How to Conduct a Data Management Audit of a Scientific Research Group

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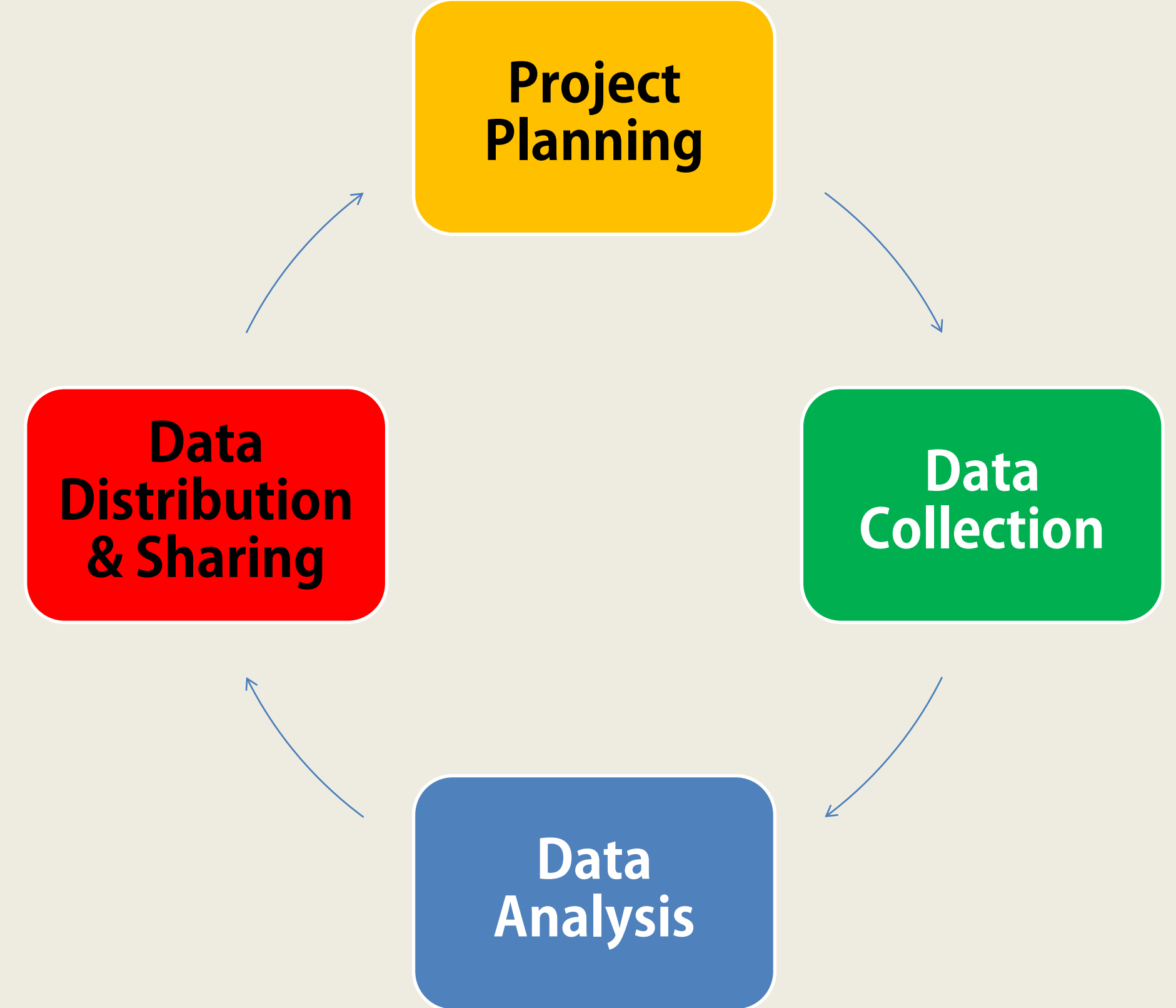[2]National Center for Atmospheric Research

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Abstract

As research-intensive science produces increasingly higher volumes of digital data, managing it with long term preservation in mind is more important than ever. Data management has become an often overlooked practice, taking a backseat to the science it supports (Heidorn, 2011; Carlson, Fosmire, Miller, & Nelson, 2011). Libraries and information science professionals can offer valuable assistance in managing that data, as they, historically, have strong skills related to the access and preservation of information and knowledge, such as classifying, describing, distributing, and storing (Pryor, 2012; Jones, Ball, & Ekmekcioglu, 2008).

One such way information science professionals can offer help to their scientific colleagues is by conducting an audit of their data management practices. By conducting an audit, the auditor can identify areas of strength, areas needing improvement, redundant activities, and useful tools. The goal of the data management audit is to increase efficiency and improve data management practices within a research group or project, which will, in turn, support the long term preservation and access of data sets.

Project Planning

Data Collection

Data Analysis

Data Distribution & Sharing
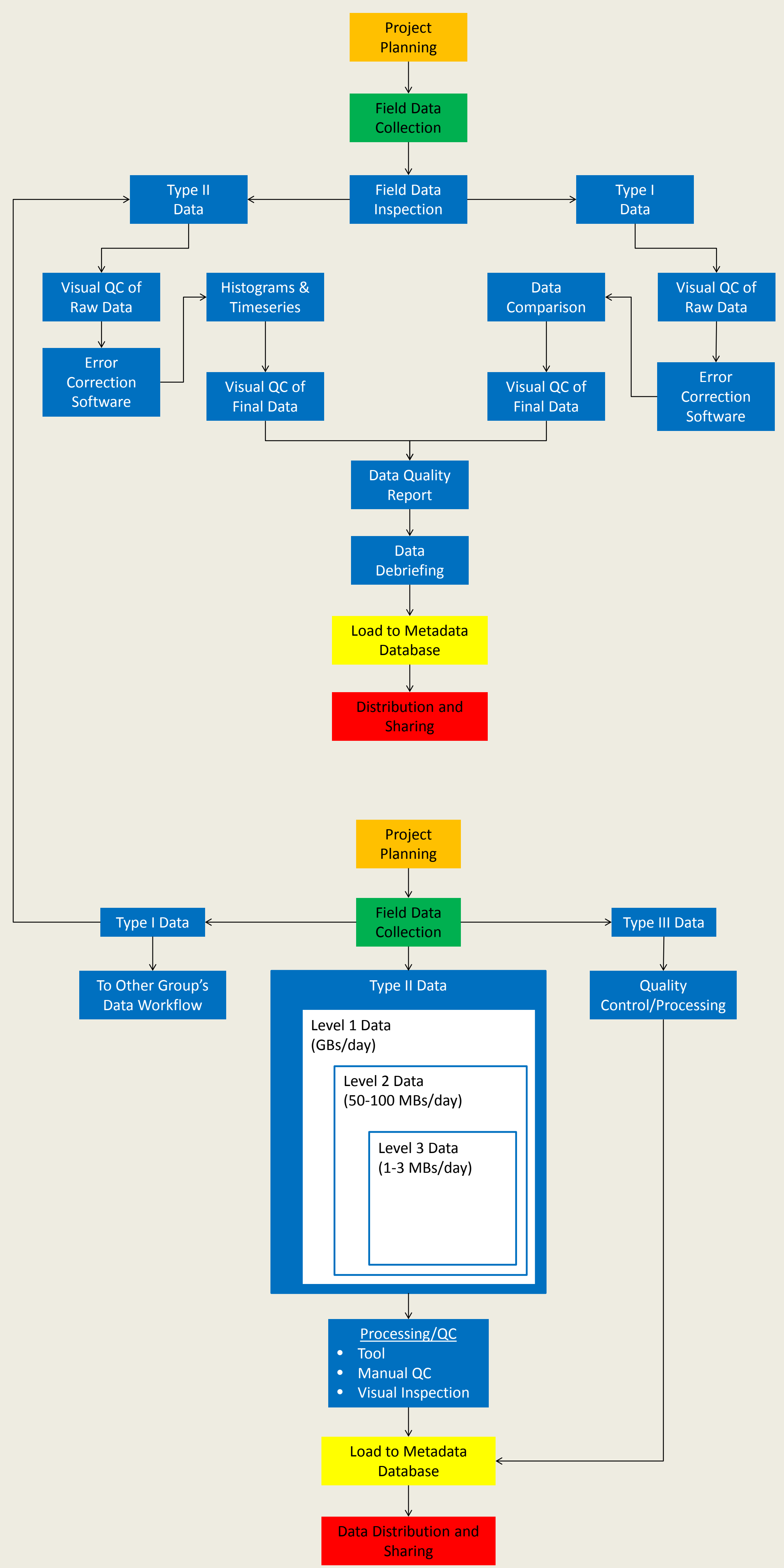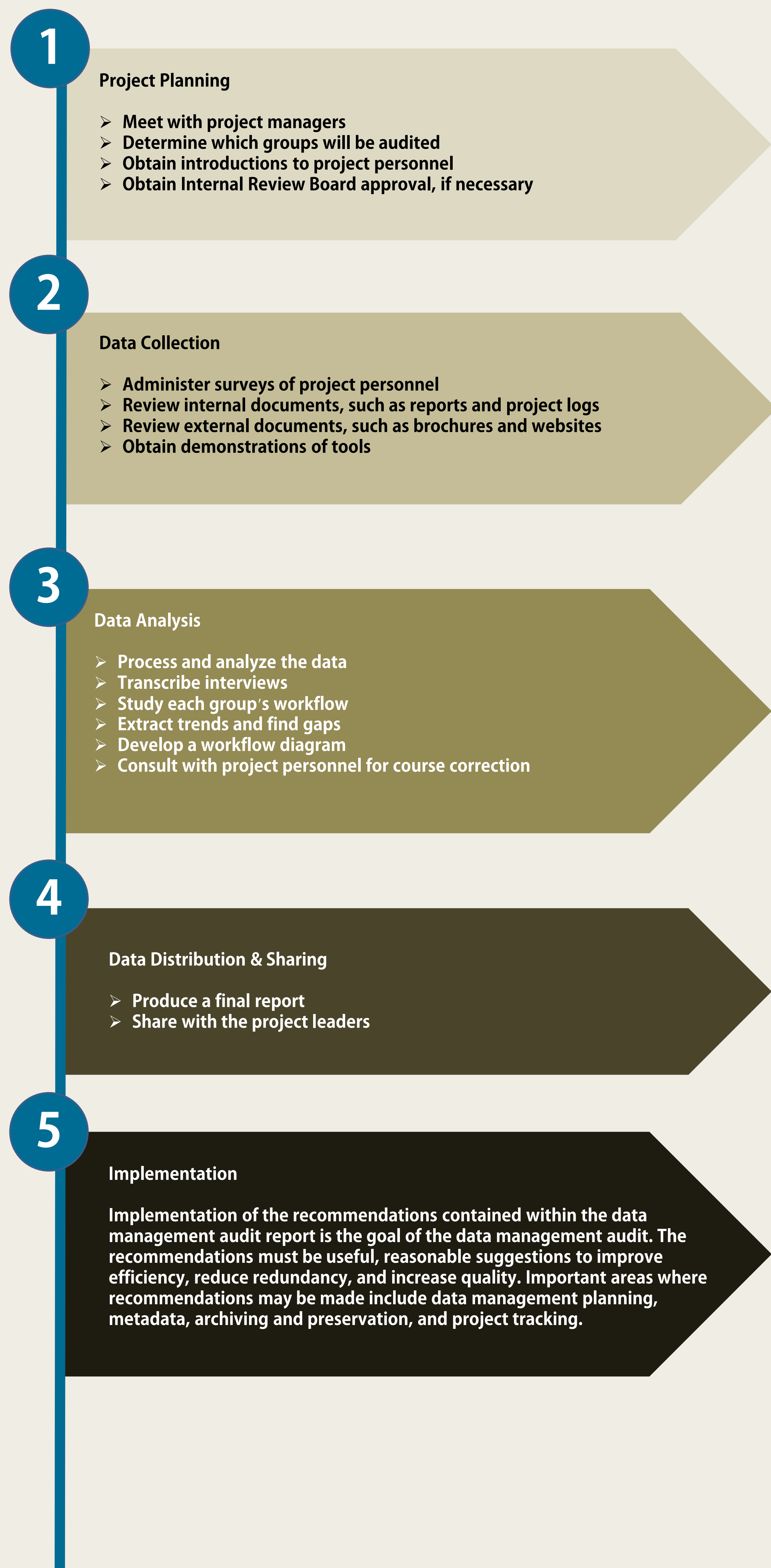
Data Management Audit Lifecycle

References

Carlson, J., Fosmire, M., Miller, C., & Nelson, M. (2011). Determining data information literacy needs: A study of students and research faculty. *portal: Libraries and the Academy* 11(2), 629-657.

Heidorn, P. B. (2011). The emerging role of libraries in data curation and e-science. *Journal of Library Administration*, 51(7-8), 662-672. doi: 10.1080/01930826.2011.601269

Jones, S., Ball, A., & Ekmekcioglu, Ç. (2008). The data management audit framework: A first step in the data management challenge. *International Journal of Digital Curation*, 3(2).

Pryor, G. (2012). Why manage research data?. In G. Pryor (Ed.), *Managing research data* (p. 15). London: Facet Publishing.

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1 Project Planning

➢ Meet with project managers
➢ Determine which groups will be audited
➢ Obtain introductions to project personnel
➢ Obtain Internal Review Board approval, if necessary

2 Data Collection

➢ Administer surveys of project personnel
➢ Review internal documents, such as reports and project logs
➢ Review external documents, such as brochures and websites
➢ Obtain demonstrations of tools

3 Data Analysis

➢ Process and analyze the data
➢ Transcribe interviews
➢ Study each group's workflow
➢ Extract trends and find gaps
➢ Develop a workflow diagram
➢ Consult with project personnel for course correction

4 Data Distribution & Sharing

➢ Produce a final report
➢ Share with the project leaders

5 Implementation

Implementation of the recommendations contained within the data management audit report is the goal of the data management audit. The recommendations must be useful, reasonable suggestions to improve efficiency, reduce redundancy, and increase quality. Important areas where recommendations may be made include data management planning, metadata, archiving and preservation, and project tracking.

Example Data Workflow Diagram