Are we ready for BIBFRAME? : the future of the new model in the Arab region

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Abstract

Today we are living in the era of the information revolution that has left its marks and its implications clear to all sectors of society, including the libraries that cannot lag behind the spirit of the age, and that the distance from its characteristics, and must be change with these traits and characteristics because they are one of the social, science .Libraries in our present lives leap great quality is an important shift in the shape and nature of the information and services provided by the beneficiaries.

This research focuses on the Arab libraries' implementation and how they can contribute to the international cataloguing community; should we contribute in the testing phase or we are still behind. The findings of this paper aim at giving better understanding to the implementations procedures and requirement and the expected problems with the Arabic materials. As for years now libraries in the United States and Europe turned from the physical environment to the digital in the time that the Arab libraries still focus almost exclusively on purchasing printed books. Do we really need to replace MARC 21? How many libraries adopted RDA in the Arab region? This paper will present the real situation of the Arab libraries that could affect the decision of implementing BIBFRAME. What could we do in this phase?

Moreover, this study will shed light on the needs of the Arab libraries that made the implementation possible and how we could set plane in advance for test and implementation timeline including all the tasks and expenses required. Therefore, the decision will be mainly affected by several factors, for example the library system used, the training required and budget required for adoption.

Finally, the paper will present a future prospective forecasting how many libraries in the Arab region would be able to implement in the coming years.

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1. INTRODUCTION

1.1. BACKGROUND

"Cataloguing is one of the oldest information organization activities and has a history that is over 2000 years old. However, the history of modern-day approaches to cataloguing by using standard principles and practices is only a few hundred years old, and the most recent development took place only over the past few years" (G. Chowdhury and Sudatta Chowdhury 29).The cataloguing community was familiar was the tools they used like AACR and MARC 21 which were replaced recently by RDA and BIBFRAME.

1.2. MARC

The MARC standard for exchanging data has been used by libraries for more than 30 years. In the early 60s, the library of Congress developed the first machine-readable cataloging project and they called the product (MARC), then the British library collaborated with the library of Congress and they work on developing the project and as a result MARC was born. The standard was created at the beginning to serve as the basis for the presentation and exchange of bibliographic data.

At the beginning, MARC was identified as MARC only until other versions were developed afterwards. In 1970, MARC was known as LC-MARC. Then, other name came into being "US MARC" in a way to make the LC version different from the other national versions that emerged in that time like, CAN MARC, and UK MARC, etc. In 2001, two national version of MARC were merged according to an agreement between the United States and Canada to create one version, this version was named as "MARC 21".

MARC 21 is based on ANSI (American National Standard for Bibliographic Information Interchange) standard Z39.2 MARC 21 has five different formats for five types of data : bibliographic formats, Authority formats, holdings format, community information format, and classification data format.

1.3. Limitation of MARC

MARC was created to print catalog cards, and then used to display those cards in OPACs. Also, MARC is used exclusively by libraries which keep the library community isolated from the other communities and people cannot log to our data. Moreover, every statement in MARC depends mainly on the entire record for context and meaning as none of the statement of MARC record including the fields and subfields can stand alone. The main problems with MARC is that the cataloguing community is closely tied to MARC tags and MARC was always mixed up with cataloguing descriptive rules, therefore it ended up a as a carrier and descriptive schema.

1.4. MARC DTDs and XML Schemas

Taylor stated that in mid 90s LC's Network Development and MARC Standard Office developed MARC-to-SGML DTDs that were converted to XML. DTDs as the technology changed. The MARC DTDs treat the MARC record as a particular type of document. They define all the elements that can appear in a MARC Records should be translatable to XML automatically, and that an XML –encoded MARC record should be easily translated back to a MARC record. These were some of the recommendations of one of the library experts in 1998 (Taylor, 75) for the encoding standards and XML schemas were reused again with BIBFRAME afterwards. As For the descriptive standards, RDA was the real leap in the cataloguing community.

2. RESOURCE DESCRIPTION & ACCESS (RDA)

2.1. RDA

The emergence of Resource Description and Access (RDA), the ancestor of the AACR2 brought debates all over the library community dividing the community into two parties; those who are excited about the new cataloguing rules and waiting for implementation assuming that RDA is the rescue and would offer all the answers and others who believe that RDA presents more complexities to the catalogers giving more burden to deal with new terminologies and the idea of understanding new concepts associated with RDA.

The new cataloguing tool which is based mainly on the conceptual models for bibliographic and authority data (FRBR) and (FRAD) that was first published by the International Federation of Library Association (IFLA), yet it is different when it comes to implementation and that what makes RDA is really difficult to understand due to its relation to these models. The development timeline of RDA since its occurrence is shown in table 2.1.

Coyle and Hillmann supported the need for a new cataloguing tool due to the explosion of digital formats and the difficulty facing the catalogers to deal with non-book formats using the same cataloguing rules used for printed ones. They stated also that there is a great increase in the multiple formats appears on the book market recently referring to the turn from the printed formats to digital ones that require the descriptive tools used to be more flexible according to the change nature of the materials formats.

Year	Progress
2005	AACR3 developed to be RDA
2006-2007	The Joint Steering committee reviews the first draft of RDA

2009	FRBR WEMI
22nd June 2010	Public Release to RDA
1st July 2010 – Dec. 2010	Trainings and Testing Phase
Jan. – March	Analysis and Evaluation of the Implementation Tests
June 2011 RDA announcement and Decision to postpone implementation to 2013	
31st March 2013, RDA Day one official implementation in the Library of Congress (LC)	
2013-2015 RDA Updates Continued	

Table 2.1. RDA timeline development modified from Iman Dagher, "Getting ready for RDA", workshop, MELA committee on cataloguing, UCLA. 17 Nov. 2012.

2.2. RDA CHALLENGES

Sanchez attacked RDA for not achieving its objectives and principles to be comprehensive, clear, adaptable, and easy to use. Also, she stated that the relation between RDA and FRBR still not existing. She says "FRBR remains a theoretical notation of the bibliographic universe that is still a theoretical that is still neither concrete nor available. Sanchez adds that RDA is expensive to be implemented and require difficult trainings that would make it so hard for many libraries to adopt it to their collection. (Sanchez 20)

2.3. Mapping RDA into MARC 21

Steel and Seikel stated "If RDA is seen as an attempt to meet the modern, media-statured world of the 21st century, perhaps MARC 21 can be seen as trying to preserve hard-won innovations of the past 40 years in library catalogs while changing enough to meet the need for bibliographic description of the new media in libraries"

The implementation of RDA proved that we need to move away from MARC and even the US National libraries RDA test reports that benefits of RDA would not be realized with MARC. The report mentioned prospects that MARC will impede the separation of elements and also will not facilitate the ability to use URIs with MARC formats. (US National libraries Test Report 8)   Also, Conin stated

that the cataloguing community was really familiar with both AACR2 and MARC 21, yet the change should include MARC as well. He added that "MARC has served us well for a long time and got us into the computer age, now we need something to move us, our data and our culture into the web page"

Two of the first national libraries who implemented RDA is QNL (Qatar National Library) and (LNL) Lebanese National Library; the researcher asked two librarians of both libraries in one of the conferences about their feedback on implementing RDA with MARC 21 and they suggested that MARC 21 is a barrier and needs to be replaced as it does not show the benefits of RDA.

2.4. Implementing RDA in the Arab region

The interest of Arab library professionals in RDA is shown in the number of conferences and workshops to introduce this new cataloging standard. National and regional surveys concerning adoption of RDA collected positive feedbacks. However, full adoption and implementation by Arab libraries and institutions still under study by many institutions as shown in table 3.4.

Year	Progress
1 April 2013	1st Conference on RDA in the Arab region organized by Cybrarians
2013 – 2014	Arab National Libraries start adopting RDA
	June 2013, Lebanese National Library start implementation
	February 2014, Qatar National Library started cataloguing using RDA
	AUC and Library of Congress office in Egypt
2014	More RDA Workshops in the Arab region
	March 2014, workshop organized by (AFLI) in Qatar, Doha
	August 2014, round table organized by Library experts in Alexandria Library,

	Egypt
2014 – 2015	More Arab Libraries adopting RDA in United Arab Emirates and Iraq (Atabah Library)
April 2015	Workshop on RDA in Cairo University, Egypt

Table 2.4. RDA timeline development in the Arab region

3. BIBLIOGRAPHIC FRAMEWORK (BIBFRAME)

3.1. BIBFRAME

It is the abbreviation of Bibliographic Framework, it started as an initiative taken by the Library of Congress in order to replace MARC as a standard for encoding and exchanging bibliographic data. The main goal of the initiative is to implement a "new bibliographic environment for libraries that make 'the network' central and makes interconnectedness commonplace. "The BIBFRAME initiative was officially launched in 2011 and continued on updating since this time as shown in table 4.1.

Year	Progress
May 2011	BIBFRAME Initiative officially launched by the Library of Congress
November 2012	Library of Congress announced BIBFRAME as the new modern metadata encoding format
2013	Linked Data & RDF
2014	BIBFRAME TestBed
2014 – 2015	BIBFRAME Updates
September 2014	Zepheira's introduction of the Libhub Initiatives

April 2015, Report of the early BIBFRAME adopters
June 2015, Last Update Forum at ALA Annual Conference
9th June 2015, Mapping of Constrained RDA Core to BIBFRAME

Table 3.1. BIBFRAME timeline development

BIBFRAME model tends to be the future of the bibliographic description in a way that makes libraries' data essential part of the web. Therefore, the structure of the model consists of 4 main classes; work, Instance, authorities, and annotations. The model is shown in the figure 4.1.
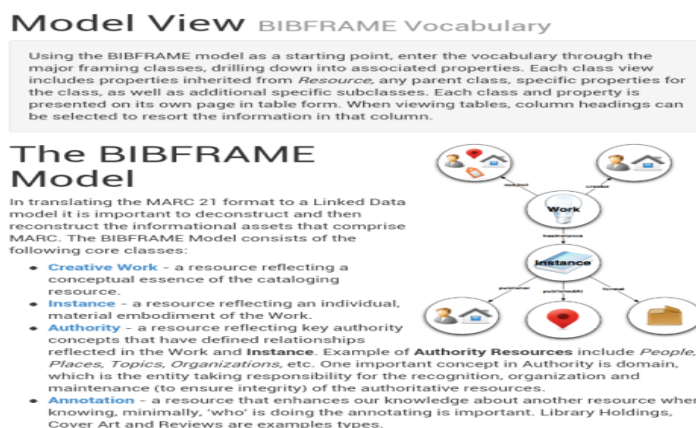

Figure 3.1. BIBFRAME Model (http://bibframe.org/vocab-model/)

3.2.   Concepts Associated with BIBFRAME

RDF which is defined as a framework for metadata that promotes interoperability. It provides an infrastructure that enables the encoding, exchange, and reuse of metadata in a way that is instantly recognizable. (Taylor, 93)Resource Description Framework (RDF)-Entity Relationship Model RDF statements are often referred to as "triples" that consist of a subject, predicate, and object, which correspond to a resource (subject), a property (predicate), and a property value (object).

Linked Data[1] is defined as "A term used to describe a recommended best practice for exposing, sharing, connecting, pieces of data, information, and knowledge on the Semantic Web using URIs and RDF."

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[1] Source: http://www.niso.org/news/events/2013/dcmi/bibframework

Semantic Web Ontologies is defined as "ontology is a formal specification of a shared conceptualization". Ontologies are written in Web Ontology Language (OWL) and RDFS (RDF Schema) and others.

3.3. Why moving to BIBFRAME?

Libraries kept themselves isolated from the larger metadata community and to get involved this should be maintained via technologies like linked data and the Semantic Web or they can be pushed aside and ignored. This larger community will continue to move away from old fashioned library technologies and practices regardless of whether the library profession decides to participate in the progress or not . AACR2 and MARC represented the technology when they were invented parallel with the invention of the computer. In the time being these standards cannot describe Internet-based resources.

The main idea of inventing new standard representing the future of bibliographic control is to introduce a model that should be Web based, Rule agnostic, flexible, extensible, and usable outside the bibliographic cataloguing community and broadly understood.

The Library of Congress depended LC's BIBFRAME editor (BFE) and LC's MARC 2BF conversion to create BIBFRAME vocabulary in collaboration with Zepheira[2]. For BIBFRAME vocabulary Zephira used its scribe and MARC 2BF conversion. Zephira is working now to create a BIBFRAME product that will make libraries' collections visible and searchable on the Web through the use of Linked Data in collaboration with library system vendors like SirsiDynix, and Innovative.

3.4. Are we on the same track of RDA?

In this paper, the researcher depended on the literature reviews that were published in advance and in the light of the results of these previous studies that focused mainly on implementing RDA especially in the Arab region. What factors encouraged libraries to adopt it? And what were the barriers that hindered other libraries from implementation? Accordingly, the researcher uses the same measures that were applied on RDA to be taken into consideration when thinking of BIBFRAME in the Arab region. The Arab librarians showed the same interest in BIBFRAME and many organizations took the initiative to introduce the new standard to the library community in Arabic like the Arab Federation of Library Organization and Cybrarians. These events are listed in table 4.4.

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[2] Zephira (A privately held company driven by a team of knowledge management and specific domain area experts with a vision to support a community using the Semantic Web standards and related technologies). Source: http://zepheira.com/about/Zephira

Year	Event
Oct. 2014	Workshop on BIBFRME in the Arab region organized by (AFLI) in Tunisia
Dec. 2014	Workshop on BIBFRAME in Cairo University, Egypt
In Sep. 2015, the 1st conference on BIBFRAME organized by Cybrarians	

Table 3.4. BIBFRAEE events in the Arab region

3.5. Difficulties with BIBFRAME in the Arab region

The most difficult problem that faces the Arabic catalogers in libraries that implemented RDA is the new terms in RDA and the controlled vocabulary like the words used for occupation in the Authority records which have no equivalents in Arabic and every library tends to use their own translation. According to a survey conducted by Ossama Mahmoud on problems with implementing RDA in the Arab region, the results showed that an Arabic translation for RDA is needed due to the controlled vocabularies in the RDA lists that should be translated into Arabic.

Maybe this comparison of the progress of the two new standards serves to give a first impression of how the situation could be in the other libraries in the Arab region, yet that could be valuable too because the findings are necessarily speculative due to the challenges of RDA with the Arabic materials that have not materialized till the time being, and this would shed light on how the situation would be with BIBFRAME. The lists of terms that are associated with the BIBFRAME categories need to be translated into equivalent Arabic terms, so the librarian would be familiar to know the new terms in both languages Arabic and English.

The Library of Congress invited libraries to join the BIBFRAME implementation register which is established to list all the organizations that plan to implement BIBFRAME. Many libraries registered in 2014. Universities' libraries of U.S. were of the first libraries to join. The Library of Alexandria is considered to be the first Arab Library who registered in March 2015 as shown in the table below (table 3.4.).

Year	Organization's Name
2014	
	Library of Congress

	Colorado College
	German National Library
	George Washington University
	Princeton University Library
	Stanford University
	National Library of Music
	Cornell University Library
	Columbia University Libraries
	Biblioteca Nacional de Cuba "José Martí" (BNJM)
2015	
	University College London Department of Information Studies
	University of Illinois at Urbana-Champaign Library
26th March 2015, Library of Alexandria was added to register as the 1st Arab Library to join the Experiment	

Table 3.4. Libraries registered for BIBFRAME test 2014-2015

3.6. Implementation requirements in the Arab Region

We have to think first of the users in the Arab region because the main target of all these changes is the users. We want to introduce user friendly interface but we have to put our users in mind and think if they are prepared to deal with this. As for the time being, training should be prepared for both librarians and library users as well in order to be aware of the changes. The technical community should cooperate to prepare trainings and workshop introducing the new model to catalogers in different types of libraries, otherwise only libraries with large budgets would be aware of all the new technologies. Training is not the only requirement; the library system used is also an essential factor, as only libraries that used library integrated systems like Innovative products would be able to subscribe to the new versions that would appear to deal with BIBFRAME. In other words, libraries that have both human factor and good budgets would be able to adopt BIBFRAME. Actually, technology costs a lot.

4. RECOMMENDATIONS

Dr Abdel Hady recommended in RDA workshop that RDA should be taught in the library and Information Schools in the Arab region. He added that students in library school will continue to study AACR2 but as a historical background for RDA to be studies in comparison with RDA to show why the library community moved from AACR2 to RDA. The same should be applied with BIBFRAME as the researcher believes that providing special programs introducing the new standards should commence from library schools. As a result, the training problems could be solved partially as the students would be acknowledged with all the brand new standards so they would be prepared to use them easily once they started their professional career.

The Biggest Challenge that faces the system librarian now is how to convert the existing MARC into RDF statements, we have to get all the bib data in RDF statements and Link them by entity relationships. Our rule now is to try to get involved in the test; more libraries should register in the implementation, so we got to exchange the experience. Also, we have to think of translating the new vocabularies into Arabic in order to be understood by Arab librarians who find language barrier when dealing with these new terms.

A group Arab professional catalogers and system librarian who have better understanding of the new model should cooperate and work together to form a sort of consultancy group introducing the main concepts and technical issues related to BIBFRAME and RDA as well. The group could work under the umbrella of a professional association like AFLI (Arab Federation for Libraries and Information) or MELA (Middle East Library Association).

5. CONCLUSION

It is not easy to evaluate a new tool like BIBFRAME or RDA that either of them has reached its full objectives and targets as most of its benefits and effects are to be seen in the future, therefore the results are mainly evaluating the expectations of the experts and measuring the scale of progress of new standards in the Arab region.

Cataloguing community is closely tied to Marc tags what we are trying to move from one of the MARC which is mixed up with cataloguing descriptive rules it ended up as a carrier and descriptive schema. We would like not to be closely tied to any other scheme. Catalogers are seeing RDA and they do not have to worry with what's happening with BIBFRAME. All what the catalogers should worry about in the time being is mapping MARCC 21 to BIBFRAME regardless of the descriptive tool that is used and the impact on the user interface. This is what the catalogers should worry about now.

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