ARCHER eCSE Final Report

The aim of this report is to highlight the achievements of your eCSE and understand the financial and scientific benefits realised from your eCSE.

The information supplied will be used to demonstrate the importance of ARCHER, the eCSE programme and your use of ARCHER.

Please do not modify the style and layout of this report (though you should remove this kind of comment text highlighted in yellow).

This report consists of publishable parts, which we may use in whole or in part on the ARCHER website or in other publicity material. The non-publishable parts will not be made public and will be used to assess whether the project has achieved its objectives and produced the project’s proposed outputs. The entire report (both the publishable and non-publishable parts) will be made available to our panel of reviewers.

The length limits for each sub-section are given as guidance but please respect the overall limit for each section where given. These limits do not include images.

Please submit the completed report to [support@archer.ac.uk](mailto:support@archer.ac.uk). The majority of the report should be provided in MS Word format although the technical part (section 4) may be provided separately as a PDF if you prefer to use different software to typeset this (We can provide a Latex template if needed). In all cases, where publishable images are embedded within the document, please also send these separately. The entire set of documents may be sent as a zip file.

|  |  |
| --- | --- |
| eCSE Number: |  |
| eCSE Title: |  |
| Date of Submission: |  |
| PI and Co-Is: |  |
| Technical staff member(s): |  |
| Author(s) of this document: |  |
| Project start date: |  |
| Project completion date: |  |
| Total number of funded project months: |  |

# Publishable Summary

[2-2.5 pages for whole section not including images. All of section 1 is publishable]

## Achievement of objectives

Please comment on the achievement of the objectives given in your proposal [1/2-1 page]. You should list the original objectives and associated success metrics and describe your actual achievements against these metrics.

## Project description

(This will form the basis of a case study for the ARCHER website and/or for publicity material) [~1 page not including images]. This should include

* an overall description of the project including successes and potential impact;
* a clear description of what has been done e.g. key highlights/objective achievement, what the science case was, current/future impact and current/future other benefits
* This should be written in a style accessible to a interested non-technical member of the public and should emphasise the resulting social and economic benefits
* We would encourage you to include any appropriate images

## Summary of the software

This should include links to the software repository, a description of the availability of the software on ARCHER and a description of the availability of the software in general. [1/2 page]

# Future science and impact

In order to ensure future funding of an eCSE type programme it is very important that we are able to demonstrate tangible outputs and associated (real or potential) social, economic and/or academic impact from the programme.

While we understand it can be difficult to do, it is also very important that wherever possible we can quantify the success of eCSE projects.

Hence please carefully fill in the sections below which are applicable to your eCSE project – you should not feel obliged to complete all the sections. We can assist in providing the size of the user base for large codes.

We also recognise that much of the data and/or information will be estimated and based on an assumption about future production run plans. The code development will only just be complete and it is unlikely that the science has been done yet. However we are keen to understand how this will impact your science in the future.

This information may be used in case studies and other publishable material.

You may wish to use the original monetary value of your eCSE to put any financial benefits in context. We can provide the original monetary value for this if required. Please do not supply figures that can be linked to individual salaries.

[1-3 pages]

## Performance Improvement

If you have obtained a performance improvement as a result of this eCSE please fill in the following table. You should list the main scientific simulation(s) you or a collaborator plan to carry out using the new/improved software which has been developed during the eCSE project. These simulations may form part of an existing ARCHER allocation or be part of a potential future application. For each simulation please fill in the table (template below) with an estimate of the CPU time required both before and after the work of this eCSE. For multiple simulations you may add further columns to the table. You may wish to refer to any simulations mentioned in the original eCSE proposal.

If the code is used by multiple groups please consider reporting CPU savings for all users of the code on ARCHER – we can provide usage figures/user base for codes used by multiple groups on ARCHER.

We understand that the some figures will be estimates. You are welcome to explain any assumptions or estimates made in the comment box. For example, CPU time before the eCSE work was carried out may be based on an estimate or an extrapolation of a smaller run on ARCHER or another system.

You may wish to utilise the current value of an AU, see <http://www.archer.ac.uk/access/cost/>

If you have any questions please contact the ARCHER team.

|  |  |
| --- | --- |
| Name of simulation and code: |  |
| Description of computational runs required: |  |
| CPU-time before eCSE work per simulation (kAUs): |  |
| CPU-time after eCSE work per simulation (kAUs): |  |
| Estimate of overall financial saving/benefit: |  |
| Comment (including any assumptions, number of users/runs estimates are based on, etc.): |  |

## Additional Functionality

Additional functionality may enable new science that may then enable results to be achieved more quickly, for more accurate results to be achieved, or for new results to be achieved.

If the new functionality allows results of a given accuracy to be achieved more quickly, please give an estimate of how long a simulation would have taken to perform without the functionality implemented during this eCSE project compared with after it has been implemented.

If the new functionality allows results to be achieved which could not have been achieved before the project then please explain why this couldn’t be done before. For example, was this a limitation on the amount of CPU time available? Please be as quantitative as possible.

|  |  |
| --- | --- |
| Name of simulation and code: |  |
| Description of computational runs required: |  |
| CPU-time before eCSE work per simulation (kAUs) to reach a given level of accuracy: |  |
| CPU-time after eCSE work per simulation (kAUs) to reach a given level of accuracy: |  |
| Estimate of overall financial saving/benefit: |  |
| Comment (including any assumptions, number of users/runs estimates are based on, etc.): |  |

## Sustainability of Software

Improving the sustainability of software should lead to the code being easier to support in the longer term thus reducing the amount of staff developer time required to maintain the code. This can have the effect of increasing the user base and/or increasing the number of ARCHER users or may reduce the time taken to integrate new features into the code or to port the code to another system. Please give quantitative estimate(s) any time savings or increase in usage of the code due to the work done in this eCSE. If the code has a large user base please report against the total number of users of the code on ARCHER – we can provide usage figures/user base for widely used codes on ARCHER.

Comment:

|  |  |
| --- | --- |
| Action which has been made quicker (e.g. porting of code, integration of new feature): |  |
| Time taken before eCSE work per simulation: |  |
| Time taken after eCSE work per simulation: |  |
| Estimate of overall human effort saving/benefit: |  |
| Comment (including any assumptions, number of users estimates are based on, etc.): |  |

## Usablity of software

If the eCSE work has made the software easier to use, e.g. via the addition of new tools, installation procedures, user interfaces, etc. please explain this here with an estimate of how much time is saved for a typical simulation. If the code is has a large user base please report against the total number of users of the code on ARCHER – we can provide usage figures/user base for widely used codes on ARCHER.

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| --- | --- |
| Action which has been made quicker (e.g. compilation of code, integration of new feature): |  |
| Time taken before eCSE work per simulation: |  |
| Time taken after eCSE work per simulation: |  |
| Estimate of overall human effort saving/benefit: |  |
| Comment (including any assumptions, number of users estimates are based on, etc.): |  |

## Intrinsic value of the software

If you believe the intrinsic “value” of the software has increased with the eCSE please quantify this here (e.g. enhanced revenue, increase in user numbers, more downloads, etc.).

## Enabled Science and Impact

eCSE projects enable new science and allow existing science to be done better. Please describe the importance of the science and the resulting impact for a non-technical audience and explain how this eCSE has/will enable and improve this science. There may be overlap with Section 1.2 here and you may refer back to this section if appropriate.

## Other

Please give a quantitative estimate of any other improvements to the codes made during this eCSE which do not fit into the above sections. These could be given in terms of staff effort saved, computing resources saved or any other added value given to the code.

# Project summary (non publishable)

[2-2.5 pages]

## Workpackage summary

Summary of work completed against the workpackages given in the proposal [1 page]

|  |  |  |  |
| --- | --- | --- | --- |
| Workpackage | Workpackage title | Completion  Yes/No/Partially complete | Comment |
| WP1 |  |  |  |
| WP2 |  |  |  |
| … |  |  |  |

## Reporting statistics

### Effort

The eCSE programme is based on the TRAC standard working year of 7.5 hours per day for 220 days. Please confirm that the technical members of staff working on your eCSE project have delivered an appropriate level of effort against the time awarded, based on this model. A lack of effort on the project could delay payment.

If you cannot confirm this please provide further details below.

If you wish to raise any other issues with staffing and effort, please provide details below

Please summarise any travel and highlight any deviations from the original travel plan.

[1/2 page]

Comment:

Effort Exceptions:

Travel Summary:

## Engagement and publications

This should include the following [1/2 page]

* Summary of engagement with the ARCHER community and/or beyond the ARCHER community. This is particularly encouraged for the technical members of staff on the project but should include engagements relating to activities of all members of the project team, not just the technical members of staff.
  + e.g. local seminars, ARCHER webinars, group reports, conference presentations, publications, technical forums, consortium meetings, contribution to FAQs or any other way you feel you have engaged with the ARCHER community or beyond
* Delivered outputs (as table (e.g. see tables below which may be used/combined) or bulleted list),
  + e.g. publications, papers, articles, conference proceedings, new code releases, presentation of the project to third parties, and attendance to related workshops, seminars or exhibitions, etc. Outreach activities can also be reported (e.g. visits to schools). Include outputs either targeting expert groups or wider audiences. Note that the ARCHER team may follow up on these activities with you in the future.
* Note that eCSE publications should acknowledge the ARCHER service: “This work was funded under the embedded CSE programme of the ARCHER UK National Supercomputing Service (http://www.archer.ac.uk).“

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| --- | --- | --- | --- | --- | --- | --- |
| Title of the article | Journal/ Conference | | | | Name of author and Organisation | What aspect/topic of the eCSE is presented here? What audience will this target? |
| Name | Volume | Issue | Pages |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

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| --- | --- | --- | --- |
| Title of the talk | Name and date of the event | Name of author and Organisation. Was this an invited talk? | What aspect/topic of eCSE is presented here? What audience will this target? |
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| --- | --- | --- | --- |
| Description of publication | Name and date of publication | Name of author and Organisation | What aspect/topic of the eCSE is presented here? What audience will this target? |
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## CSE team feedback

[Optional] Please report on any issues which may benefit from additional support form the CSE team, for future eCSEs [1/2 page optional]

# Technical Report (publishable)

[approx 5-10 pages, although longer is permissible if it is appropriate]. This should provide a summary of the technical work completed on the project, including performance results and other relevant technical information. The technical report will be published on the ARCHER web site and should read as a standalone document hence you are welcome to replicate text from elsewhere in this document. Please begin the document with an abstract including the key scientific aims of the project and corresponding achievements.

This section may be supplied as a separate PDF. Please ensure the author list is complete.

Please make sure this has an abstract and conclusion and appropriately acknowledges ARCHER and the eCSE programme:

“This work was funded under the embedded CSE programme of the ARCHER UK National Supercomputing Service (http://www.archer.ac.uk)”