TOWARDS A value-based business model for large-scale installations of gnu health

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350+ "GNU" Health facilities nation-wide
Gnu Health Installation in Jamaica

- Two years work
- Mostly voluntary work by Luis Falcon
- Operational across whole island’s medical support network

Need to focus on a BUSINESS MODEL that pays consultants and professionals appropriately and is suitable for developing countries.
A Little Bit about the Nelson Mandela Children’s Hospital

- Hospital Built by the Nelson Mandela Children’ Hospital Trust, a Project of the Nelson Mandela Children’s Fund
- **Opening in December 2016**
- Operating costs of hospital to be met by South African Government
- Second Children’s Hospital in South Africa
- Quaternary Care Children’s Hospital
- 150 Paediatric Clinicians
- 450 Paediatric Nurses
- The requirements of NMCH—emphasis on referrals, education, satellite units, research, etc.
- Has to enable the entire “care circle” and not only treatment in hospital
Procurors admired GNU Health but had no means of bringing it to the table of options. Went with T-Mobile and SAP.

HL7 FHIR Interoperability NMCH HIS offers a way in for GNU Health.
Health Level 7 – Fast Hospital Interoperability Resources

It is on interoperability that initial hopes are pinned.
Eight Important, Co-operating Services

1. Enterprise Resource Planning (ERP)
2. Customer (Patient) Relationship Manager (CRM)
3. Laboratory Information Management System (LIMS)
4. Online Analytical Processing System (OLAP)
5. Picture Archiving and Communication System (PACS)
6. GNU Health for Hospital
7. GNU Health for Satellite Centres
8. GNU Health for Government
Some work at Napier - A TOWER OF BABEL

Helped NMCHT with HIS Procurement

Established acceptability of Raspberry Pi 3 implementations in Cloud Computing, Networking, Security

Established a complete implementation of GNU Health and other key software on tower of raspberry Pis - could offer cost-effective hardware and software eHealth solutions. Particularly for satellite centres.

Use of virtual machines and cheap hardware
For Companies: A New world of Informatics Possibilities...

**Precedents**

*Around the Patient Innovators*

**New Health Digitals**

**Winning Business Models**

*Cloud Based*  
*Global Scale*  
*Lean Innovators*

**Remote Sensors**  
*Value Innovators*  
*Rewarding Value*
Who will do it?

- Apple?
- Google?
- Facebook?
- Microsoft?
- Nokia?
- Health 2.0?
- All of the above?
- Gnu Health?
Now, major tech companies are seeing gold in new consumer health products.

At its annual developer conference in June, Apple introduced a new “Health” app for tracking a user’s heart rate, sleep patterns, calorie intake and other health metrics. Apple also launched “Health Kit,” an Internet platform for app developers that can store data from different devices and share it with a user’s doctor or health system. Three weeks later, Google announced its own initiative, called “Fit,” which includes developer tools and an online platform for collecting data.

Google co-founders Larry Page and Sergey Brin also have a long-standing interest in health research. Google Ventures is a longtime backer of 23andMe, the personal genetics startup led by Brin’s wife, Anne Wojcicki. While that firm has run into regulatory hurdles, Google launched a spinoff company last fall with the ambitious aim of combating “aging and associated diseases” on a cellular level.

Meanwhile, researchers at Google’s secretive X division are working on wearable medical devices, including a “smart” contact lens that monitors a wearer’s glucose level. The same team is building a database of genetic and molecular information from healthy volunteers, which they hope to analyze for useful medical knowledge.

http://www.mercurynews.com/2014/08/13/apple-google-vcs-invest-in-health-technology/
Google?

• First stage of ambitions, closed in 2012… had some pretty big goals

https://googleblog.blogspot.co.uk/2011/06/update-on-google-health-and-google.html

When we launched Google Health, our goal was to create a service that would give people access to their personal health and wellness information. We wanted to translate our successful consumer-centered approach from other domains to healthcare and have a real impact on the day-to-day health experiences of millions of our users.

Now, with a few years of experience, we’ve observed that Google Health is not having the broad impact that we hoped it would. There has been adoption among certain groups of users like tech-savvy patients and their caregivers, and more recently fitness and wellness enthusiasts. But we haven’t found a way to translate that limited usage into widespread adoption in the daily health routines of millions of people. That’s why we’ve made the difficult decision to discontinue the Google Health service. We’ll continue to operate the Google Health site as usual through January 1, 2012, and we’ll provide an ongoing way for people to download their health data for an additional year beyond that, through January 1, 2013. Any data that remains in Google Health after that point will be permanently deleted.

If you’re a Google Health user, we’ve made it easy for you to retrieve your data from Google Health any time before January 1, 2013. Just go to the site to download your information in any of several formats: you can print and save it, or transfer it to other services that support industry-standard data formats. Available formats include:
A decade into Facebook: where is psychiatry in the digital age?

Becky Inkster, David Stillwell, Michal Kosinski, Peter Jones

Introduction
Social networking sites are a part of everyday life for over a billion people worldwide. They show no sign of declining popularity, with social media use increasing at three times the rate of other internet use. Despite this proliferation, mental health care has yet to embrace this unprecedented resource. We argue that data from social networking sites should become a high priority for psychiatry research and mental health-care delivery.

We illustrate our views using the world’s largest social networking site, Facebook, which currently has over 1 billion daily users (one in seven people worldwide). Facebook users can create personal profiles, socialise, express feelings, and share content, which Facebook stores as time-stamped digital records dating back to when the user first joined. Evidence suggests that 92% of adolescents go online daily and disclose considerably more about themselves online than offline. Thus, working with Facebook data could further our understanding of the onset and early years of mental illness, a crucial period of interpersonal development.

Furthermore, a diminishing so-called digital divide has allowed for a broader sociodemographic to access Facebook, including homeless youth, veterans, immigrants, people with mental health problems, seniors, enabling greater contact with traditionally hard-to-reach populations.

While acknowledging that issues are far from settled about the role that social media should play in mental health, we argue that it should no longer be a debate about whether researchers and health-care providers engage with social networking sites, but rather how best to use this technology to promote positive change. We discuss how Facebook data can advance psychiatry research and how user-level data could potentially enhance the clinical delivery of personalised patient care. More specifically, we illustrate how Facebook data can assist with identification, intervention, and possibly prediction and prevention of mental illness.

Social media and advancing psychiatric research
Identification
To what extent might Facebook measures improve detection of mental health factors? We address this question by implementing a novel online-offline framework that combines Facebook data with pre-existing offline longitudinal cohort information (figure). This approach presents several opportunities to improve detection: Facebook data: (1) tends to be more reliable than offline self-reported information; (2) often reflects valid
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11/07/2016
Industry leader Horizon Discovery is a UK based gene editing company, providing products and services for companies in the pharmaceutical...

Azure powers donor registration and booking at NHS...
15/11/2016
Azure is accelerating the process of registering blood and transplant donors in the UK, providing lifesaving supplies for the NHS.

SLAM gets connected with Office 365
15/11/2016
Office 365 is connecting staff and patients, empowering greater internal collaboration and reducing delays in patient treatment.

Analytics at NATS takes flight with the cloud
15/11/2016
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Charity enables connectivity with Office 365

Improving patient care with technology collaboration

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Nokia is buying digital health firm Withings for $191 million

by James Vincent | @jvincent | Apr 26, 2016, 3:34am EDT

Nokia has announced plans to acquire Withings — a French consumer electronics company focused on digital health — for €170 million ($191 million) in cash. The acquisition will significantly boost Nokia's portfolio of wearables and fitness devices, bringing 200 Withings employees and products — including its Activité smartwatch, E-ink fitness tracker, and Bluetooth thermometer — into Nokia's advanced technologies division.

"We have consistently said that digital health was an area of strategic interest to Nokia, and we're now taking a major step in to the opportunity in this large and important market," said Radee Suri, president & CEO of Nokia in a press statement. "With this acquisition, Nokia
Health 2?

Scanning, Catalyzing, Analyzing

http://www.health2con.com/

Conference, Barcelona
3-5 May 2017

https://health2con.squarespace.com/market-intel#market-landing
A Set of Workshop Questions

In the new, exploding domain of eHealth solutions: what kind of new business model invites in Gnu Health?
The Scientific and Technological Research Council of Turkey (TÜBİTAK) is the leading agency for management, funding and conduct of research in Turkey. It was established in 1963 with a mission to advance science and technology, conduct research and support Turkish researchers. The Council is an autonomous institution and is governed by a Scientific Board whose members are selected from prominent scholars from universities, industry and research institutions.

TÜBİTAK is responsible for promoting, developing, organizing, conducting and coordinating research and development in line with national targets and priorities.
Who could do it?

- Apple?
- Google?
- Facebook?
- Microsoft?
- Nokia?
- Health 2.0?
- All of the above?
- Gnu Health?

My other Research – The Artificial Intelligence of Artificial Persons

Each of these organisations is an Artificial Person

A Person under the law, can be afforded rights of representation and inclusion. Artificial Persons employ natural persons, who role-play a professional occupation for the good of the organisation.

The rules of the organisation become a form of Artificial Intelligence.

Why should only purely commercial organisations be in dialogue during business meetings?
What other Artificial Persons are stakeholders?

Citizenry
NGOs
Etc.
Some Workshop Questions:

1. What are optimal value systems and conditions for the implementation of a sustainable business model for the national implementation of free software solutions in eHealth?

2. What are the issues involved in the co-design and co-creation of civic systems and services to support citizen’s health?

3. What are the issues of the design and use of health informatics that rely on mobile computing technologies that cross a number of communication devices and channels?

4. What are the issues of security, privacy, governance and ownership of data about people in health care information systems?

5. What are the issues involved in procurement of FLOSS solutions, the use of open source software and the business models for sustainable citizen informatics?

6. What are the routes of economic growth and wellbeing from socialized medicine?

7. What are appropriate medical and nursing solutions to health care issues in poor, displaced or otherwise unstable societies?

8. What are the issues concerning social media, news, opinion and content development and deployment for citizen and civic informatics?
Osterwalder and Pigneur, Business Model Generation

The Business Model Canvas

- Key Partners
- Key Activities
- Value Proposition
- Customer Relationships
- Customer Segments
- Key Resources
- Channels
- Cost Structure
- Revenue Streams
Developing The Business Model Canvas for Gnu Health Installations
"Hundreds of thousands of African doctors need to be trained ... Nobody worries about it. There’s a rich part of the world that only cares about oil, diamonds, minerals, forests, gas, cheap labour ..." Fidel Castro, 2001
Values, What Values?

Long walk from Baragwanath to Taxi Rank

Sustainability - costs, long-term consequences
Advocacy - engagement with professional bodies
Ethos – BAU, medical ethics, moral leadership
Meetings and Events at NMCH

Legal Touts engaging the distressed
Given that the values of some stakeholders are totally different from commercial players, what accommodations should be pursued?
Given a Multidimensional Grid for Value Definition

The goal of combining scenarios with business model innovation efforts is to help your organization prepare for the future. This process engenders meaningful discussion about a difficult topic, because it forces participants to project themselves into concrete “futures” underpinned by hard (though assumed) facts. When participants describe their business models they must be able to make a clear case for their choices within the context of the specific scenario.

Scenarios should be developed before the business model workshop begins. The sophistication of the “screenplays” will vary depending on your budget. Keep in mind that once you develop scenarios, they may be usable for other purposes as well. Even simple scenarios help jumpstart creativity and project participants into the future.

Ideally you should develop between two and four different scenarios based on two or more criteria in order to run a good business model scenario workshop. Each scenario should be titled and described with a short, specific narrative outlining the main elements.

Begin the workshop by asking participants to review the scenarios, then develop an appropriate business model for each. If your objective is to maximize a group’s understanding of all the potential futures, you might want everyone to participate in a single group and let them collectively develop different business models for each scenario. If you are more interested in generating a set of very diverse future business models, you might decide to organize participants into different groups that work in parallel or separate solutions for the various scenarios.
Empathy Map for Each Stakeholder

What does she
THINK AND FEEL?
what really counts
major preoccupations
worries & aspirations

What does she
HEAR?
what friends say
what boss says
what influencers say

What does she
SEE?
environment
friends
what the market offers

What does she
SAY AND DO?
attitude in public
appearance
behavior toward others

PAIN
fears
frustrations
obstacles

GAIN
wants/needs
measures of success
obstacles

Source: Adapted from XPLANE
Questions for Bringing Gnu Health to Procurement Discussions

Development of a FLOSS Business Model Canvas, looking to future scenarios, involving commercial and non-commercial stakeholders, exploring by means of an empathy map the production of a GNU Health Business Model for implementation of eHealth solutions in the Developing World, addressing:

• Stakeholders?
• Values, What Values?
• What aspects of FLOSS and Gnu Health values can translate on to Economic scales?
• How to establish technical trustworthiness, professional support?
• How to respectfully cost consultant expertise? Operational expertise?
• How to use specific scenarios to courageously explore the development of a bespoke GNU Health-friendly Business Model for any developing country wishing to employ it?
  – What are Appropriate Procurement Scenarios?
  – Societal Scenarios?