The *When* of Open Science

George Strawn, US National Adacemy of Sciences

Technology, Economics, and Sociology

- For the purposes of this talk, I will assume that the ***Why*** of Open Science (OS) is understood

- The challenges of OS are best compared to a marathon, not a sprint, for the above three reasons

Technology

- The “easiest” of these challenges is the Technology, which is not to say that the technology is ready

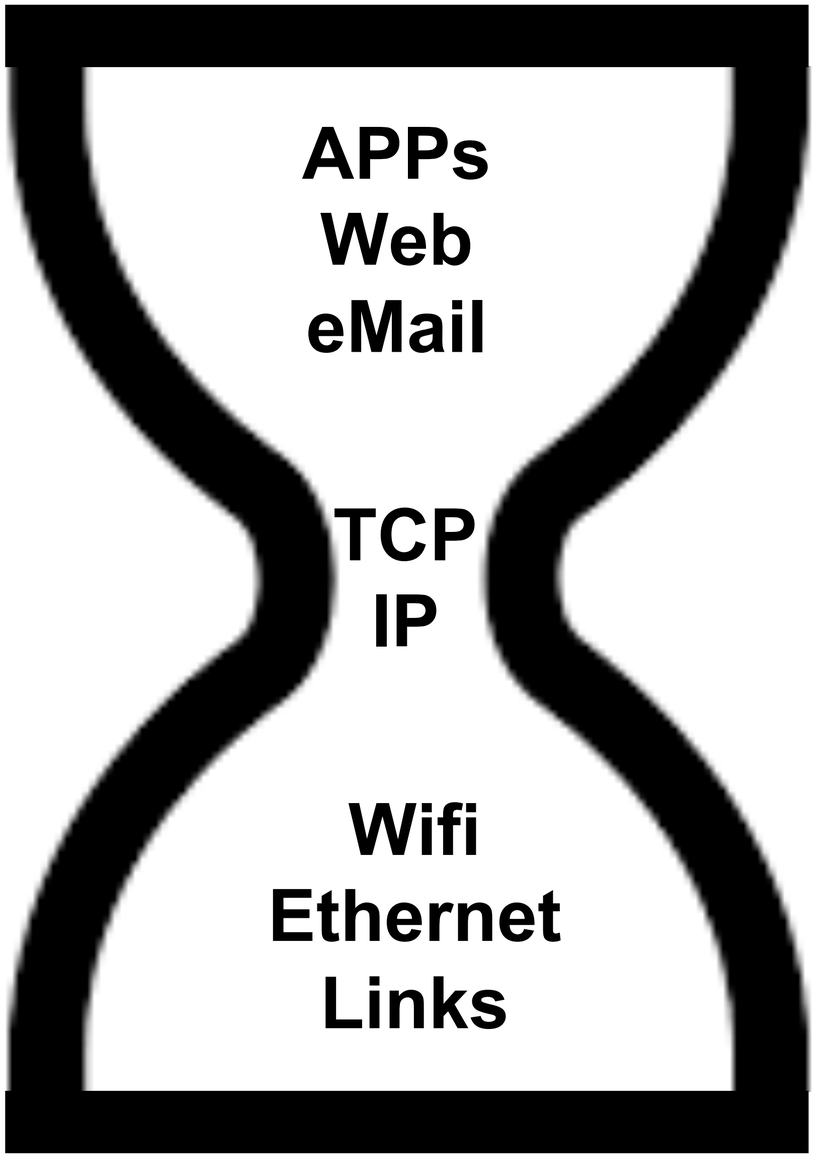
- OS requires FAIR data (findable, accessible, *interoperable*, and reusable)

- OS includes FAIR data, open source, open workflows, open articles, etc

- Three ages of IT
  past-many computers, many datasets;
  present-one computer, many datasets;
  future-one computer, one dataset

Where and How of FAIR Data

- *Where*: EOSC and now US science clouds are under consideration
- *How* to store the data is a more interesting problem
- Interoperability, ease of use, ease of implementation


APPs
Web
eMail
TCP
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Wifi
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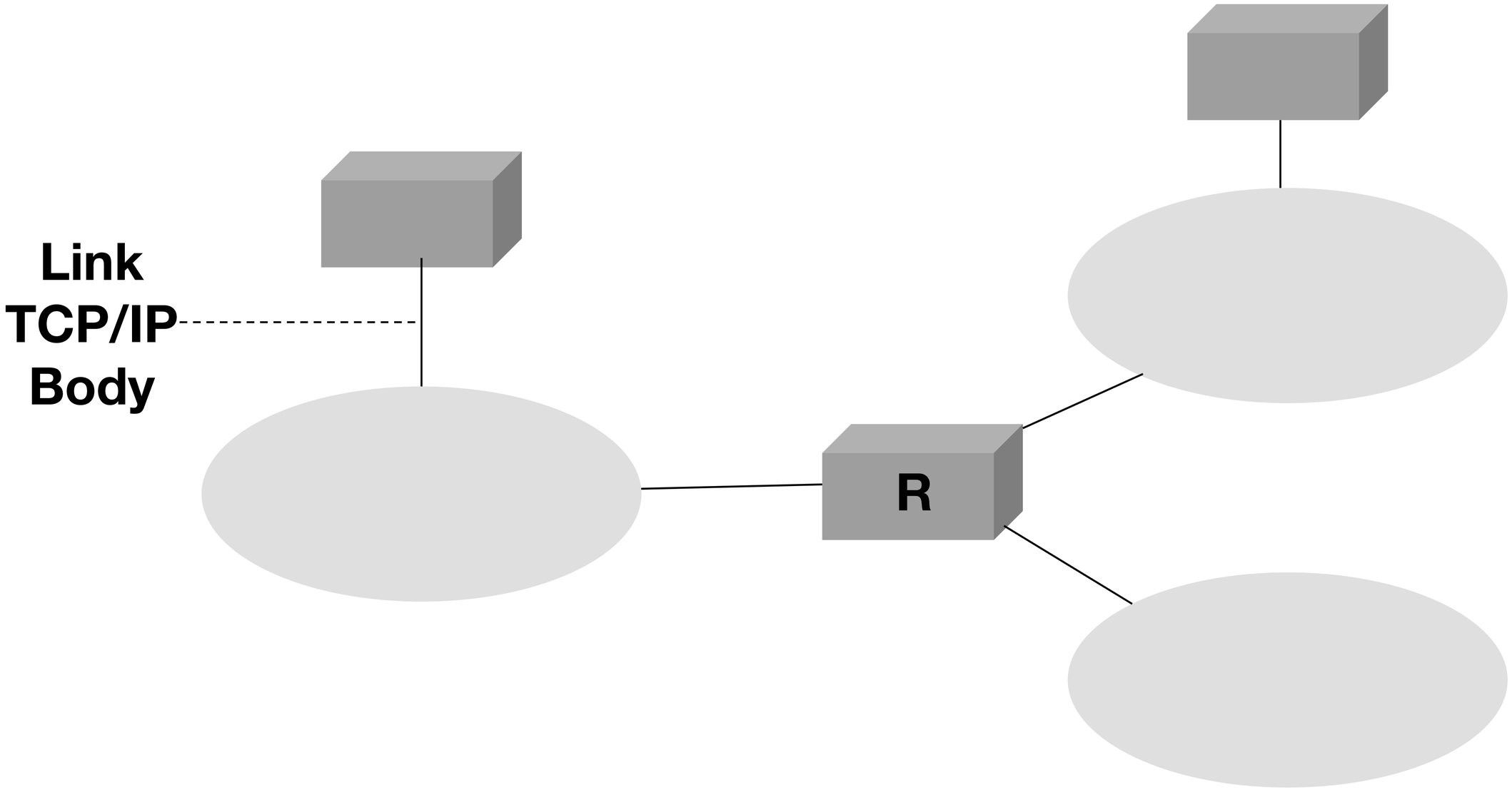
Links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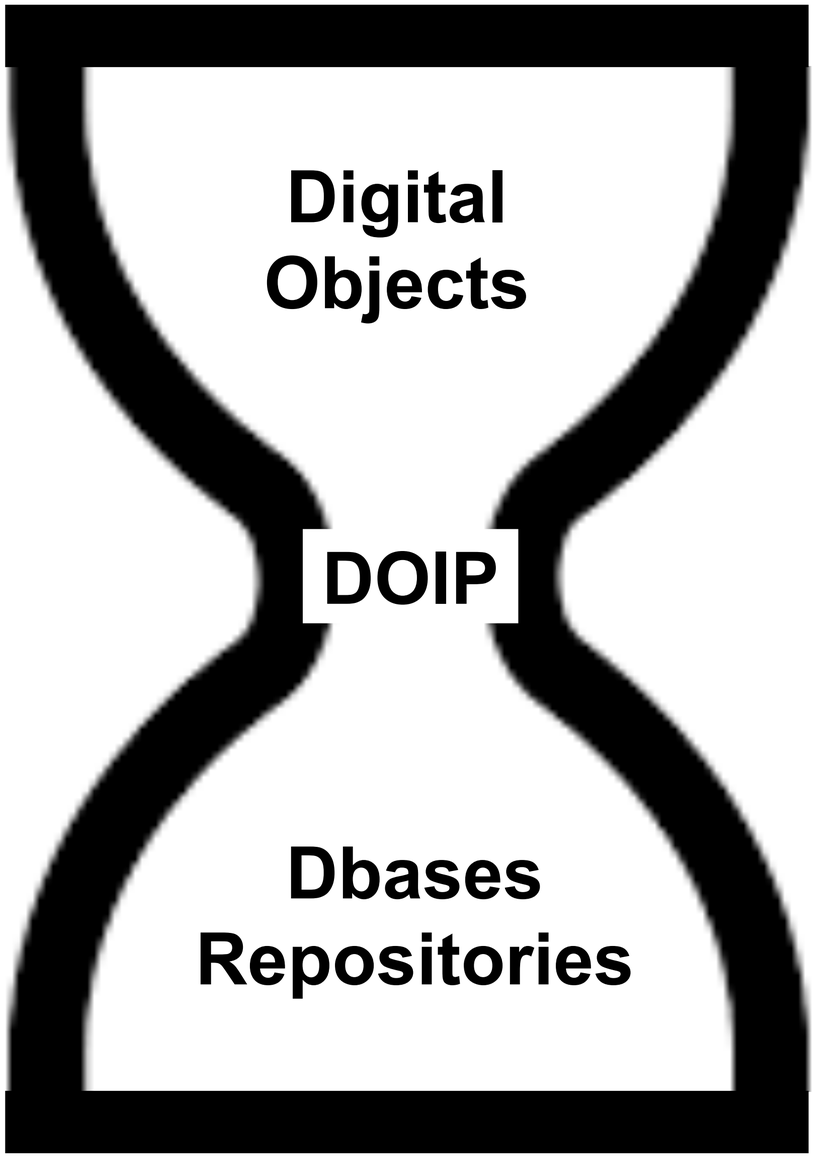
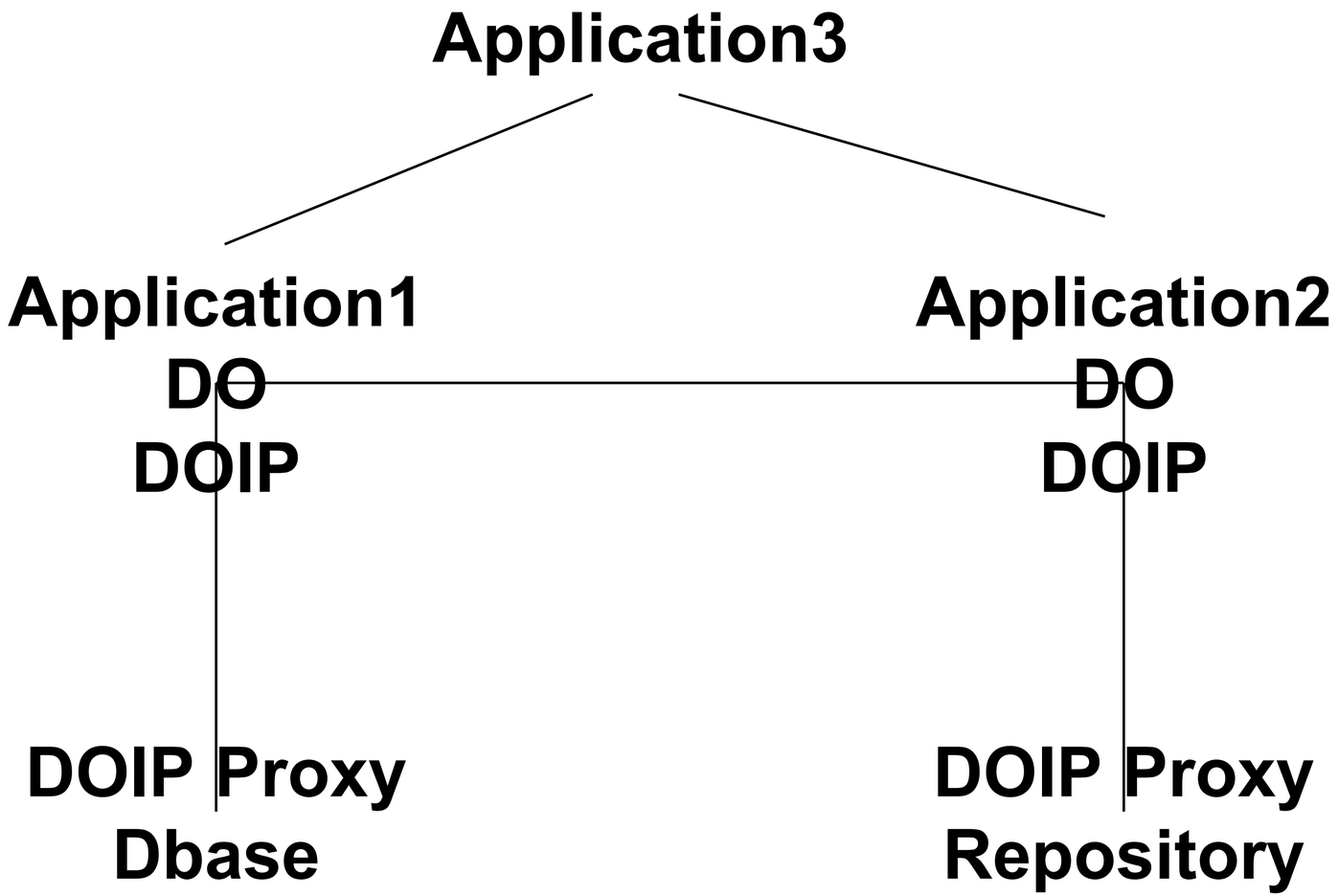

Digital
Objects
DOIP
Dbases
Repositories


Application3
Application1
DO
DOIP
Application2
DO
DOIP
DOIP Proxy
Dbase
DOIP Proxy
Repository

Science Economics

- When any new technology is ready, “*The status quo always resists it’s revolutionary potential*”
- Status quo science economics: subscription model for journals to support scientific societies
- Some progress in some disciplines: preprint repositories, open access articles (OS by Publication vs. OS by Design)
- Funder sticks

Science Sociology

- Status quo science sociology: publish articles only
- Publishing data is a hard and an unfunded mandate
- Publishing data is also an unrewarded mandate
- Institutional carrots (P&T?) and funder sticks
- A generational change? In the 2020s?