CASE STUDIES

"Start-ups or Slip-ups… Spin-outs or wipe-outs"

Tony Bunn

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What is an entrepreneur?

Someone that:

1. uses own knowledge, environmental triggers and intuition to map the future?
2. is prepared to fail but confident of success?
3. doesn't write a business plan?
4. doesn't have a proper job?
5. has eagle vision and selects others to do the detail?
6. doesn't read books on entrepreneurship?
7. is a risk taker???
8. wants to make bundles of money?
9. is challenged to make a difference to this planet?
10. doesn't see barriers, just solutions

4 x Case Studies

1. the field
2. the triggers
3. the idea
4. the technology
5. the outcome
6. continuing innovation

and

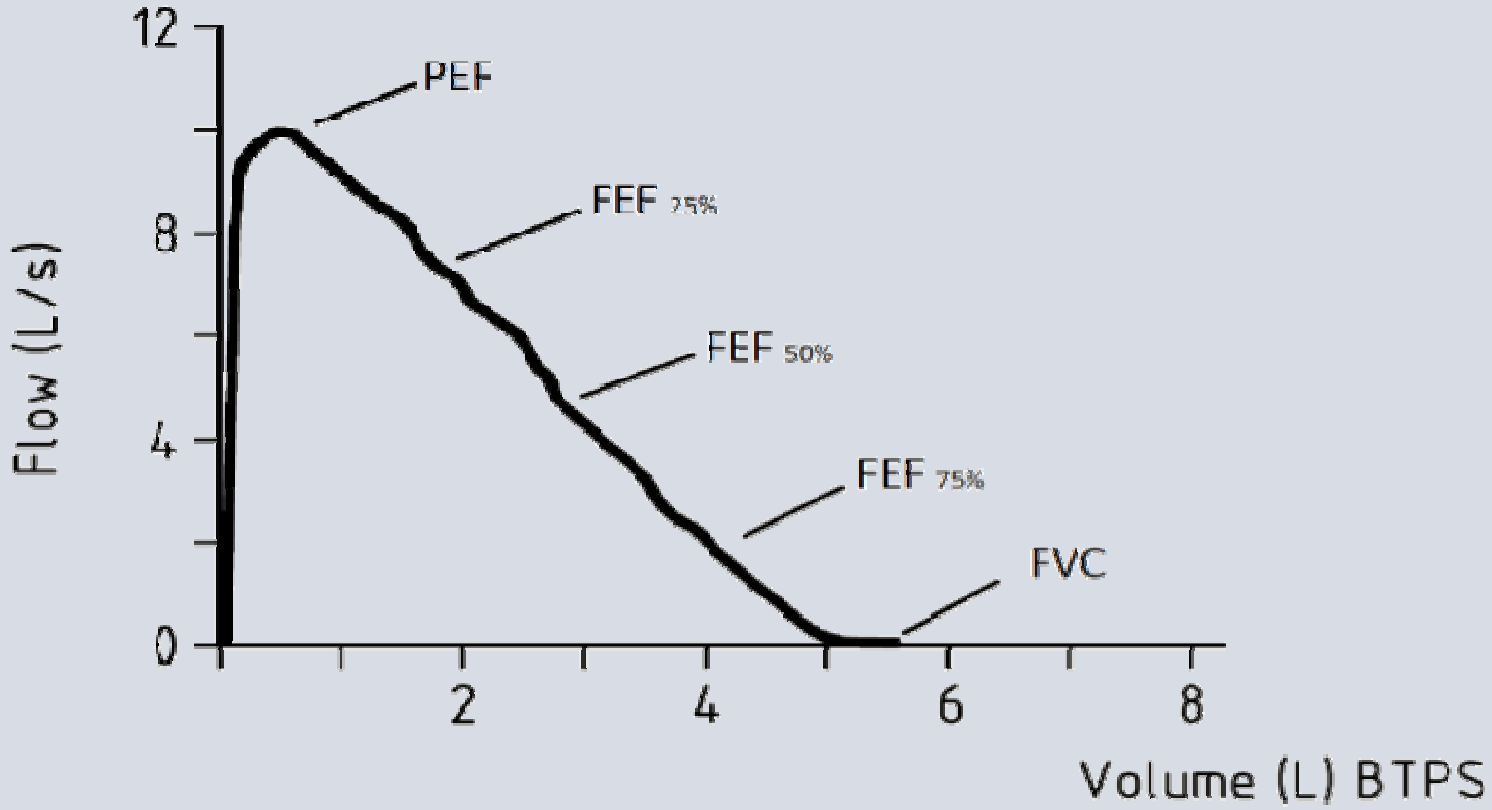
7. lessoned learned

Case 1

1. The Field:

Lung function analysis- late 70s
Spirometry testing to determine mechanical function of lungs

The equivalent of the "ECG" for the lung was emerging based on maximal forced inspiratory and expiratory manoeuvres



Also in those days!

2.The Triggers

SO WE HAVE ……..

Jobs & Wozniak- birthing *APPLE* *in a garage!*

The beginning of the microelectronics and computer revolution

Epson HX 20 “laptop” on the shelves boasting 15k memory upgradeable to 30k!!!

Emerging field of lung function analysis-spirometry

3. The idea

- ***develop a flow meter and interface it onto the HX20***
- ***take lung function testing out of academic hospital laboratories into doctors offices and clinics***

4. The Technology

ELF Lung Function system – *a world first (1984)*

LOCALLY DEVELOPED LUNG FUNCTION SYSTEM

5. The Outcome

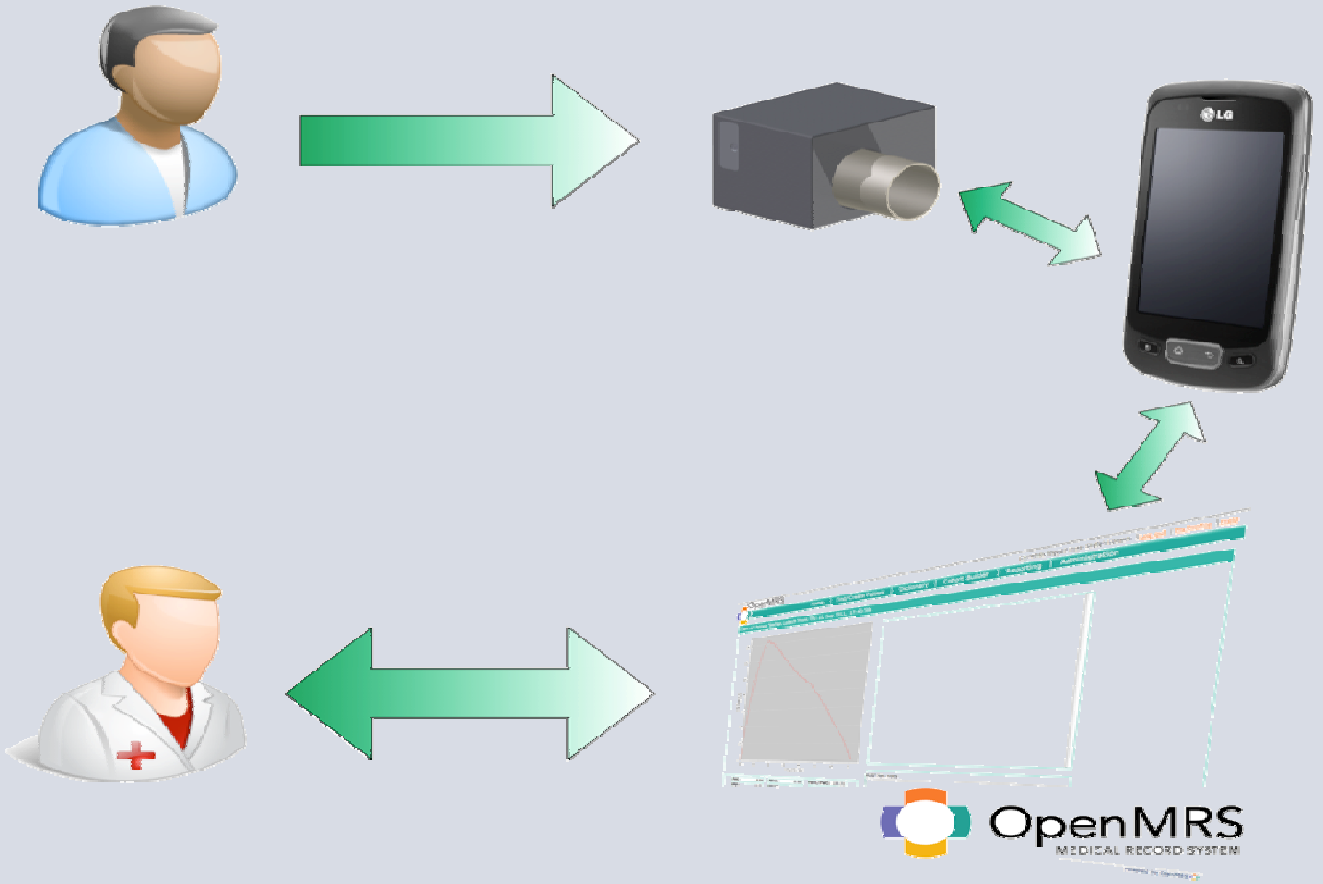
- The Company CRC Medical (Pty) Ltd was formed in 1984
- Naïve, highly enthusiastic academics learning that the cheque is seldom in the mail
- Run as virtual company relying on outsourcing for manufacture and distribution.
- “Licensed” to a UK company on a handshake
- Difficult to protect the idea and within 2-3 years a number of international competitors in the market.
- As technology progressed implemented on Apple 2, PCs
- The methodology has become the global standard for lung function analysis
- By mid-90s 1994 had bought out other shareholders and now sole owner.

6. Continuing Innovation

3 litre Calibration Syringe

Variable size flow-meter adapter

Next generation “smart” spirometry



7. Lessons Learned:

- Had no idea of IP protection, licensing etc and within 2-3 years the market had entrants from USA, UK and JAPAN.
- Its very hard and costly to be a technology missionary
- ALWAYS have agreements in place with partners and distributors
- Choose your partners with great circumspection-same value system
- Need investors and partners to access global markets
- It was an exciting, emotion-filled journey!!

Case 2

1. The Field:

Body composition analysis -1988.
Determining your lean and fat mass using non-invasive bio-impedance analysis

2. The Triggers

Burgeoning obesity problem, particularly in USA at the time- now a global problem.

(very important as health risk is related to fat weight not total weight)

The first bio-impedance device developed in USA at very high cost (R10k in 1987)

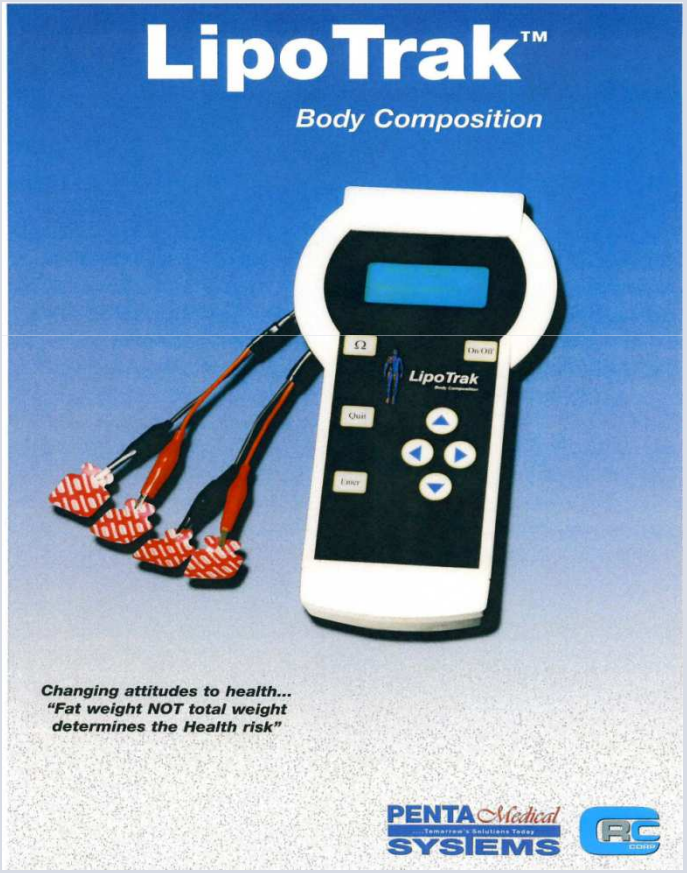
Access to the reputable UCT/MRC Exercise Science Research Unit

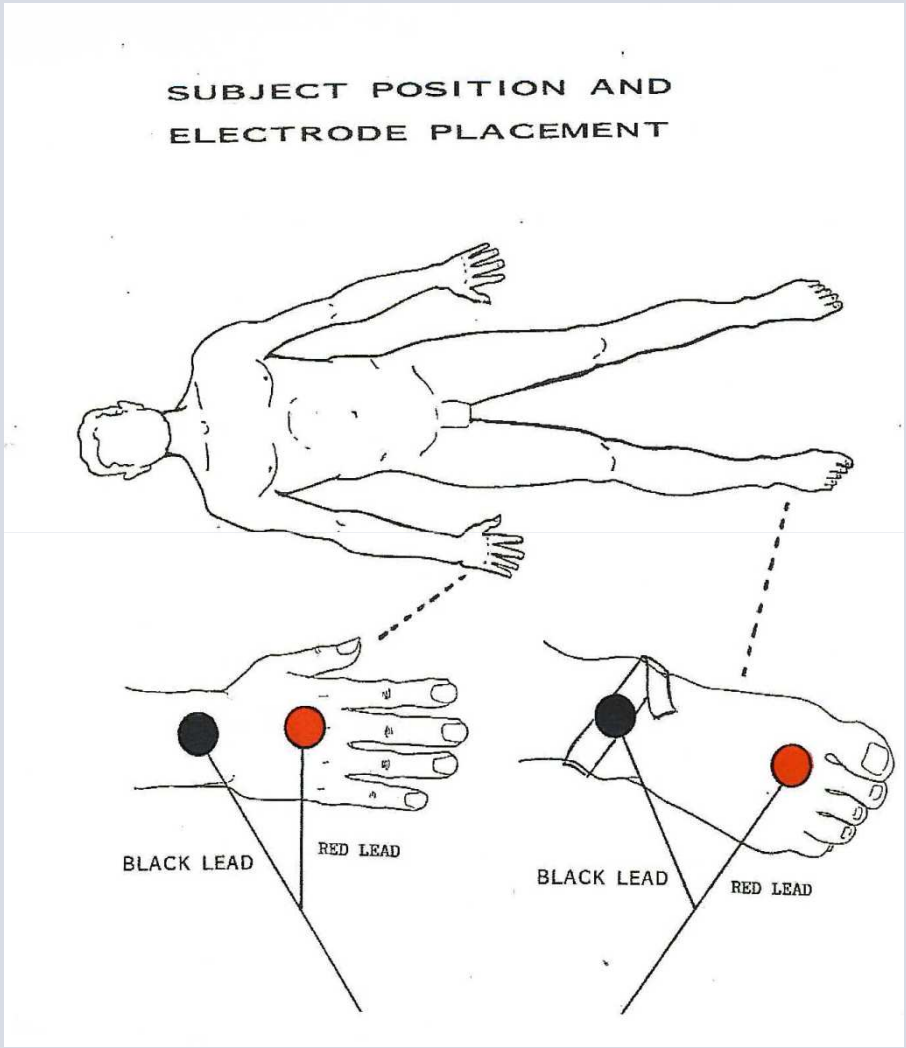
Scientific literature starting to come out with validation studies

3. The idea

There is a great health need for these measurements. We can build the system at much lower cost AND develop PC software for client record storage trending and reporting (without reverse engineering!).

4. The Technology

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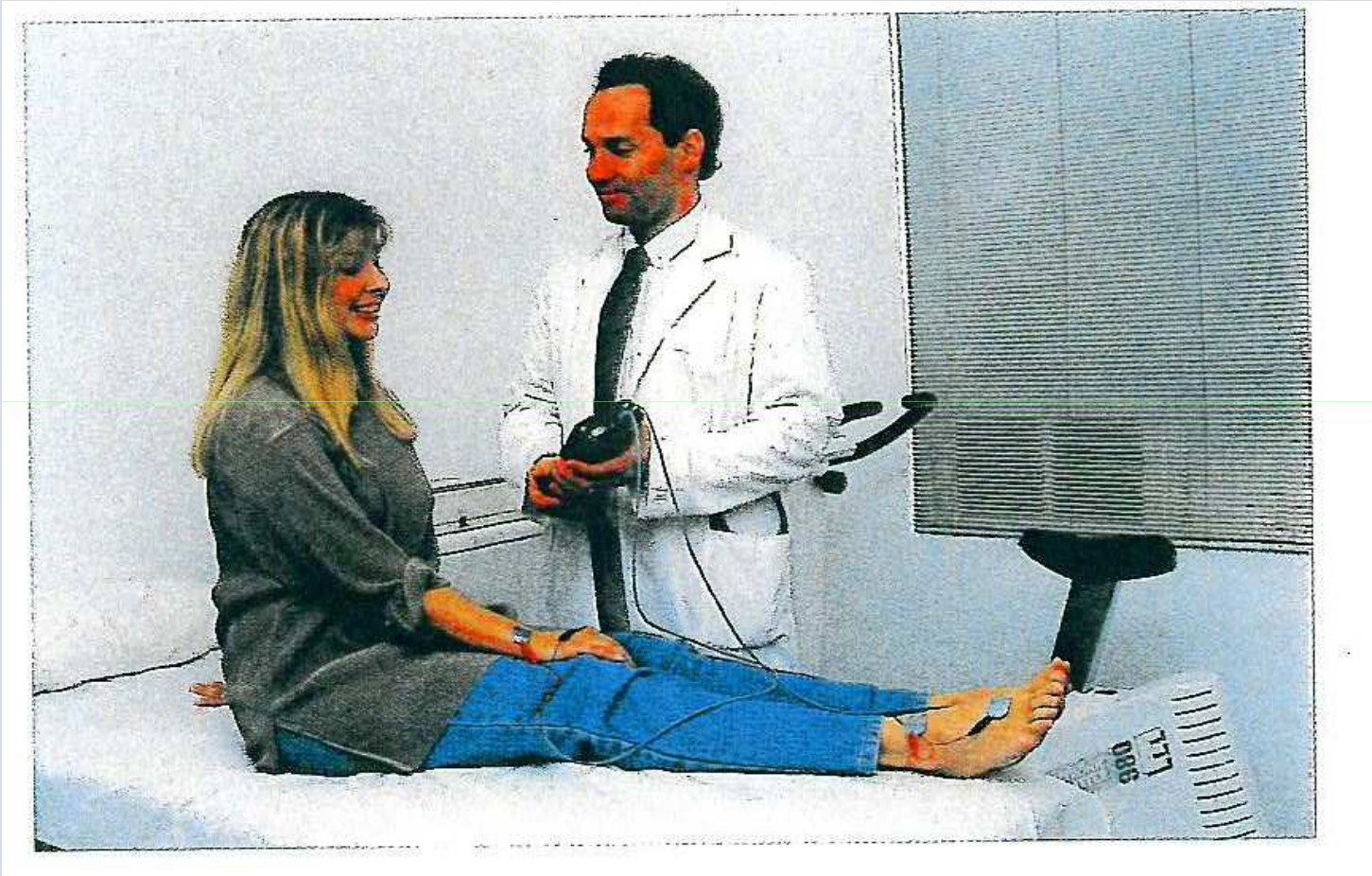


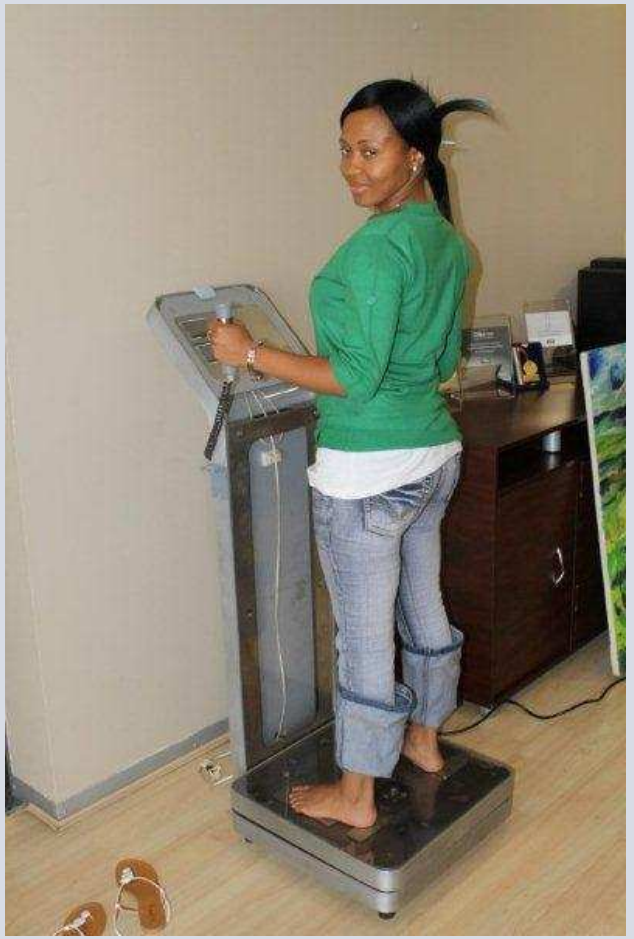
5. The Outcome

- Registered new company in 1988
- Partnered with UCT Exercise Science Research Unit
- Developed PC software algorithms to provide analysis and diagnostic reports with recommended lifestyle changes
- Kept these proprietary (**trade secret and copyright**)
- Got a MBA and former company MD to come on board to drive the business
- Launched at Rustenburg Hydro with Prof Tim Noakes
- Grew the business locally
- Set up overseas company on Isle of Man in 1992

6. continuing innovation

- Got funding from Innovation Fund-now TIA- to developed a novel standing, body composition system that eliminates the need for a technically skilled operator yet provides scientifically valid results that can be easily interpreted by the user.

- Delays with TIA picking up the project from the IF- but we are hopeful!!



7. Lessons Learned:

- Easier to be a rapid follower than a technology missionary
- choose your *partners* very carefully. A shared ethos/ethic/value system is imperative
- *Agreements* such as shareholders, licensing, distribution, royalty are essential and of value to the company……*but only as much as the partners wish to honour them*

Case 3

1. The Field:

Plant based medicines- 1999
Use of Aloe-ferox formulation for medicinal use

2.The Triggers

Sustainable Aloe Tapping for Aloe Bitters (Since 1750)

Process for manufacturing novel powder from waste leaves from the aloe tapping industry :primarily the pioneering work of Prof “MC” Botha from 1996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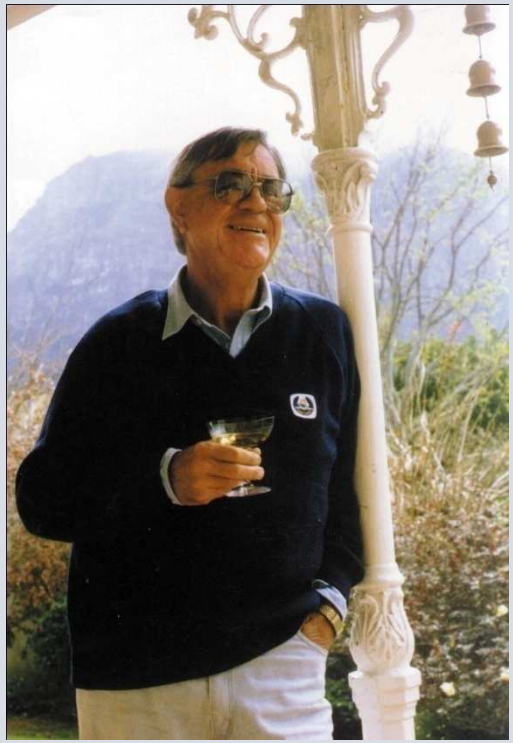


3. The idea

Develop a patentable formulation using the aloe leaf powder for gastro-intestinal disorders

Team includes: scientific, pharmaceutical, business and legal expertise

4. The Technology

Developed novel formulation and evidence accumulates that the powder is able to treat;

- HIV/AIDS related Diarrhoea
- Irritable Bowel Syndrome
- Infantile Diarrhoeal Disease

Also developed novel OTC products to bootstrap the company

5. The Outcome

- Registered Baylabs (Pty) Ltd in 1999
- Bootstrapped the company with OTC products generating about R30k profits pm
- **No salaries paid**
- Secured patents in 17 countries (including USA)
- Conducted successful phase 2 clinical trial in ARD
- Developed strategic partnerships with an international biotech
- Conducted successful trials in veterinary applications using formulation as a growth enhancer (pigs, turkeys and calves)
- Successfully negotiated with the Cape Biotech Trust for R15m for 25% in Baylabs just prior to the CBT being subsumed into TIA in Dec 2009 - moritorium placed on all funding!!!!

6. Lessons Learned

• in the “no salary” mode beware of inactive/sleeping shareholders waiting for pay day based on your hard work.

•Marketers love to have a great story to tell- *the heart transplant connection and the virtuous circle of improved livelihood for aloe tappers*

•Much better to get VC involved earlier and get to market sooner rather than trying to bootstrap?

Case 4

1. The Field:

Pathology supported genetic testing-2007
An open innovation software platform towards personalised medicine.

2.The Triggers

- Sequencing of the human genome in 2002
- The need for health care to derive benefit from progress in genetics and the inability of health professionals to utilise this knowledge; as example

  - assessing health risk of low penetrance genetic mutations

  -nutrigenomics

  -pharmacogenomics

3. The idea

a web-based company for integrating pathology, patient history, family history, patient lifestyle and nutrition with genetic information to determine health risk

4. The Technology

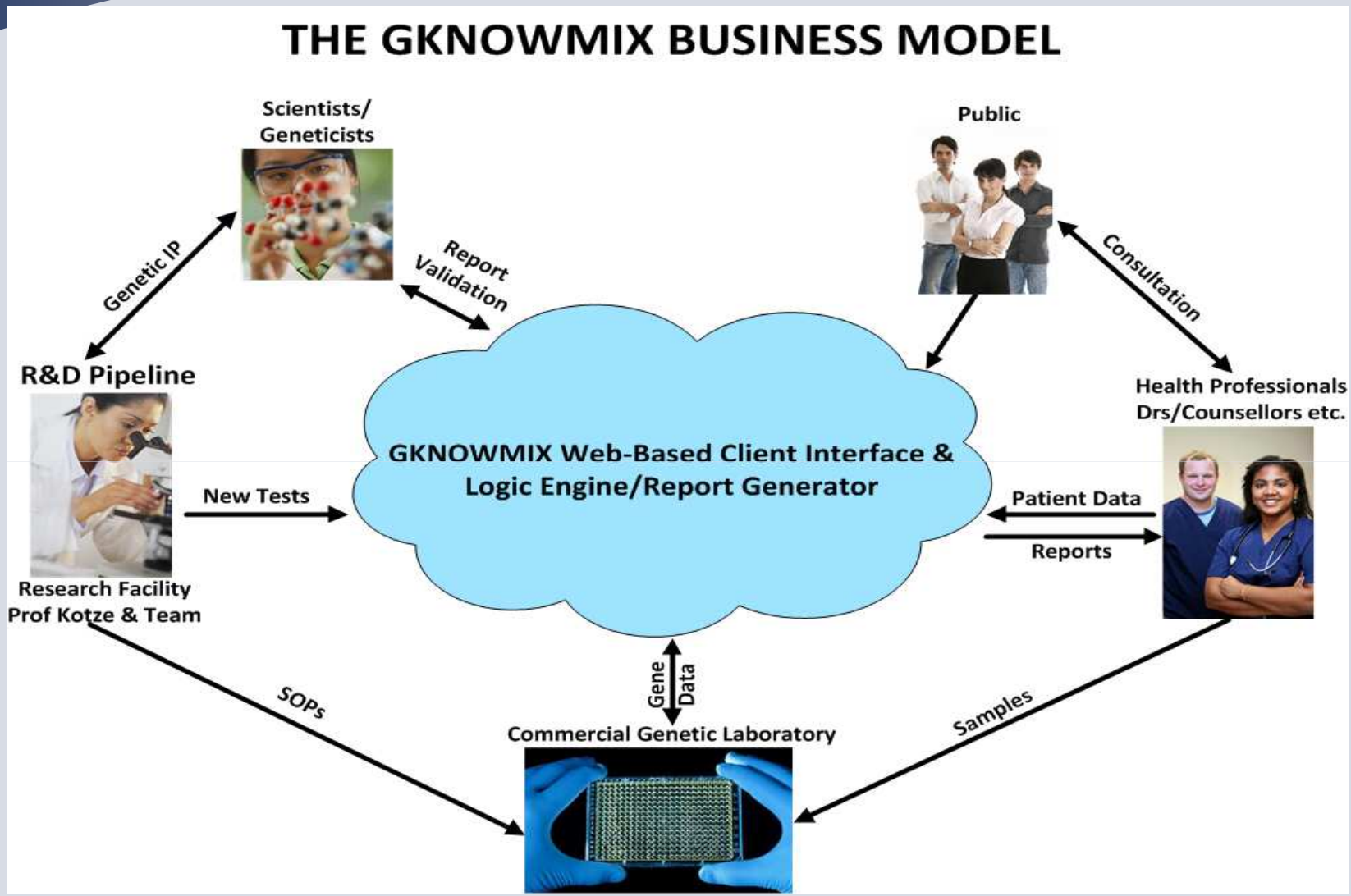
Genomics

ICT

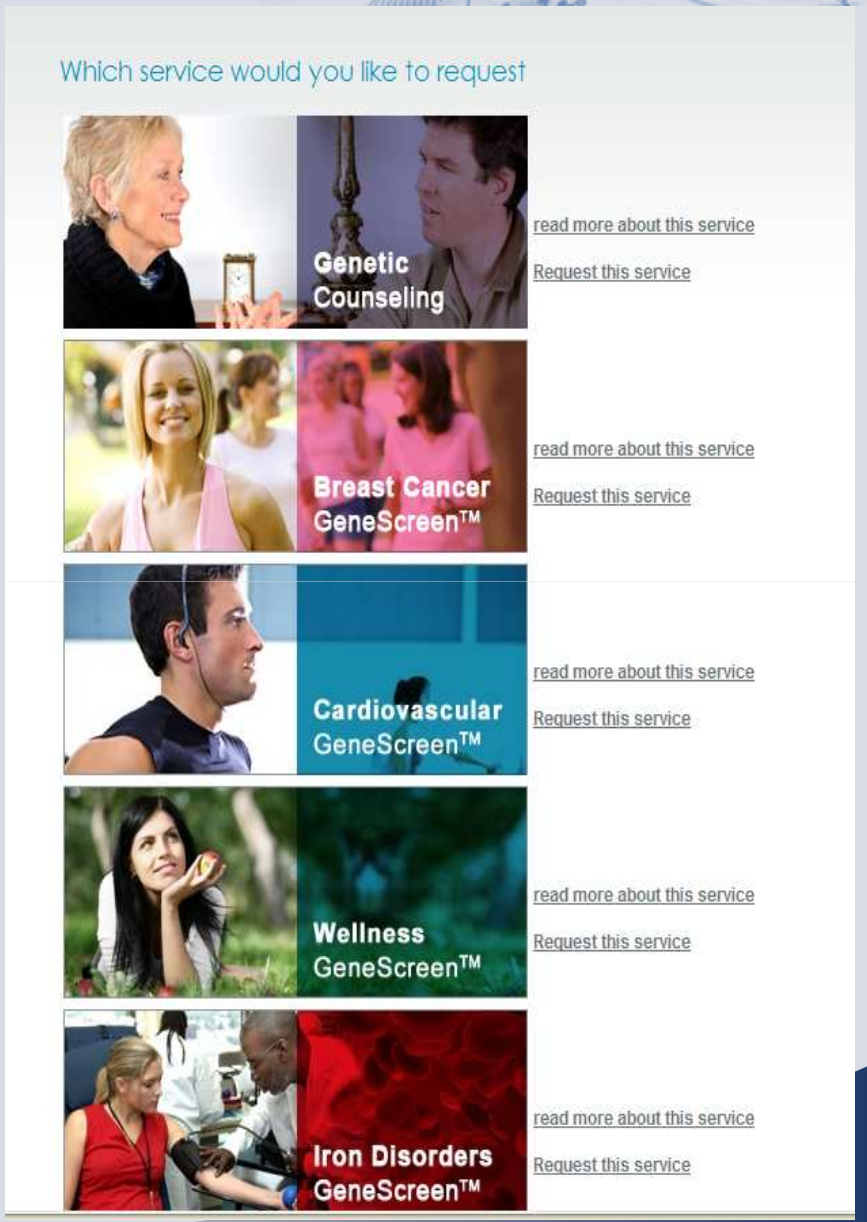
P4 medicine

Predictive, Preventative, Personalised and Participatory

5. The Outcome

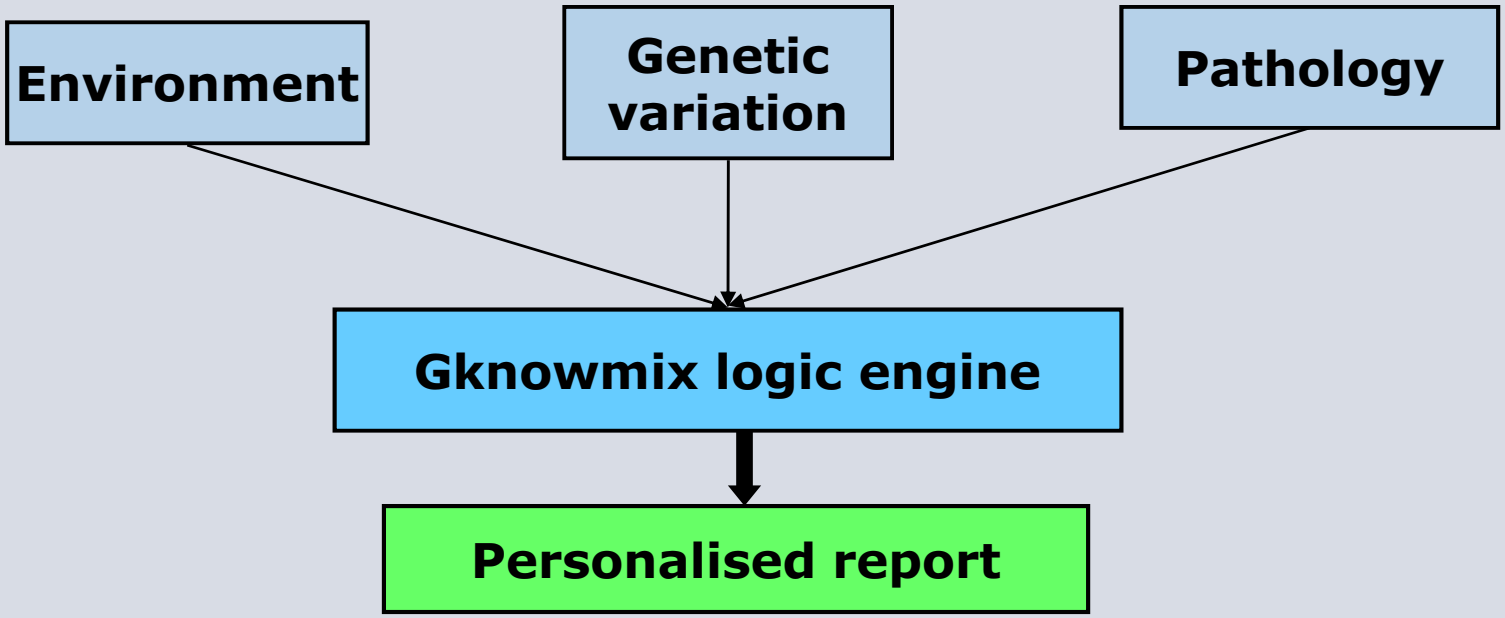


gknowmix
genetic knowledge integration



Involvement of scientists

- **By developing pathology supported genetic tests for integration into the Gknowmix logic engine**
- **By signing off the resulting reports for release and download by health professionals.**



.....and have a business within a business without leaving academia

6. Continuing Innovation

Through local and international geneticists wanting to place their genetic discoveries on the platform and to be responsible for the report outputs derived from their algorithmic input into the system.

7. Lessons Learned

•Timing is key- revolution in health services and health care from curative to personalised medicine

•Cloud computing enables global entry but make sure you get it right on home soil first

•Competitors are having ethical struggles by going directly to consumer –including Google supported *23 & me.*


Spin-out or Wipe-out?

Some current waves driving innovative medical technologies

•Nano technology and micro-fluidics (point of care devices)

•Cloud computing, telemedicine, eHealth, MRS and EPRs (personalised medicine)

•Use of 3G wireless networks and mobile phones

•Personalised orthopaedic implants, CT to CAD, rapid prototyping, (implants)

•Non-invasive diagnostics

Thanks