, Tom Griffin, Charlotte Jamieson.
  - Our role is to ensure what is done is fit-for-purpose for STFC
  - There is a presumption of harmonization
  - Several sub-WGs
    - Cloud
    - AAI
    - Software
    - HPC
    - Data
    - Industry