GOVERNMENT OF SAINT LUCIA
MINISTRY OF HEALTH, WELLNESS, FAMILY AFFAIRS, National Mobilization HUMAN SERVICES AND GENDER RELATIONS

ST LUCIA'S HEALTH INFORMATION SYSTEM EXPERIENCE

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Background

Problem Definition:

- St Lucia grappling with delivering effective health care
- Fragmented and Disjointed systems
- Responses reactive not proactive to crisis
- Manual reports are not always timely reflect past situations
- Manual systems do not allow for immediate alerts to disease surveillance
- Utilization Analysis guess work resulting in over/under estimation of financial resources.
- Management decisions not decisive and reflective of manual systems inadequacies.
- Lack of ability to rationalize pharmaceutical stocks in the country
- Goes on and on ------- Which has a multiplier effect

Background Cont'd

Solution: Government Forced to find more effective methods

- Integrate the health services
- Data Capture Inform management in a timely manner.
- Health reform strategy and policy development
- Investigation, consultancies, Field Trips to countries
- Buy or build a Health Information System

Desirable System Attributes

- Scalable (System able to adjust to increasing needs ,memory , storage expansion, increasing users)
- Cost effective – (Cost not prohibitive or exponential)
- Human capacity driven- (local developers capable expansion of system)
- Built in redundancy(Master data store, backup data store,node server can be recreated in the event of a disaster)
- Thin client and web driven (Little infrastructure needed)
- No recurrent licenses (For software use, and modification(qualify-maintainance cost))
- New nodes can be added indefinitely without extra cost
- Stable Operating System (unlike Microsoft OS hacker friendly hunting ground)

Health Information System Modules:

Name	Module Definition
1. & 2. ADT & EHR	(Admissions Discharge and Transfer) & (Electronic Health Record)
3. COE	(Clinician Order Entry) – Pharmacist & Doctors module
4. LAB	(Laboratory Module)
5. HIV	(HIV Module)
6. SCM	(Supply Chain Management Module)-Drugs Management
7. MCH	(Maternal Child Health Module)
8. PH	(Public Health Module)
9. FIN	(Finance Module)
10. HR	(Human Resource Module)

Health Information System Structured

Software:

1. Mandriva 2008 and 2007 (OS)
2. PostgreSQL 8.2 (database)
3. JDK 1.5(Java Development Kit)
4. OpenReports (Reporting Server)
5. ActiveMQ (message queue/replication)
6. ACSiS (health information system software)
7. Jasper Reports/ iReport (Report builder)
8. Apache Tomcat (webserver for reports)
9. Jetty (webserver for HIS)

Security Protocols:

1. 128 bit encryption key
2. Linux default firewalls
3. Linux user account authentication
4. Remote Reverse Shell
5. Private/Public key authentication
6. Role based security

SUCCESSES:

- Successful pilot of 5 sites with (ADT & EHR)- 2 Hosp, 1 Poly , 2 Health Centres
- 5 Accesetec Certified Developers to expand HIS(We develop our own modules)
- Provided a Train the trainers course for Health facility IT support
- Successfully Trained Medical records and admission clerks at 5 facilities
- Completed structured cabling of 2 Hospitals & 3 health centres
- Successful procurement of 129 computers and servers for HIS implementation.
- Developing interface between Health system and Lab equipment
- Successful Integration of immigration software with SLUHiS for eligibility status
- Collaboration with Civil Status to build Interface for Births and Deaths.
- Positive reviews on sponsored PAHO HIS Assessment.

Challenges

- Financing not readily available, accessing donor funds long due to procedures.
- Participation and feedback poor (requirement gathering, committees, FPT)
- No standardized procedures for Health facilities exist
- Unreliable Internet service and poor response times
- HIS viewed as a burden due to slow change management
- Insufficient staff at all levels for health implementation
- Lack of oversight and project management by MOH
- Resistance to change due to lack of policy direction, system intimidation (Older Doctors, Nurses)
- Minimal use of HIS due to lack of policy direction
- Maintaining enthusiasm due to slow implementation

LESSONS LEARNT

TOR – Terms Of Reference

- Before entering contract ensure that a TOR is agreed to and that deliverables are clear and specific.
- Set deliverables as milestones against consultant payment milestones.
- From experience we have found that the consultant milestone are not consistent with the goals of the client and usually bias.
- Insist that the contract refers to the TOR document and that the contract meets the requirements of your terms of reference.

Contracts:

!!! Dont be hasty to sign contract

- Take time to know and understand the contract.
- Make sure you go through every line; seek legal advice to affect changes for fairness.
- Watch out for the non existence of warranties and insist that a warranty is included.
- Ensure in your project plan you give yourself sufficient time to test the system for the warranty period.
- Infact I suggest warranty period be included per module for phased implementation ensuring that all modules are tested within the warranty period .

JAD – Joint Application Development

!!! Don't believe everything you hear from consultants

- JAD is a methodology used by Accestec to rapidly develop a requirement specification of the clients needs
- works well if there is full participation , proper recording and feedback mechanisms in place.
- It did not work well for us because we have culture sadly in the Caribbean of noncommittal problem of participation and feedback phobia.
- one size does not fit all
- Contractually must have room for maneuverability and alternatives otherwise there will be poor results and wasted effort.
- requirements gathering exercise should be based on your processes and not on the processes of the Software purchased.
- Requirements gathering should inform your processess and Standard operating procedures.
- standard Operating Procedures should be used to customize HIS

Standard Operating Procedures

!!! Without unified SOP customization of HIS will Fail

- Contractors generally shy away form dveloping SOPs. Negotiate to deliver it as a major deliverable to customize system as well as a precursor to training and drafting of legislation.
- Critical to modification of system to reflect your processes
- Modifications that automate existing procedures are more likely to work than changing specifications
- Critical to the training of staff and new interns ,nursing graduates
- Critical to the development of legislation for system usage
- Standardization of SOPs critical to uniformity and benefial to single system

Project Planning & Implementation:

!!! Enthusiasm can be dangerous!!!

- Technological Infatuation with ICT and over expectation (carried away with excitement).
- Technophilia: Technology fixes or remedies pratctical problems
- Instead approach every module with pessimism so that you ensure you are covering all your bases before implementing.
- Have modest aims that are measurable.
- A prime example is that in St Lucia with enthusiasm in the air the EHR-ADT modules were intended to be installed throughout the country during phase 1: this would have introduced the system nationally(Bad idea), but instead we introduced the EHR-ADT in a limited way that was more-gentle for users and still provided extensive "network" feedback and data for analysis. Even then we were fraught with many challenges. Enthusiasm can lead to Failure

Change Management:

!!! Change can be costly and disruptive with benefits uncertain

- Change should be well managed and not an after thought
- Enthusiam for technology not often shared by users
- No matter how successful HIS implementation may be, its success is undermined if users are reluctant to use the system.
- Every effort must be made to represent and involve users at every level for greater buy-in
- Policy direction must ensure standardized operating procedures are adopted to affect and inform changes to job descriptions.

Infrastructure:

!! Infrastructure weak the whole system will crash on you

- Consultants are often pushy to have systems installed before infrastructure are in place, Do not concede. Include enough time in plan.
- You cannot have the software waiting for the infrastructure to be in place.
- Node servers at Facility should be locked down and secure(security) –**theft**
- environmental control rooms (A/c server room controlled, Pc ready, structured cabling in place)- **limit server failure**
- minimum spec health facilities ADSL or above shared DIA
- Negotiate with ISP special considerations for uptime of all Health facilities

Thank You