H3A vision has become a Reality:
The CLS H3 Back to the Future Experience

5th H3 Africa Consortium Meeting – November 2014

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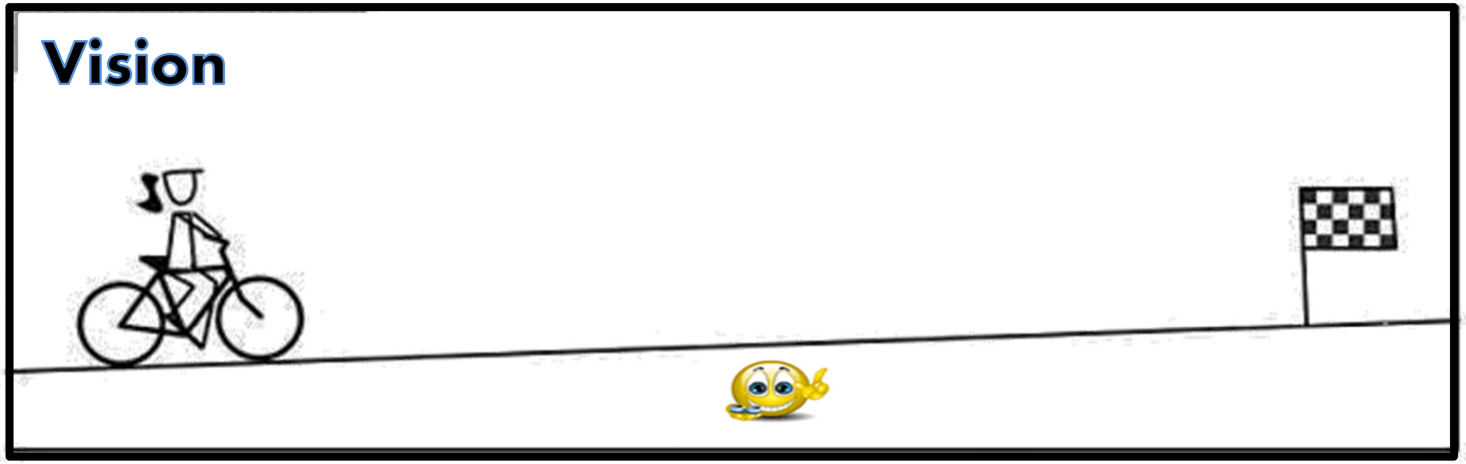
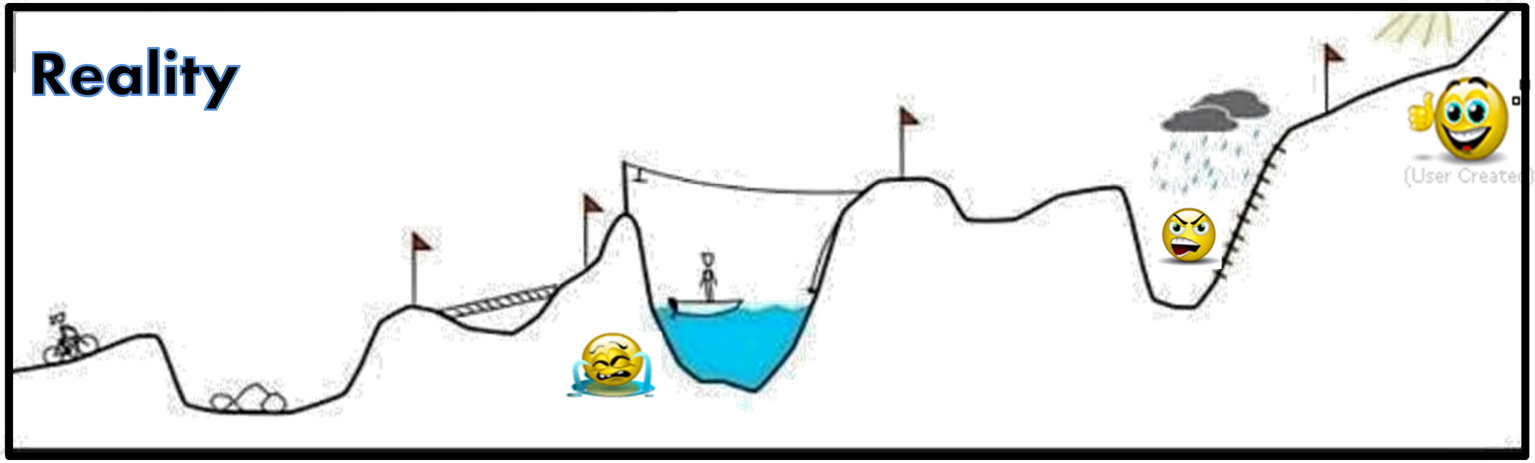
Vision to Reality





CLS Back To the Future

CLS Repository Before

CLS Current Repository

CLS Repository Capacity

	-70 degrees C Freezers	LN2 Freezers (-150)
Number	53	7
Capacity / unit	38 000	11 000
Current total no of samples (Approx)	1 150 000	55 000
Free Capacity	5 units free	2 units free
Types of Samples	Serum , Plasma, Culture extracts, DNA	PBMC's , cells

CLS H3 Africa Organogram

Dr Ute Jentsch
Chief Executive, CLS
Principle Investigator

Shiksha Reddy
Chief Operations Officer, CLS
Co-Principle Investigator

Mala Govender
Quality and Training Manager

Lizelle van Zyl
IT Support

Mukthar Kader
Project Manager

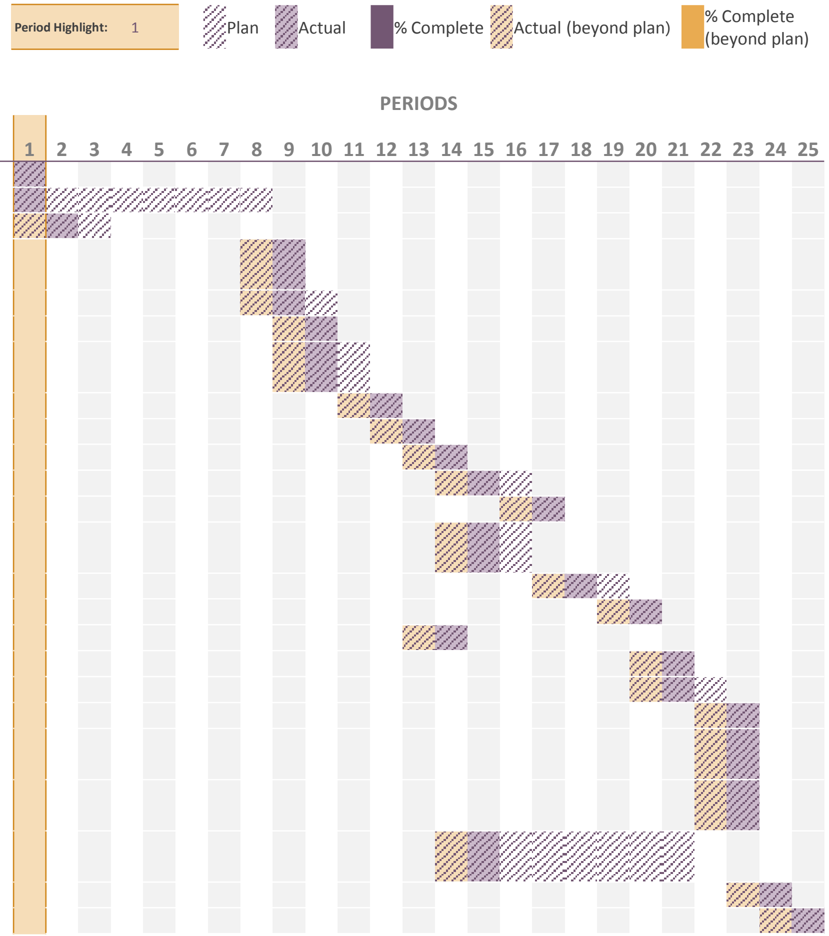
Repository Manager
Garth Swartz

2 X Repository
Coordinators

Infrastructure Upgrade for Phase 2

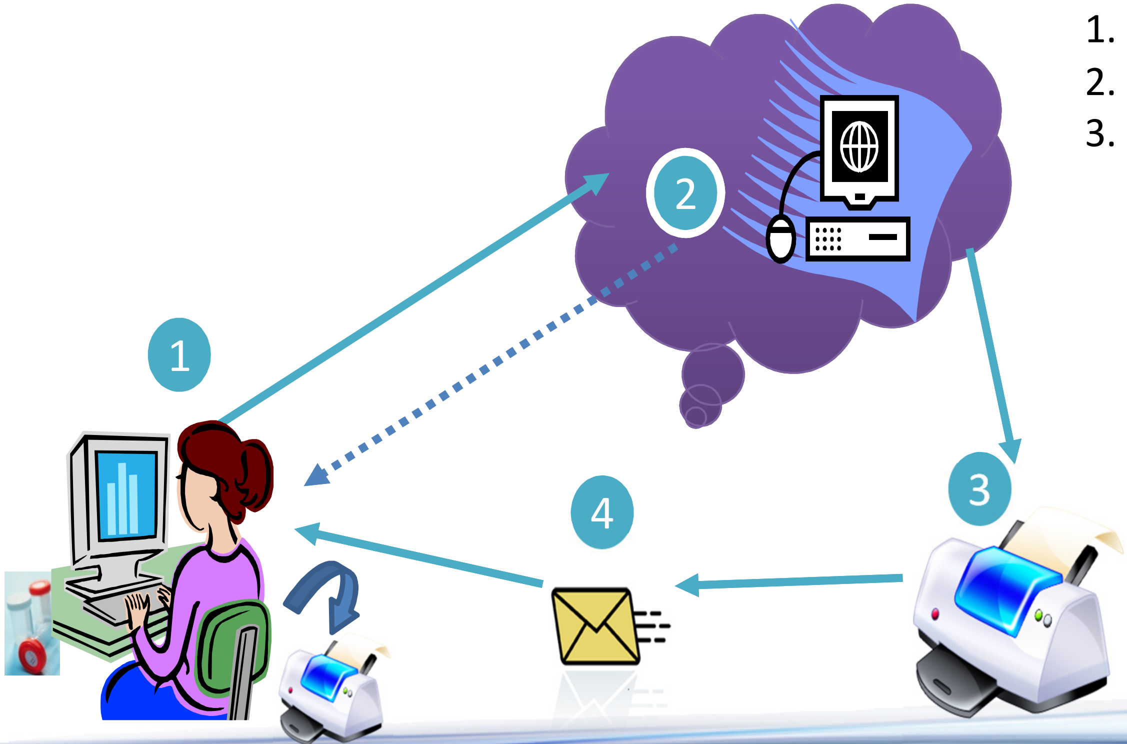
CLS H3 Project Plan

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
	DAYS				
• Remove old vinyl in basement and make good the surface area	1	1	1	0	0%
• Vinyl the floor in the basement and gas cylinder room	1	8	1	0	0%
• Patch up and paint the wall where the LN2 freezers are standing	2	2	2	0	0%
• Relocate the existing power poles to allow all the freezers to be connected.	9	1	9	0	0%
• Install new power poles: 4 freezers per pole	9	2	9	0	0%
• Relocate the C02 cylinders to new gas cylinder room	10	1	10	0	0%
• Connect cylinders to mainline artery above 54 freezers in general area. Add T trunking drops to each individual freezer	10	2	10	0	0%
• Vinyl new gas cylinder room	12	1	12	0	0%
• Install airvent in new gas cylinder room	13	1	13	0	0%
Install powerline from existing DB in new gas cylinder room to H3	14	1	14	0	0%
• Trunking of H3 room for power skirting	15	2	15	0	0%
• install glass sliding window in new H3 room.	17	1	17	0	0%
• Install 30 new plug points in the store room where the freezers for H3 will be housed.	15	2	15	0	0%
• Install 2 x air conditioning 50BTU in the H3 room	18	2	18	0	0%
• Install gas cylinders and piping in new H3 room	20	1	20	0	0%
• Install new DB board + 30 circuit breakers in H3	14	1	14	0	0%
• Deliver 5 x Thermo Freezers	21	1	21	0	0%
• Install freezers	21	2	21	0	0%
• Deliver and Install Nanodrop (QC)	23	1	23	0	0%
• Deliver COC documentation for H3, Gas Cylinder Room & General Area	23	1	23	0	0%
• Deliver Workflow Documentation H3 data audit trail (Sample Receipt, QC, reformat, Storage, retrieval)	23	1	23	0	0%
• CLS Internal evaluation & completion of H3 data tracking (LIMS module finalise GS)	15	7	15	0	0%
• Complete onsite H3 pilot runs of 100 samples store and retrieve	24	1	24	0	0%
• Project completion & Sign off	25	1	25	0	0%



Proposed Centralised Labelling

- Standardized online barcode generation & distribution



1. Request for barcode generation online.
2. Unique biospecimen identification
3. Generation of barcodes with site-specific information with ability to select:

   a. Download and print
   b. Request courier/delivery of barcodes

LIMS Comparison

Name	STAR LIMS		NAUTILUS* **		LDMS*		FreezerWorks Unlimited* **	
Commercial/Open Source	Yes		Yes		Yes		Yes	
Management of Samples	Yes		Yes		Yes		Yes	
Set up costs (excluding VAT)	License x 2	R 136,500.00	License x 3	R 270,087.50	License (unlimited)	R 46,125.00	License (unlimited)	R 256,250.00
	Training	R 76,000.00	Consultancy Fee	R 599,625.00			Test ordering and reporting module	R 76,875.00
	GAP Analysis	R 115,500.00	Support	R 48,615.75			Billing module	R 51,250.00
	Services	R 390,000.00	Start Pack	R 50,255.00			Web Services (SOAP server) module	R 51,250.00
	Total	**R 718,000.00**	**Total**	**R 968,583.25**	**Total**	**R 46,125.00**	**Total**	**R 435,625.00**
Recurrent costs (Support & Update, excluding VAT)	R 175,000.00		@18% of Total Net Licenses Fee	R 48,615.75		R 46,125.00		
Web-based	Yes		Yes		No		Yes	
Local Distributor	Yes		Yes		No			

Other LIMS Consideration

Advantages of Open Source:

- **Freedom:** To enhance, customize, and extend.
- **Low cost:** No license fee. Pay only for services.
- **Collaborate:** With top global research centers

Other Open Source Systems:

- Open Specimen
- NorayBanks

Milestones achieved

	AIM	Milestone 1	Milestone 2	Milestone 3	Milestone 4
1.	Planning Phase	Policies and procedures Development Contributions: √ Shipping Guidelines √ Labelling Proposal √ Biospecimen sharing Web doc √ DBAC guidelines	Courier Decision and rates √ CLS will be using WC – preferential pricing with increased volumes	Operational needs √ Workflow assessment and prep for renovations	Pilot study √ Commenced end Oct: received samples from CT and shipped to Nigeria
2.	Regulatory Compliance	Ethics : √ CLS BR is a Wits approved BB. H3 A MTA has been submitted for a legal opinion	H3 A governance: √ Regular SC,PI, WG TC attendance and Input		
3.	Networking and Collaboration	Other H3 A BR: √ Pilot Study in conjunction with other BR √ Internal assessment of a few Lims systems done Room Temp storage of DNA	Other H 3 A partners: Planning set-up and training for DNA QC with support of Prof Ramsay's unit.		

Milestones achieved continues…

AIM	Milestone 1	Milestone 2	Milestone 3
4. Immediate BR capacity	Validation exercises and Preparation: √ Pilot Study in progress √ Piloting of documentation CLS :Select , procure and install necessary equipment	QC Set-up √ Assessed the required equipment √ Witnessed DNA QC √ Training and competency to be completed in the next Q1 2015	
5. Enhance and scale up CLS BR capacity	Final scoping of facility: √ Renovations in progress	LIMS system √ Theoretical evaluation and demos of suitable options (Starlims, Freezerworks) Evaluate available 2 D Cryovials	
6. Training	Training of CLS BR Staff √ H3 A Overview √ Pilot Study	Internal Training: GCLP, IATA, H&S √ All CLS BR staff are IATA , GCLP and H&S certified	External √ CLS GCLP : Trained 41 H3 A delegates √ ESBB Member √ Attended ESBB Oct 2014 ISBER member 2015

CONCLUSION


A dream doesn’t become reality through magic; it takes sweat, determination and hard work.
-Colin Powell

Acknowledgements

- NIH
- Wellcome Trust
- Biorepository Partners

  - Cape Town

  - Nigeria

  - Uganda
- H3 Africa Research Sites

  - Prof Ramsey

  - Prof Widaad
- H3 Africa Collaborators
- Conference Organizers