Welcome to the IT Needs of Active Research Survey

You are being invited to take part in this biennial survey which seeks to understand the IT you need to support your research and how that is changing over time. The previous survey was commissioned by the Pro-Vice Chancellor for Research (PVC-R), Professor Heather Widdows, and the 2024 survey is endorsed by the new PVC-R, Professor Rachel O'Reilly.

We are interested to know where developments in your discipline require new tech solutions, as well as where there are gaps in the current IT service you receive. This may require new service innovation or enhancements to current services. Whilst we cannot promise to deliver all that is asked for, your views will help shape the strategy for IT provision for researchers over the coming years and support the goals of 'Birmingham 2030'. See below for a summary of some of the changes that resulted from people filling in the 2022 survey.

The survey is split into 4 parts. You do not have to answer all parts or all questions but please provide us with responses in the areas that are important to you. The only questions where answers are required are those which ask which College and School/Institute you are in and whether you are staff or research student.

Page 2 - About You.

Pages 3-5 - Seeks to understand how well we are doing with the services we currently provide centrally.

Page 6 - Looks more closely at needs which may be specific to you, your research group and your College.

Page 7 - Seeks your opinion on new or transformed services which could be of benefit to a broad spectrum of researchers and should be considered for central, University wide provision.

We estimate that the survey will take approximately 15 minutes to complete but this will obviously vary depending on how much information you provide.

Do I need to take part?

No - it is entirely up to you but by participating you are providing essential information to help us improve and shape services to better meet needs. Below are areas we have worked on in response to our 2022 survey, more details can be found in our blog post here:

- **We have increased the availability of Research Software Engineering support** - In the 2022-23 financial year, Birmingham Environment for Academic Research (BEAR) Research Software Engineers (RSEs) were bought out for funded work totalling £301k, and in 2023-24 we are projecting £450k.

- **We have launched a [Research Data Science Service](#)**, in partnership with the Institute for Interdisciplinary Data Science and AI and the Centre for Artificial Intelligence in Government.
- **We are expanding the range of training workshops we provide in 2024**, with more advanced content covering key topics such as 'Advanced BlueBEAR', 'Image Processing with Python' and 'Intermediate Research Software Development Skills'.
- **We have bought more GPUs for BlueBEAR**, and researchers can now access 52 GPUs of an equivalent spec to that found on our national (Tier 2) supercomputer, Baskerville.
- **We have added thousands of new CPU cores to BlueBEAR**, with a peak use of 18,000 cores being reached for the first time in November 2023.
- **We have raised the limits for individual users for CPUs and GPUs**.
- **We have increased our outreach around BEAR services**, with seminars and events related to topics raised in the survey, having discussions with over 1,100 researchers at events during 2023.
- **We collaborated with End User Services to enable increased file sharing via Microsoft 365**, previously available in BEAR DataShare. 'Anyone links' were enabled in mid-2023.
- **We raised issues over responsiveness to tickets and support** – IT Services is working to fill vacant posts and create additional posts supporting Linux and specialist areas.
- **IT Services are commencing a project to implement a managed admin rights solution**, with an aim to start implementation by mid-2024.
- **IT Services now provide [Apps Anywhere](#) to give widespread access to standard software packages**.

You can find out lots more information about our innovative activity since 2022 via the [Research Software Group Annual Report](#).

Are there any risks or disadvantages associated with taking part?

Contact details will only be used for follow-up after the survey if you allow it. Survey data will be stripped of names for reporting and no statistical reporting of small numbers will take place. Access to any identifiable data will be restricted to the survey team, which consists of the Advanced Research Computing leadership group in IT Services. The research data (questionnaire responses) will be downloaded from the Jisc Online Survey tool, pseudo- anonymised and stored on the University of Birmingham's secure Research Data Store. Due to the method of data collection, following submission of the questionnaire it will not be possible to withdraw your data from the study unless you give a contact email address, as we will not be able to identify your responses.

Who can I contact?

If you have any questions about the study prior to participating, then please contact Stephanie Thompson (s.e.m.thompson@bham.ac.uk) or email the BEAR team (bearinfo@contacts.bham.ac.uk).

Closing Date: XX (11:59pm).

Whilst we would appreciate knowing your name and research area, you can choose to remain anonymous if you prefer.

1. Your Name

2. Your Research Area

3. Your College *

- ◯ College of Arts and Law
- ◯ College of Engineering and Physical Sciences
- ◯ College of Life and Environmental Sciences
- ◯ College of Medical and Dental Sciences
- ◯ College of Social Sciences
- ◯ Other

4. If you selected Other, please specify:

5. Your School/Institute/Department *

6. Your email address

7. Can we contact you in the future to understand your IT requirements in more detail?

Yes

No

8. Are you a member of staff or a research student? *
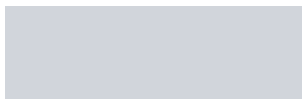
Staff including Honorary appointees

Research Student

Contingent Worker/Associate Staff

9. How do you prefer Advanced Research Computing/BEAR to communicate with you? Please tick all that would be useful:

- [ ] Email
- [ ] Newsletter or blog
- [ ] Seminar in your School or College
- [ ] In-person drop-in sessions
- [ ] Drop-in sessions via Zoom
- [ ] University Briefing emails
- [ ] Buzz Bitesize
- [ ] Canvas course announcements
- [ ] Twitter
- [ ] Slack - UoB Research Computing Community
- [ ] Other

10. If you selected Other, please specify:

In this section, we seek your opinion on how well central services, including BEAR (Birmingham Environment for Academic Research) meet your current needs. Feedback on local support from IT Services is sought in Page 6 of the survey. The BEAR services are provided to support all researchers at the University but particularly those with data or computationally intensive research. An outline of the services available and links to further information can be found at https://www.birmingham.ac.uk/research/arc/bear/services.aspx and an 8 minute video describing the services in detail is available here: https://youtu.be/rHIsHpSrmLs

11. Do you use BEAR services for your research? Please tick any that apply:

- [ ] BEAR Research Data Store (RDS) for working research data
- [ ] BlueBEAR, our Linux-based High Performance Computing (HPC) cluster
- [ ] BEAR Cloud VMs (Virtual Machines)
- [ ] BEAR Data Transfer using Globus to transfer large amounts of research data
- [ ] BEAR Software Group for advice, coaching and coding from Research Software Engineers (RSE's)
- [ ] BEAR GitLab for software version control
- [ ] Exclusive BEAR for research groups with demanding or time-sensitive workloads to purchase centrally managed, dedicated compute
- [ ] BEAR Plus - access to additional compute resources via Tier 2 regional centres such as Baskerville (UoB) and Sulis (Warwick)
- [ ] BEAR Research Data Network - enabling fast transmission of data from high-data producing scientific equipment on campus
- [ ] BEAR Training including workshops to enable use of BlueBEAR and Software Carpentries
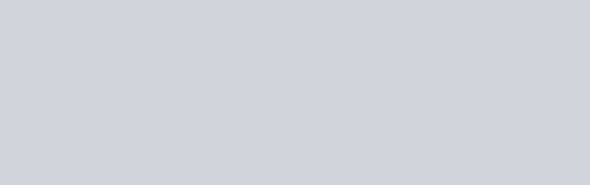- [ ] I do not use BEAR Services

12. How satisfied are you with the overall level of support for BEAR services that you receive from the Advanced Research Computing (BEAR) Team?

	1	2	3	4	5
1 = Not at all; 5 = Very	◯	◯	◯	◯	◯

13. Are you aware of the following Committees that steer Advanced Research Computing operations, with Academic representatives from Colleges?

- [ ] Digital Research Committee (DRC), chaired by PVC Professor Rachel O'Reilly
- [ ] Research Computing Management Committee (RCMC), chaired by Professor Andrew Morris
- [ ] BEAR User Group, chaired by Dr Dietmar Heinke

14. Are there any areas where BEAR Services do not meet your needs?

15. Do you use regional, national or international computing facilities for your research? Please indicate all that apply:

- [ ] Baskerville - Tier 2 (national) GPU Accelerated HPC Cluster hosted at UoB
- [ ] HPC-Midlands-Plus - Sulis
- [ ] ARCHER2
- [ ] PRACE
- [ ] Other (including industrial partnerships)
- [ ] Commercial Cloud HPC
- [ ] I do not use national or external resources

16. Have you/would you consider purchasing dedicated resources within the BEAR infrastructure? Compute power or storage can be funded through research grants or other income and Advanced Research Computing manages them on your behalf.

Yes

No

17. If you are considering purchasing dedicated resources within the BEAR infrastructure, you may need more information. See our webpage on Exclusive BEAR (below) or ask any questions here.

Webpage on Exclusive BEAR here:
https://www.birmingham.ac.uk/research/arc/bear/bluebear/purchase-dedicated-resource.aspx

18. Are you aware of the BEAR portal which provides web-based access to a range of BlueBEAR services, such as JupyterLab, RStudio, and GUI applications? It also provides access for submitting BlueBEAR compute jobs.
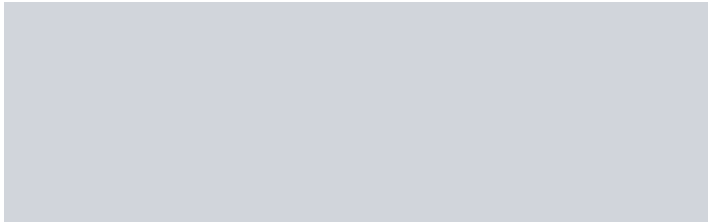
Yes

No

See https://docs.bear.bham.ac.uk/portal/accessing/ for details on the BEAR portal.

Thinking more widely about application software provided centrally for your desktop, as well as that available within the BEAR computing environment (BlueBEAR and BEAR Cloud), are there any applications missing that would make a real difference to your research work?
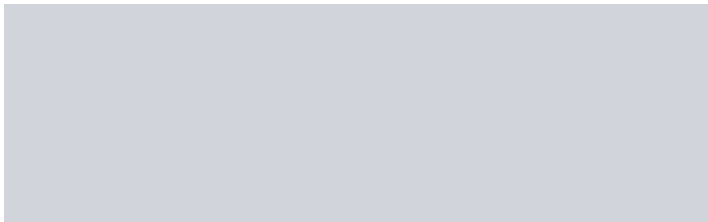
A list of currently available applications available to download for desktop use is available through the Software Centre: https://mysoftware.bham.ac.uk

A list of currently available applications on BEAR is available here: https://bear-apps.bham.ac.uk/

19. Which additional applications would you like to see made available to download to your desktop?

20. Which additional applications would you like to see made available on the BEAR computing environment?

Training

21. Are you aware of the following training provided by IT Services to support use of BEAR services and computational aspects of research?

- ☐ Workshops to help use BlueBEAR e.g. Introduction to Linux & Introduction to BlueBEAR
- ☐ Software Carpentries including R, Python, Git & MATLAB
- ☐ Data Carpentry - Image Processing with Python
- ☐ NVIDIA courses e.g. Deep Learning, CUDA/C++
- ☐ Canvas courses e.g. Introduction to Linux, Introduction to BlueBEAR
- ☐ Not aware of any BEAR training courses

BEAR training webpage: https://www.birmingham.ac.uk/bear-training

22. If you have attended a BEAR training workshop, how satisfied were you with the training provided?

	1	2	3	4	5
1 = Not at all; 5 = Very	○	○	○	○	○

23. How do you prefer to attend a BEAR workshop?

○ In-person workshop
○ Online live (synchronous) workshop
○ No preference

24. Please indicate any additional training courses that would be of benefit

☐ Data management for your area (the Library provide general Data Management training)
☐ Advanced R (course to be developed)
☐ Programming Historian lessons
☐ Introduction to Web Scraping
☐ Python Testing and Continuous Integration
☐ Data Carpentry workshops - domain specific training covering the full lifecycle of data-driven research
☐ NVIDIA Fundamentals of Accelerated Computing with CUDA Python
☐ NVIDIA Fundamentals of Accelerated Data Science
☐ NVIDIA Large Language Models (LLM) workshops
☐ Other

Information on Programming Historian;
https://programminghistorian.org/en/lessons/, Data Carpentries:
https://datacarpentry.org/lessons/, NVIDIA workshops: https://nvdam.widen.net/s/wlbgbqr7cj/nvidia-learning-training-course-catalog

25. If you selected Other, please specify:

26. If you selected 'Data Carpentries' please select which would be of use to you/your area:

- [ ] Ecology
- [ ] Genomics
- [ ] Social Sciences
- [ ] Geospatial Data
- [ ] Astronomy

27. Would you be interested in being trained to become a certified Carpentries Instructor?

Yes

No

Information on becoming a Carpentries Instructor: https://carpentries.org/become-instructor/

28. If you answered yes and would like us to contact you about this, please give your email address here:

Coding Needs and Support

29. How important is programming to your research? By programming here we mean writing your own/your group's computer software, or scripting/developing plugins to run within existing applications.

	1	2	3	4	5
1 = Not at all; 5 = Very	○	○	○	○	○

30. If you/your group write code, how would you rate the quality of that code? Does it produce robust, reproducible, findable and shareable methods, results and research?

	1	2	3	4	5
1 = Low quality; 5 = High quality	○	○	○	○	○

31. How importantly would you rate the availability of free programming support - an expert working with your group for a few days over the course of a year?

	1	2	3	4	5
1 = Not at all; 5 = Very	○	○	○	○	○

Information on free RSE engagements:
https://www.birmingham.ac.uk/research/arc/rsg/rse-service/free-engagements.aspx

32. How importantly would you rate the availability of free data science support - an expert working with your group for a few days over the course of a year?

	1	2	3	4	5
1 = Not at all; 5 = Very	○	○	○	○	○

Information on our Research Data Science service in collaboration with The Institute for Interdisciplinary Data Science and AI:
https://www.birmingham.ac.uk/research/arc/rsg/rdsci-service/index.aspx

33. Would you be interested in funding a Research Software Engineer (RSE) for either a short project (few weeks) or long project (e.g. 50% FTE for 2 years) to work directly with your group from our pool of RSEs?

Yes
No
I already fund an RSE within Advanced Research Computing

Information on funded RSE engagements:
https://www.birmingham.ac.uk/research/arc/rsg/rse- service/funded-engagements.aspx

34. Would you be interested in funding a Research Data Scientist for either a short project (few weeks) or long project (e.g. 50% FTE for 2 years) to work directly with your group from our pool of Research Data Scientists?

Yes
No
I already fund a Research Data Scientist within Advanced Research Computing

Information on funded data science engagements:
https://www.birmingham.ac.uk/research/arc/rsg/rdsci-service/grant-funded-work.aspx

35. Are you aware of the requirements for research data management and sharing mandated by the University and research funders?

Yes

No

For background information and support see https://intranet.birmingham.ac.uk/as/libraryservices/library/research/rdm/index.aspx

36. Do you have Data Management Plans (DMPs) in place for your research projects?

○ All funded projects
○ Some of my funded projects
○ All projects whether funded or not
○ None of my projects

37. Are you aware of the centrally provided data storage for working research data - the BEAR Research Data Store (RDS)?

Yes

No

38. How well does the BEAR Research Data Store (RDS) meet the needs of your active research data?

	1	2	3	4	5
1 = Not at all; 5 = Very	○	○	○	○	○

39. Are you aware of the centrally provided UBIRA eData repository (https://edata.bham.ac.uk/) for making your data openly available?

Yes

No
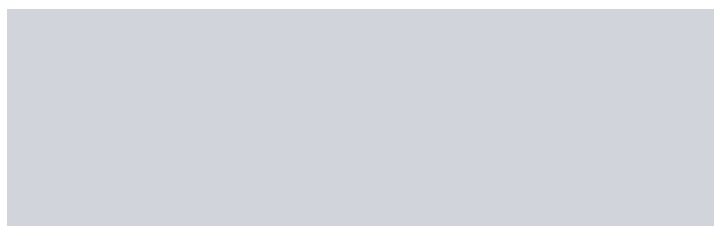
40. How well does the UBIRA eData repository meet your open data needs?

	1	2	3	4	5
1 = Not at all; 5 = Very	○	○	○	○	○

41. Where do you store your research data? Please tick all that apply:

- ☐ On my own/research group storage
- ☐ On Department/School or College storage
- ☐ On the BEAR Research Data Store
- ☐ On Microsoft 365 storage - OneDrive/Teams
- ☐ On the BEAR Archive - a deep archive for data not associated with publications
- ☐ On subject-specific repositories
- ☐ In the UBIRA eData repository
- ☐ On Google Drive
- ☐ I don't have enough space - I have to delete data
- ☐ Other

42. If you selected Other, please specify:

43. Typically how much working research data would you generate during the lifetime of one research project?

- ◯ Less than 0.5TB (500GB)
- ◯ Between 0.5TB to 1TB
- ◯ Between 1 and 5TB
- ◯ Between 5TB and 10TB
- ◯ Between 10 and 100TB
- ◯ More than 100TB
- ◯ I do not know

44. Typically how many concurrent projects are you involved with?

- ◯ 0-2
- ◯ 3-5
- ◯ 6-10
- ◯ 11-20
- ◯ More than 20
- ◯ I do not know

45. How much data will you produce that needs to be retained and made openly available by the University upon publication of research results via UBIRA eData?

○ Less than 0.5TB (500GB)

○ Between 0.5TB to 1TB

○ Between 1 and 5TB

○ Between 5TB and 10TB

○ Between 10 and 100TB

○ More than 100TB

○ I do not know

46. Do you routinely consider and include the costs of your data storage when preparing and submitting funding bids?

Yes

No

47. If no, tell us why you do not include data storage costs:

☐ I have my own and adequate storage

☐ I only need the default 3TB provided by the BEAR Research Data Store

☐ Data will be stored in a subject specific repository upon completion

☐ I had not considered the costs of storage

☐ Other

48. If you selected Other, please specify:

49. Tell us about any technology, tools or IT support that you need to meet the Open Data requirements for your research projects:

50. Does your research require Cyber Essentials?

Yes

No

See https://kb.bham.ac.uk/KB15879 for details on Cyber Essentials.

51. Does your research involve sensitive data such as raw audio/video files of interview data or identifiable quantitative data?

Yes

No

See https://www.birmingham.ac.uk/research/arc/bear/rds/sensitive-data.aspx for details.

52. Are you aware of the Research Data Matrix for guidance on where to store different types of data governed by the GDPR?

Yes

No

See https://kb.bham.ac.uk/KB15064 for details.

Collaboration tools

53. When you are working collaboratively with your Birmingham colleagues, what IT tools do you use? Please tick all that apply:

- [ ] Microsoft 365 (Teams/OneDrive/SharePoint)
- [ ] DropBox
- [ ] BEAR Data Transfer using Globus
- [ ] BEAR GitLab
- [ ] GitHub
- [ ] Electronic Lab Notebooks
- [ ] Google Drive/Google Docs
- [ ] Other

54. If you selected Other, please specify:
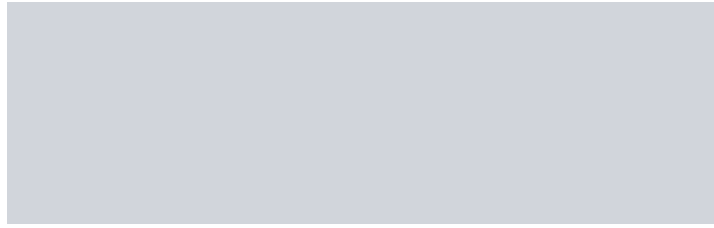
55. When you collaborate with colleagues nationally/internationally, what IT tools do you use? Please tick all that apply:

- ☐ Microsoft 365 (Teams/OneDrive/Sharepoint)
- ☐ BEAR Data Transfer using Globus
- ☐ BEAR GitLab
- ☐ GitHub
- ☐ Electronic Lab Notebooks
- ☐ Google Drive/Google Docs
- ☐ Other

56. If you selected Other, please specify:
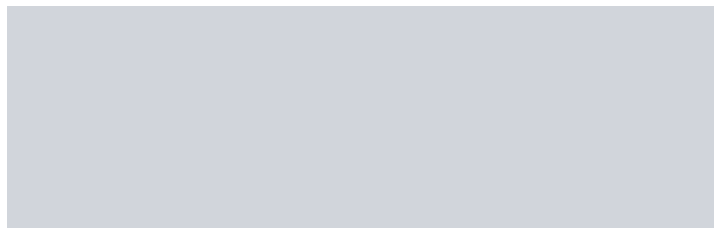
The previous section of the survey focused on feedback on BEAR services provision. We now move on to look at your overall satisfaction with other aspects of IT Services support for research.

57. What is the biggest IT barrier you face in doing your research?

58. How satisfied are you with the overall level of support you receive from IT Services?

	1	2	3	4	5
1 = Not at all; 5 = Very	○	○	○	○	○

59. Do you have any other comments about centrally supported IT for research?

60. What else could IT Services do to help the University achieve its Birmingham 2030 research goals?

Previous sections have concentrated on BEAR and other centrally provided resources. Here we would like to explore specialist or local needs, perhaps confined to one College or School/Institute, or a particular operation e.g. support for the computers associated with instruments or desktops.

61. Which local sources of IT support do you rely on for your research needs?

☐ Self-sufficient
☐ Other member of Research Group/School
☐ College IT Staff
☐ Other

62. If you selected Other, please specify:

[ ]

63. Are any of your needs best met by services focussed within your Group/School/College?

Yes

No

64. Please tell us about your desktop environment

○ Windows PC/Laptop (managed by College IT staff)
○ Mac (managed by College IT Staff)
○ Linux workstation (managed by College IT Staff)
○ Linux workstation (managed by you/your Group)
○ Own device
○ Other

65. If you selected Other, please specify:

[ ]

66. Are these local resources maintained and managed by:

○ The College

○ Your School/Institute

○ Your research group

○ By funding from research grants

○ Non-existent

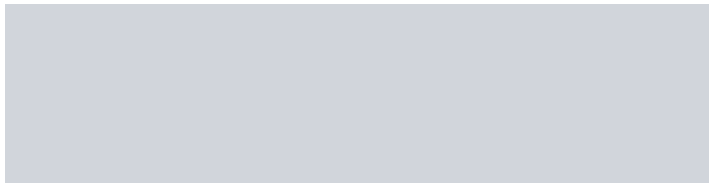In this last section, we look towards the future and how your research needs are likely to develop.

67. Is AI or Machine Learning of relevance to your area of research?

Yes

No

Maybe

68. Are there areas of expansion or new directions in which you see your research developing which will require enhanced IT support, or support from other areas of Professional Services? Please specify.
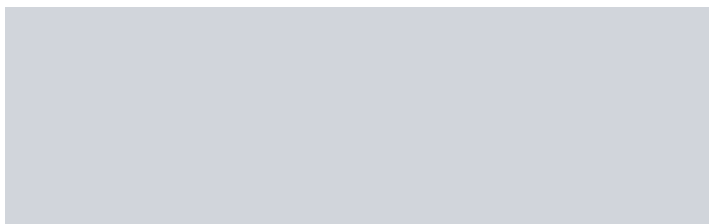
69. Select a category and then tell us what single IT- related innovation or radical change to an existing service would make the most difference to your research activity

Innovation
Transform existing service

70. Please tell us about the innovation that would substantially enhance your ability to do your research

71. Please tell us about your idea for transforming an existing service that would have a positive impact on your research