



## **20 Years of persistent identifiers – Which systems are here to stay?**

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Web-based persistent identifiers have been around for more than 20 years, a period long enough to start observing patterns of success and failure. Persistent identifiers were invented to address challenges arising from the distributed and disorganised nature of the internet, which not only allowed new technologies to emerge, it also made it difficult to maintain a persistent record of science. Persistent identifiers now allow unambiguous identification of resources on the net. The expectations were that persistent identifiers would lead to greater accessibility, transparency and reproducibility of research results.

Over the past two decades a number of persistent identifier systems have been built, one of them being Digital Object Identifiers (DOI). While DOI were originally invented by the publishing industry, they quickly became an established way for the identification of research resources. At first, these resources referred to scholarly literature and related resources. Other identifier systems, some of them using DOI as an example, were developed as grass-roots efforts by the scientific community. The concept of using persistent identifiers has since been expanded to other, non-textual resources, like datasets (DOI, EPIC) and geological specimens (IGSN), and more recently to authors and contributors of scholarly works (ORCID), and to software and instruments.

A common witticism states that "a great thing about standards is that there are so many to choose from." Setting up identifier systems is technically trivial. The real challenge lies in creating a governance system for the respective identifiers. Which systems will stand the test of time?

Drawing on data from the Registry of Research Data Repositories (re3data.org) and our own experience in the field, this presentation looks at the history and adoption of existing identifier systems and how this gives us some indications towards factors influencing sustainability of these systems.