

Implementing an Open Source Higher Education and Research ERP at the scale of a country or State.

Case Study: The Malian Higher Education Information System

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1. Summary

In the context of the modernization of the country's higher education system, the Ministry of Innovation and Scientific Research (MESRS) of the Republic of Mali had the ambition to facilitate the implementation of the Bachelor, Master and Doctorate curriculum throughout the country's higher education institutions. A solution allowing global data management at Ministerial level, but also at a local institutional level was requested.

The choice was made to implement an integrated student information management system (SIS or IMS). Following a public tender for procurement the Government of Mali retained the IMS/ERP "Cocktail", the Open Source Student Information System ERP used by more than eighty French public higher education institutions; Universities, Engineering and Veterinary schools...

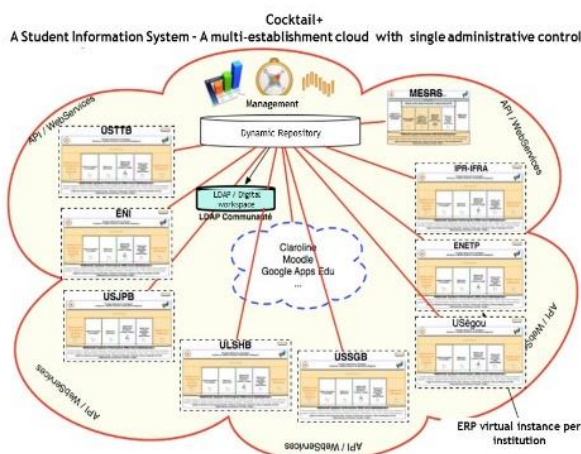
With the help of funding from the Dutch government, the ERP was adapted and developed in accordance with the MESRS's requirements, integrating the possibility of multi-establishment student information system management.

The choice of a unique global Student Information System (SIS), reduced the risk of local "independent" developments and initiatives and also rationalized public spending.

2. Higher Education in the Republic of Mali - some numbers

- 80 000+ students,
- 3 500 staff (3000+ civil servants)
- 12 public higher education institutions: 5 universities, 7 engineering schools
- Between 25 000 and 30 000 new graduate bachelors per year

3. Architecture



A cloud based global approach allows a logical architecture of the information system. This is integrated seamlessly into the Ministry's IS.

It should be noted that this multi-establishment ERP allows for self-management for each of the autonomous institutions.

Each establishment or autonomous component has its own dedicated (virtual) instance of the ERP allowing them their own information system. Data separation and security between establishments is thus assured.

Global data management and data analytics are however available to the Ministry through centralized real-time indicators and the central data repository ruling out the need for the development of data synchronization API's or local online surveys in each institution.

4. Project Summary:

- Duration: 5 years (4 years + 1-year extension) 2014 - 2019
- Funding: 600 K€ Netherlands, 150 K€ World Bank, 30 K€ French Embassy
- Funding ends on the 31st of August 2019.
- 10 months of preparation and software development
- 1st "online" enrolment at the national level for the 2015-2016 academic year
- 20,000 new graduates pre-registered online in 2015 using their smartphones, from cybercafés or via stands of Orange Money the online payment partner.
- OVH data centre hosting freeing all material and logistical constraints
- 4 years of software development, extension, support, assistance and skills transfers to enable the MESRS to be completely autonomous and capable to continue the project.
- Training and internships spread over 4 years both in Mali and in France
- Establishment of a national Malian cell "Campus Mali" as support for the generalization ERP
- Realization of an institutional portal www.campusmali.ml responsive design
- ERP integration with G-Suite (Google Apps)
- Dematerialized management of the workflow for training authorization requests
- Direct online payment fully integrated with PGI (WS) with phone wallets (Orange Money and Mobi Cash)
- A global SSO / CAS / LDAP for all MALI students and staff
- Possibility to integrate private institutions into the Ministry Cloud
- Possibility to send individualized Text messages to students via an OVH platform
- Online validation and distribution of student (and staff) cards
- ...

5. Conclusions

The French Open source ERP *Cocktail* was redeveloped and adapted to reply to the characteristics and specificities required by the MESRS of the Republic of Mali. The solution was *Cocktail+*. These same requirements are equally found in the other member countries and States of the CAMES (The African and Malagasy Council for Higher Education). The resulting solution is a versatile ERP SIS that could be rapidly deployed at little cost in other member States.

2019 will see enrolments for the fourth academic year, and the first in the hands of the Campus Mali team whose members have followed the project from the start, and have benefited over the period from training, technical transfers and support.

The point of no return (back to "anarchic" management) has been reached and the interest of such a solution is now fully recognized. The benefits of such a system are clear: the fluidity of inscriptions on a large scale, the portfolio of digital services to over 80 000 students, the economies of scale of public funding from a centralized system, the advantages of a central data repository for the Ministry.

In 2017 CampusMali (the frontend inscription portal of the ERP), enabled 22 000 students to enrol in in the Malian Higher Education institutions. This figure represents 86.26% of the country's student population. It is acknowledged today that the Malian Higher Education Information System is one of the most integrated, if not the most integrated, of Francophone West Africa.

6. Links

Association Cocktail: <https://www.asso-cocktail.fr/>

Bologna Process: https://en.wikipedia.org/wiki/Bologna_Process

Cocktail Office: <http://www.cocktail-office.com/>

CAMES: <https://www.lecames.org/>

CampusMali: <https://www.campusmali.ml/>

United Nations Development Programme: <http://hdr.undp.org/en/2018-update>

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