

# A survey of digital methods and in the economics and social sciences research areas

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## Page 1: Introduction and consent

### **Welcome to the survey of digital methods, software and data in the economics and social sciences research areas.**

This survey is run by the UK Software Sustainability Institute (SSI - <https://www.software.ac.uk>). The SSI champions and supports the cause of digital tools and computer-aided methodologies (aka software) in the research process - Better Software, Better Research.

We are working to improve the understanding, on behalf of the ESRC, of the digital tools used by those funded by the ESRC to establish what digital tools form part of essential infrastructure to those that are undertaking research in the domains that come under the ESRC remit.

This survey focuses on the ESRC Research Community and hence has a UK focus; participants should be connected with a UK based institution. We will share our findings with ESRC to help them direct their funding of digital infrastructures to better support their communities needs. Note, we will not share any Personally Identifiable Information (PII) with the ESRC, as defined by the General Data Protection Regulation (GDPR) including any names or emails supplied for entry into the prize draw or for follow-up work.

The survey asks about your views on digital tools/software/data, your experience of developing digital tools/software, and your practices and preferences for recruiting help with digital tool/software development.

We are seeking input from all roles, including senior decision-makers, researchers and software developers in the ESRC remit. We are actively seeking views from people who are involved in software development and those who do not develop digital tools/software alike.

We estimate that the questionnaire will take 15 minutes to complete.

Your email address is needed at the end only if you agree for us to contact you for a follow-up conversation (in which case your name would also be useful so we know how to address you, otherwise you do not need to fill in this box at the end) or if you would like to enter the prize draw (for a chance to win one of five £30 shopping vouchers) so that we can let you know that you have won.

If you have any further questions about the study, please contact the lead researcher, Mr. Neil Chue Hong, [n.chuehong@epcc.ed.ac.uk](mailto:n.chuehong@epcc.ed.ac.uk).

This study was certified according to the EPCC Research Ethics Process. If you wish to make a complaint about the study, please contact the Chair of the University of Edinburgh's College of Science and Engineering Research Ethics & Integrity Committee, Prof. Andy Mount, [a.mount@ed.ac.uk](mailto:a.mount@ed.ac.uk), or fill out the Research Misconduct Informal Reporting Form (link: <https://www.ed.ac.uk/science-engineering/research/research-ethics/research-misconduct>).

The University of Edinburgh is a Data Controller for the information you provide. You have the right to access information held about you. Your right of access can be exercised in accordance with Data Protection Law. You also have other rights including rights of correction, erasure and objection. For more details, including the right to lodge a complaint with the Information Commissioner's Office, please visit [www.ico.org.uk](http://www.ico.org.uk). Questions, comments and requests about your personal data can also be sent to the University Data Protection Officer at [dpo@ed.ac.uk](mailto:dpo@ed.ac.uk).

For general information about how we use your data, go to: [edin.ac/privacy-research](http://edin.ac/privacy-research).

We would like to thank our reviewers who contributed towards improving this survey: **Andrew Stewart, Nick Bearman, Caitlin Bentley, Chris Jochem, and Nathan Khadaroo.**

Thank you for your help!

## What we mean by software

By “software”, we mean any software or digital tool that you have used in the course of your research that has helped you undertake your research or produce a research output (e.g. a publication). This might be anything from a short script, such as one written in the Python or R computer languages, to help you clean your data, web/mobile apps, to a fully-fledged software suite or specialised toolset, whether you access this online or run it on your own computer. It includes code that you have written yourself and code written by someone else, either

specifically for your project or a general tool for data, text or statistical analysis. It also includes the use and/or construction of spreadsheets that perform calculations or transformation automatically according to a set of pre-programmed rules, which are considered to be software.

## Your consent

To participate in this survey, you need to consent to the following:

1. I have read and understood the participant information above and have had the opportunity to ask questions about the study (by emailing the PI Neil Chue Hong ([N.ChueHong@software.ac.uk](mailto:N.ChueHong@software.ac.uk)) or the researcher Mario Antonioletti ([m.antonioletti@software.ac.uk](mailto:m.antonioletti@software.ac.uk))).
2. I agree to take part in this research project and agree for my data to be used for the purpose of this study (including my anonymised data being used in academic publications and presentations).
3. I agree that my anonymised data can be made available in an appropriate repository for the purpose of future research on the use of software by the ESRC research community.
4. I understand my participation is voluntary and I may withdraw at any time for any reason without my participation rights being affected.

At the end of the survey, you will be given an opportunity to download a pdf copy of your responses. You will also be provided with a **receipt number** and a **submission time** - please take a note of both of these. If at some future point you would like your data to be removed from the survey responses please email these identifiers to the PI and/or the researcher as shown below asking for your data to be removed from the survey and we will comply.

1. I have read and understood the information above and have had the opportunity to ask questions about the study (by emailing the PI Neil Chue Hong ([N.ChueHong@software.ac.uk](mailto:N.ChueHong@software.ac.uk)) or the researcher Mario Antonioletti ([m.antonioletti@software.ac.uk](mailto:m.antonioletti@software.ac.uk))). **Note that by clicking yes you agree to all of the above.** \* Required

☐ Yes

☐ No

## Page 2: Data collection and re-use

First, we would like to know what data you collect or re-use. This will help inform our understanding of what kind of software might be required to collect, manipulate or analyse the data.

2. Do you create or re-use data to undertake your research (Please check all that apply)

- ☐ Create new data (including primary data collection and data generation)
- ☐ Re-use existing data

2.a. What are your most important data source(s)?

2.b. If you re-use existing data, where do you find these? (Please check all that apply)

- ☐ UK Data Service
- ☐ University / Institutional Repository
- ☐ General data repository (e.g. Dryad, Figshare, Open Science Framework, Zenodo)
- ☐ Shared by collaborators using a shared drive / folder (e.g. DropBox, Google Drive, ...)
- ☐ Personal recommendation, eg from discussion with other researchers
- ☐ Other

2.b.i. If you selected Other, please specify:

2.c. If you create, collect or generate your own data, could you briefly describe how this is done?

3. How do you share your data? (Check all that apply.)

- ☐ I have not yet shared my data
- ☐ I have licensed my data to allow it to be shared
- ☐ I have shared my data with individuals/groups that have requested access
- ☐ I created a DOI (or other unique identifier) to make my data findable
- ☐ I have promoted my data as an accessible resource in my publications
- ☐ I have deposited my data in a repository
- ☐ Other

3.a. If you selected Other, please specify:

## Page 3: Software Practices and Training

This section determines what your software requirements are, what type of software you use, whether you write any software for your research and what your training requirements are.

By “software”, we mean any software or digital tool that you have used in the course of your research that has helped you undertake your research or produce a research output (e.g. a publication). This might be anything from a short script, such as one written in the Python or R computer languages, to help you clean your data, web/mobile apps, to a fully-fledged software suite or specialised toolset, whether you access this online or run it on your own computer. It includes code that you have written yourself and code written by someone else, either specifically for your project or a general tool for data, text or statistical analysis. It also includes the use and/or construction of spreadsheets that perform calculations or transformation automatically according to a set of pre-programmed rules, which are considered to be software.

### 4. What software do you use in your research? (Check all that apply.) *Optional*

- ☐ Animation and Storyboarding, e.g. Scratch, Storyteller
- ☐ AudioTools, e.g. Music Algorithms, Paperphone
- ☐ Authoring and publishing tools, e.g. Twine, Oppia
- ☐ Code versioning, e.g. GitHub
- ☐ Content Management Systems (CMS), e.g. WordPress, Mura
- ☐ CrowdSourcing, e.g. AllOurIdeas
- ☐ Exhibition/Collection Tools, e.g. Omeka, Neatline
- ☐ Internet Research Tools, e.g. Google tools or Wikipedia tools
- ☐ Machine Learning and Artificial Intelligence, e.g. leximancer
- ☐ Mapping Tools and Platforms, Geographic Information Systems, e.g. QGIS, CartoDB, ArcGIS
- ☐ MindMapping Tools, e.g. DebateGraph
- ☐ Network Analysis, e.g. GEPHI
- ☐ Programming Languages, e.g. Python, MATLAB
- ☐ Qualitative analyses, e.g. NVivo
- ☐ Simulation Tools, e.g. NetLogo

- ☐ Spreadsheets, e.g. Excel, Google Sheets
- ☐ Statistical analysis, e.g. R, SPSS, Stata, SAS
- ☐ Text Analysis Tools, e.g. Voyant, Linguistic Corporuses, Entity Recognizers
- ☐ Text Collation Tools, e.g. Juxta Commons
- ☐ Text Encoding, e.g. Oxygen XML
- ☐ Text and Data Wrangling, e.g. Overview, OpenRefine
- ☐ Topic Modelling, e.g. Leximancer
- ☐ Transcription services, e.g. otter.ai
- ☐ Video and Film Analysis, e.g. Cinemetrics
- ☐ Visualisation Tools, e.g. D3.js, Tableau
- ☐ Other

4.a. If you selected Other, please specify:

5. What software(s) is/are most important to your work?

6. Do you use open source software?

- ☐ Yes
- ☐ No



6.a. If you answered yes to the previous question, what are your main reasons for using open source software? (Please check all that apply)

- ☐ Institutional/Funder policy
- ☐ Quality of support
- ☐ Open standards/interoperability
- ☐ Cost
- ☐ Sustainability
- ☐ Licensing
- ☐ Meets user needs/usability
- ☐ Staff previous experience, no need for training

6.b. If you answered no to the previous question, what are your main reasons for not using open source software? (Please check all that apply)

- ☐ Institutional/Funder Policy
- ☐ Speed of access to support
- ☐ Lack of performance
- ☐ Legal reasons
- ☐ Continuity
- ☐ Does not meet user needs/useability
- ☐ Lack of expertise/requirement for training
- ☐ Requirement from collaborators

7. How is the software you use currently being supported and maintained? (Check all that apply)

- ☐ Provided by my institution
- ☐ Commercial or paid for external support
- ☐ Open source community initiative
- ☐ By a software specialist / research software engineer in my institution

- ☐ By me or my team
- ☐ No longer supported/maintained
- ☐ Other

7.a. If you selected Other, please specify:

8. Do you use different pieces of software in combination to achieve a specific goal or purpose? For instance, you could use audio software to record interviews, transcription software to transcribe the interviews, and qualitative coding software to bring documents, transcripts and photographs together for further analysis. **If yes, please specify.**

9. Do you develop or extend software yourself? (As described above, software includes scripts, applications, tools, codes and formulae in spreadsheets)

- ☐ Yes
- ☐ No

9.a. If you answered yes to the above, could you briefly describe what software(s) you write or extend?

**10.** If you write or extend software (including scripts, applications, tools, codes and formulae in spreadsheets), do you (check all that apply):

- ☐ Only make available for your own use
- ☐ Only share within your research group
- ☐ Only share with your collaborators (including at other institutions)
- ☐ Share with others on request
- ☐ Make widely available for use in your field / community
- ☐ Other

**10.a.** If you selected Other, please specify:

**11.** How did you acquire the skills necessary to utilise software in your research?  
(Please check all that apply.)

- ☐ I am still trying to acquire the skills
- ☐ Self-led online material
- ☐ From examples and posts found online
- ☐ Free community-led online workshops (e.g. Riot Science Club, ReproducibiliTea)
- ☐ Conference workshops and tutorials

- ☐ Peers and colleagues
- ☐ Undergraduate/masters course
- ☐ Postgraduate training as part of my PhD/CDT/DTC
- ☐ Institutional training course
- ☐ National Centre for Research Methods (NCRM) training
- ☐ Third-party training course (not NCRM)
- ☐ Other

11.a. If you selected Other, please specify:

11.b. If you have participated in National Centre for Research Methods training at any point please indicate which training course(s) you have taken here: (Check all that apply)

- ☐ Data in the spotlight: International time series databanks
- ☐ (Non-)Probability Survey Samples in Scientific Practice
- ☐ Classification Models with Python
- ☐ Principles and Practices of Quantitative Data Analysis
- ☐ Scoping Reviews Short Course
- ☐ UK Census Longitudinal Studies (UKcenLS) Webinar
- ☐ Advanced Programming in R
- ☐ Introduction to QGIS: Spatial Data
- ☐ Spatial Analysis, Introduction to Spatial Data & Using R as a GIS
- ☐ Structural Equation Modelling using Mplus
- ☐ Testing for Mediation and Moderation using Mplus
- ☐ Testing for Mediation and Moderation using SPSS (PROCESS macro)
- ☐ Video Production for Anthropology and Social Research
- ☐ Item Response Theory and Computer Adaptive Testing
- ☐ Multilevel Modelling using Mplus

- ☐ Multilevel Modelling using SPSS
- ☐ Analysing interview and focus group data with NVivo
- ☐ Latent Growth Curve Modelling using Mplus
- ☐ Applied Data Science with R
- ☐ Introduction to Sequence Analysis for Social Sciences
- ☐ Video Editing
- ☐ Other

**11.b.i.** If you selected Other, please specify:

## Page 4: Support for and Barriers to the Use of Software

The questions in this section are aimed at understanding general awareness of relevant policies and barriers relating to software in the economic and social sciences.

By “software”, we mean any software or digital tool that you have used in the course of your research that has helped you undertake your research or produce a research output (e.g. a publication). This might be anything from a short script, such as one written in the Python or R computer languages, to help you clean your data, web/mobile apps, to a fully-fledged software suite or specialised toolset, whether you access this online or run it on your own computer. It includes code that you have written yourself and code written by someone else, either specifically for your project or a general tool for data, text or statistical analysis. It also includes the use and/or construction of spreadsheets that perform calculations or transformation automatically according to a set of pre-programmed rules, which are considered to be software.

**12.** Do you feel in your field that the development and maintenance of research software are sufficiently recognised or rewarded?

- ☐ Yes
- ☐ No
- ☐ Don't know

**12.a.** If you answered yes or no can you briefly state your reasons for answering this way

**13.** When answering this question, think about the most important piece of software

you use for research that you couldn't live without. To what level do you agree/disagree with the following statements?

Please don't select more than 1 answer(s) per row.

	Strongly agree	Agree	Undecided	Disagree	Strongly Disagree
I am aware of how the software I use is funded, managed and licensed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My institution or funder's policies on how software is funded, managed and licensed are clear to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There is insufficient attention paid to software funding, management and licensing by the economic and social sciences research community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There is insufficient incentive for me to learn how my software is funded, managed and licensed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**14.** Where do you normally run your digital tools/software? Please check all that apply. The UK [Tier 1](#) provides a national supercomputing service, e.g. ARCHER2, and [Tier 2](#) systems provide computational services somewhere between institutional and the national Tier 1 service.

- ☐ My own laptop/desktop
- ☐ Institutionally provided laptop/desktop
- ☐ Server operated by research group / department
- ☐ An institutional central service
- ☐ Run by an individual data centre or at a data safe haven
- ☐ A UK Tier 2 high performance computing service
- ☐ A UK Tier 1 high performance computing service
- ☐ The Cloud, e.g. Microsoft Azure or Amazon Web Services
- ☐ Other

14.a. If you selected Other, please specify:

15. A licensing policy provides instruction or guidance on what software licenses are preferred for the release of software.

A publishing policy provides instruction or guidance on how software should be made available to others.

Which relevant software policies are you aware of (please check all you are aware of)?

	Licensing	Publishing
My Institution's	<input type="checkbox"/>	<input type="checkbox"/>
My funder's	<input type="checkbox"/>	<input type="checkbox"/>
My Project's	<input type="checkbox"/>	<input type="checkbox"/>

15.a. Any other policies that are of relevance?



16. What barriers have you experienced to the use of software in your research?  
(Check all that apply.)

- ☐ Lack of expertise within your team
- ☐ Unsure how to best engage with research technical specialists such as software engineers, digital archivists, etc.
- ☐ Training is not available
- ☐ Training is available but you have no capacity to engage
- ☐ Infrastructure is not available (Infrastructure could include: digital archives; computers with access to specialist software; data sets not digitised; etc)
- ☐ No disciplinary tradition for digital methodology and tools
- ☐ Concern that less value is attached to digital publications and other outputs of research, etc.
- ☐ Format of data and assets you work with make them less amenable to technology
- ☐ Lack of funding to support research projects/components of projects focusing on digital data and digital assets
- ☐ Previous bad experience
- ☐ I have not found software that is fit for my purpose
- ☐ Lack of time to learn how to best use research software
- ☐ Other

16.a. If you selected Other, please specify:

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## Page 5: About you

Please tell us a little about yourself. We ask this for two reasons:

1. To ensure we accurately reflect the makeup of the ESRC community in the respondents to this questionnaire.
2. To gain insight into how software use differs across different groups of the community and how barriers to its use vary. These questions include those about your institution, career stage, discipline, gender, ethnicity, and any disabilities you may feel are relevant.

**17. Institutional Affiliation** (if applicable): This could be the organisation/company that directly pays your salary or one or more you are affiliated with in some other way.

**18.** Who has funded your research within the last 5 years?

**19. Research Discipline:** Level one codes from the Primary Research Areas covered by ESRC discipline funding remit. Use the 'Other' option if your discipline is not listed. (Please check all that apply.)

- ☐ Area Studies
- ☐ Data science and artificial intelligence
- ☐ Demography

- ☐ Development studies
- ☐ Economics
- ☐ Education
- ☐ Environmental planning
- ☐ History
- ☐ Human Geography
- ☐ Information science
- ☐ Law & legal studies
- ☐ Linguistics
- ☐ Management & business studies
- ☐ Political science. & international studies
- ☐ Psychology
- ☐ Science and Technology Studies
- ☐ Social anthropology
- ☐ Social policy
- ☐ Social work
- ☐ Sociology
- ☐ Tools, technologies & methods
- ☐ Other

19.a. If you selected Other, please specify:

20. **Career stage:** Please select the career stage that most accurately describes your role.

- ☐ Phase 1 - Junior (e.g. PhD candidate, Junior Research Software Engineer)

- ☐ Phase 2 - Early (e.g Research Assistant/Associate, first grant holder, Lecturer, Research Software Engineer)
- ☐ Phase 3 - Mid / Recognised (e.g. Senior Lecturer, Reader, Senior Researcher, Senior Research Software Engineer, Research Software Group Leader)
- ☐ Phase 4 - Established / Experienced / Senior (e.g. Professor, Director of Research Computing, Distinguished Engineer, Chief Data Scientist)
- ☐ Other

**20.a.** If you selected Other, please specify:

**21. Gender** (we are asking this to ensure that we get a balance of the community). If you prefer to self-describe, please write in the "Other" option. We apologise in advance for "othering" you. Unfortunately, this is the only write-in option available for multiple-choice questions on this platform.

- ☐ Woman
- ☐ Man
- ☐ Non-binary person
- ☐ Prefer not to disclose
- ☐ Other

**21.a.** If you selected Other, please specify:

**22. Ethnic group:** We ask this to ensure that we get a balance of the ESRC

community) Answer choices are those used in the UK Census 2021 ([question 15](#)). We recognise that these ethnic groups do not represent how all people identify or that you may identify with multiple. People are encouraged to write in their ethnicity using their own words in the "Other" option if they do not identify with any groups in the list. We apologise in advance for "othering" you. Unfortunately, this is the only write-in option available for multiple-choice questions in this platform. You can find a list of contemporary ethnic groups on [Wikipedia](#).

- ☐ White: English, Welsh, Scottish, Northern Irish or British
- ☐ White: Irish
- ☐ White: Gypsy or Irish Traveller
- ☐ White: Roma
- ☐ White: Any other White background
- ☐ Mixed or Multiple ethnic groups: White and Black Caribbean
- ☐ Mixed or Multiple ethnic groups: White and Black African
- ☐ Mixed or Multiple ethnic groups: White and Asian
- ☐ Mixed or Multiple ethnic groups: Any other Mixed or Multiple background
- ☐ Asian or Asian British: Indian
- ☐ Asian or Asian British: Pakistani
- ☐ Asian or Asian British: Bangladeshi
- ☐ Asian or Asian British: Chinese
- ☐ Asian or Asian British: Any other Asian background
- ☐ Black, Black British, Caribbean or African: Caribbean
- ☐ Black, Black British, Caribbean or African: African background
- ☐ Black, Black British, Caribbean or African: Any other Black, Black British, Caribbean or African background
- ☐ Other ethnic group: Arab
- ☐ Prefer not to disclose
- ☐ Other

**22.a.** If you selected Other, please specify:

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23. Do you consider yourself to have a disability:

- ☐ Yes
- ☐ No

## Follow-up and prize draw

Thank you for filling out our questionnaire.

24. If you'd like to be entered to win one of five £30 shopping vouchers, please indicate yes below.

- ☐ Yes
- ☐ No

25. Can we contact you for a follow-up conversation? For example, we are interested in running focus groups around data and software loss in ESRC based research areas and may contact you to take part. There's a £50 voucher, if you're selected to participate.

- ☐ Yes
- ☐ No

If you answered yes to either of the above two questions please supply your name and email address. Your name and email will only be used to inform you if you have won a prize or, if you have allowed us to contact you again, we will be in touch in the near future. In either case, the questionnaire will remain anonymous and your name or email will not be passed on to the ESRC or attributed to any comments or choices that you make.

26. Your name (if you agreed for a follow-up or if you want to be entered for the prize draw):

27. Your email (if you agreed for a follow-up or if you want to be entered for the prize draw):

28. Do you have any other comments about this survey?



## Page 6: Thank you

Thank you for participating in this survey. If you agreed that we could get in touch for further participation we will soon be in touch. If you only want to be entered for the prize draw then we shall only contact you if you have won one of the prizes otherwise you will not hear from us again. We would be very grateful if you could forward this survey to any colleagues or associates you feel may like to participate

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