Care to change, change to care: Belgium's digital and mobile health strategy

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Ladies and gentlemen

We used to think mobile phones would make us sick, now we're only starting to understand how they can help to make us healthier. So let's start by stating the obvious: healthcare systems around the world are on the verge of a digital revolution. Mobile apps, new data mining possibilities, promising techniques to sequence the human genome, and much more induce governments not only to rethink their healthcare policies, but also to shape an environment where technology can thrive. The goal: access to better care for all, and a better allocation of scarce resources.

Fuelled by an aging population and ever higher healthcare spending, spectacular mobile technology penetration and increasingly empowered populations thanks to the availability of information thus shaping new patient expectations, Belgium too is embracing this revolution, building on a long tradition of innovative scientific thinking and translating those into useful technologies for the benefit of citizens.

Take the first commercial railway of the European continent between Brussels and Mechelen, commissioned immediately following Belgium's creation in 1831 and operationalized in 1835. Or the Solvay conference held in Brussels in 1911, where 9 future Nobel-prize winners participated, amongst whom Albert Einstein and Marie Curie. Or the Atomium, one of the landmark buildings in Belgium, that was built for the Universal Exhibition in 1958, and models the unit cell of an iron crystal, only 165 billion times bigger. It still stands 102 meters above the ground.

So of course we want to be frontrunners in the digital revolution. A recent report by the Boston Consulting Group places Belgium in the European digital front-runners, together with countries like Sweden, Denmark, Finland, Estonia, Ireland or The Netherlands.

Ladies and gentlemen,

Our role as a government is to create the right ecosystem for start-ups to flourish which will trickle down to citizens and patients. Let me give you a few examples of a couple of recent initiatives we took together with the excellent Minister responsible for Belgium's digital agenda, Alexander De Croo, to achieve this.

We are making access to seed capital easier for our start-ups, thanks to a tax rebate of up to 45 percent of the amount invested for angel investors and venture capitalists in start-ups.

We are making the development of new business models possible by changing our legal framework. Belgium is one of the first countries in Europe to take specific legislation for the peer-to-peer economy. As of July 1st, people who provide services up to 5000 euros per year via sharing economy platforms like Über and AirBnB, will be taxed at a preferential rate of 10 percent and without any administrative burden as taxes will be levied at the source. We've closed deals with major peer-to-peer providers to make this possible. Why could this be relevant for healthcare? Well, allow me to shoot this wild, personal idea: in a context of increasing shortages of caregivers and deinstitutionalization of care, certified informal caregivers could take over some of the simplest care burden using such platforms.

As a government, we are also big aggregators of data. Earlier this year, we have passed a very ambitious legislation on Open Data, which basically makes all government data open by default. We move from an opt-in philosophy to an opt-out philosophy, albeit with the best guarantees possible for privacy. This new legislation will allow us to gradually open up and connect existing databases that until now where fenced off to the broader public and research community. The permanent health sample, which contains very detailed data on 2,5% of Belgium's population but no diagnostic information could first be linked to the minimal clinical database that does include diagnostics, and later to the existing registries. The public could gain access to this precious information through an interface that doesn't show users the data, only the variables, but allows users to process and crunch the data showing only the results.

That way, patient privacy is guaranteed whilst maximizing data opportunities for scientific research and public health policies. We've discussed this "privacy by design" this morning, and I must admit we're not there yet, but this is the type of thinking that's going on on government level. In fact, we've passed the political rhetoric phase and are in the operational phase having just finished connecting 120 registries that are soon going to be made available for the research community.

And what about Mobile Health in particular? Well, honestly, we're very ambitious and a couple of very promising initiatives are developing and scaling their technologies in a spectacular way. They are the pioneers that are shaping Belgium's mobile health ecosystem.

Let me give you a first example: miLab.

This spin-off of iMEC, one of our best research centres, is partnering with Johns Hopkins hospital in Baltimore to revolutionize blood testing. Clinical biology, as you may know, is an important expense for healthcare systems worldwide because you need highly qualified scientists working in big labs.

Another IMEC spin-off, Bloomlife, is designing the future of prenatal health. Bloomlife combines connected devices with data analytics to deliver personalized guidance and reassurance to expecting moms, and better information to improve clinical decision making for doctors. Bloomlife users can also share their data with researchers as part of virtual clinical studies, crowdsourcing the largest and

most comprehensive data set on maternal and foetal health ever collected. Data on this scale has never been possible until now.

Let me give you one last example. Cubigo is a platform that integrates diverse healthcare apps and programs into a single, simple interface. As they age, more and more baby boomers are making the decision to avoid retirement facilities and spend their golden years at home. Cubigo is a tool to support this choice and give older people more control over their health and wellbeing. Last year, Cubigo was selected by Google as 1 of the 15 most promising start-ups in the world.

We want more of these examples coming out of Belgium. We want to be a leading country in Digital Health, I think you've understood this by now.

For that reason, we have launched Digital Health Valley last June. This is a joint effort with the Minister for Belgium's digital agenda to create an ecosystem that encourages the development and appropriate use of mobile health applications for the benefit of patients, in Belgium and abroad.

 A number of key actions are in the pipeline.

We are setting up a <u>single point of contact</u> for start-ups in digital health. It will be embedded in an incubator in the heart of Brussels so that public sector advisors and private sector entrepreneurs share the same work space and can learn from each other. It will also serve as gateway for foreign investors who are interested in Belgian digital health startups.

Second, we want to test **mobile health.** That's why have launched a <u>sandbox program</u> for mobile health solutions and have freed **3 million euros** to do so. Use cases could be in several therapeutic domains like chronic pain, stroke, cardiology, mental health and diabetes; and 5 technologies like teleconsultation, self-management, tele monitoring, wearables and diagnostics, but all need to fulfil the following three cumulative conditions:

1. The technology must be used within the therapeutic relation between a patient and his or her physician
2. The technology generates data that can later be used; and
3. There's existing evidence that the technology will improve quality of care, or improve cost-effectiveness without decreasing quality of care.

The objectives of the program are threefold:

First, we want to test these applications in a real world setting and see if they meet physician and patient expectations; if and where they can deliver value added. Second, we want to collect real-world data. Evidence based medicine, and not eminence based medicine, truly is the cornerstone of our policy. Eventually, we'll be able to test several models of financing and reimbursement. Some doctors already prescribe apps almost the same way they prescribe drugs. That means government agencies will have to put in place evaluation procedures too. Based on several validation axes: technical robustness, security, privacy, functional operability, clinical potential, regulatory compliance, connectivity, semantic interoperability, user and service experience, societal value and the financial and budgetary impact.

The application to the sandbox program is running, and the selection of participants will happen shortly. We thus hope to gain the necessary insights to adapt our healthcare systems to make it better for patients and more effective for governments.

Ladies and gentlemen

I see three important incentive mechanisms to eventually scale the most interesting mobile health applications: 1. Government quality and security guarantees; 2. Straightforward reimbursement of mobile consultations, diagnoses and the like; and 3. Continuing our move to more bundled payments so that care providers are stimulated to use mobile health applications if patient health, quality of care and / or cost-effectiveness improve.

In parallel to this sandbox program, we are also adapting our legislation to make mobile health possible and we are developing the necessary mobile authentication IT assets. There, obviously, there's a complex trade-off for policymakers between user-friendly accessibility and authentication security. The policy strategy that we're following here is differentiation: depending on the type of mobile health technology and its functionality, different authentication requirements will be imposed.

You know what Michael Bloomberg, former mayor of New York City used to tell his staff? "In God we trust. All the others: bring data!". Making **Big Data** in healthcare a reality is thus crucial and I am convinced that a well-managed big data policy can bring a lot of benefits to patients and citizens: better scientific

research, cheaper development of drugs, better and more personalized care, lower cost, more efficient organisation, anticipating on public health treats, etc.

This is not an easy task, however. Every scientific researcher is wrestling with finding the right answers in the steadily growing amounts of disparate internal and external data. ONTOFORCE, another promising Belgian start-up that partners with Harvard and the University of California at San Diego, has a pioneering semantic knowledge management platform that intelligently links vast amounts of disparate data sources together in a fraction of time. A lot of data comes available fast and smart and on top of that AI platform, they built an extremely user-friendly and intuitive user interface, which makes complex searches simple again. The technology enables everybody to become a data scientist. Data, big or small, is now accessible and democratized for biotech, pharma and academic research, but also for any clinician, MD and patient.

Yet, we are starting from a complex reality in Belgium, because our health care data is highly decentralized. If we want to be successful, we'll need all stakeholders to work in the same direction. This is why we'll have a Big Data strategy ready by the end of the year, with an important chapter on health and healthcare.

These initiatives will do a great deal to create a digital health ecosystem in Belgium and thereby help patients and governments alike, I'm sure. But aside these public sector push factors, let's not forget the most important pull factor: citizens and patients like you and me wanting to have more control over their health management through better information and new tools. Only if patients

and care givers actually see value added in these possibilities, are willing to share and use information to take better care of themselves, only then can we truly speak of a digital health ecosystem based on co-creation. That's why we are working hard to give every Belgian the possibility to have his or her own interoperable Personal Health Record that will consolidate and centralise most, if not all, his or her health-related data. Obviously, we'll make sure not to take any risks with privacy and hacks. That pull factor, you, ladies and gentlemen, will be the true game changer.

Therefore I thank you!