An ICT-enabled Partnership

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Presentation Overview

1. Who is Cell-Life?
2. Challenges Addressed
3. The Role of ICT
   A. The Cell-Life Approach
   B. Product Overview
   C. ICT as an Enabler
4. Key Lessons
5. The Future
1. Who is Cell-Life?

- **Birth**: Academic research project
- **Collaboration** between UCT, CPUT & Corporates
- **Idea: Technology Innovation** for public HIV/AIDS healthcare
- **Technical Experts** (engineers & computer scientists)
- **University Spin-Off:**
  - NPO technology research-based organisation
  - Social Entrepreneurship (Middle)
  - Commercial?
- Health info **management & monitoring** through tech innovation
- Aim to “Deliver the Best Solution”
1. Who is Cell-Life?

- **Innovation is key!**
- Young organisation (2004 - 2006) <2.5yrs
- Growing team (2 to 15+ people)
- R&D Based
- Implementation + Delivery focused
- Balance R&D with Implementation
- **A clear strategy is critical!**
- **Purpose:** Community based technology development business
- **Target Market:** ART Sites/Clinics (B2B) (B2C)
2. Challenges Addressed (RSA Public Health)

- **Population Size** ~46.9M (Stats SA)
- **Gini Coefficient** ~0.6 (one of the highest globally)
- **HIV Infections** ~3.7M (ASSA, Stats SA) or 7.7% of Population
- **Medical Insurance Cover & Sectors:**
  - 17%
  - 83%

**UNDP HDI 2006:**
- **4 Factors:** Life Expectancy, Adult Literacy, Education, GDP/PPP
- **Challenge is Health** (156/177, others 76/177 or better)
2. Challenges Addressed (ART Site Requirements)

- Medical expertise and service delivery
- Reliable ARV supply
- Adherence compliance rate of 95%+
- Life-long treatment and support
- Monitor nutrition and diet regimen
- Clinical measures - laboratory blood tests
- **Challenge: Lack of sufficient resources, infrastructure,**...
3A. The Cell-Life Approach (Cellular Technology)

- Existing technology
- 50%+ usage within SA population (30 million users)
- 90%+ of SA population accessible by cellular networks
- Demographic distribution
- Affordable technology in the long-term
- African comparison: 62 million (<10%)
- Global comparison: 2.1 billion (35%)
- **Accessibility & Affordability**
3A. The Cell-Life Approach

- Participatory research approach
- Leverage various partnerships to address needs
- **Wish List vs Immediate Needs vs Reality**
- Bridge local needs with local technical solutions
- Establish trust (security & sustainability)
- **MIS: Data ↔ Information ↔ Decision Making**
iDART (Pharmacy supply chain management system)

PHARMACY

RBVCT (Remote Internet & Cellphone booking system for VCT)

VCT (VOLUNTARY COUNSELLING & TESTING)

THE PATIENT

AFTERCARE (Cellphone Data Collection Tool to support home-based carers)

HOME-BASED CARE

M & E REPORTING (3 Level monitoring & evaluation reporting - local, prov, national REPORTING

GIS (Geographical Information System to support decision making & planning)

GEOGRAPHICAL PLANNING

CLINICAL CONSULTATION

CISART (Clinical Info Sys for ART used by Drs & Nurses)

LABORATORY

LAM (Laboratory application module for quick effective link for blood test results)
Aftercare: The Process Flow

Home-based Care Visit
1. Carer/Counsellor visits patient
2. One on one session
3. Data entered into cellphone menu (pill count, side effects...)
4. Data sent to server (SMS)

ART Site
1. Home-based care manager oversees carers
2. Data from cellphone accessed via ART site website
3. Reports generated of carer activity, patient adherence...

Home-based Carer
Home visit

Home-based Care Manager
Data access

Reports/feedback
ART Site
Medical staff
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iDART – Pharmacy Tool

System to monitor & control ARV supply chain

Addresses bottlenecks such as: delivery times, theft, re-ordering, distribution, efficiency, tracking

Another method of monitoring ART adherence

Easily adaptable

Supply of correct drugs and packaging for patients

Specifically for ARV management and monitoring
iDART: The Process Flow

1. Pharmacist Creates ARV Package
2. Package Leaves Pharmacy
3. Package Arrives at ARV Site
4. Patient Collects Package

Packages in Transit

Feedback Information to Pharmacist

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3C. ICT as an Enabler

- Concept of “virtual infrastructure”
- Potential for innovation. (cellphone data collection)
- Critical to build on existing infrastructure
- Role of Open-Source (skills development + applications)
- Need for simplicity and scalability (eg Ubuntu Linux)
- Commitment to long-term support (service contracts)
- **Government**: Strategic Alignment, Support Infrastructure and Investment in Human Capital
3. Cell-Life’s Solution: (Implementations)

**Aftercare** (Cellphone and Database Technology)
- Sizophila Project Gugulethu (WC)
- AED Version (MP, KZN, EC)
- Taung & Koster Clinics (NW)

**iDART** (Pharmacy Management System)
- Desmond Tutu HIV centre (WC)
- Gugulethu Community Clinic (WC)
- Masipumele Community Clinic (WC)
- Taung Hospital (NW)
- Hillbrow Clinic – RHRU (GT) (in process)

**Total Impact ~10,000 ART patients (Need KPIs/Metrics)**
4. Key Lessons: Technology

- **Technology** is not the **magic solution**
- **Sustainability** of systems is a major concern
- Key is **understanding process** – technology readiness & support
- **Flexibility** of technology
- **Innovation** critical (investment sense of risk?)
  - Cell-Life (applications & business model)
  - Prepaid electricity & airtime
- **Realistic** options
4. Key Lessons: *Technology*

- Manage and deal with **failure**
- State of the **infrastructure** and a **horizon view**
- **Ease of use** – cellphone menus (HCI) vs pockets PCs
- **Training** and **change management** are critical areas
- **Scalability** from 3,000 to 300,000
4. Key Lessons: *Policy*

- **Costs** are important to keep low
- **Opensource** (sharing – **OpenMRS**, **Ubuntu**)
- **IT Operations** through **Service Contracts**
- **Different policies** (NHIS, NHLS, City vs Prov)
- **Support** for startups (TT100, Da Vinci, CITI, etc)
- Understanding and **Managing IP**
- **Education** and **Access** to skills/tools
- **Costs of Red Tape** are significant!
5. The Future
(Continuous Research)

- **Ongoing research is critical:**
  - Engineering
  - Health Sciences
  - Computer Science
  - Social Science
  - Economics

- **Links to various academic institutions:**
  - University of Cape Town (UCT)
  - Cape Peninsula University of Technology (CPUT)
  - University of the North (Norwegian Centre of Telemedicine)
  - Medical Research Council (MRC)
  - Bristol University (Aquatest)
  - **Graduate School of Business:** Marketing Case Study on Cell-Life
5. The Future

- Opportunity in Emerging Consumer Markets
- Expand ART sites implementations
- Support National Government ARV Roll-Out
- Grow and extend partnerships/collaborations
- Extent the use of ICT in solutions
- Adapt the technology to other health areas or MTCT
- Attain financial sustainability (what is the best model?)
- **Focus on academic research & implementation**
Acknowledgment