

Practical Applications of a Participatory Science Project Evaluation Tool:

Perspectives from Across Earth and Space Science

Supplemental File 1: SPI Background Information

Table 1: SPI Science Products (Wiggins et al., 2018). API: application programming interface.

Category	Product	Definition
Written	Dissertations, theses (#)	Number of theses and dissertations using data from or reporting on the project
Written	Scholarly publications (#)	Number of published peer-reviewed science papers that report on the project or apply its data
Written	Reports (#)	Number of formal reports reporting results, such as white papers, technical, and other reports
Written	Grants awarded (#, \$)	Existence (or total monetary value) of competitive funding awards from private or public funders
Data	APIs (Y/N)	Existence of technologies for automated data exchange between computers
Data	Data packages (#)	Number of curated exports of data and related documentation, usually as a downloadable zip file
Data	Metadata (Y/N)	Existence of documentation describing data structure, formats, and contents
Data	Visualizations (Y/N)	Existence of visual representations of data, such as graphs, maps, and animations

Data	Specimens/ samples (#)	Number of material data points in the form of physical specimens or samples
Data	Requests (# requests, transfer volume)	Number of individuals or technical systems requesting data, or volume of transferred data
Management and Policy	Regulatory action (Y/N)	Existence of legal rulings or regulation enforcement based on project data and finding
Management and Policy	Decision support (Y/N)	Existence of decisions based on project data and findings (e.g., for policy or management)
Management and Policy	Forecasting/ models (Y/N)	Existence of models based on project data that simulate or predict complex phenomena
Communication	Blogs (Y/N)	Existence of online informal written communications about project processes and findings
Communication	Newsletters (Y/N)	Existence of structured publications for project stakeholders, produced in hard copy or digitally
Communication	Videos (Y/N)	Existence of publicly available digital videos on project content, activities, and findings
Communication	Presentations (Y/N)	Existence (or number) of oral presentations at conferences or public events
Communication	Website (Y/N)	Existence of dedicated website for the project

Table 2: SPI Data Practices (Wiggins et al., 2018).

Category	Practice	Definitions
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Findable	Data available from project website (Y/N)	Availability of data from the project's own website in a downloadable or queryable format
Findable	Data available from repositories or registries (Y/N)	Availability of data in a research data repository or via a data clearinghouse or registry
Accessible	Downloadable data file(s) available (Y/N)	Existence of download data files via project website, repository, or third party
Accessible	Tools for data exploration (Y/N)	Existence of tools for visualizing, summarizing, or querying project data via an app or website
Accessible	Data licensing specified (Y/N)	Existence of text specifying terms and conditions for data use
Accessible	Metadata available (Y/N)	Existence of documents with descriptive metadata such as known problems and data cleaning tips
Accessible	API documentation (Y/N)	Existence of documentation to support users of an API, where applicable
Interoperable	Data recorded in standard formats for discipline (Y/N)	Application of disciplinary standards for structural metadata and data formatting
Reusable	Uniqueness of data (describe)	Description of the unique contributions and features of the project's data
Reusable	Time scale of data (# yrs)	Number of years of records in the data set; may include historical data
Reusable	Spatial scale of data (describe)	Description of the geographic range for project data, such as continent, country,

		state, city, or watershed
Reusable	How much data (# data points, describe)	Description of data volume in terms relevant to the data collected, such as number of data points
Reusable	Errors documented (Y/N)	Existence of documentation for known errors in the data set
Reusable	Quality assurance or quality control documented (Y/N)	Existence of documentation for quality-assurance and quality-control processes
Reusable	Changes documented (Y/N)	Existence of documentation for data edited after initial receipt
Reusable	Questionable data flagged (Y/N)	Existence of documentation for data considered questionable or problematic
Reusable	Software or platform development (Y/N)	Existence of software or hosted technologies (platforms) that support external projects