

The Role of the DIKW Hierarchy in the Design of a Digital Library System for the Scientific Data of Large-Scale Evaluation Campaigns

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ABSTRACT

This paper exploits the DIKW hierarchy as a framework for modelling the scientific data produced during large-scale evaluation campaigns for information retrieval systems in order to design a digital library system able to manage and support the course of such evaluation campaigns.

Categories and Subject Descriptors

H.3.4 [Information Storage and Retrieval]: Systems and Software—*Performance evaluation (efficiency and effectiveness)*; H.3.7 [Information Storage and Retrieval]: Digital Libraries

General Terms

Design, Experimentation, Management, Performance

Keywords

Large-scale Evaluation Campaigns, Scientific Data, Digital Library System, DIKW

Overview

The Data, Information, Knowledge, Wisdom (DIKW) hierarchy [3] can be used to structure the scientific data produced during a large-scale evaluation campaign and to design a digital library system which manages such data in order to better support their curation, preservation, enrichment, and re-use [1]. The final aim is to better support researchers and developers in the information retrieval field providing them with tools that facilitate their research work and promote the knowledge transfer towards interested communities, such as the digital library one [2].

This approach highlights that the information resources of an evaluation campaign are increasingly complex and are often the result of the processing of existing resources so that we need to be aware of their level in the hierarchy in order to properly manage them and make them accessible in an effective way. Indeed, as shown in Figure 1, it is possible to think each campaign as a cycle where the information resources line up on a spiral staircase and allow the different users involved to move from data towards wisdom. Moreover, this model is user-centered, focusing on the interaction

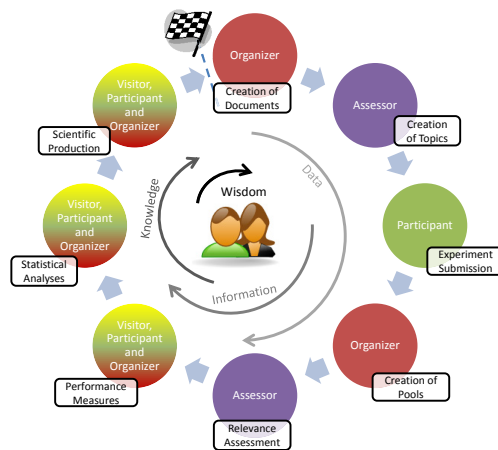


Figure 1: Relationships between the DIKW hierarchy, the information resources, the actors and the main steps of an evaluation campaign.

between the different types of actors involved in an evaluation campaign – *participant*, *assessor*, *visitor*, and *organizer* – and the tasks they need to accomplish, and on the cognitive process of each type of actor.

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