

The Metamodel of Heritage Preservation for Medical Big Data

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Abstract. At present the real challenge of Digital Data Preservation concerns methods of keeping all important attributes of the data and preserving their originality. The key is to keep the living part of the data. It is the essence of the Heritage concept. The Heritage is about the concrete data the concept gives the interconnection to other aspects of the reality. Nowadays the physical value and the aspects of items complete the relevance of information. But the question is what is heritage and which parameters defining the artifact or the information as a heritage? The context and the interpretation of data is the answer. The heritage term is defining as the crucial and central part of the presented research. Big data analytics in healthcare is evolving into a promising field for providing insight from very large data sets and improving outcomes while reducing costs.

Keywords: Data · Preservation · Digital · Heritage · Metamodel
Ontology

1 Introduction

There are two tendencies around the understanding of the management of the ideas. The ontology and the Epistemology of this study, centralized the future use and the Serendipity tendency of the item. However, in the perspective of the nonphysical items there is a World of Physical and Logical and how the Preservation need to look items and how will be the manifestation. Digital Preservation has evolved into a specialized, interdisciplinary research. Through the time the challenge in to jointly develop solutions. As the patterns and alternative solutions there are Information Retrieval and, Machine Learning or Software Engineering. The Digital Preservation show us the reality of the understanding of the World about the facility to have digital expressions rather than just physical. The Heritage of the collected information define the quality of the Data. This is specifically important in medical field. At this stage, the definition of Heritage involved

the presence not only the content. It is the express by itself the real meaning of the data. The perception of the importance and relevance of the information is measured through the definitions and the proposed Metamodel. Digital Data and Heritage Preservation concepts are related to medical data management, contextualization and storage. There are many issues and concerns around it. This research explores the precise definition, context and the need of patterns of heritage specifically in medicine. Patterns, the Metamodel and the Ontology of DHP.

2 Patterns, the Metamodel and the Ontology of DHP

One of the primarily concerns about the explosive amount of information and the complexity of the classification, is how to keep the principal characteristics data. A need to move away the traditional understanding of Heritage reflects the real meaning of the data. More artifacts and everyday life tendency is to have less physical representation in the World of Logic. The representation of the items refers to the tendency of more things nonphysical and ow through the Heritage it passes the attributes (Fig. 1).

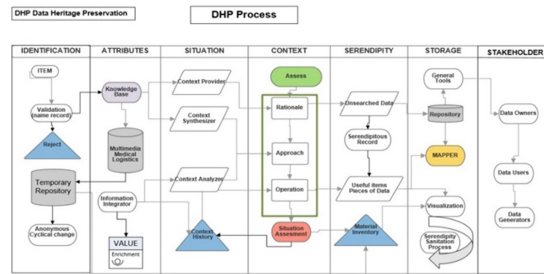


Fig. 1. DHP workflow model

The Metadata Model explores dynamic data representations and specifically the new relations, their origin and the mechanism(s) that generate these relations. The formatting of information provides the unique result as a digital age of the information. Other objective is the knowledge management and Ontology as techniques for analyzing information. The proposed metamodel aims to provide an alternative for the understanding of the Heritage Preservation concept that relates to important dimensions around the processed data and its origins. The different dimensions of the Digital Heritage Preservation capture the real significance of Data Heritage.

3 Value Based on Heritage

The search for values and meaning has become a pressing concern (see [1, 2, 7, 16]).

Values are the subject of much discussion in contemporary society. In this postmodern, post-ideology, post-nation-state age, the search for values and meaning has become a pressing concern. In the field of cultural heritage conservation, values are critical to deciding what to conserve—what material goods will represent us and our past to future generations—as well as to determining how to conserve.

Discussions of values, of how social contexts shape heritage and conservation, and of the imperative of public participation are issues that challenge conventional notions of conservation professionals' responsibilities.

Values is most often used in one of two senses: first, as morals, principles, or other ideas that serve as guides to action (individual and collective); and second, in reference to the qualities and characteristics seen in things, in particular the positive characteristics (actual and potential).

Digital Preservation has evolved into a specialized, interdisciplinary research. Through the time the challenge in to jointly develop solutions. As the patterns and alternative solutions there are Information Retrieval and, Machine Learning or Software Engineering. The real fact of Digital Preservation show us the reality of the understanding of the World about the facility to have digital expressions rather than just physical. The Heritage of the collected information define the quality of the Data (Fig. 2).

At this stage, the definition of Heritage involves mostly the presence of the content. It is the expressed by itself the real meaning of the data. The perception

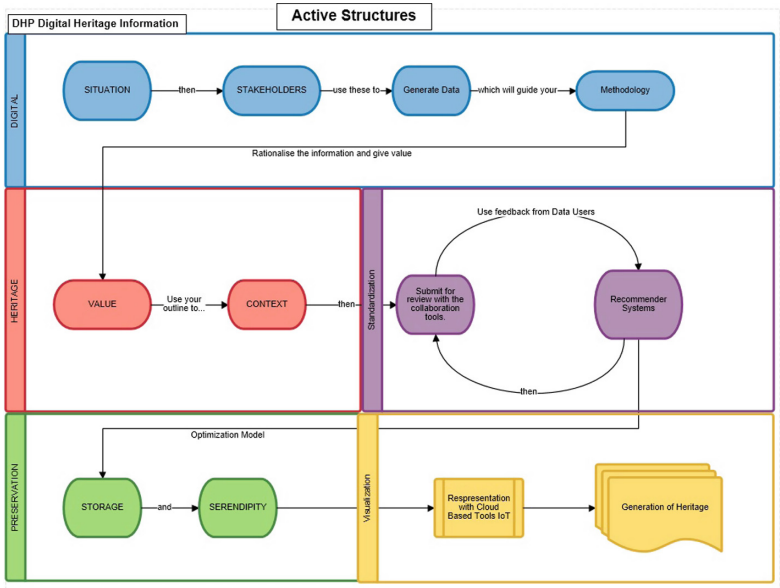


Fig. 2. Active structures

of the information relevance is measured using the definitions and matrix of the proposed metamodel.

As concepts Digital Data and Heritage Preservation are related to data management, contextualization and storage. There are many issues and concerns around it. This research explores the precise definition, context and the need of patterns of heritage. The relations, interpretation and context give us the appropriate methods to keep information for a long term use. The management of massive amounts of critical data involves designing, modeling, processing and implementation of accurate systems. The methods to understand data have to consider two dimensions that this research has to focused on: access dimension and cognitive dimension. Both of these dimensions have relevance to get results because at the same time, ensure the correct data preservation.

Our cultural heritage, documents and artefacts increase regularly and place Data Management as a crucial issue. The first stage involves exploration and approaches based on review of recent advances. The second stage involves adaptation of architectural framework and development of software system architecture in order to build the system prototype. Increasing regulatory compliance mandates are forcing enterprises to seek new approaches to managing reference data. Sometimes the approach of tracking reference data in spreadsheets and doing manual reconciliation is both time consuming and prone to human error. As organizations merge and businesses evolve, reference data must be continually mapped and merged as applications are linked and integrated, accuracy and consistency, realize improved data quality, strategy lets organizations adapt reference data as the business evolves.

The massive amount of data and the growth of Big Data drive the society to preserve the information principally related with the lost of key information. The protagonism in the role of metadata and the requirement that data has to be keep in a long term open the alternative to focus on information management.

4 Big Data and Healthcare

The healthcare industry historically has generated large amounts of data, driven by record keeping, compliance & regulatory requirements, and patient care (see [9]). While most data is stored in hard copy form, the current trend is toward rapid digitization of these large amounts of data. Driven by mandatory requirements and the potential to improve the quality of healthcare delivery meanwhile reducing the costs, these massive quantities of data (known as ‘big data’) hold the promise of supporting a wide range of medical and healthcare functions, including among others clinical decision support, disease surveillance, and population health management [10–13].

For the purpose of big data analytics, this data has to be pooled. In the second component the data is in a ‘raw’ state and needs to be processed or transformed, at which point several options are available. A service-oriented architectural approach combined with web services (middleware) is one possibility [14] (Fig. 3).

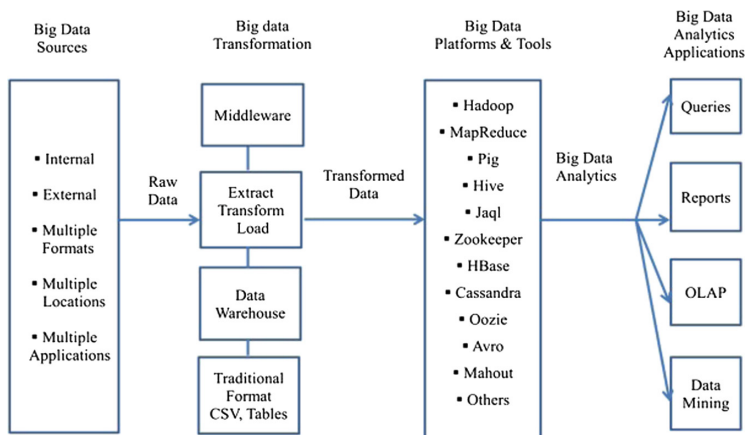


Fig. 3. An applied conceptual architecture of big data analytics [15]

5 Conclusion

Several challenges highlighted must be addressed. As big data analytics becomes more mainstream, issues such as guaranteeing privacy, safeguarding security, establishing standards and governance, and continually improving the tools and technologies will garner attention.

The use of tools and techniques like Steganography, the concepts of Software Architecture will have a real approach and meaningful characteristics for the relevance of the investigation.

The context, relation and situation of Heritage are impressive relevant in the research because it gives the sense of the future of the Knowledge in the World. Through medical process of Preservation will do a contribution for society advances.

The Business Process Management give us a good approach to the development of Performance and Data Preservation. Through process the increase of data can be justified.

The way to improve the understanding of the methodology, the information has to consider two dimensions: access dimension and cognitive dimension. Both of them have the level of importance in terms of the results.

While most platforms currently available are open source, the typical advantages and limitations of open source platforms apply. To succeed, big data analytics in healthcare needs to be packaged so it is menu-driven, user-friendly and transparent. Real-time big data analytics is a key requirement in healthcare.

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