

ROLLING OUT FREE AND OPEN SOURCE NATIONAL HERITAGE SYSTEMS TO AFRICA

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Abstract

OpenHeritage, a non-profit company based in South Africa, was founded in early 2015 to develop and rollout open source heritage management systems to African countries. These systems aim to foster heritage conservation, improve heritage management processes and increase stakeholder participation in heritage matters. The system supported by OpenHeritage follows the model setup by SAHRIS, South Africa's national heritage system, which was launched in 2012. Namibia launched their national heritage management system, NAHRIS, in May 2015 and the next rollout is envisaged for Kenya in 2016. The broader vision is to implement the platform in at least 20 countries over the next 5 years. OpenHeritage liaises with each country independently, managing both country-specific software developments, which typically arise from different legislative requirements, and core features that are common to everyone. OpenHeritage has recently partnered with SPECTRUM and is working towards full compliance with their requirements for collections management. We conclude by highlighting some of the cross-border opportunities and benefits for heritage management and research created by OpenHeritage and its partnering countries.

Keywords: Drupal-based African National Heritage Management Systems, Data aggregation, roll-out in Namibia

Introduction

OpenHeritage was founded in 2015 as a non-profit entity to raise funds to drive the roll-out of national heritage management systems to Africa and other regions of the world. The software is free open source software built on the Drupal platform that we used to develop SAHRIS, South Africa's national heritage system. In 2014 we successfully concluded negotiations with the Namibian government to roll-out the platform to the National Heritage Council of Namibia. Our third target country is Kenya and negotiations are currently underway to implement the system in Nairobi in 2016.

This paper aims to report on some of the issues that we are addressing in taking the platform to scale outside of South Africa and to articulate our rationale for doing so.

Responding to a need

National heritage management institutions and museums in Africa are faced with two major problems that are common to just about every country. Apart from heritage sites with high tourism value, funding for heritage is low on the list of government priorities. Secondly, the legislation in most countries has been heavily shaped by the ideologies of European colonialism. For instance, despite recently passing the twenty year mark of democracy in South Africa and reaching the sixteenth year following a major overhaul of their heritage legislation, over 90% of formally protected heritage sites still reflect South Africa's more recent colonial past. We therefore continue to face massive challenges when attempting to effect transformation in a post-colonial period with little financial backing.

Fortunately most countries in Africa have stipulated the need for an inventory of all heritage resources, also known as a heritage register, in their various laws and regulations. This at least provides the legal groundwork to establish systems such as the one we are rolling out. Examples of these can be found in the functions of the National Inventory of the National Heritage Resources Act (Act 25 of 1999) in South Africa and the Namibian Heritage Register required by the National Heritage Act of Namibia (Act no 27 of 2004). The Kenya Heritage Act (Chapter 216 of 2006) stipulates that the National Museum shall maintain a register of all collections of all museums and of all declarations made or deemed to be made by the Minister under the Heritage Act. The National Heritage Conservation Commission Act of Zambia (no 23 of 1989) requires that the Commission keeps a register or site index of all national monuments and ancient heritage which it has acquired or which have been brought to its notice. In Zimbabwe the National Museum and Monuments Act (Chapter 25:11 of 1972) requires that the Board compiles and keeps a register of all national monuments and of any relics that it has acquired or that have been brought to its notice. In Ghana, the National Monument Act (National Liberation Council Decree 387 of 1969) similarly states that the Ghana Museum and Monuments Board should keep a register of all antiquities which it acquires or which are brought to its notice.

While there are countless examples of positive initiatives and innovative administrators fighting against the odds to conserve heritage in Africa, we need a much broader, long term vision to record our invaluable heritage resources on the continent in order to protect them and disseminate their value to society. We believe that the age of the internet and the Free Open Source Software revolution have taken place at precisely the right time to allow African countries to excel in this sector.

Our software model

In light of the challenges we have just outlined above, national governments in Africa have a tough task to find suitable software to meet their needs. Firstly, commercial vendors cannot survive on producing national heritage management systems unless clients are willing to pay a premium price for the labour needed to build highly customised software. There are, after all, just less than 200 countries in the world and this provides a limited pool of potential customers. Commercial vendors such as Vernon Systems have had more success in the museum industry as there are hundreds of thousands of museums across the world.

While developing SAHRIS and launching the National Heritage Register in Namibia, we have been freed of the constraints of annual licensing fees for proprietary systems by using Drupal, one of the largest free open source content management systems in the world. This has allowed for extremely rapid software development, small teams and application of sophisticated modules that are usually only sold as add-ons in commercial enterprise systems. This has removed the upfront purchase cost of software for participating countries so that their limited budgets are spent entirely on human resources such as training and support.

Sustainability

The lack of a dedicated organisation maintaining and coordinating the core distribution of this system posed a very real challenge to the longevity of SAHRIS and other Drupal heritage system roll outs in Africa. We therefore created OpenHeritage to fill this gap so that each country has a strong support base to turn to as they implement their own brand of their heritage system. OpenHeritage not only provides setup and training, but also standardises the core improvements to the configuration of the system. For instance, the Site Recording App, which runs on Android devices, is easily customisable from the core suite of features. This saves the setup development and maintenance costs for any participating country. As each new country signs up, the overall costs of this platform are significantly lowered.

OpenHeritage tracks customised features and rules that are only relevant or needed by certain countries so that they remain outside of the core distribution of the system. This is an important aspect of the organisation as the demands of testing, debugging and sustaining open source software require a certain level of skill and experience that is best shared across countries rather than having each country ‘learn the hard way’ on their own.

Finally, OpenHeritage has partnered with the Collections Trust to ensure that the collections management suite of the system is SPECTRUM compliant. Besides ensuring that our users are complying with best practice standards globally, we are committed to the important role of advocacy

and promotion of heritage (Poole, 2014). By working from the ground up and by digitising heritage resources for dissemination through the Creative Commons license, we are doing everything we can to ensure rich content arising from these heritage assets reaches its intended audience.

We will now briefly describe how a digital heritage register is set up, what it entails and how it can be beneficial for the country adopting it.

Case Studies: South Africa and Namibia

In South Africa and Namibia the legislative requirements to setup the National Inventory (South Africa) and the National Heritage Register (Namibia) created the impetus to establish their digital heritage management systems.

In South Africa the process was initiated by the South African Heritage Resources Agency (SAHRA). Despite various false starts (SAHRA, 2005, 2006, 2007) SAHRA finally succeeded in establishing SAHRIS in 2012 (Wiltshire, 2013). There were a number of reasons for the failed attempts at developing SAHRIS but arguably the biggest issue was cost. SAHRA received various proposals to develop the system in the mid 2000s and most of the proposals exceeded \$2.5 million (USD). Version 1 of SAHRIS was developed by Nicholas Wiltshire between November 2011 and April 2012 and became operational in May 2012. The short development cycle and fast uptake of SAHRIS was largely facilitated by the prior policy adoption of Free Open Source Software by SAHRA.

Given that Drupal is free of charge, the bulk of the budget spent by SAHRA was consumed by salaries for the development phase followed by travel costs to run the implementation workshops around the country. The first capital expenditure by SAHRA occurred late in 2012 when they purchased two Network Attached Storage (NAS) servers to house the large volumes of media content fed into the system. In 2012, about 92 Terabytes of storage cost just under \$16 500 (USD). OpenHeritage is currently applying for donor funding to obtain NAS Servers for other African countries.

In Namibia, the roll-out of their national system has been much faster than South Africa as the system simply had to be cloned from the base distribution. Once the cloned site had been created, Namibia's branding, country-specific taxonomies, users and types of permits had to be applied to their system. At the time of presenting this paper, three training workshops have been held in Namibia and they have gone live to their users.

The budget for the Namibian implementation has been spread across three years totalling just over \$60 000 (USD). After the roll-out phase, OpenHeritage is able to continue support at a monthly figure of just under \$500 (USD) per country.¹

While it is possible to roll-out the system in less than three years, we have thus far encountered a range of issues that add significant time to the implementation of these systems. For instance, negotiations with various collections for rights to digitise and disseminate data can take months or even years. In Namibia, the first Phase (year) includes the server setup, replicating and customising the distribution and training on the heritage register features of the system. Data migration and training on more specific aspects of heritage (e.g. creation of sites and objects, heritage case management) will start in Phase 1 but will continue into Phase 2 and 3. The collections management features for museums largely fall under Phase 2. Training will involve users from all heritage institutions who need to use the system, applicants (e.g. architects and archaeologists) and the public. At the end of the three years it is expected that all sites and heritage resources known at that point in the country will have been migrated to the system, independently of the institution in charge of its physical curation. At no point are royalties or licensing fees charged to any institution or individual using the system.

At the time of writing this paper, the Namibian system is about to launch their system in April 2015. Heritage managers and applicants will be able to digitally submit and process applications (archaeological, paleontological, rock art research, alterations to buildings and leisure permit applications). Moreover, the Namibian Heritage Council will have a complete database of all heritage resources known in the country which is publicly available and easily accessible.

Integration and benefits

One of the pivotal advantages of the digital Namibian National Heritage Register and its South African counterpart is that several institutions and organisations are using the same system to integrate information from their archives and collections. Where appropriate, user-specific, group-specific and institution-wide dashboards and reports have been assembled to dynamically filter the experience of the users. For instance, in South Africa, the Provincial Heritage Resources Agencies are easily able to select applications directed to them and use their own template and logos for communications issued through the system. Similarly, in Namibia, two separate agencies, the National Heritage Council and the National Museum share responsibilities for issuing permits but tracking of authorship, revisions and permissions is separated through their unique login profiles.

¹ Note these figures are taken at the current exchange rates of 1 US Dollar = R12.14

In principle, data which has already been categorically organised in other web-based systems need not necessarily be imported into the national system. A number of options are open to synchronise data via Feeds. However, we have thus far encountered very few instances in our region where significant quantities of heritage data have already been digitised in an open and compatible format for data feeds such as those in use by Europeana. The need for a primary digital repository in each African country is therefore much more prevalent than it is in Europe. We have also found that one of the drivers of the widespread use of SAHRIS has been the close connection between the generation of new entries in the National Inventory and the lodging of permit applications to sites. Users are unable to complete their permit applications unless they first complete the requisite site information.

The integration of several institutions into the system has started to eliminate the artificial boundaries between data collectors who are now able to query an archive on a single platform. This has numerous advantages for the management of heritage both at regional, national and international level:

- integration of processes at an institutional level will be facilitated, encouraging better governance;
- virtual access to heritage resources located in different countries is possible and organised in a standardised manner thus providing researchers with access multiple domains of knowledge on heritage resources.
- action against heritage crime may be initiated at a very early stages by allowing the immediate distribution of information to the affected parties.
- promotion of heritage resources is highly enhanced by sharing the costs of hosting and publishing the data on the internet; data is shared more effectively to a wider audience where data is aggregated

An African-wide data aggregation service, similar to Europeana, will be naturally be one of the next steps to take following the roll-out of the system to more and more countries. It is still too early to say what shape this kind of service will take but at this stage it is more important to get on with the task of creating digital content that is safely and securely hosted.

Finally, a number of performance reports are embedded in the heritage system to provide tangible measures of gauging the success of the system. In South Africa, the number of requests to access the National Inventory went from 5 per quarter to over 16000 per month after just a few months of going live on SAHRIS. Their domain also climbed 3 million places from 3.5 millionth to under 500 000th in the world according to Alexa.com. We expect similar percentage increases in Namibia and Kenya as Google Analytics is used to track the visitors to the systems.

Conclusion

This paper has introduced OpenHeritage and its vision of bringing free open source heritage management systems to Africa. Two countries have already successfully adopted the system and we are confident more will follow in the near future. Our five year goal is to reach at least 20 countries by the end of 2020 and to continue to strengthen our support base for the system. We have shown that countries are able to roll-out their systems in less than six months with no upfront costs for software or any ongoing licensing fees.

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