Enhanced publication: a new model of scientific publication for the nuclear area

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Keywords: enhanced publications; digital data research; eScience

Introduction

The new scientific paradigm known as eScience is characterized by the generation, use and dynamic sharing of research data, driven mainly by the advancement of scientific instruments and intensive use of simulation software and computing equipment distributed in global networks. The data generated by eScience comprehend digital objects which are complex, heterogeneous, spread and highly diversified, constituting the main products of the research activities of this paradigm. As a consequence, this phenomenon of contemporary research poses a new challenge for scientific communication: How to express and disseminate, through printed or digital conventional publications, the sophistication and the multiplicity of research products generated by eScience research methodologies? The need to ensure semantic and structural properties and the ability to access, retrieve and reuse research data in different contexts, driven by the emergence of new scientific publications.

Methodology

This research is empirical and its method is inductive, as it investigates the main conceptions of scientific publications which aim to address the challenge of research data deluge in order to propose a new publication model. The focus lies on the concept of "enhanced publication" that aggregates, in a standardized way, publications, data, data sets and metadata. The analyzis of the principal reports: DRIVER-II and Surf-fondation reports [1,2], which establish the standards, models and practices for development of enhanced publications, were chosen as the main methodological basis. Added to this, this work analyzes how research data combined with information technologies can enrich traditional publications creating new concepts for scientific documents that can deal with the complexity of scientific research of the current paradigm, breaking the barrier of text and creating semantic relationships between e-prints and collections of research data

Results and Conclusions

As a result, the Nuclear Sciences area obtained a model of scientific publication, in which the research data is linked to the academic publications by means of semantic relations systematized into taxonomy built for this purpose. Graphic models are used as a tool to represent and synthesize the resulting concepts. As a conclusion the following aspects were observed: changes in the scholarly communication cycle, the possibility of building a new scientific model as a relevant standard to the practice of a more open and more collaborative science, and feasibility for incorporating the principles and theories of librarianship and Information Science for the organization of technical and scientific knowledge in the world of eScience. The complete work can be found at [3] and [4]

References

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