

Benefits of the eCSE Programme

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Background to the eCSE programme

- Allocated funding to the UK computational science community for software development through a series of funding calls over a period of 6 years
- eCSE is a significant source of funding for RSEs across the UK
- All HEIs are able to apply for projects
- It is important to be able to demonstrate the benefit of the programme to different funding bodies, to help secure future funding of this type
- This talk gives more details of the programme and includes data on how the money was spent



eCSE programme

- Goal: to deliver a funding programme that is fair, transparent, objective and consistent. aims:
- Aims
 - To enhance the quality, quantity and range of science produced on the ARCHER service through improved software;
 - To develop the computational science skills base, and provide expert assistance embedded within research communities, across the UK;
 - To provide an enhanced and sustainable set of HPC software for UK science.
- Due to an extension, the final call is currently underway
 - Proposals submitted, currently under review
- Many projects complete (~88%)



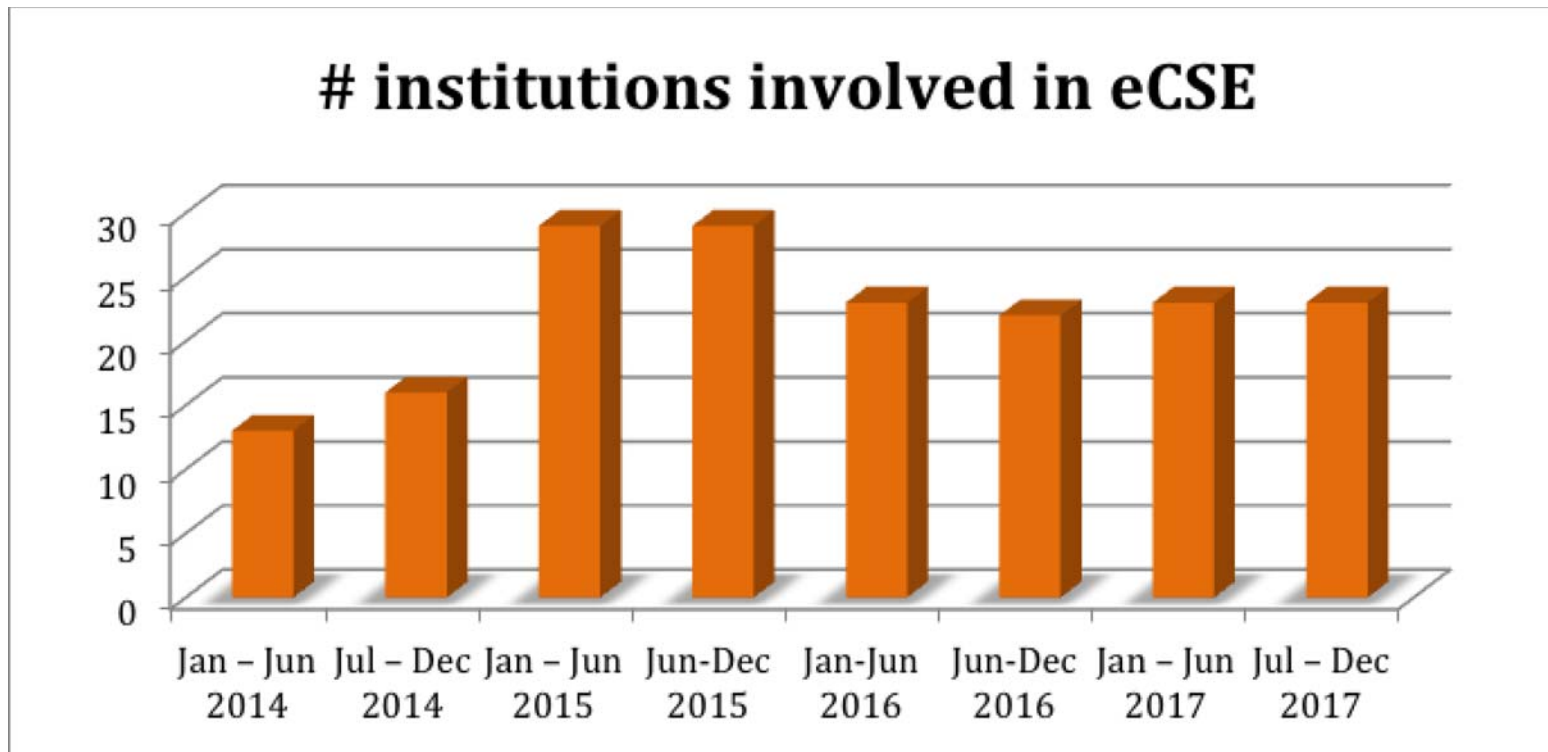
Benefits

- Measuring benefits is an on-going process while projects are still active
 - A high quality, fair and objective eCSE selection process, delivering maximum value to the community;
 - Increased science productivity;
 - Including financial saving reinvested to allow scientists to achieve more science from the same resource allocation
 - Increased novelty and range of science on the system, both traditional and new;
 - Enhanced computational science skills base across the UK.
- Programme outputs and metrics link to these benefits

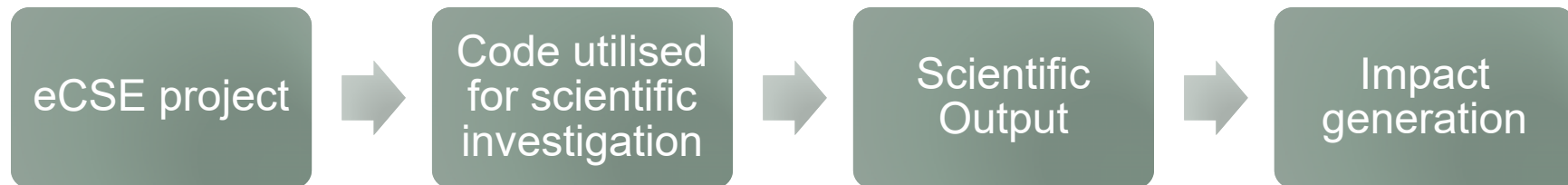


A high quality, fair and objective eCSE

- Regular calls and independent panel members
- Not for profit, FEC costing model
- Open to all, not just organisations using FEC



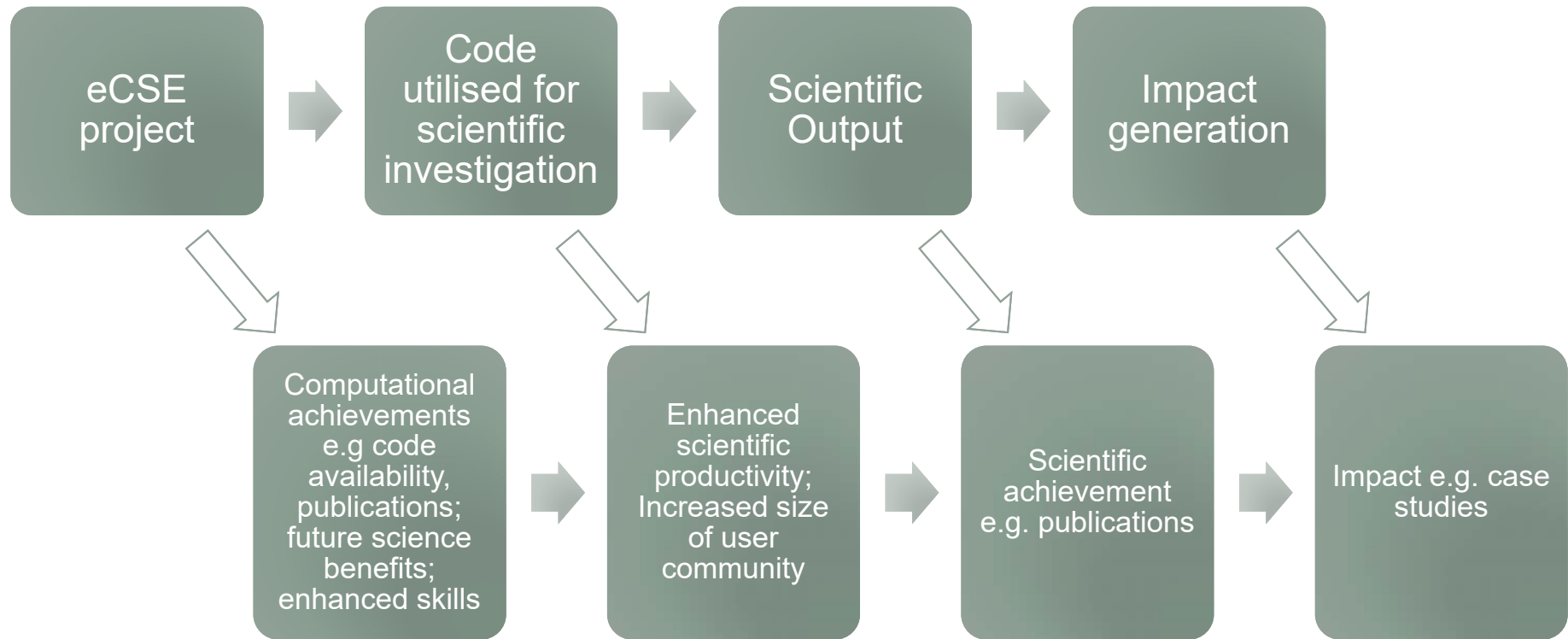
Science productivity, novelty and range



- eCSE projects are early in the timeline
 - Some benefits may not be seen for years after the project is complete
- The eCSE involves a set of separate projects, but looking to demonstrate benefit across the whole programme
- Solution is to measure a range of benefits
 - One size doesn't fit all

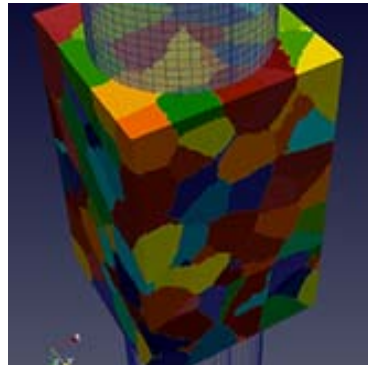


Science productivity, novelty and range

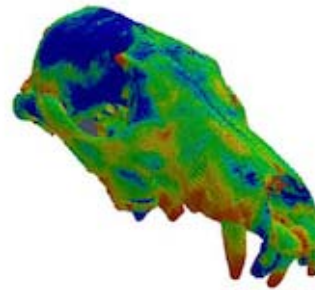


Computational achievements, future science benefit

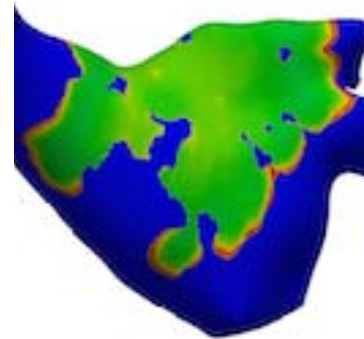
Shterenlikht, Margetts, Emerson



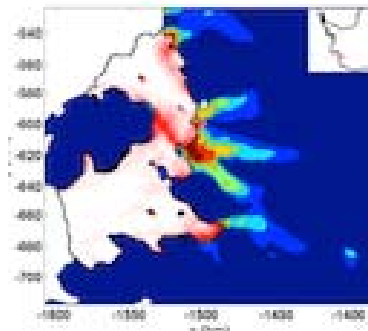
Fagan, Bethune



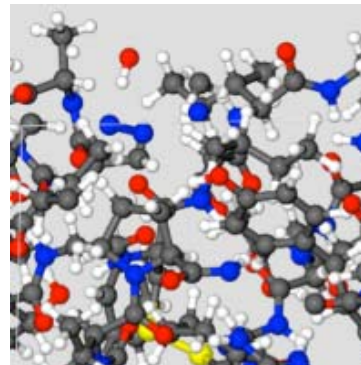
Sherwin, Cantwell, Moxey



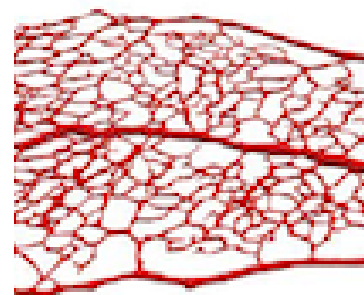
Jones, Goldberg, Holland, Ferreira



Probert, Hasnip, Refson, Bush



Bernabeu, Krüger, Coveney, Hetherington, Silva

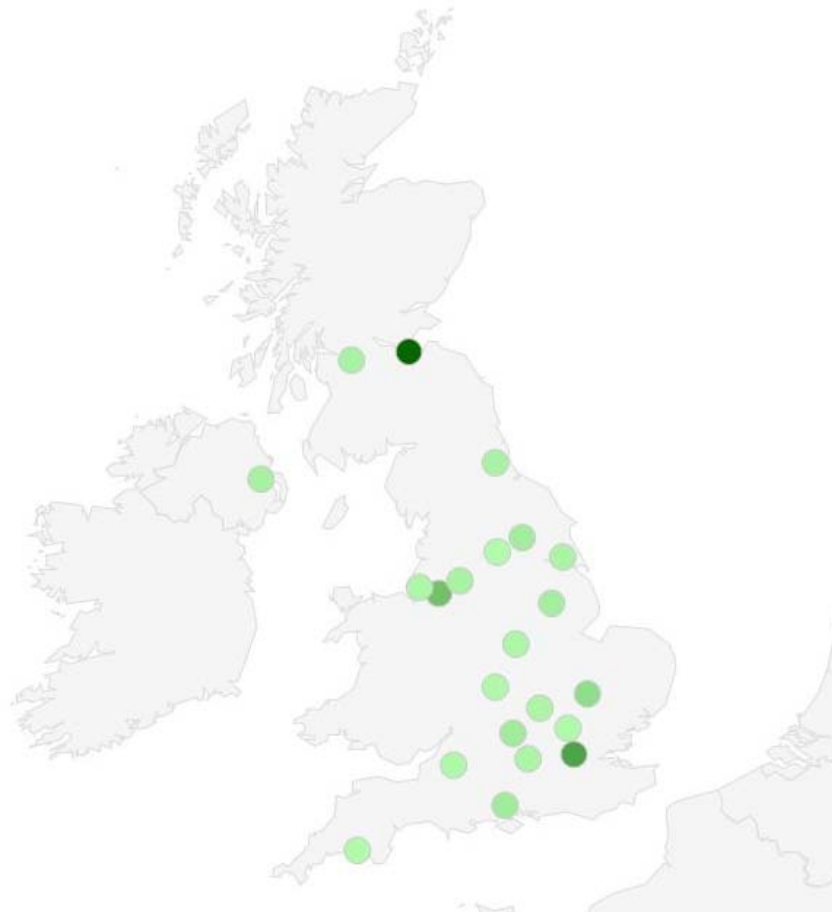


Develop the computational science skills base

- A key outcome from the eCSE programme relates to people
- Aim is to develop the computational science skills base
- And provide expert assistance and high quality RSE work *embedded* within research communities, across the UK
- Track location of PIs/Co-Is/technical members of staff

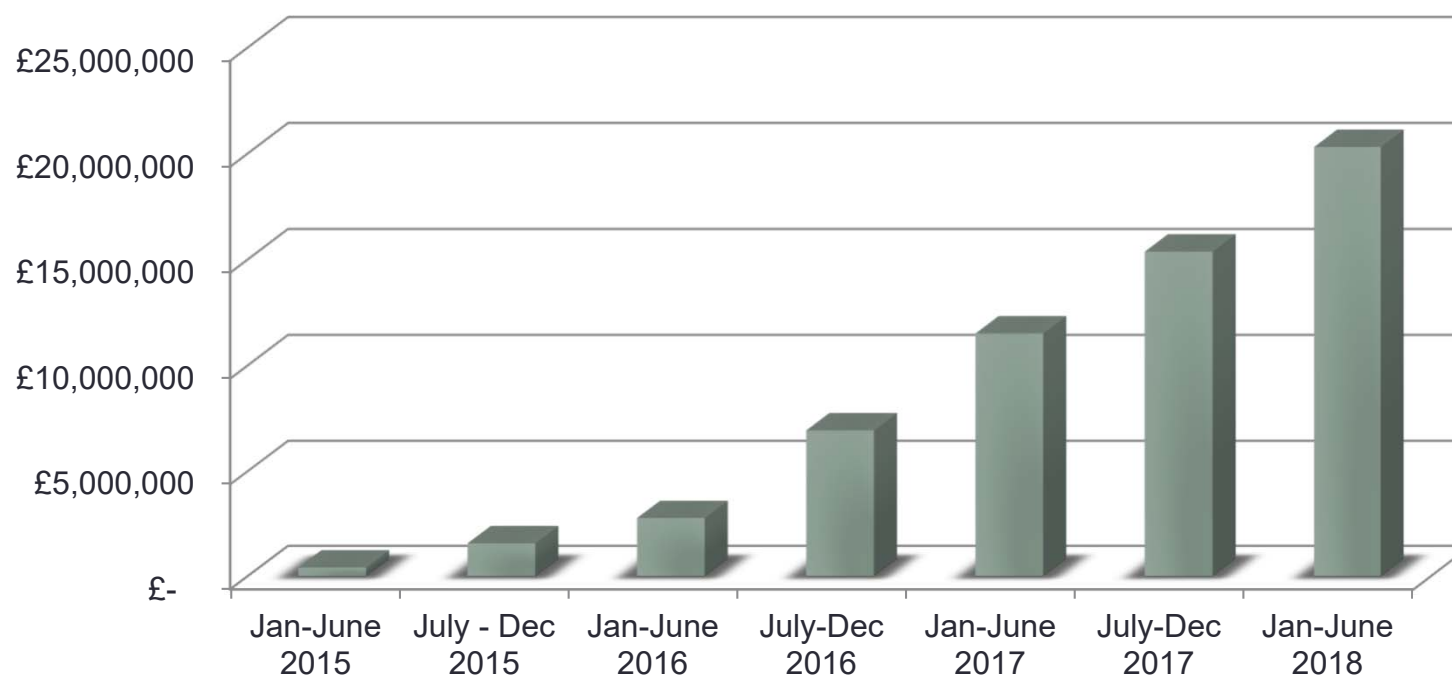


Skilled embedded workforce across the UK



Increased science productivity

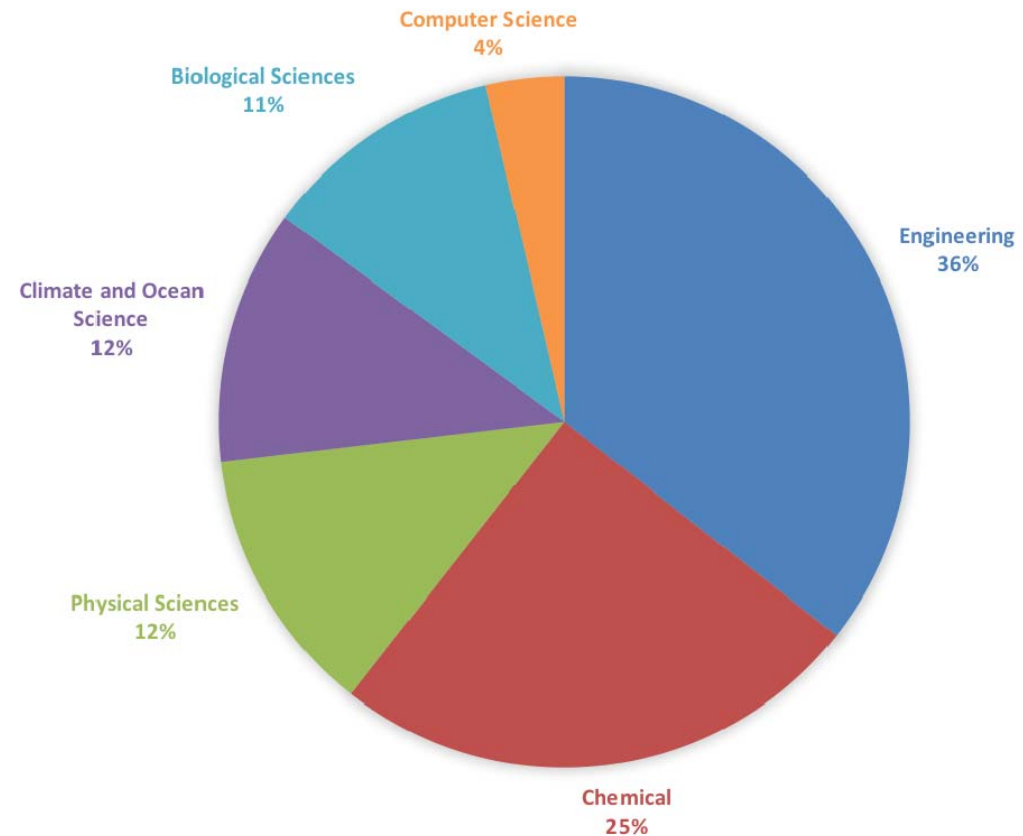
- Financial saving reinvested to allow scientists to achieve more science from the same resource allocation
- Overall cost of the eCSE programme £6M, reported benefits to date £21.3M



Increased range of science

- Wide range of science areas
- Since the 4th eCSE call, we actively encouraged proposals from "New Communities"
- 10 such proposals were funded – 11% of all projects, 18% average across relevant calls

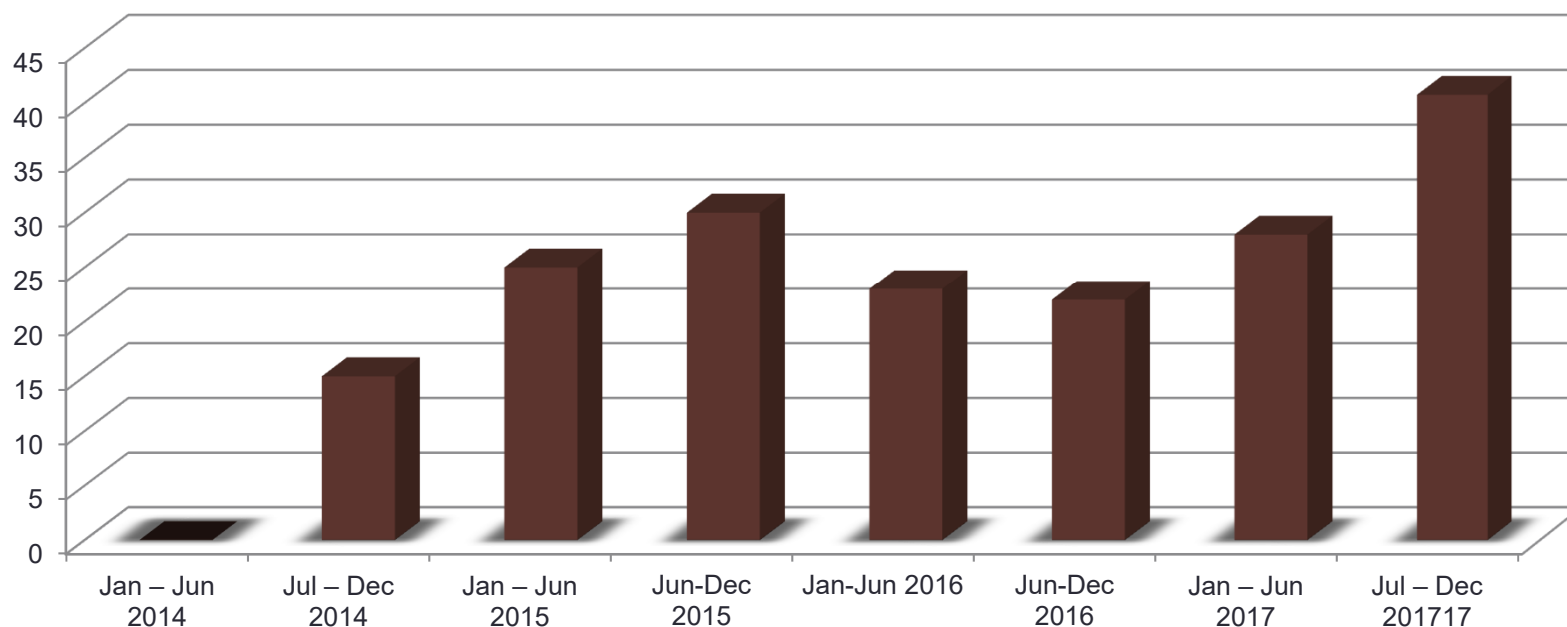
eCSE funded PMs by Scientific Discipline



Increased range of science

- In the last 6-month period, over 40% of the top 40 codes had benefitted from some form of eCSE support

% top 40 codes benefited from eCSE programme



Conclusions

- eCSE programme has funded RSEs:
 - In a broad range of scientific areas and at many different HEIs
- Measuring financial benefits is tricky but helps make the case that investment in RSE support is essential to extract maximum benefit from the hardware
- While some projects are still running, it is clear that the programme has already:
 - provided a consistent, fair and not-for-profit funding programme
 - Funded a wide variety of projects
 - Enhanced the skills base of the UK computational community across the UP
 - Generated considerable financial benefits (more than 3x return on investment)
- As the codes continue to be used we anticipate even more high quality science will be performed

