

From Publishing to Communicating Research Data

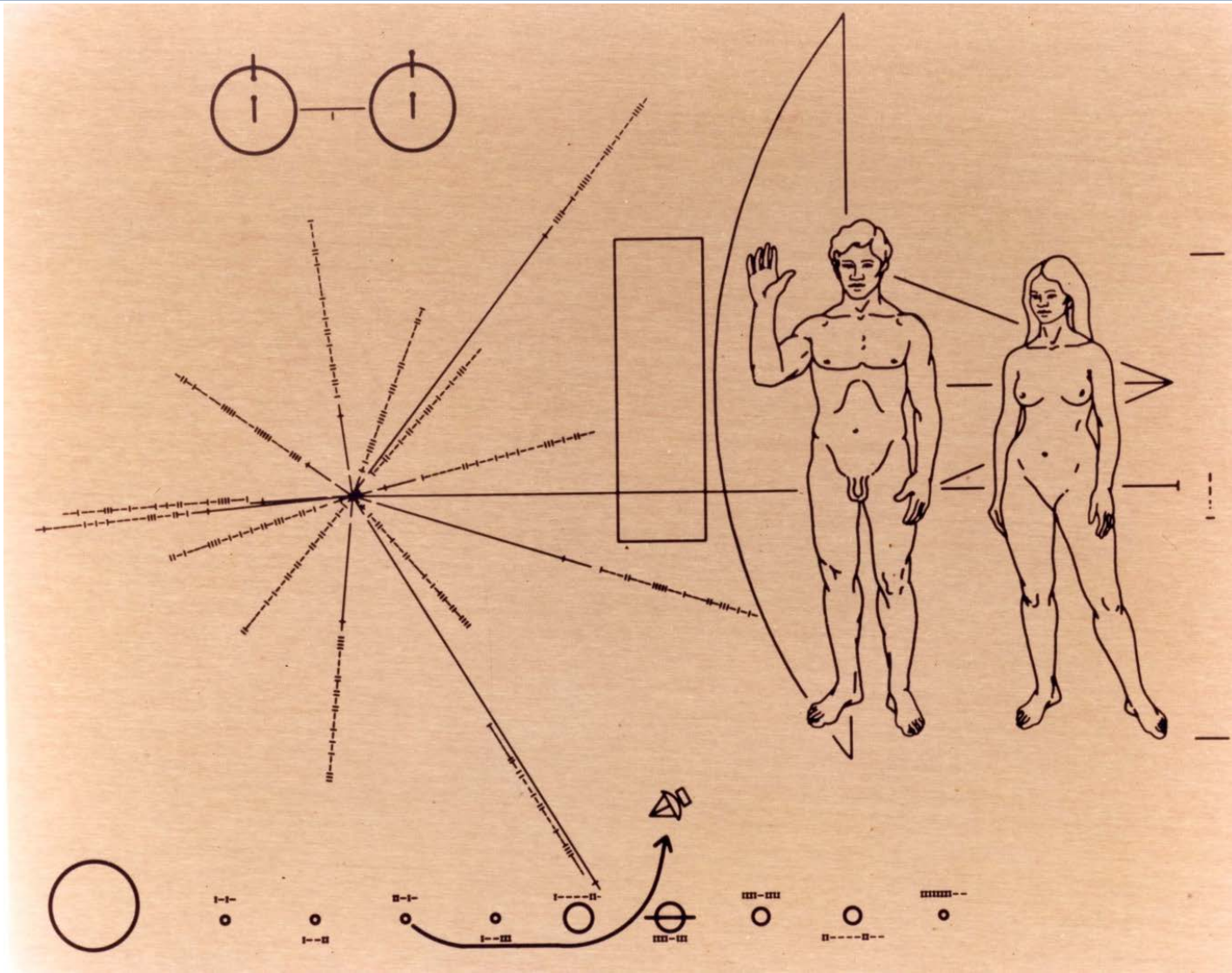
Armin Günther & Ina Dehnhard

*Leibniz Institute for Psychology Information (ZPID)
Trier, Germany*

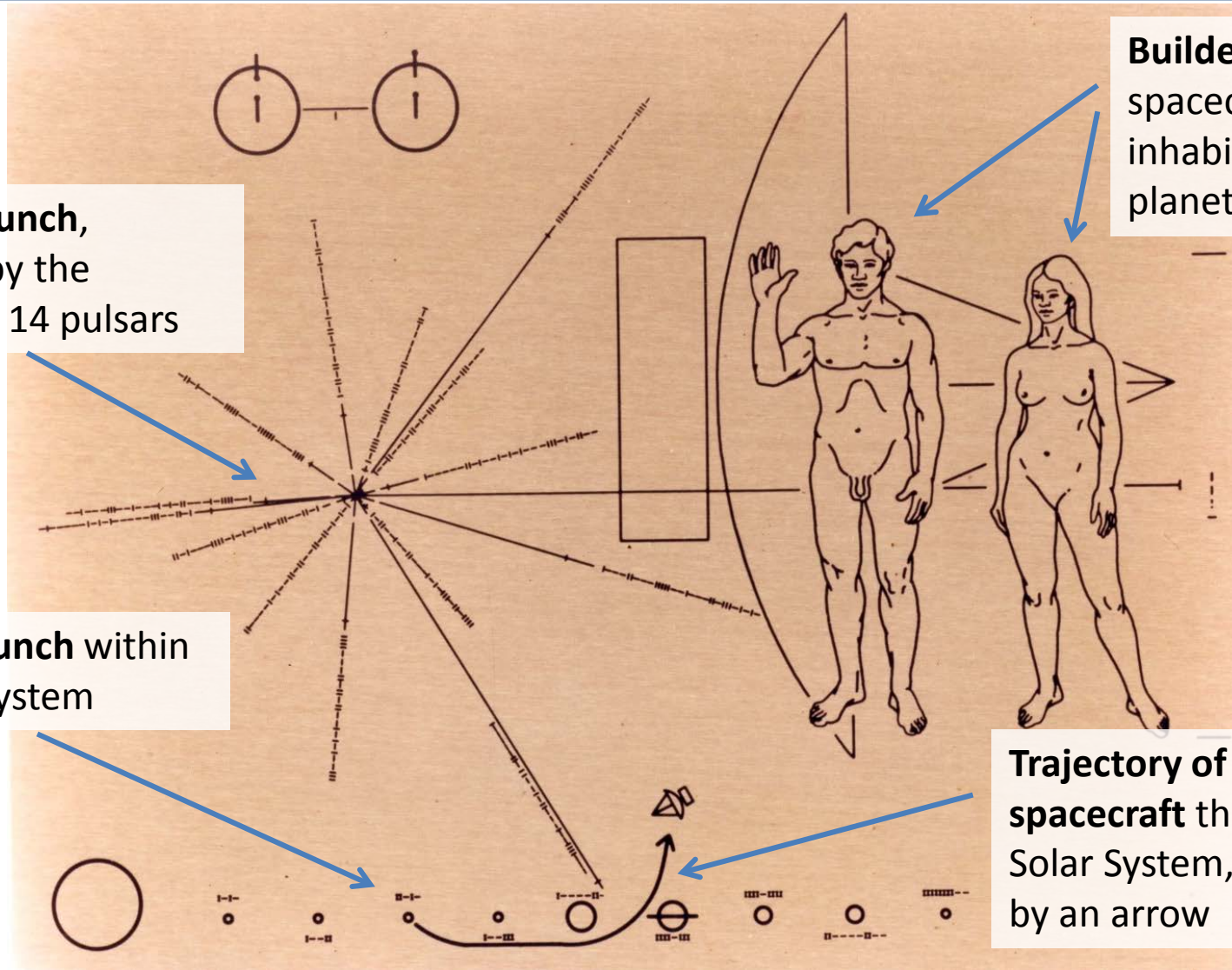
Our Mantra

Publishing data is easy,
Communicating data is hard work!

The Pioneer Plaque: *“to show scientifically educated inhabitants of some other star system, who might intercept it millions of years from now, when Pioneer was launched, from where, and by what kind of beings”*



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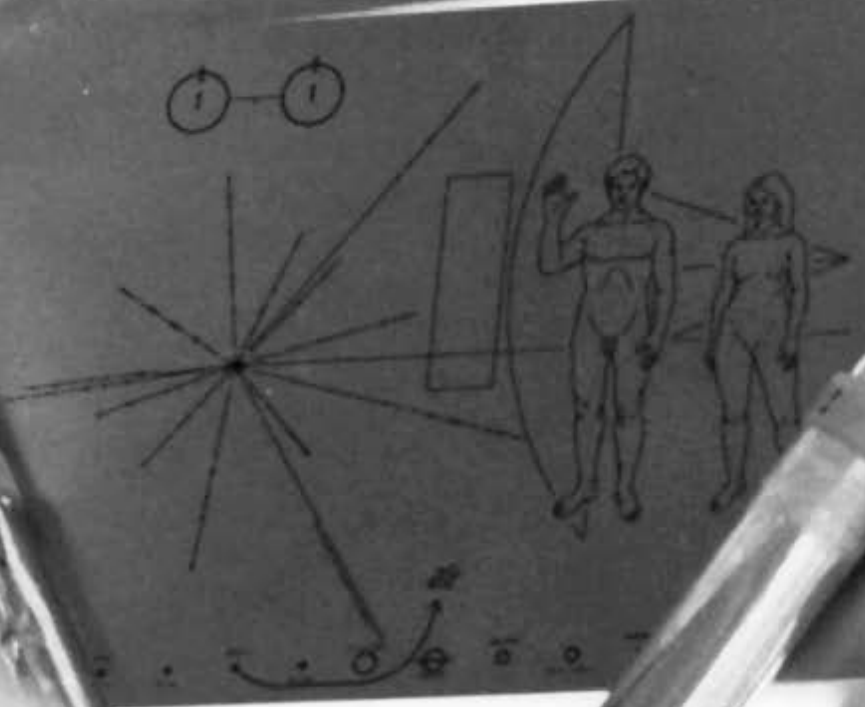
Date of launch,
encoded by the
periods of 14 pulsars

Place of launch within
the Solar System

Builders of the
spacecraft and
inhabitants of
planet Earth

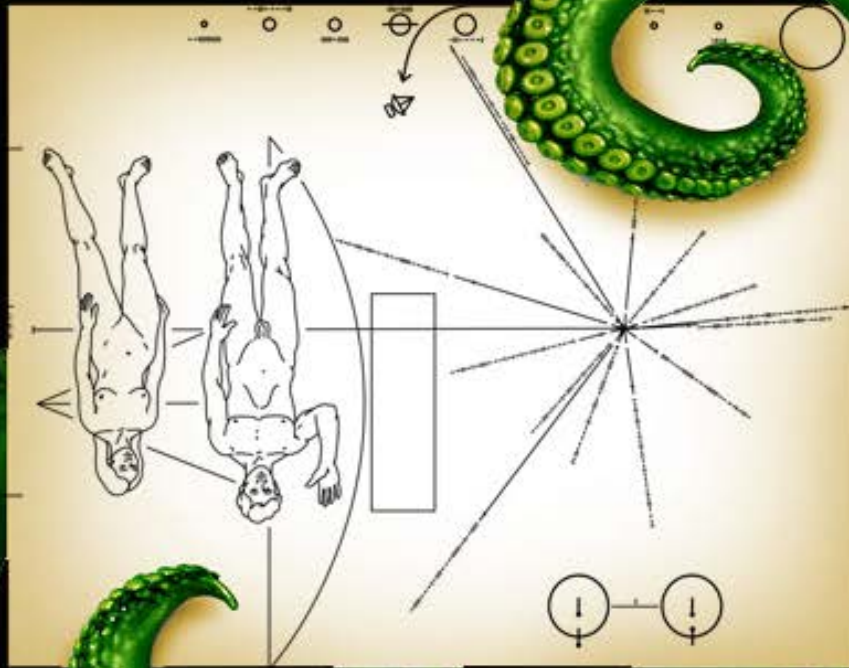
**Trajectory of the
spacecraft** through the
Solar System, encoded
by an arrow

Publishing data



...is (not always) easy.

Communicating data



...is hard work!

Our message

- We need not only technical solutions to *publish* data.
- We also need concepts and tools to effectively *communicate* these data.

Publishing Research Data in 2 Minutes

”

Publishing research data “**can [...] be as easy** as spending a minute creating a [figShare](#) account and another minute uploading your file and adding a title and subject keywords. Click a button and your data has a permanent home and DOI.

Levelling up to Open Research Data

By Deborah Fitchett, Digital Access Coordinator at Lincoln University.

<http://creativecommons.org.nz/2013/10/levelling-up-to-open-research-data/>

Data Publication at Figshare

The screenshot shows the Figshare interface for a data publication. At the top, the Figshare logo is on the left, a search bar in the center, and 'Browse' and 'Upload' buttons on the right. Below the header, the title 'Data for "Power and Fairness in a Generalized Ultimatum Game"' is displayed. A list of files follows: 'data.tsv' and 'prefs.annotated.csv', each with 'preview' and 'download' links. A 'Download all' button is positioned below the file list. To the right of the files, statistics show '41 views' and '0 shares', with a 'cites coming soon' badge. Below these are the publication date '09 May 2014 - 14:21 (GMT)' and total file size '30.49 KB'. A sharing section includes 'Share this:' with buttons for Facebook, Twitter, and Google+, and an 'Embed*' button. Below this is the 'Cite this:' section with the citation text and DOI. A 'Description' section at the bottom left contains the text: 'Data used in G.L. Ciampaglia, S. Lozano, D. Helbing; "Power and Fairness in a Generalized Ultimatum Game" (PLoS One 2014, forthcoming)'. On the right side, there are sections for 'Categories' (Sociology, Economics), 'Authors' (Giovanni luca Ciampaglia), and 'Tags' (fairness, ultimatum game, proposals, preferences, bargaining). Blue arrows point to the Figshare logo, the file list, the sharing section, the description, the categories, authors, and tags sections.

figshare search figshare (titles, tags, authors, etc.) Browse Upload Sign up Login

Data for "Power and Fairness in a Generalized Ultimatum Game"

data.tsv	preview	download
prefs.annotated.csv	preview	download

Download all

Published on 09 May 2014 - 14:21 (GMT)
Filesize in total is 30.49 KB

41 views 0 shares cites coming soon

Share this: [Share](#) 0 [Tweet](#) 0 [+1](#) 0 [Embed*](#)

Cite this: Ciampaglia, Giovanni luca (2014): Data for "Power and Fairness in a Generalized Ultimatum Game". figshare.
<http://dx.doi.org/10.6084/m9.figshare.1021603>
Retrieved 11:23, Sep 18, 2014 (GMT)

*The embed functionality can only be used for non commercial purposes... [more](#)

Description

Data used in G.L. Ciampaglia, S. Lozano, D. Helbing; "Power and Fairness in a Generalized Ultimatum Game" (PLoS One 2014, forthcoming)

Categories

- Sociology
- Economics

Authors

Giovanni luca Ciampaglia

Tags

- fairness
- ultimatum game
- proposals
- preferences
- bargaining

URL: <http://dx.doi.org/10.6084/m9.figshare.1021603> (Abruf 18.09.2014)

Data Publication at Figshare

figshare search figshare (titles, tags, ...)

Data for "Power a"

data.tsv
prefs.annotated.csv

Share this: [Share](#)

Cite this: Ciampaglia, Generalize, <http://dx.doi.org/10.6084/m9.figshare.1021603> Retrieved

The embed functionality can only be used if you are logged in.

Description

Data used in G.L. Ciampaglia, "Ultimatum Game" (PLoS One 2014, forthcoming)

session	game	participant	Game, Treatment, Response, Proposal, Prop. Pref, Prop. Ass, Resp. Pref, Prop. Donation, Resp. Donation, Prop. O
15	22	37	99, balanced, Accepted, 6, Multiple, Selfish, Multiple, 1, 0, 0, 1
15	22	38	98, balanced, Accepted, 5, Fair, Fair, Fair, 0.176470588235294, 0, 1, 1
15	23	39	97, weak responder, Rejected, 4, Selfish, Fair, None, 0, 0, 1, 0
15	23	40	96, balanced, Accepted, 6, Multiple, Selfish, Multiple, 0, 1, 1, 0
15	25	43	95, weak proposer, Rejected, 4, None, None, None, 0, 0, 1, 0
15	25	44	94, balanced, Accepted, 6, Multiple, Selfish, Multiple, 0, 0, 1, 1
15	26	45	93, weak proposer, Accepted, 7, None, None, None, 0, 0, 1, 1
15	26	46	92, weak proposer, Accepted, 5, Fair, Fair, Fair, 0, 0, 1, 1
15	27	47	91, balanced, Accepted, 5, Fair, Fair, Fair, 0, 0, 1, 0
15	27	48	90, weak proposer, Rejected, 5, Fair, Fair, Selfish, 0, 1, 0, 0
15	28	49	89, weak proposer, Accepted, 5, Fair, Fair, Fair, 0.411764705882353, 0, 1
15	28	50	88, balanced, Accepted, 6, Multiple, Selfish, Multiple, 0, 0, 1, 1
15	30	53	87, balanced, Accepted, 6, Multiple, Selfish, Multiple, 0, 0, 1, 1
15	30	54	83, weak responder, Accepted, 2, None, None, None, 0, 1, 1, 0
15	31	55	82, weak proposer, Accepted, 7, None, None, None, 1, 0, 0, 1
15	31	56	81, weak responder, Accepted, 5, Fair, Fair, Fair, 0, 0, 0, 0
15	32	57	80, weak responder, Rejected, 5, Fair, Multiple, None, 0, 0, 0, 0
15	32	58	78, weak proposer, Accepted, 5, Fair, Fair, Fair, 0.117647058823529, 0, 1, 0
15	33	59	75, weak proposer, Accepted, 3, None, None, None, 0, 0, 0, 0
15	33	60	74, weak responder, Accepted, 5, Fair, Multiple, Multiple, 1, 0, 0, 1
15	35	63	73, weak proposer, Accepted, 4, Fair, Fair, Fair, 0, 0, 1, 1
15	35	64	70, balanced, Accepted, 5, Fair, Fair, Fair, 0.411764705882353, 1, 1
15	36	65	68, balanced, Rejected, 5, Fair, Fair, Selfish, NA, 1, 0, 0
15	36	66	67, balanced, Rejected, 9, None, None, None, 0.117647058823529, 0, 0
15	38	69	65, weak responder, Rejected, 1, Selfish, Selfish, Fair, 0.411764705882353, 0, 0, 1
15	39	71	63, weak responder, Rejected, 5, Fair, Multiple, None, 0.235294117647059, 0.411764705882353, 0, 0, 1
15	39	72	62, balanced, Accepted, 5, Fair, Fair, Fair, 0.0588235294117647, 0.117647058823529, 0, 0, 0
15	41	75	61, balanced, Accepted, 5, Fair, Fair, Fair, 0, 0, 1, 1
15	41	76	60, balanced, Accepted, 5, Fair, Fair, Fair, 0.411764705882353, 1, 0
15	42	77	59, weak proposer, Accepted, 5, Fair, Fair, Fair, 0, 0, 0, 0
15	42	78	57, balanced, Accepted, 7, None, None, None, 0, 0, 0, 0
15	44	81	55, weak responder, Rejected, 6, None, None, None, 0, 0, 1, 0
15	44	82	54, weak responder, Accepted, 5, Fair, Multiple, Multiple, 0, 0.588235294117647, 0, 0
15	46	85	53, balanced, Accepted, 4, None, None, None, 0, 0, 0, 0
15	46	86	50, weak responder, Rejected, 1, Selfish, Selfish, Fair, 1, 0, 0, 0
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15	48	90	46, weak responder, Accepted, 5, Fair, Multiple, Multiple, 0, 0, 0, 0
15	48	90	"weak proposer" 1 1 0 0 1 17 0 "D"
15	48	90	"weak proposer" 1 0 0 0 0 17 0 "D"

proposals preferences bargaining

URL: <http://dx.doi.org/10.6084/m9.figshare.1021603> (Abruf 18.09.2014)

“Intelligent openness” (Royal Society, 2012)

- **Accessible.** Data must be located in such a manner that it can readily be found.
- **Intelligible.** Data must provide an account of the results of scientific work that is intelligible to those wishing to understand or scrutinise them.
- **Assessable.** Recipients need to be able to make some judgment or assessment of what is communicated.
- **Usable.** Data should be able to be reused, often for different purposes.

Data Publication at Figshare

The screenshot shows a Figshare data page. At the top, there is a search bar and navigation links for 'Browse' and 'Upload'. The main title is 'Data for "Power and Fairness in a Generalized Ultimatum Game"'. Below the title, there are two data files: 'data.tsv' and 'prefs.annotated.csv', each with 'preview' and 'download' options. A 'Download all' button is also present. On the right side, there are statistics: '41 views' and '0 shares'. Below these, there is a 'Published on' date and time, and the total file size. The page also features 'Categories' (Sociology, Economics), 'Authors' (Giovanni luca Ciampaglia), and 'Tags' (fairness, ultimatum game, proposals, preferences, bargaining). A 'Share this' section includes social media sharing options (Facebook, Twitter, Google+) and an 'Embed' button. A 'Cite this' section provides the citation information and a DOI link. A 'Description' section at the bottom provides a brief overview of the data.

• Accessible?



• Intelligible?



• Assessable?



• Usable?



URL: <http://dx.doi.org/10.6084/m9.figshare.1021603> (Abruf 18.09.2014)

Conclusion 1

- While more and more data are successfully and easily *published*, the *communication* of these data still may fail.
- But publishing data that are not intelligible does not increase transparency, it only adds noise to the scientific communication.

Communicating Data

From:

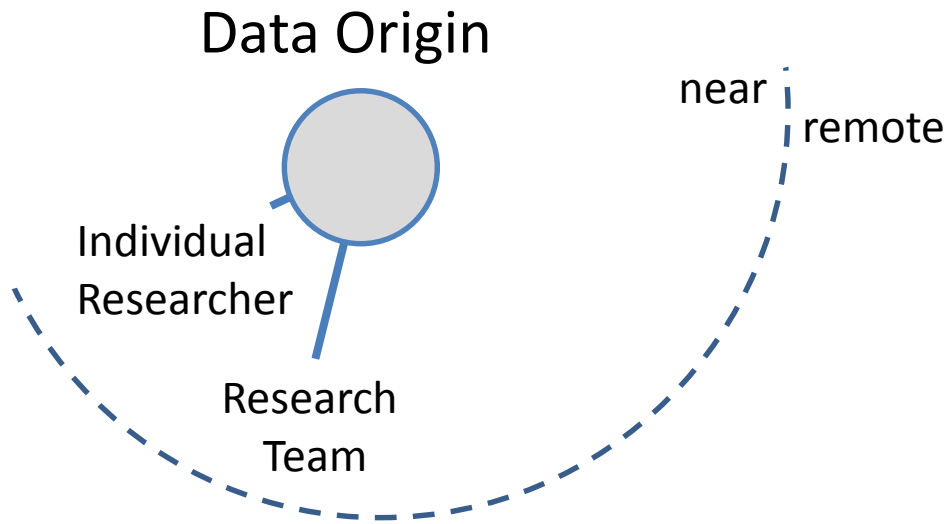
Researchers publish data

To:

Researchers communicate data to receivers

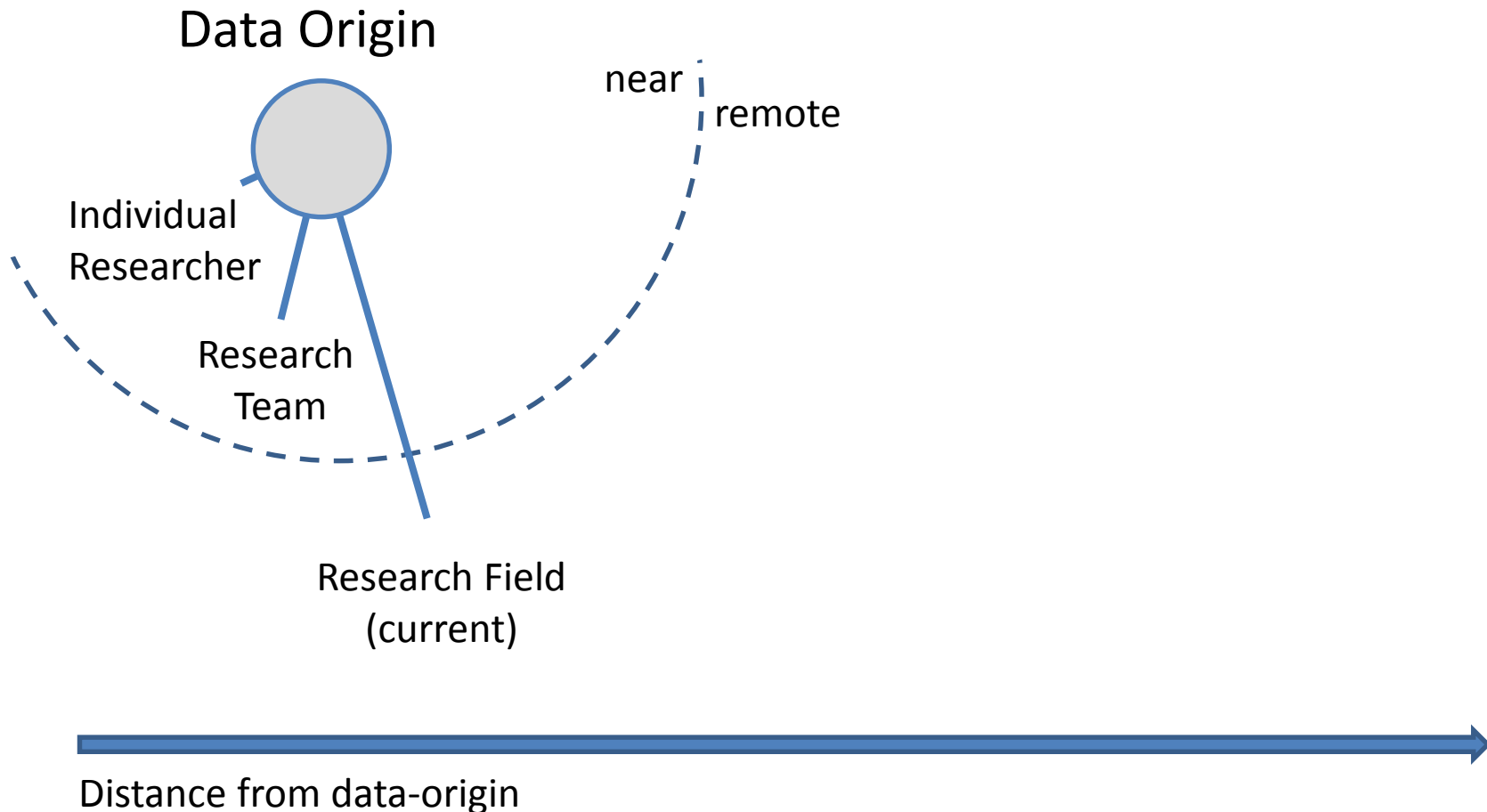
[Sender → Message (Meaning) → Receiver]

Communicating Data and Distance from Data-Origin

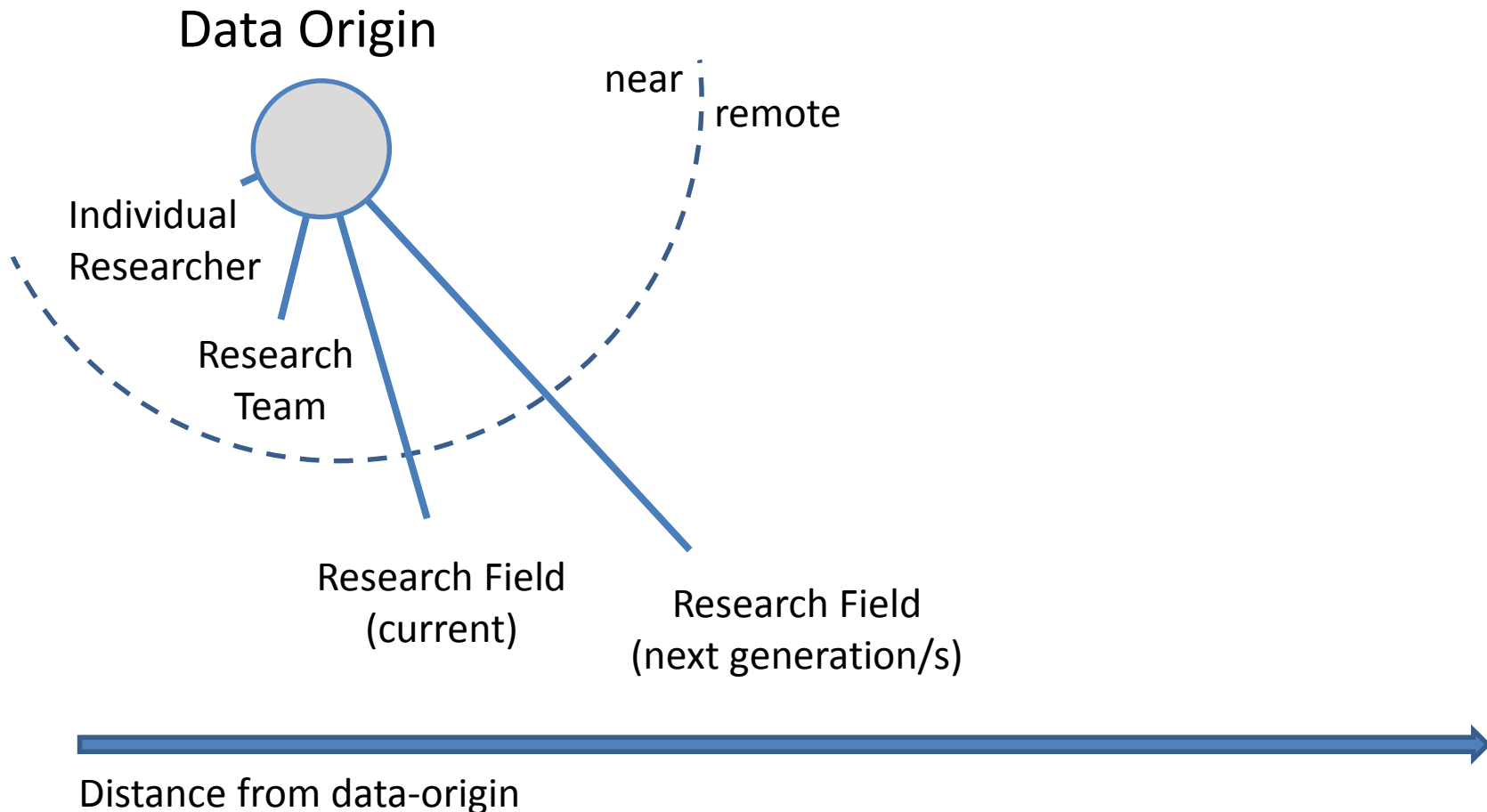


Distance from data-origin

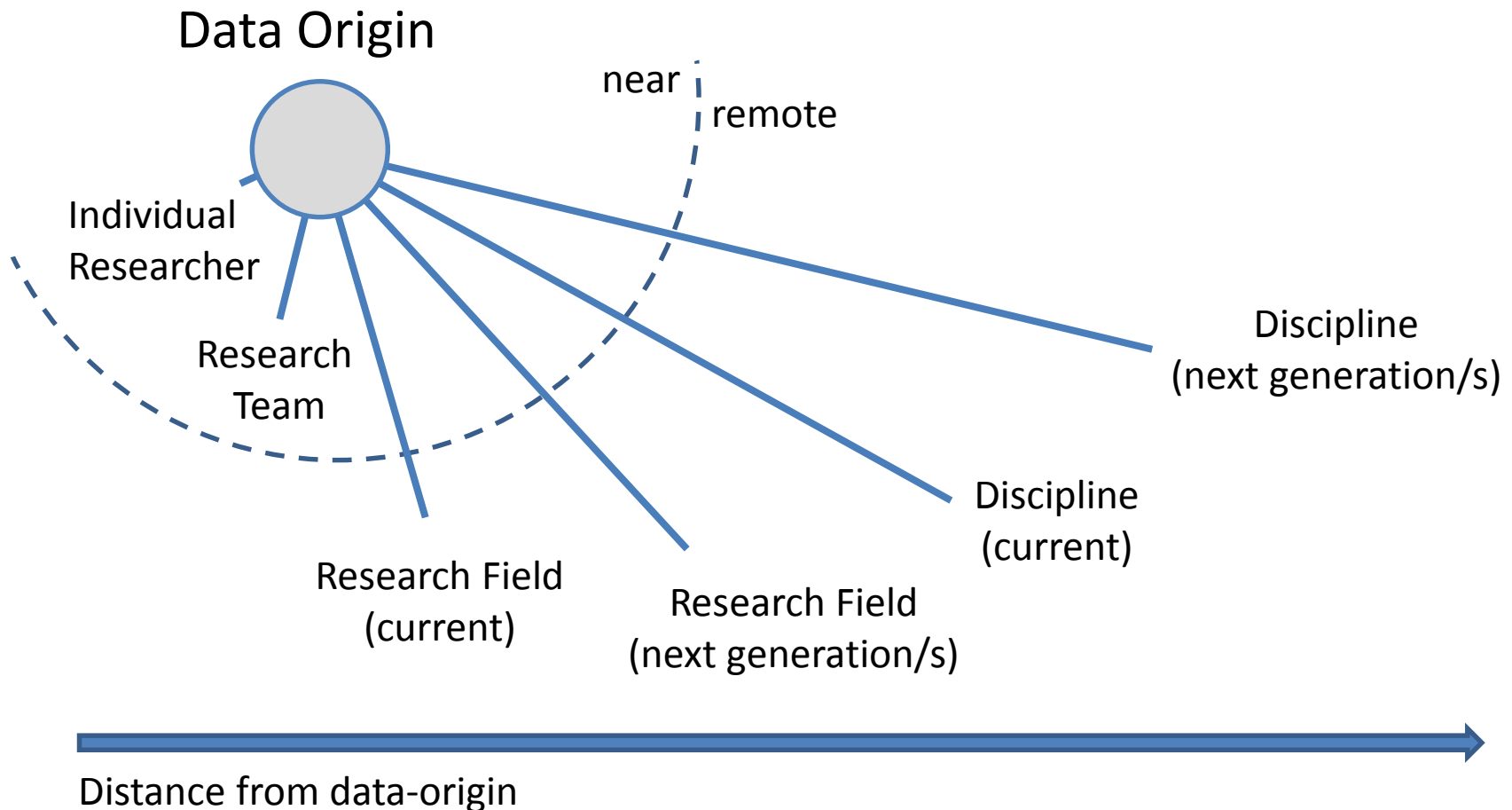
Communicating Data and Distance from Data-Origin



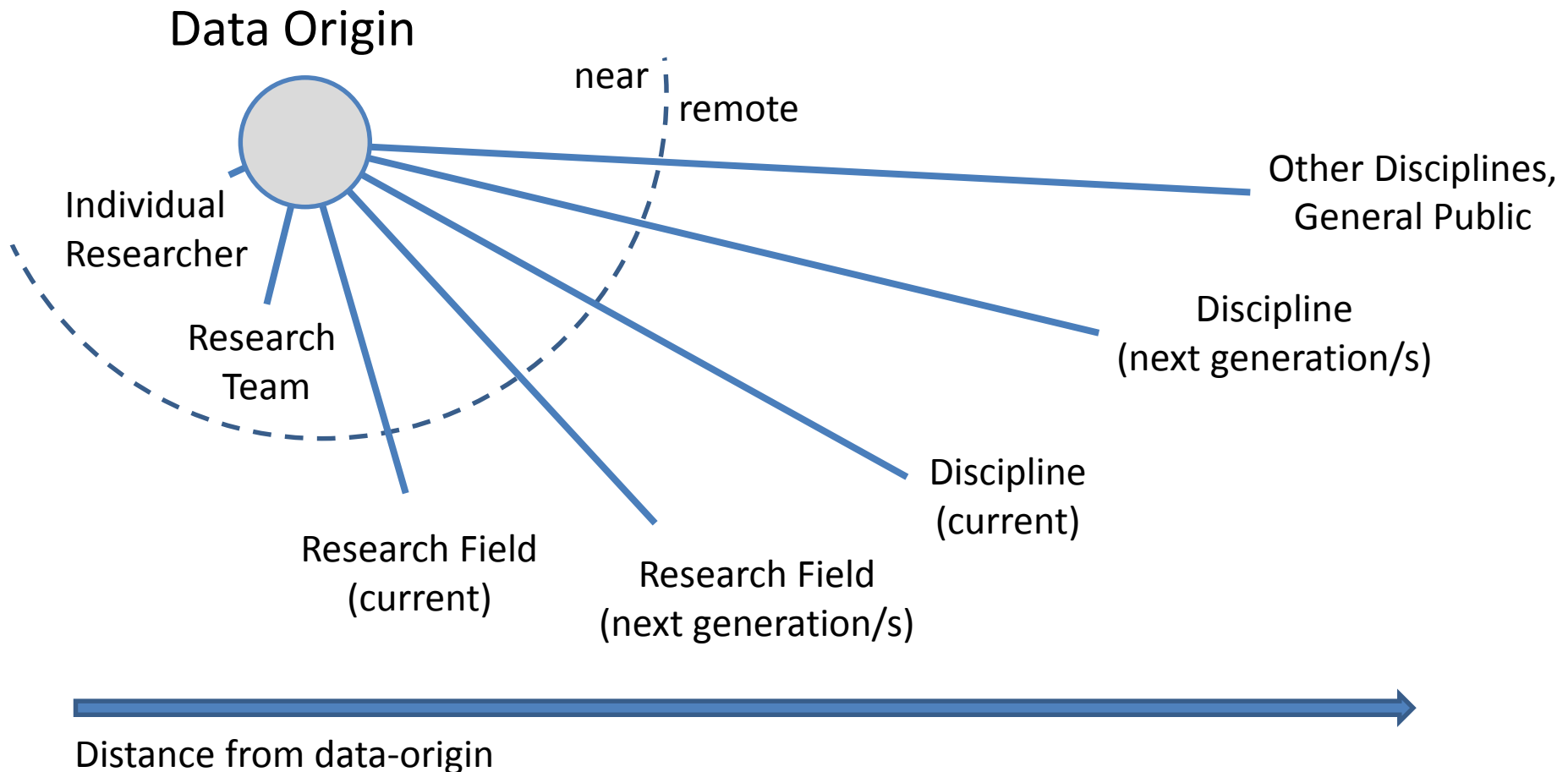
Communicating Data and Distance from Data-Origin



Communicating Data and Distance from Data-Origin



Communicating Data and Distance from Data-Origin



Conclusion 2

- To communicate research data we need metadata to ensure that the data are intelligible, assessable and usable.
- What set of metadata is needed depends on the kind of receivers/users of the data and their background knowledge.

Dryad Digital Repository

How can I make my data submission as accessible and reusable as possible? [Close](#)

- Submit your data files in non-proprietary formats from which data can be easily extracted (e.g., CSV rather than PDF).
- Keep your file names short, informative, unique, and free of special characters.
- Consider submitting your data files in multiple formats if you think that will enhance their ability to be reanalyzed. View [additional guidance](#) and a list preferred Dryad file formats.
- Provide descriptive information within your data files (e.g., column headers in a spreadsheet).
- Provide a [ReadMe file](#) that provides contextual information about the data file so that it can be interpreted correctly.
- Provide titles, descriptions and keywords for your datafiles, to make the data more discoverable and to assist in understanding the relationship of the datafile to the publication.

<https://datadryad.org/pages/faq>

Digital Curation Centre: Disciplinary Metadata

Disciplinary Metadata

While data curators, and increasingly researchers, know that good metadata is key for research data access and re-use, figuring out precisely what metadata to capture and how to capture it is a complex task. Fortunately, many academic disciplines have supported initiatives to formalise the metadata specifications the community deems to be required for data re-use. This page provides links to information about these disciplinary metadata standards, including profiles, tools to implement the standards, and use cases of data repositories currently implementing them.

For those disciplines that have not yet settled on a metadata standard, and for those repositories that work with data across disciplines, the General Research Data section links to information about broader metadata standards that have been adapted to suit the needs of research data.

Please note that a [community-maintained version of this directory](#) has been set up under the auspices of the Research Data Alliance.

Search by Discipline



Biology



Earth Science



General Research Data



Physical Science



Social Science & Humanities

Wanted: Better Tools for Data Management

” Once you dig deeper into the metadata standards, there are links to websites that are completely indecipherable to the average joe (e.g., me). Jargon is abundant and navigation of these sites is, at best, based on an intimate knowledge of the metadata standard; at worst, erratic and inexplicable.

[...]

We have no easy way for researchers to start understanding and creating metadata.

Wanted: Better Tools and Websites for Data Management Help

Mar 06 2013, Carly Strasser

<http://datapub.cdlib.org/2013/03/06/wanted-better-tools-and-websites-for-data-management-help/>

Some Future Steps for Better Data Communication

- **Tools:** Development of data communication tools for researchers
- **Metadata standards:** Development of metadata for relevant data communication use cases
- (More) **Collaboration** between information scientists and research communities

Some Future Steps for Better Data Communication

- **DataWiz:**
An Automated Assistant for the
Management of Psychological Research
Data
Leibniz Intitute for Psychology
Information, Trier, Germany.
- Funding: German Research Foundation

Contact

Armin Günther: guenther@zpid.de

Ina Dehnhard: dehnhard@zpid.de

