

Research Data Management Procedures and Guidance

Author: Members of the Research Data Management Project Team from RIN, ITCS and LIB, working from original document prepared by Raymond Scott

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1.5	24/06/2019	Updated as part of scheduled RDM policy review

Review

This Research Data Management Procedures and Guidance document supports the University's Research Data Management Policy. It will evolve rapidly as the resources and infrastructure to support Research Data Management are developed throughout the University.

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1. Introduction

The University of East Anglia recognises Research Data as a valuable institutional asset to be managed in line with UKRI Common Principles on Data Policy (<https://www.ukri.org/funding/information-for-award-holders/data-policy/common-principles-on-data-policy/>). In addition, the University acknowledges the role that good Research Data management can play in supporting the University's research vision to ensure that our research has the highest possible global influence through a dissemination strategy that maximises impact and that ensures effective communication of our research.

Many research projects generate data in the course of their work. Some projects may create or work with large datasets to produce analysed results. The University recognises that Research Data are a valuable resource and appropriate provision should be made for their creation, organisation, security, storage, publication, archiving and access covering both the life of the research project and after the project has completed.

This Research Data Management Procedures and Guidance document has been written to assist Researchers and support staff with best practice in the area of Research Data management. This document brings together guidance from across the institution and is designed to complement the Research Data Management Policy to:

- support good Research Data management practice
- make it easier to conduct research relying on Research Data
- maximise citations
- maximise impact by encouraging discoverability and re-use
- protect intellectual property and commercialisation opportunities
- reduce the likelihood of data loss through inaccessibility and corruption
- ensure compliance with legislation and funder policies

The document sets out the best practice standards which the University expects of Researchers when managing Research Data in projects which it sponsors or which are undertaken in its name. It does not replace or override guidance or requirements from research funders or Third Party Data providers; it should instead be considered as a complementary resource. If there are multiple guidelines then advice should be sought from the Open Access and Research Data Officer in Research and Innovation Services (RIN).

2. Definitions

Data Management Plan A document which describes the Research Data that Researchers expect to use during a research project and how they plan to create, store, keep safe, make available to others and archive their Research Data, identifying any costs required and issues of risk or governance that need particular action during the research. A Data Management Plan is likely to evolve over the course of the research and any changes should be documented accordingly. See Appendix 1 for an example checklist for a Data Management Plan.

Metadata Digital information held for each set of Research Data which describes that data, including the Research Data's content, format and how they can be accessed. Metadata can be held for both digital and non-digital Research Data.

Open Access Multiple definitions of Open Access are in use. Most commonly it applies to making scholarly outputs available without any payment requirement to access and with no, or limited, restrictions on re-use. Open Access more usually refers to publications but can also be applied to data, where the term 'open data' may also be used.

Ownership Under the Intellectual Property Regulations of the University, the University owns the intellectual property rights, including copyright to the Research Data created by Researchers employed by the University. The University may not assert rights on certain outputs, as laid out in the University's Intellectual Property Regulations ([available from this page: https://portal.uea.ac.uk/academic-calendar/general-regulations](https://portal.uea.ac.uk/academic-calendar/general-regulations)).

Ownership of Research Data created by students may be subject to any stipulations of their funder.

Research Data There is no single definition of what constitutes Research Data. For the purposes of the University's Research Data Management Policy and the associated Procedures and Guidelines, the following definition provides an indication of what is in scope: The data, records, files or other evidence, irrespective of their content or form (e.g. in print, digital, physical or other forms), that comprise a research project's observations, findings or outcomes, including primary materials and analysed data. Specific definitions shall be guided by what is widely accepted within the relevant discipline of the research or by the definition used by the funder of the research; a definition should be provided in the Data Management Plan.

All data gathered and generated as a result of the research, and not just analysed data that underpin a research output, are in scope. Digital and non-digital data are included and the mechanisms for retention and archive will necessarily differ according to the format of the data. Where data are obtained from a third party, any adjustments to that base data set on which research relies should be included within the data generated as a result of the research.

Research Data Repository A means of storing digital Research Data for archiving, preservation and dissemination, usually at the end of the research activity. There are a number of national and international external repositories or data centres that are recognised within subject disciplines and are appropriate for the deposit of UEA Research Data. The University's Research Data Repository provided by Information Services is available to all Researchers.

Researchers The term Researchers is used to refer collectively to the following groups of people:

- Academic, research and relevant support staff employed by the University, and other individuals carrying out research at, or on behalf of, the University
- Students undertaking research (including undergraduate research projects) and their supervisors
- Any persons with honorary positions conducting research within, or on behalf of, the University.

Third Party Data Data belonging to another party who has given permission for the data to be used in the conduct of research at the University. Such permission is likely to include

certain requirements and restrictions that the University will be bound to adhere to (see also 'Use of Third Party Data by UEA Researchers' section).

3. Scope and mandatory requirements

All Researchers are encouraged to follow the Research Data Management Policy and this Procedures and Guidance document as good practice in the conduct of high quality research. In particular, Researchers starting new research projects after the approval of this policy should produce a Data Management Plan (see Appendix 1) to support their management of Research Data within the project regardless of whether the project is supported by external research funding. Additionally Researchers are encouraged to produce a Data Management Plan for research that is currently in progress.

4. University Support and Infrastructure

4.1 Advice and Support for Researchers

- The University offers training and guidance to Researchers involved with the planning, creation and management of Research Data. Training is provided through by RIN. Guidance is available through documents and material accessed via the Research Data intranet page (via RIN) and by contact with the UEA Open Access and Research Data Officer in RIN.
- The Open Access and Research Data Officer is also the point of contact for Researchers wanting to deposit Research Data in the University's Research Data Repository or appropriate national or international repositories. Where appropriate, they will liaise with colleagues in other University Services (e.g. Library, Information Services) and external services to provide the advice and guidance required.

4.2 Research Data Repository for Digital Research Data

- The University will provide a Research Data Repository. Free storage is generally available for all Researchers as part of their personal data storage allocation, although a charge may be incurred for large deposits of Research Data. Costs for storage of data during the funded period of the project may be recoverable from the external funder of the research.
- The Research Data held in the University's Research Data Repository will be recorded by the Open Access and Research Data Officer. Pure will be used to store Metadata on to Research Data.

4.3 Storage for non-digital Research Data

- Where Research Data cannot be deposited in a digital format, the University will provide advice on options for the storage of the Research Data either at the University or with an appropriate external service provider. Digital Metadata will be held. Such cases will be dealt with on an individual basis to find the most suitable solution.

4.4 Access to Research Data

- The University will preserve and provide access to Research Data deposited in the University's Research Data Repository in its original format beyond the duration of a research activity. Controlled access is supported although Open Access is preferred whenever possible, and will be mandatory where required by the funders of the research and allowed, if relevant, by Third Party Data providers.
- The University intends to preserve and provide public access to the Metadata of all UEA Research Data regardless of their location or form. Pure will be used to allow the publication

of some of the Metadata for all individual research datasets to facilitate requests for access to UEA Research Data by other Researchers from within and outside of UEA.

5. Guidance for Researchers

1. This Research Data Management Procedures and Guidance document develops the guidance to Researchers on the management and handling of Research Data that is included within the Guidelines on Good Practice in Research (April 2019; <https://portal.uea.ac.uk/rin/research-integrity>).
2. Researchers are encouraged to undertake Research Data Management training prior to undertaking any research activity that will result in the creation of new data or the use of Third Party Data.
3. Before starting a research activity, Researchers should develop a Data Management Plan (DMP) to inform decisions throughout the project on creating, organising, publishing, accessing and archiving data arising from the research. Some research funders already require some form of DMP, including AHRC, BBSRC and MRC, and it may go by another name (eg Data Sharing Plan)
4. The interests of subjects of Research Data must be considered at all times, in line with the University's information security policies, Guidance on Good Practice in Research, Research Ethics Policy, Principles and Procedures, and Standard Operating Procedures (SOPs) for those involved in medical research.
5. Researchers are encouraged to create and archive Research Data in appropriate digital formats in order to facilitate data re-use.
6. Publication of a research output should include a short statement describing how and on what terms any supporting Research Data can be accessed (including links to the University's Research Data Repository or appropriate external repository).
7. Upon completion of research activity, Research Data should be deposited in an appropriate national or subject repository or the University's Research Data Repository in a form suitable for long-term retention and, where possible, wider publication. Please also refer to the section on 'What Data to Archive'.
8. Except where this is a condition of funding, exclusive rights to Research Data must not be handed, sold or licensed to external parties, including when Researchers move between organisations. Please also refer to the section on 'Leaving UEA and Data Transfer'.
9. Where data have a commercial value or supports a commercial output such as a patent then public disclosure of the data may be delayed. This should be agreed in consultation with Research and Innovation Services.

6. Responsibilities

6.1 Overall

University Research Executive has overall responsibility for the institution's Research Data Management Policy and its implementation and support. Responsibility for individual research projects is delegated to the project's Principal Investigator (PI), however Research Executive recognises that for the PI to perform their responsibilities effectively they must be supported by other academic staff, academic units and the central services.

6.2 Principal Investigators (PI)

Practical and operational responsibility for the management of Research Data throughout the lifecycle of the project is with the University of East Anglia project PI. PIs should note that advice and support is available from RIN, ITCS and the Library on these areas. In case of any uncertainty, guidance should be sought from the Open Access and Research Data Officer in RIN in the first instance.

Their key responsibilities are:

- undertaking research data management training prior to undertaking any research activity that will result in the creation of new data (or ensuring they are informed of any relevant updates since undertaking any initial training).
- ensuring data collection, storage, processing, archiving and dissemination is in line with legal, funder and Third Party Data requirements.
- ensuring that each project has sufficient resource to enable appropriate Research Data management throughout the project lifecycle.
- ensuring each project has a project Research Data Management Plan which maps to best practice in their research field (refer to Appendix 1 for further guidance on Data Management Plans).
- when working in collaboration with other institutions, being aware of Research Data Management policies of those institutions.
- delegation of responsibility for Research Data management activities to other members of the project team e.g. to Co-Investigators or project administrators.
- ensuring that project the team is competent (i.e. aware of their responsibilities and able to discharge them) and noting this in project documentation.
- ensuring that all outputs arising from the Research Data include a statement on how the underpinning Research Data may be accessed.
- at the end of the project, depositing the project Research Data in an appropriate national or subject repository or the University's central data repository, including sufficient Metadata and explanatory documentation, and a record of the data's expected expiry.
- ensuring that, should they be requested, data are in an appropriate and useable format, including taking steps to protect research participants e.g. anonymisation.

6.3 Other Project Team Members

Are responsible for:

- undertaking Research Data management training when they have responsibilities for Research Data and for keeping themselves informed of any relevant updates to policy and procedures.
- discharging their responsibilities as delegated by the PI and detailed in the Data Management Plan throughout the life of the project through to its conclusion.
- proactively supporting the PI with data management good practice and raising any concerns to the PI in a timely manner.
- ensuring any research outputs for which they are lead author include an appropriate statement on how the underpinning Research Data may be accessed.

6.4 Heads of School and School Research Directors and Postgraduate Research Supervisors

Are responsible for:

- the promulgation of the Research Data Management Policy and this Procedures and Guidance document within their Schools and to their research students.

- ensuring adherence to the policy principles by Researchers in their unit.
- where necessary establishing supplementary discipline-specific guidance.
- feeding information on researcher development and support requirements to RIN.

6.5 Research and Innovation Division (RID)

Within RID, Research and Innovation Services are responsible for:

- ensuring that any data storage requirements during the lifetime of the research project identified by the PI during project planning are considered in the costing of research projects submitted for external funding.
- providing the guidance and support necessary to facilitate good practice in Research Data management.
- co-ordinating the necessary training to enable Heads of School, School Research Directors, Postgraduate Research Supervisors and Researchers to discharge their responsibilities.
- providing advice and guidance on funder requirements and on Open Access and publication issues.
- providing advice and guidance to Researchers on commercialisation, intellectual property rights and confidentiality.
- acting as gatekeeper for data access requests.
- keeping records of Research Data deposits that may be needed for reports to funders on compliance.

Within RID, the Library is responsible for:

- advising on the long term curation of non-digital Research Data outputs.
- providing guidance on the categorisation and classification of research output Metadata (i.e. descriptive information relating to the data).

6.6ITCS

Are responsible for:

- provision of advice and support for Researchers regarding data security, their obligations under the General Data Protection Regulation (2018)) and the handling of requests for information under Freedom of Information Act (2000) and Environmental Information Regulations (2004).
- the provision of secure storage, back-up and archiving of Research Data through the Research Data Repository, and enabling access to the Research Data through publicly available Metadata where Open Access is allowed.
- working with the PI and the Open Access and Research Data Officer in RIN to identify how UEA can best meet the obligations required for the use of Third Party Data to enable the research to take place (e.g. meeting physical access, password and storage specifications).
- digitising non-digital Research Data when requested to enable sharing and depositing digitised material in the Research Data Repository.
- secure disposal of the Research Data from the Research Data Repository once the expiry date has passed as specified in the Data Management Plan and any funder or regulatory requirements.
- the technical support of the Research Data Storage Facilities and Research Data Repository and related queries.
- the technical infrastructure for reporting on uptake and compliance.

7. Considerations during Data Collection

Where data are collected that personal data, researchers should ensure that they are collected in line with relevant data protection legislation. In most cases, this will involve collecting data in line with the UK Data Protection Act 2018, which includes the General Data Protection Regulation (GDPR) as it applies in the UK. However, researchers undertaking research, or working with collaborators, outside the UK, should be aware of the data protection legislation that applies in the region where they are working. It is expected that the principles of GDPR will be upheld for all UEA research. In cases where the research occurs entirely outside the European Union (EU), further advice should be sought by contacting RIN in the first instance.

8. Active Storage & Data Security During the Project

The University provides a range of Research Data Storage Facilities for data created during the project. ITCS provide a secure storage service, through the personal filestore and the shared filestores. Further storage can be requested on the Secure Area Network storage. This may incur an additional cost but many external funders of research will meet these costs if included in the application for funding. Researchers requiring security to ISO standards should contact ITCS for advice in advance of submitting bids for research funding or agreeing to undertake work to determine whether the security standards can be accommodated.

Information on storage and data security during the course of the research project should be included in the Data Management Plan. For advice on this please see Appendix 1.

- Digital Data

Wherever possible and appropriate Research Data should be stored in digital format using approved storage systems. Use of the University's Research Data Storage Facilities will ensure that Research Data are stored in a secure location, backed up regularly and access to data are controlled to protect against theft, misuse, damage or loss. The format and extent of data storage will be informed by best practice in the relevant field of research or any specific funder requirements.

Information and guidance on the storage of digital data will be provided on the Research Data storage webpages.

- Non-Digital Data

Non-Digital Research Data should be stored securely in line with best practice. Digital Metadata should be provided at publication / project end, if not before.

9. Use of Third Party Data by UEA Researchers

Where research involves usage of Third Party Data, the terms and conditions associated with the use of Third Party Data must be carefully scrutinised as there are likely to be conditions of access and use, copyright and / or licensing issues attached. These may have an impact on what data can be used for in the future. It is also important to ensure the data do not have any ethical restrictions associated with them, e.g. as relates to non-anonymised human data, as this may also affect the conditions of storage and re-use. Researchers should seek the advice and guidance provided by Research and Innovation Services when considering the use of Third Party Data. Any agreement on the use of Third Party Data should be authorised by a member of Research and Innovation Services.

10. Sharing Data with Project Partners

A clear agreement regarding Research Data management and sharing should be put in place before any project start date, usually in the collaboration agreement for externally-funded projects or a

Data Sharing agreement if no funding is involved. Special care should be taken where the project involves organisations outside the European Economic Area which may be governed by less robust legal frameworks and present a greater risk of unintended dissemination. Likewise when working with commercial organisations the increased intellectual property considerations should be taken into account when agreeing data sharing and publication details. Research and Innovation Services will be able to assist in drawing up an appropriate agreement.

11. Ownership

Unless explicitly agreed otherwise, the University owns the intellectual property rights, including copyright, to the Research Data created by Researchers who are members of staff, during the term of their employment with the University, as per the University's Intellectual Property Regulations.

Research Data may have significant ethical, confidentiality, intellectual property, funder and legal restrictions attached to them and therefore Ownership of the data should be established as early as possible and an agreement should be in place before the project starts. RIN will be able to advise and, where necessary, negotiate with funders on behalf of PIs. This includes when Research Data is created by UEA students.

12. Data Deposit / Archiving at Project End

Responsibility for data management does not end with the completion of a project. The University's Research Data Management Policy requires that the Research Data underpinning publications remain accessible for a minimum of 10 years from its publication. The PI is therefore responsible for depositing the Research Data in a suitable repository on completion of the research. A Researcher may elect to deposit data in a national or international archive, repository or data centre, or with UEA, depending on the nature of the data and disciplinary norms. The PI should check that the sharing of the data is permissible and appropriate in light of confidentiality, ethical and legal concerns before uploading any data into an external repository or before making it available beyond the project team. The Data Management Plan should be updated with information on the deposit of Research Data.

The deposit of data at the end of the project on local computers within Schools is not acceptable under the terms of this Research Data Management policy.

Whether using an appropriate repository or through curation of non-digital data, digital Metadata describing the format of the data will be required. Where project data needs are significant (over 0.5 TB for digital data) and funder requirements allow, additional resource for archiving should be costed into the project at the grant application stage.

If no suitable or approved repository exists or it is inappropriate to store the data outside the institution then advice and guidance should be sought from ITCS so that an appropriate storage method can be agreed.

For requirements outside of this please consult the Open Access and Research Data Officer (RIN).

13. What Data to Archive

The Data Management Plan for the research should describe the data to be archived. As a minimum, the Research Data underpinning publications should be archived in the University's Research Data Repository or appropriate national or subject repository. Additional data archiving requirements will be informed by best practice in the relevant field of research and by practical considerations such as the cost of data collection (eg, where high, archiving the base dataset would be appropriate to save this cost being incurred for future research). Similarly, where the data collection has required a high degree of participation by research subjects, the ethical costs of the research would also suggest archiving of the base dataset.

All data stored or archived in the University's Research Data Repository or an appropriate external national or subject repository are subject to the requirements of Data Protection legislation, the Freedom of Information Act and Environmental Information Regulations. This is in recognition of the interest in and control over the Research Data by the University wherever it is stored or archived.

14. Third Party Usage of University Research Data

Access to and usage of University Research Data, even Open Access data, should have a licence associated with its usage. This licence should ensure (at a minimum) that the University, Researchers and Funder are appropriately attributed to in any further reuse of the data. Access will be arranged through Research and Innovation Services including signature of standard data access agreements as required.

The PI should ensure that the data are released at an appropriate point i.e. when opportunities for commercialisation and publication have been explored, taking into consideration any funder requirements.

15. Commercialisation

Where Research Data have, or may have, commercial value, Researchers are advised to consult with Research and Innovation Services at the earliest possible stage. They will assist in assessing the value of the data, provide advice on the exploitation of any opportunities as well as advising whether publication of the data should be delayed.

16. Deletion

The University requires that the Research Data are kept for a minimum of 10 years, but note that longer or shorter data retention periods apply if this is a requirement of the research funder or because of regulatory requirements. Minimum data retention periods and the requirements that govern them should be set out in the Data Management Plan. At the end of the minimum retention periods the Research Data held in the University's Research Data Repository will be reviewed and either retained or destroyed. Any destruction will be in accordance with legal and funder requirements.

17. Leaving UEA and Data Transfer

On leaving UEA, it is the Researcher's responsibility to deposit all Research Data held on the ITCS SAN storage with another member of the project or supervisory team or, in the case of a completed research project, on the University's Research Data Repository or appropriate external national or subject repository.

If a Researcher leaves the University, we would normally expect to enable the Researcher to transfer the Research Data with them to their new employer. There may occasionally be instances where this is not possible (for example, when research is actively being commercialised by the University) but this will be discussed with the Researcher involved and all valid alternatives explored. Employees leaving the University or changing positions are required to leave all Research Data for use by the University. Transfer of data will generally require a Data Transfer Agreement; Research and Innovation Services will be able to advise on the process and issues in cases where an employee wishes to transfer data to a new employer (see sections on 'Use of Third Party Data by UEA Researchers' and 'Third Party Usage of University Data' sections) or indeed, on joining UEA wishes to transfer Research Data into the University.

Where research is externally funded, or the Research Data are underpinned by Third Party Data, the transfer of Research Data will need to take account of any additional obligations required by the funder or Third Party.

18. References

This Research Data management document is supported within the context of the following pieces of legislation, professional standards, and University documents.

Internal to the institution:

- UEA Guidelines on Good Practice in Research (<https://portal.uea.ac.uk/rin/research-integrity>)
- UEA Research Ethics Policy (<https://portal.uea.ac.uk/rin/research-integrity>)
- Joint NNUH/UEA Standard Operating Procedures for Research (NNUH; <http://www.nnuh.nhs.uk/research-and-innovation/information-for-researchers/standard-operating-procedures/>)
- Records management policy (<https://portal.uea.ac.uk/information-services/strategy-planning-and-compliance/regulations-and-policies/information-regulations-and-policies/records-management>)
- Information Security Policy (ISP; <https://portal.uea.ac.uk/information-services/strategy-planning-and-compliance/regulations-and-policies/information-regulations-and-policies/information-security>)
- Conditions of Computer Use (COCU; <http://www.uea.ac.uk/is/itregs/cocu-pdf>)
- UEA Policy on Open Access (June 2019; <https://portal.uea.ac.uk/rin/open-access-and-research-data/meeting-ref-requirements/uea-policy>)

External to the institution:

- UKRI Policy and Code of Conduct on the Governance of Good Research Conduct (<https://www.ukri.org/about-us/policies-and-standards/research-integrity/>)
- UKRI Common Principles on Data Policy (<https://www.ukri.org/funding/information-for-award-holders/data-policy/common-principles-on-data-policy/>)
- Concordat on Open Research Data (<https://www.ukri.org/funding/information-for-award-holders/data-policy/>)
- DCC overview of funders' data policies (<http://www.dcc.ac.uk/resources/policy-and-legal/overview-funders-data-policies>)
- DCC Data Management Plan (<http://www.dcc.ac.uk/resources/data-management-plans>)
- DCC DMP Online (<http://www.dcc.ac.uk/dmponline>)

In developing this document, the University acknowledges reference to the research data management documents of the University of Bristol and the University of Newcastle.

All links correct as at 15/01/2019.

Appendix 1: Data Management Plan

Because of the complexity of research project requirements and the need frequently also to meet the requirements of the research funders, many funders ask investigators to present a Data Management Plan (DMP) at the funding application stage. If funding is granted, this plan should be developed further during the project.

The Digital Curation Centre (DCC) has produced a range of resources to support research data management, including a checklist for a Data Management Plan¹ and an online tool to help Researchers build and edit DMPs². This tool is aware of the requirements stipulated by major UK funders.

It is recognised that the creation of a Data Management Plan adds a small amount of additional work at the start of a project, but it is expected that it will yield significant benefits during the life of the project.

The DCC Data Management Plan checklist covers the following areas:

- basic project information (name, funding body, budget, duration, partners)
- local research data management policies and guidelines
- legal and ethical issues (Data Protection legislation, Intellectual Property Rights, licensing, copyright and intellectual property Ownership)
- access and data sharing (controlling access to the data, records of who has accessed the data and when, Freedom of Information, Environmental Information Regulations, permissions, charges, timing)
- data standards and capture (data description, volume, type, file format, survey of existing data, justification for creating a new dataset, integration with existing datasets, data capture method, use of open standards for data format, Metadata to describe the data, quality assurance of the data)
- short-term storage of data (location, media, responsibility, transmission)
- backups of data (method, regularity, responsibility)
- security of data (method, permissions, restrictions, embargoes, encryption)
- long-term preservation (method, retention period, destruction of sensitive data, archive location, data preparation for sharing such as anonymisation, linkage of research data to research papers and reports, preservation, backups)
- Metadata and documentation (method, responsibility, citations)
- staff (responsible for implementing the plan, responsible for long-term management)
- finance (income from licensing, cost of short-term storage, cost of long-term storage)
- adherence, review (compliance with DMP, responsibility, review, on-going management)
- agreement with stakeholders (statement)

The DMPonline tool can be used to create and edit DMPs. Guidance is built into the tool, and the tool reflects the specific requirements of particular funders. The tool facilitates creation of 'minimum', 'core' and 'extended' versions of the plan, each appropriate to a different stage in the research process (e.g. the 'minimum' version is suitable for the bidding stage). After completion, the DMP can be exported for subsequent incorporation in a funding bid or for inclusion in a research proposal.

¹ <http://www.dcc.ac.uk/resources/data-management-plans>

² <https://dmponline.dcc.ac.uk/>