JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Appendix. Survey instrument

Q1. "Data" is any recorded material necessary to validate your research. This can be numeric data, textual data, images, audio or video files, artifacts, etc. Do you collect, generate, or use data in your research?

☐ Yes

☐ No [if No, skip to Q42]

Q2. Which of the following best describe the types of data you have produced, or anticipate producing, as part of your research? Please choose **all** that apply.

☐ Non-digital text (e.g. hand-written notes, sketches, paper laboratory notebooks)

☐ Non-digital images

☐ Artistic products

☐ Audio recordings

☐ Biological, organic, or inorganic samples or specimens

☐ Curriculum materials

☐ Digital gene sequences or similar digital renditions or biological/organic/inorganic samples or specimens

☐ Digital images

☐ Digital text for qualitative research (e.g. transcripts)

☐ Digital text for quantitative research (e.g. software scripts and codes)

☐ Electronic laboratory notebook

☐ Field notes

☐ Geospatial data

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

☐ Patient records

☐ Quantitative, tabular data (e.g. spreadsheets, delimited text, SPSS, XML)

☐ Video recordings

☐ Other: _____

Q3. Data management for research involves the collection, cleaning, analysis, storage, sharing, disposal, and/or archiving of data. Do you engage in research activities at UVM that include data management of digital data.

☐ Yes

☐ No [if No, skip to Q42]

Q4. In terms of digital data, what is the largest single project you have worked on in the past five years?

☐ 1GB (gigabyte) or less

☐ More than 1GB but less than 100GB

☐ More than 100GB but less than 1TB (terabyte)

☐ More than 1TB but less than 100TB

☐ More than 100TB but less than 1PB (petabyte)

☐ More than 1PB

☐ I don't know

☐ Other: _____

Q5. Do you typically generate metadata for your digital data? For example, do you currently document or describe your data, create codebooks, data dictionaries, "README" files, etc?

☐ Yes

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

☐ No

☐ I don't know

Q5a. Please indicate which metadata standard(s) you currently use to describe your data. Please choose **all** that apply.

☐ DC (Dublin Core)

☐ DwD (Darwin Core)

☐ DDI (Data Documentation Initiative)

☐ DIF (Digital Interchange Format)

☐ EML (Ecological Metadata Language)

☐ FGDC (Federal Geographic Data Committee)

☐ ISO 19115 (Geographic Information – Metadata)

☐ OGIS (Open GIS)

☐ SBML (Systems Biology Markup Language)

☐ TEI (Text Encoding Initiative)

☐ WaterML (Water Markup Language)

☐ Metadata standardization for my research

☐ Other: _____

Q6. Thinking about the digital data you generate during a research project, please indicate where you store these data. Please choose **all** that apply.

☐ Desktop or laptop computer hard drive

☐ Hard drive or instrument that generates the data

☐ External hard drive or media (e.g. USB, CD/DVD, magnetic tape)

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

☐ Local server (within your research group)

☐ College, department, school, unit, or institute network server

☐ Central campus (ETS) network server

☐ Third-party cloud or web-based storage service (e.g. Dropbox, Google Drive, box.com)

☐ Other: _____

Q7. Do you backup your data? Please choose **all** that apply.

☐ Yes, backup files are automatically generated

☐ Yes, backup files are manually generated

☐ No

☐ Other: _____

Q8. Please indicate what typically happens to your data after the research project has concluded.

	Always	Often	Sometimes	Rarely	Never	N/A
The data are destroyed.						
The data are stored in a discipline/domain-specific data repository or archive (e.g. LTER, ICPSR, GenBank, DataONE)						
The data are stored in an						

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

institutional data repository or archive						
The data are stored in a third-party data repository or archive (e.g. FigShare)						
The data are stored on a disk, USB drive, tape, or computer hard drive						
The data are stored on a local server (within your research group)						
The data are stored on a college, department, school, unit, or institute network server						
The data are stored on a central campus (ETS) server						
The data are stored on a third-party cloud or web-based storage service (e.g. Dropbox, Google Drive, box.com)						

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Q8a. Please enter the name(s) of the discipline/domain-specific data repository or archive.

Q9. Please indicate how long you typically retain digital data.

- ☐ Less than 1 year
- ☐ 1-4 years
- ☐ 5-10 years
- ☐ More than 10 years
- ☐ Indefinitely

Q10. Thinking about long-term data storage (more than five years) and preservation, are adequate funding and resources available to you or your department, center, lab, or research group to support such storage?

- ☐ Yes
- ☐ No

Q11. Thinking about long-term data storage (more than five years) and preservation, from which of the following sources have you or your research group received funding to support such storage? Please choose **all** that apply.

- ☐ External funds
- ☐ University funds
- ☐ Professional development funds
- ☐ I/We have not received funds for long-term data storage and preservation
- ☐ Other: _____

Q12. Additional comments:

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Q13. How often do you share your digital data with others (outside your research team) using the following methods?

	Always	Often	Sometimes	Rarely	Never	N/A
Collaborative web space (e.g. wiki, blog, Google Drive)						
Discipline/domain specific data repository or archive						
Email or large file transfer						
External hard drive or media (e.g. USB, CD/DVD, magnetic tape)						
Institutional data repository or archive						
Personal website						
Publications and/or presentations						
Research group/project website						
Third-party data						

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

repository or archive (e.g. FigShare)						
I don't share data						
Other						

Q13a. If other, please specify.

Q14. Please indicate how much each of the following factors limits the sharing of your research data (outside of your research team).

	Does not limit sharing	Limits sharing somewhat	Significantly limits sharing	N/A
Ability to maintain confidentiality of research participants				
Intellectual property concerns				
License or usage restrictions to make data available				
Sponsor requirement limiting data sharing				
Lack of funding to make data available				

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Lack of time to make data available				
Lack of appropriate tools or infrastructure to make data available				
Lack of personnel to make data available				
Lack of standards (e.g. data or metadata format)				
Lack of mechanism to receive citation or credit once data are available				
Opinion that research data shouldn't be made available				
Research data could possibly be misinterpreted				
Research data of little value or interest to others				
Other				

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Q14a. If other, please specify.

Q15. What percentage of your research is supported through external federal grants or contracts?

- ☐ I do not receive federal grants or contracts [If no, skip to Q33]
- ☐ 1-20%
- ☐ 21-40%
- ☐ 41-60%
- ☐ 61-80%
- ☐ 81-100%

Q16. Are you aware of recent federal mandates requiring that all federal granting agencies develop protocol for researchers to make both the data and published articles of federally funded research publicly available?

- ☐ Yes
- ☐ No
- ☐ I'm not sure

Q17. Federal funding agencies have begun to require the submission of a data management plan (DMP) with grant applications, accounting for how research data will be managed, stored, shared, and preserved in the long-term. Have you been required to submit a formal data management plan (DMP) for any of your research projects?

- ☐ Yes
- ☐ No [If No, skip to Q33]
- ☐ I'm not sure [If I'm not sure, skip to Q33]

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Q18. How many data management plans (DMPs) have your submitted?

☐ 1

☐ 2

☐ 3 or more

Q19. How many data management plans (DMPs) have you submitted that have been part of a successful grant application?

☐ 0

☐ 1

☐ 2

☐ 3 or more

☐ Still under review

☐ Other: _____

Q20. Please indicate which funding agency you have submitted a DMP to.

☐ DOD (Department of Defense)

☐ DOE (Department of Energy)

☐ NASA (National Aeronautics and Space Administration)

☐ NEH (National Endowment for the Humanities)

☐ NIH (National Institute of Health)

☐ NSF (National Science Foundation)

☐ Privately funded

☐ Other: _____

Q20a. Which NSF Directorate?

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

☐ Directorate for Biological Sciences

☐ Directorate for Computer & Information Science & Engineering

☐ Directorate for Education & Human Resources

☐ Directorate for Engineering

☐ Directorate for Geosciences

☐ Directorate for Mathematical & Physical Sciences

☐ Directorate for Social, Behavioral & Economic Sciences

Q21. Have you served on a grant review panel where you have been asked to evaluate DMPs?

☐ Yes

☐ No

Q22. Did you receive guidance on creating your DMP(s)?

☐ Yes

☐ No

☐ I don't know

Q22a. Please indicate where you received guidance from.

☐ Funding agency website

☐ Funding agency workshop or webinar

☐ Colleague within department

☐ Colleague at UVM

☐ Colleague at another institution

☐ UVM Sponsored Projects Administration (SPA)

☐ Data management planning template (Word document)

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

☐ DMPTool or other data management planning software

☐ Google

☐ Other: _____

Q23. Please select the top three challenges you faced in preparing your DMP.

☐ Lack of guidance from funding agency

☐ Lack of guidance from institution

☐ Appropriate infrastructure to store short-term data

☐ Appropriate infrastructure to make data accessible

☐ Appropriate infrastructure to archive or preserve data at completion of project

☐ Ensuring data security

☐ Data description (metadata) and documentation

☐ Managing data (e.g. versioning, file naming)

☐ Knowing at which stage(s) of research to share data

☐ No challenges

☐ Other: _____

Q24. For each of the following statements, rate/rank your responses using the 7-point scale.

	Strongly agree 7	6	5	4	3	2	Strongly disagree 1
I intend to use my DMP to guide how I manage, store, and share my							

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

research data.							
I want to use my DMP to guide how I manage, store, and share my research data.							
I expect to use my DMP to guide how I manage, store, and share my research data.							

Q25. For each of the following statements, rank/rate your response using the 7-point scale.

	Worthwhile 7	6	5	4	3	2	Meaningless 1
Creating a DMP is:							

	Challenging 1	2	3	4	5	6	Easy 7
Creating a DMP is:							

	Important to me 7	6	5	4	3	2	Useless to me 1
Creating a DMP is:							

							Not

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

	Valued 7	6	5	4	3	2	valued 1
Creating a DMP is:							

Q26. For each of the following statements, rank/rate your response using the 7-point scale.

	Likely 7	6	5	4	3	2	Unlikely 1
DMPs improve my ability to share my research data.							
DMPs help ensure long-term data preservation.							
DMPs promote reproducibility of research results and data integrity.							
DMPs improve the quality of my grant application.							
DMPs make me a more organized researcher.							

Q27. For each of the following statements, rank/rate your response using the 7-point scale.

	Extremely undesirable 1	2	3	4	5	6	Extremely desirable 7
Sharing my research data is:							

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Preserving my research data long-term is:							
Reproducibility of research and data integrity are:							
Having quality grant applications is:							
Being organized in my research is:							

Q28. For each of the following statements, rank/rate your response using the 7-point scale.

	Strongly agree 7	6	5	4	3	2	Strongly disagree 1
Most researchers think that Open Data is valuable and see publicly funded research as a "common good"							
It is expected of me that I put significant time and effort into creating a DMP.							
I feel under social pressure to create a high quality DMP.							

Q29. For each of the following statements, rank/rate your response using the 7-point scale.

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

	Critically assess 7	6	5	4	3	2	Neglect 1
Grant review panels […] DMPs in the evaluation of grant applications							

	Necessary 7	6	5	4	3	2	Unnecessary 1
Researchers believe that DMPs are an […] aspect of the grant submission process.							

	Not at all 1	2	3	4	5	6	Very much 7
The grant review panels' appraisal of my DMP is important to me.							

	Not at all 1	2	3	4	5	6	Very much 7
Creating DMPs that are of equal quality to other researchers is							

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

important to me.							

Q30. For each of the following statements, rank/rate your response using the 7-point scale.

	Strongly agree 7	6	5	4	3	2	Strongly disagree 1
I am confident that I can create a DMP that addresses all the funder requirements.							

	Difficult 1	2	3	4	5	6	Easy 7
Writing a DMP is a […] task.							

	Strongly agree 7	6	5	4	3	2	Strongly disagree 1
I understand the purpose of the DMP.							
I have the necessary information to understand and address what my DMP requires.							

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Q31. For each of the following statements, rank/rate your response using the 7-point scale.

	Unlikely 1	2	3	4	5	6	Likely 7
Grant review panels routinely accept underdeveloped or incomplete DMPs.							
When I am creating a DMP, I feel like I have the necessary institutional support.							
When I am creating a DMP, I feel like I have the necessary Federal agency support.							

Q32. For each of the following statements, rank/rate your response using the 7-point scale.

	Less likely 7	6	5	4	3	2	More likely 1
When I submit my DMP to a review panel, it is […] to be underdeveloped or incomplete							

	Much more						Much

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

	difficult 1	2	3	4	5	6	easier 7
Not having institutional support makes creating a DMP:							

	Much more difficult 1	2	3	4	5	6	Much easier 7
Not having federal agency support makes creating a DMP:							

Q33. How easy or difficult is each of the following activities with regard to managing your UVM research data?

	Easy	Somewhat easy	Neutral	Somewhat difficult	Difficult	N/A
Storing data short-term (5 years or less)						
Storing and preserving data long-term (more than 5 years)						
Backing up data						
Analyzing/manipulating						

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

data						
Finding my own data						
Finding data produced by other researchers						
Accessing data produced by other researchers						
Ensuring that data are secure						
Making data accessible to others						
Controlled access to data						
Tracking updates to data (i.e. versioning)						
Describing the data to be more usable at a later time or by others (e.g. creating metadata, code books)						
Protecting intellectual property rights						
Ensuring appropriate professional credit/citation is given						

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

to data sets I generate						
Other						

Q33a. If other, please specify.

Q34. In your opinion, where should the funding come from to cover the costs of data management for research SUPPORTED by grants, contracts, or other external sources of funding?

☐ It should be folded into the direct costs of those grants and contracts by the individual researchers or research team.

☐ It should be paid for by the University from overhead funds it receives from grants and contracts.

☐ It should be paid for by the University from other sources of funds.

☐ No opinion

☐ Other: _____

Q35. In your opinion, where should the funding come from to cover the costs of data management for research NOT SUPPORTED by grants, contracts, or other external sources of funding?

☐ It should be paid for by the university from overhead funds it receives from grants and contracts.

☐ It should be paid for by the university from other sources of funds.

☐ It should be paid for by the individual researcher or research team with other funds.

☐ No opinion

☐ Other: _____

Q36. Additional comments:

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Q37. In your opinion, should data creation and/or data sharing be incorporated into annual evaluations of faculty performance?

☐ Yes

☐ No

☐ I don't know

☐ Other: _____

Q38. How often do professional journals in which you publish your research require that authors submit the data necessary to replicate or validate the results?

☐ Always

☐ Most of the time

☐ Sometimes

☐ Rarely

☐ Never

☐ I do not submit papers to professional journals

Q39. How important do you think it is for UVM to spend resources on providing the following services?

	Very important	Somewhat important	Not very important	Not at all important	N/A
Provision of advanced computing options (e.g. distributed, network, or cluster computing;					

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

supercomputer-class machines)					
Provision of statistical and other data analysis support					
Short-term data storage (5 years or less)					
Long-term data storage and preservation (more than 5 years)					
Acquiring unique identifiers for data sets (e.g. DOI, ARK)					
Data security support					
Guidance on depositing data into discipline/domain-specific data repository or archive					
Guidance on how to use appropriate metadata standards					
Guidance on writing data management plans					
Guidance on intellectual property issues with my data					

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

Guidance on privacy/confidentiality with my data					
Other					

Q39a. If other, please specify.

Q40. Would you be interested in any of the following data management support activities? Please select at most 5 answers.

☐ Assistance meeting data sharing and/or data management requirements of funding resources.

☐ Informational website with data management best practices and links to campus resources and services.

☐ Data management plan consultation (i.e. individualized assistance)

☐ Data management plan templates and tools (i.e. do-it-yourself resources)

☐ Data management plan workshops

☐ Providing an institutional data repository

☐ Help identifying repositories for data submission

☐ Assistance in selecting data to preserve for the long-term

☐ Tools for sharing research data

☐ Data storage and preservation services

☐ Producing metadata for your research data

☐ Compliance with policies, legal requirements, and ethical standards

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

- ☐ Assistance finding and accessing secondary data sources
- ☐ Data set purchasing
- ☐ Information about citing data resources
- ☐ None of the above
- ☐ Other: _____

Q41. Is there any additional information you would like to provide on data management planning or research data support at UVM?

Demographics

Q42. What is your school or college?

- ☐ Agriculture and Life Sciences
- ☐ Arts and Sciences
- ☐ Business
- ☐ Education and Social Services
- ☐ Engineering and Mathematical Sciences
- ☐ Environment and Natural Resources
- ☐ Nursing and Health Sciences
- ☐ Honors College
- ☐ Graduate College
- ☐ College of Medicine

Q43. What is your department?

Q44. What is your position?

- ☐ Full professor

JeSLIB 2017; 6(1): e1098
doi:10.7191/jeslib.2017.1098

☐ Associate professor

☐ Assistant professor

☐ Instructor

☐ Lecturer

☐ Senior Lecturer

☐ Professor Emeritus

☐ Other: _____

Q45. How many years have you been at UVM?

Q46. What is your gender?

☐ Female

☐ Male

☐ Other: _____