

## ***Editorial-11***

### **Bahrain should Adopt Open Source Electronic Medical Records**

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As Bahrain begins the switch to electronic medical records the use of open source software becomes increasingly important. Without it, the country's public health data is at the mercy of private companies, local young innovators are unable to contribute solutions, and the citizens' fears about how data is used will lead to patients withholding information from their doctors.

However, with open source software, the country gains the accountability from its vendors, locally-led solutions to our health problems can emerge, and all of us as patients can trust the health care system with the safety of our records.

Open source software is software for which the source code is openly available for inspection and reuse. Inspection of the source code in software development is equivalent to peer review in medicine and science. It is the best way to critique software, ensure honesty and improve quality. The reusability of the software also decreases costs. This is not just because the software is available free of charge but rather because the creators of closed source software keep on reinventing the wheel. They keep on spending money to write parts of their new software that have already been written by other programmers around the world. In addition, they pass on those costs to the end customer.

Perhaps the best illustration for why Bahrain should adopt open source software is Britain's experience with closed source software in the National Health Service. The government's aim was to bring the benefits of electronic medical records to all UK citizens.

Starting in 2002 the UK government began what was arguably the most complex and best-funded IT project in the world. Companies from all over the world were keen on winning the contracts because of their size and prestige. Richard Granger was recruited and became the most highly paid civil servant, earning £100,000 more than Prime Minister Tony Blair does. The government did this because it wanted the best possible controls over the delivery of the software by the private contractors.

Moreover, the government remains at the mercy of the contractors. Initially only iSoft won three of the five regions in England, and General Electric (GE) won two. Soon, problems with GE's deployment meant that it had to give up one of its regions and Cerner took over that contract. Of course each company brings its own proprietary closed source software and reusing existing software is not possible. Meanwhile problems and delays continue. The government is unlikely to get other companies to fix future problems because the pool of companies is so small and the problems have been so large. How would the Bahraini government be able to avoid these problems?

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It is noteworthy that most of the contracts have been won by American companies. Microsoft, Cerner, Accenture, GE, CSC are but few, and British companies like BT and iSoft are in the minority, until iSoft itself was bought by an Australian company. It is right for the government to demand the best software from the best companies around the world but the insistence on large contracts of closed source software has locked out much of Britain's previously vibrant health care IT industry. Companies like EMIS publicly expressed their frustration at their inability to participate even though they had the largest market share of software for General Practitioners. Meanwhile many start-ups in the UK had to refocus their efforts on selling outside the UK as they are barred from integrating their software to the closed source of the winners of the large contracts. How would the Bahraini government be able to support local innovators?

Finally, the transparency in the governance of medical records is crucial. In the UK original plans were to allow medical records to travel from any doctor's medical record's system to the central database, and then to any NHS doctor. Patients felt that they had lost control over the data, and letters to newspapers expressed citizens' distrust of the security controls. After all there was no way of inspecting the source code of the software that transferred the data to ensure that it does so securely, much less give the patient control over the transfer of the data. Some patients began refusing to tell their doctors about some of their illnesses because they feared the loss of control. A key part of patient-doctor confidentiality had been broken. How would the Bahraini government reassure its citizens?

Open source software offers a simple and cost-effective solution. Open source electronic medical records software tools are available free of charge. For example, VistA (the Veterans Health Information Systems and Technology Architecture) was created by the U.S. Department of Veterans Affairs (VA) as far back as 1982 to support the care of U.S. veterans and is the world's most widely deployed and carefully tested Electronic Health Record systems (EHR)<sup>1</sup>. Versions of this system are in active use in the U.S. Department of Defense Military Health System, the U.S. Department of Health and Human Services Indian Health Service, and internationally as well, e.g., Mexico - Instituto Mexicano del Seguro Social, Berlin Heart Institute of Germany, and National Cancer Institute of Cairo University in Egypt.

Using the software would transform Bahrain's efforts. Contractors could bid for how well they deploy and support the software. If there are problems, as there were with closed source software contractors in the UK, it would be easy to replace them by others who would provide better services. Local innovators would also be encouraged. First, Bahraini programmers could learn from the best in the world because they could study the source code free of charge. Second, they would be able to build solutions on top of VistA without needing the permission of contractors. A suite of localized solutions could emerge, and Islamic-friendly software could be exported to other Muslim countries that have the same aspects to the delivery of medical care. Finally, the problem of transparency would be solved. When a government minister in the UK says that NHS software is safe, there is no way to confirm the accuracy of his or her statements. Nevertheless, open source software could be inspected and tested for these claims. Not every citizen has to be a programmer for this to be the case, but the programmers in our midst could carry out the tests for their fellow citizens.

Surely we all deserve these benefits as we embrace the future with open source arms.

## Note

1. VistA (<http://worldvista.org/AboutVistA>) is open source medical software made by the U.S. Department of Veterans Affairs (VA), as opposed to Windows Vista the closed source operating system software made by Microsoft.