# hxcel-back-vecto.pdfHow to integrate e-health globally

There is a lot of discussion around e-health and how it will re-invent the health care sector. The question that gets asked the most is “Eh, so what do we do? How much is this going to cost? How are we dealing with interoperability?”

Let’s take a big breath and get some distance from the entangled forest we call “health IT”. We’ll get a nice overview from 100 000 feet up, away from the wires and the cobwebs. Now, as technologists we are trying to solve the problem of securely sharing patient sensitive data and other medical related information across systems, companies and borders, while conforming to regulations and standards. This is not rocket science… and even if it were, rocket science today is done by small start-up companies consisting of some very persistent college drop-outs ;-) The obstacle to a clean shiny new system such as this is the systems we have already created for the last two decades. It’s the red tape that prohibits greater levels of transparency, and it’s the user and company adoption rates of e-health systems. I want to be cautious with stating the latter as there is no true e-health system to adopt just yet.

What would I do then if I was the newly appointed head of Health Reform, the NIH or HHS and my task was to save healthcare; knowing that the previous administration made it quite clear it couldn’t be done and that they would let “someone else” try to come up with a solution?

I would be trying to solve:

* Cutting cost – as the system we have now is not sustainable
* Improving healthcare – leveraging technology to help lower medical miss-management
* Interoperability – building systems that can talk to each other but also by creating greater transparency

As it stands now, states and municipalities are trying to find solutions that work for them, while hospitals are concerned with EMR adoption. As the new head of HHS, I know this does not solve anything. It’s more like a temporary, and very costly, alleviation than anything else; held together by wooden sticks and some thread. It would be like having a few dozen “internets” instead of one. What we need is a national [and if possible a global] solution.

If I know this to be the best and really only solution that can last and grow for generations to come, like a gambler, the next step would be for me to place my bets. The first thing that comes to mind in order to make this work is to create a national identifier initiative. The national identifier would be unique enough to avoid accidental duplication within states and countries. I would look at similar initiatives made by other countries to see if we could gain some insight there. The system would be used, first and foremost, for user discovery. Any health provider wishing to create a record for one of their patients would associate their own data with the national identifier of the patient. When queries to retrieve patient data where executed, the common identifier would be there to reconcile the information.

This would already be a great accomplishment. Privacy activists will of course have a field day with this kind of legislature; stating that Homeland Security and insurance companies will have access to all their medical information. To say it bluntly, they already do, and who cares if your blood pressure was 120/80 five years ago? The intention behind this system is to make healthcare viable and whole again. The price we have to pay is sometimes more transparency. So instead of your paper-based medical record being stashed away somewhere in your doctor’s filing cabinet, it is now available online at the click of a button. All in all, I consider that to be an improvement over the present situation.

Now that providers are using the national identifiers, the next step would be accessibility. In other words, System X wants to retrieve all information for a patient. Where does it go to do that? Is someone keeping a list of every available application in every hospital and insurance company that System X can dial into and ask for information? If so, the latency would be ridiculously slow and “the system” still couldn’t guarantee a unified patient record. And this is really the raison d'être of e-health today. Regardless of whether every e-health application in the world can speak the same language, they first need to find one another and then query each other for information. If that happens to be 1000+ applications, it wouldn’t be feasible. So refactoring existing systems is not worth the effort. They served a purpose but are not suitable for retrofitting in an environment such as this.

Making all existing hospital software talk the same language is not worth investing government money in. As the head of HHS, what do I do? My next step would be to look at the new breed of Web 2.0 patient-empowering applications created by Microsoft, Google, and Revolution Health. It is impressive how much money they have already invested in e-health and the model for the two giants is simple: search! Microsoft and Google are about investing money in the ability to team up with an extensive list of companies, such as Google’s partnership with Allscripts, Beth Israel Deaconess and CVS, and be able to import their records about you and index them for searching. They’re also giving users the ability to enter personal data about themselves.

This is the best that’s out there right now and they have done a really good job. The question is are these applications suitable for a global populace and as a replacement for existing hospital applications that house millions of user records? If I look critically at their business model, it entails that for this to work you have to have an account with Google and maybe accounts with up to 4 different providers Google has partnered with so Google can access your records. Many of these providers charge a subscription fee or one-time price based on the nature of the service, which can get rather costly for the average user. The main reason you’d want Google to store your records is so that you can share them with other providers. What if Google doesn’t have a direct link to your provider? In that case, you or the your practitioner, or both, need to sign up for another set of services to be able to share records which most likely is going to cost you more money. When you start working with these services you get the feeling that it’s glued together with wire and string, it’s impractical and costly. What if you are not online and you wish to share your hospital record with another hospital? Better yet, a hospital wants to share records directly with another hospital. In this case these services are no good at all. They don’t work. As a Web 2.0 company, you are also relying on your partner sites to be up and running which doesn’t solve the 99.99% uptime requirement such a system needs to have. It becomes too sketchy and it doesn’t matter if you have a thousand man support team when the problem is not with you but with your partner.

However, this is definitely a good start going in the right direction. I think they all focus on the patient and offer their services accordingly. But my goal is to save our healthcare, as we know it. Can it be accomplished through these companies or are the aforementioned just dabbling in business models while spending million of dollars to be the first in the e-health space? I personally do not think they offer the solution necessary.

Which leaves me with the last, ultra-risky, option of placing my bets on building a centralized system that can do everything. It would have to cater to hospitals, small providers, patients, insurance companies, countries and any other entity involved with the e-health life-cycle; effectively creating a cradle-2-grave solution that can be exported and used by other countries. France and Great Britain has spent a lot of money creating centralized solutions. However, they are not where they want to be as far as keeping the promise of a true e-health system.

Past administrations have clearly said they would not venture into creating such a system because of the price tag and a 60% failure rate. Is the time for such a system now? The prospect of universal healthcare, both as far as coverage is concerned and the infrastructure that goes with it to make it a reality is very titillating. If I were to commit the HHS to such a grand plan, I’d first want the greatest minds in healthcare and software design to come together to establish viability. Then I’d want the best entrepreneurs to divvy up the project into doable chunks of work. One would focus on creating an e-health platform. Another would focus on the services that get put on the platform. A third would focus on creating an integration API so other e-health vendors can also start creating these services. A fourth would focus on regulatory requirements and how to implement it across services and across national borders. In effect, the model would be very similar to that of salesforce.com.

This is exactly what we have been doing for the last 4 years. It’s been a slow and time-consuming process as we’ve been waiting for the right technical and medical standards and policies to get solidified. It’s a work in progress but we have found this model to work very well. It’s very scalable as you can put the whole system up on the cloud. Services can talk to each other using a variety of APIs, protocols and standards. We have a federated security strategy for every entity registered with the system and we are teaming up with domain experts to write declarative security policies that can be exported across borders. It’s really a handful to think about all the different pieces that need to come together for such a system to function. However, I do believe our model is superior and I also believe it will become evident in the years to come. Stay tuned!