

# **Research Knowledge Management for the Progress of Science**

## ***A Decadal Survey of Grand Challenges [in the Data and Information Life Cycle]***

Board on Research Data and Information  
Policy and Global Affairs Division  
National Academy of Sciences

### **DRAFT STUDY PROPOSAL**

#### **SUMMARY**

An ad hoc committee of the National Research Council's (NRC's) Board on Research Data and Information (BRDI) proposes to conduct a decadal survey of grand challenges in research knowledge management for enhancing the progress of science. A grand challenge is a fundamental unresolved research problem with broad applications, large scale, deep impact, and long-term benefits. Solving important challenges in the data and information life cycle and the scholarly communications process necessitates promoting specific innovations and removing critical barriers to progress.

The study would identify grand challenges that are timely and achievable in the medium-term, over the next five-to-ten years, with concerted, coordinated efforts, and appropriate research support by the study sponsors. Specifically, this study will involve four tasks:

1. Identify the critical barriers to scientific progress in the different life-cycle stages of research data and information, particularly in the context of scholarly communication on digital networks.
2. Examine the underpinnings of these barriers, the research areas that are most relevant to these barriers, and the research initiatives that are yielding innovations with potential application to these barriers.
3. Assess the barriers and analyze their scope, impact, and timelines, and identify areas in which interventions to coordinate and catalyze research efforts are likely to yield substantial progress.
4. Produce a consensus report with findings and recommendations, taking into consideration a range of perspectives that address items 1-3 above and articulate a set of grand challenge research problems, their boundaries and impact, and preliminary approaches to them.

The study will be performed in 18 months and the resulting report will be published in accordance with NRC procedures.