Call for long-term view on 'dire' funding of biological research databases

October 18 2010

A rethink is needed on the 'dire' situation of funding of databases across biology, researchers say.

A paper co-authored by Sabina Leonelli, Research Fellow at Egenis at the University of Exeter, reviews the business models currently used to deal with long-term sustainability of these resources, and suggests a 'global change' in funding policies is necessary.

"There is no point investing resources into collecting data, if the development of tools needed to disseminate and interpret those data is not supported. In this sense, building appropriate cyberinfrastructure is as important as preserving the privacy of patients who donate information of potential use to the biomedical sciences: if that information is not effectively used to advance research, its collection and dissemination are unwarranted," argues Dr Leonelli.

Sustainable digital infrastructure by Dr Leonelli and Ruth Bastow of the University of Warwick, published in EMBO Reports, is one of the first assessments of its kind and has already caught the attention of the US government agency the National Science Foundation.

"The past decade has seen an unprecedented explosion of data, tools and databank resources in the biological sciences, most of which can be freely accessed by researchers over the Internet," say the authors.

"Access to online data has become a basic requirement for conducting

scientific research, but the growth in data, databases, websites and resources has outpaced the development of mechanisms and models to fund the necessary cyberinfrastructure, curation and long-term stewardship of these resources."

But, they conclude, "A single, viable framework for sustainable and long-term stewardship of data and resources has not emerged."

"No current model is able to meet the requirements of cyberinfrastructure and data-intensive research," explains Dr Leonelli. "Sustained funding is needed to ensure that reliable and ready-to-use data can be found in high quality and up-to-date databases maintained by professional curators."

The authors argue that funding agencies and national governments operate under an outdated assumption that cyberinfrastructure can be treated either as another branch of the research process – the value and novelty of which needs to be constantly assessed and demonstrated – or as an inexpensive service that can be outsourced to industry or users themselves.

In the article Dr Leonelli and Dr Bastow review some of the financial models and mechanisms that could be employed to support public repositories, databases and resources in the long term, arguing that the current division of labour underlying scientific research is not sustainable.

For one or more of the models to work, they suggest, current modes of interaction between researchers, funders, publishers, curators and editors, and their respective responsibilities, need to change.

"This might happen through a change in the role of publishers, who could become central to the management and dissemination of databases

and related personnel," they write. "It might involve a change in the assessment of researchers' work, clearly distinguishing between their roles as data generators and data users and assigning penalties for failure to upload and maintain data in public repositories. It might involve a global change in funding policies, if science funders recognize that they need to provide targeted, long-term funding for cyberinfrastructure. Most probably, all three of these shifts will need to occur to secure the long-term sustainability of database building and curation."

More information: 'Sustaining digital infrastructure' by Ruth Bastow and Sabina Leonelli is published in *EMBO Reports* 11 (10), 2010, pp.730-734.

Provided by University of Exeter