

Global Goods Software

Lecture 10: CSE 490c



Announcements

- Turn in Programming Assignment 1
 - Zip file of code and documentation
- New Homework Available
- Revised Lecture Schedule

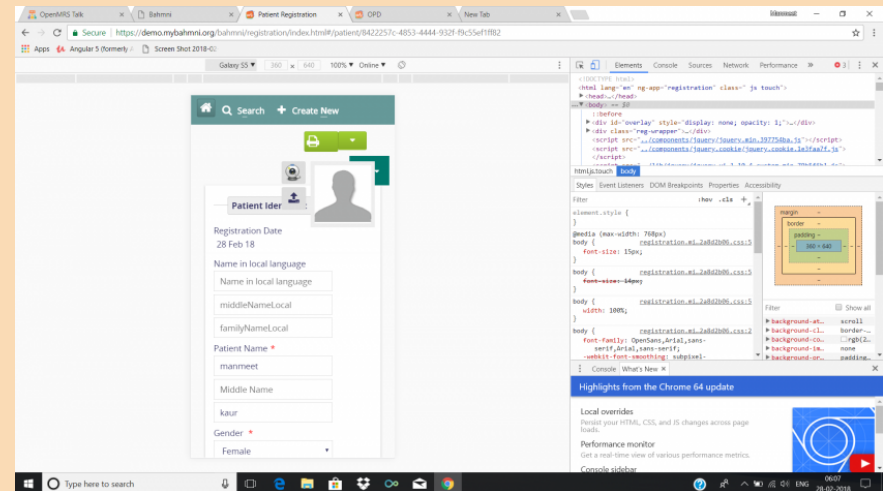
Lecture 10	Wednesday, October 17	Global goods software	Richard Anderson
Lecture 11	Friday, October 19	Software Architecture	Richard Anderson
Lecture 12	Monday, October 22	DHIS2	Fahad Pervaiz
Lecture 13	Wednesday, October 24	Networking Technologies	Matt Johnson
Lecture 14	Friday, October 26	UW-Pesa	Clarice Larson

Problem Domain

- National level systems for supporting public processes
 - Dominated by health systems
 - Examples in public administration, agriculture, public distribution
- Non-commercial systems
- Impact of first system
- Effort to develop replicable solutions
 - Not custom software for every country

System types

- Aggregate Reporting
- Case Reporting
- Surveillance
- Logistics – Ordering
- Logistics – Stock Levels
- Medical Record Systems
- Laboratory Information
- Registries
- Vital Registration
- Workforce management



Key questions

- What are the primary use cases for the system?
- How can the system be of benefit to stakeholders?
- What are the architectural considerations in building the system?

Aggregate Reporting

dhis2
DHIS 2 Demo - Sierra Leone

[Maintenance](#)
[Services](#)
[Help](#)
[Profile](#)

👤 System Administrator • [Write feedback](#) • [Share interpretation](#)

Profile
Messages
Interpretations
Groups

Search for users, charts, maps and reports

Insert Close Clear

Reports

- ANC: Coverages This Year ✕
- ANC: Visits This Year ✕
- Feedback: Indicator Report ✕
- Inpatient: Top 10 morbidity ✕
- Inpatient: Top 10 mortality ✕
- Nutrition: Breastfeeding and malnutrition ✕

Insert Close Clear

Maps

- ANC LLITN Cov Chiefdom 2012 ✕
- ANC: IPT 2 and LLITN Coverage ✕
- Immunisation: Fully Imm. Child 2012 by Chiefdom ✕
- Immunization: Measles Cov Facilities 2012 ✕
- Immunization: OPV and BCG 2012 ✕
- Immunization: OPV1 Cov Chiefdom 2012 ✕

Insert Close Clear

Resources

- DHIS 2 Home Page ✕

Insert Close Clear View full size Share

ANC: 1 and 3 coverage Yearly

2013

Percentage %

Legend: ANC 1 Coverage (Green), ANC 3 Coverage (Blue)

Insert Close Clear View full size Share

Reporting Rates: PHUF Forms Comparison This Year

2013

Percentage %

Legend: Morbidity Form (Green), Child Health Form (Blue), Reproductive Health Form (Red), Mortality Form (Orange)

Insert Close Clear View full size Share

Reporting Rates: PHUF Forms Trends

Sierra Leone

Percentage %

Legend: Morbidity Form (Green), Child Health Form (Blue), Reproductive Health Form (Red), Mortality Form (Orange)

Insert Close Clear View full size Share

Immunization: IPT 1 and 2 Coverage

Sierra Leone

Percentage %

Insert Close Clear View full size Share

Delivery: Births attended by skilled health personnel

2013

Percentage %

Insert Close Clear View full size Share

Immunization: Measles Coverage Monthly

Sierra Leone

Percentage %

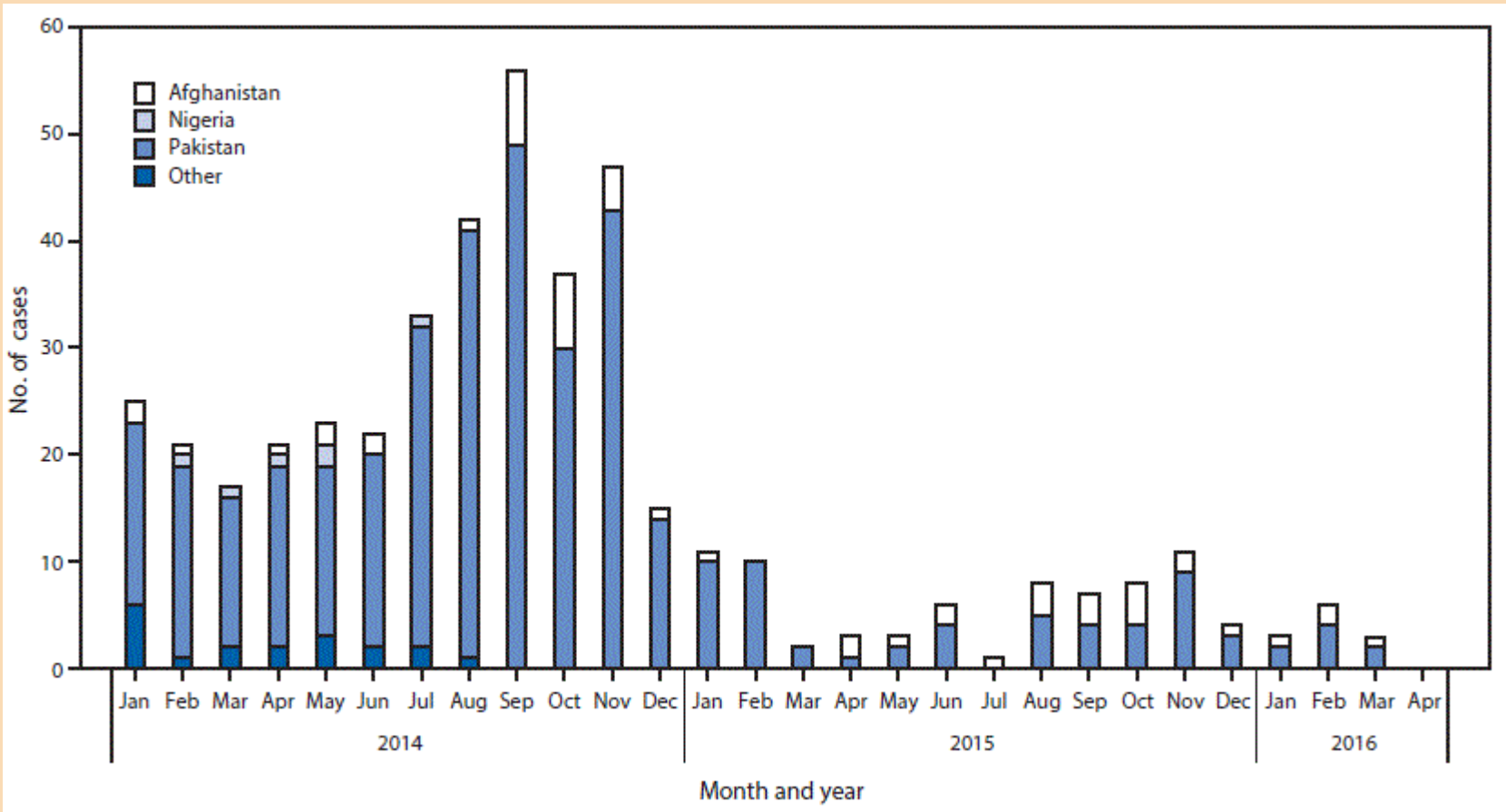
Target: 75%

10/17/2018

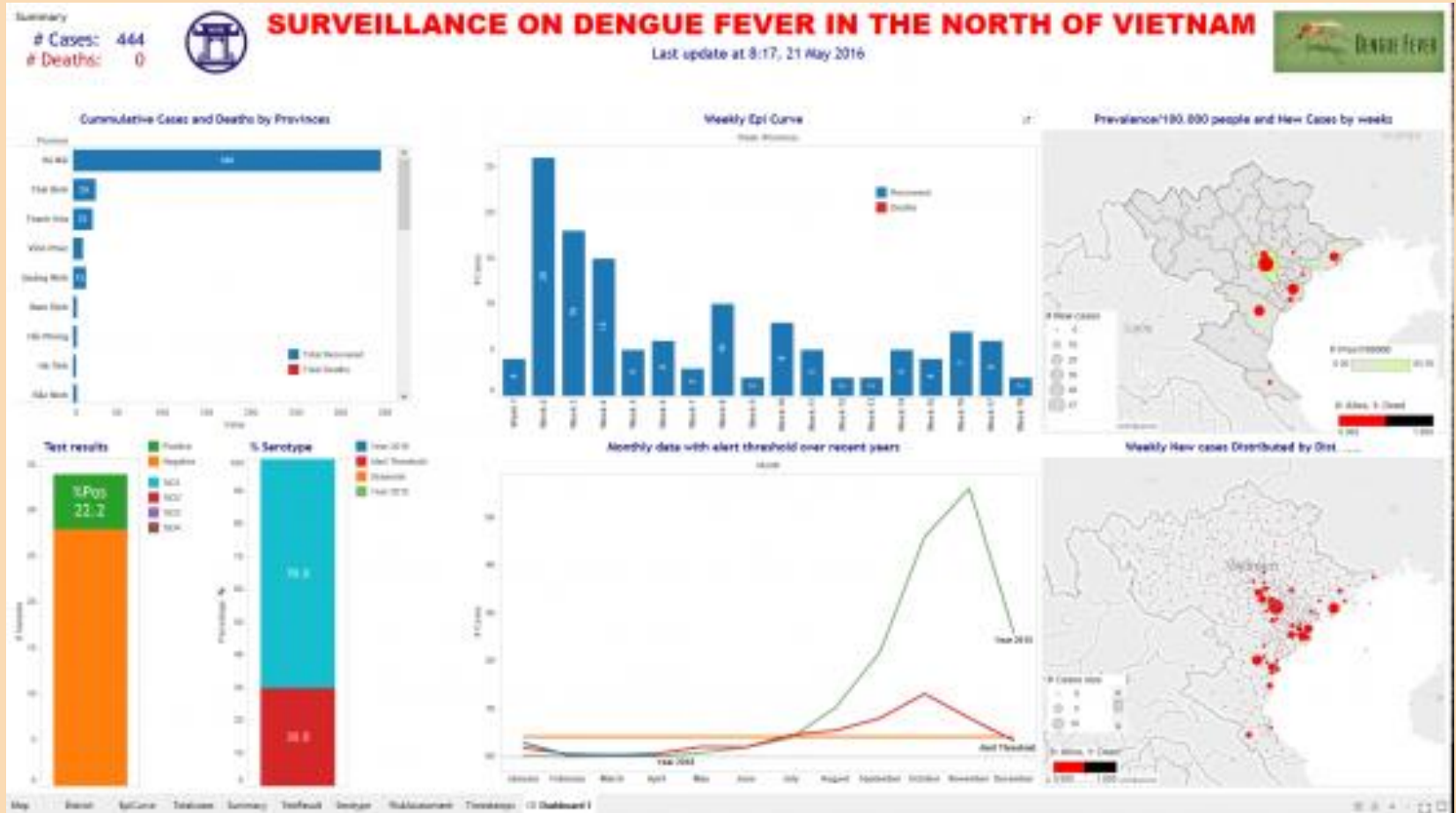
University of Washington, Autumn 2018

6

Case Reporting



Surveillance



Logistics: Ordering



ELECTRONIC LOGISTICS MANAGEMENT
INFORMATION SYSTEMS (LMIS)

A New Open Source Option

Logistics: Stock Management

eStock JSI

Dashboard | HSAs | Health Facilities | User Profiles | M & E | Message Log | Message Tester | Management | Help

Reporting Rate | Stock Status | Consumption Profiles | Alert Summary | Re-supply Qts Required | Lead Times | Order Fill Rate | Emergency Orders

Site:

Stockout rates

District	% HSA with at least one stockout
Balaka	37.7%
Blantyre	38.5%
Chikwawa	42.7%
Chiladzulu	36.2%
Chitipa	17.9%
Dedza	81.7%
Dowa	53.7%
Karonga	35.6%
Kasungu	88.2%
Likoma	20.0%
Lilongwe	72.6%
Machinga	46.3%

Current alerts

	% HSAs
With EOs that HCs cannot resupply	3%
Resupplied but remain below EO	74%
With any pending orders	55%
With any pending approved orders	20%

Current National Picture

Number Registered		
Districts	29	
H facilities	611	
HSAs	3749	
Reporting Rate	59%	
National Stock Out Rate		
Product	HSAs	% SO
AM	2502	29.3%
cf	960	39.8%
cl	565	26.9%
cm	1487	32.3%
co	1982	18.3%
cw	1216	33.0%
dm	1771	19.6%


Medical Record Systems



OpenMRS Currently logged in as Tri Hong | [Log out](#) | [My Profile](#) | [Help](#)

[Home](#) | [Find/Create Patient](#) | [Dictionary](#) | [Cohort Builder](#) | [Reporting](#) | [Administration](#)

Joseline Awor Chepkoros OpenMRS Identification Number: **6347MT-1**

 59yrs(Apr 7, 1953)

BMI: ? (Weight: 65.0 kg , Height:) CD4: 354.0 | Regimen:
Last encounter: **ADULTRETURN @ Ultima Medical Centre, Apr 28, 2006**

[Overview](#) | [Regimens](#) | [Encounters](#) | [Demographics](#) | [Graphs](#) | [Form Entry](#)

Current and Future Regimens

Item ordered	Dose/Units	Frequency	Start date	Scheduled Stop Date	Instructions
(No orders)					
(No orders)					
OTHER REGIMENS					
(No orders)					

[\(+ Add/Change Regimen\)](#)

Add a standard drug regimen

[3TC + d4T\(30\) + NVP \(Triomune-30\)](#)
[3TC + d4T\(40\) + NVP \(Triomune-40\)](#)
[AZT + 3TC + NVP](#)
[AZT + 3TC + EFV\(600\)](#)
[d4T\(30\) + 3TC + EFV\(600\)](#)
[d4T\(40\) + 3TC + EFV\(600\)](#)

Add your own drug regimen

Drug:

Dose:

Frequency: 1/day x 7 days/week

Start date: (mm/dd/yyyy)

Laboratory Information Systems

The screenshot displays the Open-LIMS web interface. At the top, the browser title is "Open-LIMS (development server)". The main header features the "Open-LIMS" logo and version information: "Open-LIMS 0.3.8.5 a University of Cologne development server". Below this is a navigation bar with tabs for "Home", "Projects", "Samples", "Data", "Search", "Organiser", "Extensions", and "OL-Admin". A secondary navigation bar includes "My Profile", "My Organisation Units", and "System Messages".

The main content area is titled "Organisation Unit" and includes a welcome message: "Welcome Roman Konertz" and the date "Friday, 12th November 2010". On the left, a tree view shows the organizational structure under "Medical Faculty", including "Biochemistry I" (with sub-groups "Clemen Group", "Eichinger Group", "Noegel Group", "Tunggal Group"), "Biochemistry II", "Biochemistry III", "Biochemistry IV", "Test Group", "Test Faculty", and "RRZK".

The central dashboard contains three main sections:

- Summary:** A table showing key metrics:

My Running Projects	0/0	My Samples	0/0
My Finished Projects	0/0	?	0/0
Used Diskspace	2.83 GiB (1%)	Quota	186.26 GiB
- I want to...:** A list of actions with icons:
 - create a new project/experiment
 - work with a project/experiment
 - access to project/experiment data
 - create a new sample
 - view my samples
 - view my files
 - get to my group/organisation unit/lab
 - get help
- Today:** A task list section:
 - Project Tasks:** "My 17th Project - Finalise scanning - 01/10/2010" and "My 17th Project - Finalise cDNA - 23/09/2010".
 - Personal Appointments:** "No upcoming appointments."
 - ToDo:** "No upcoming tasks."

The bottom left corner of the interface shows the word "Fertig".

Registries



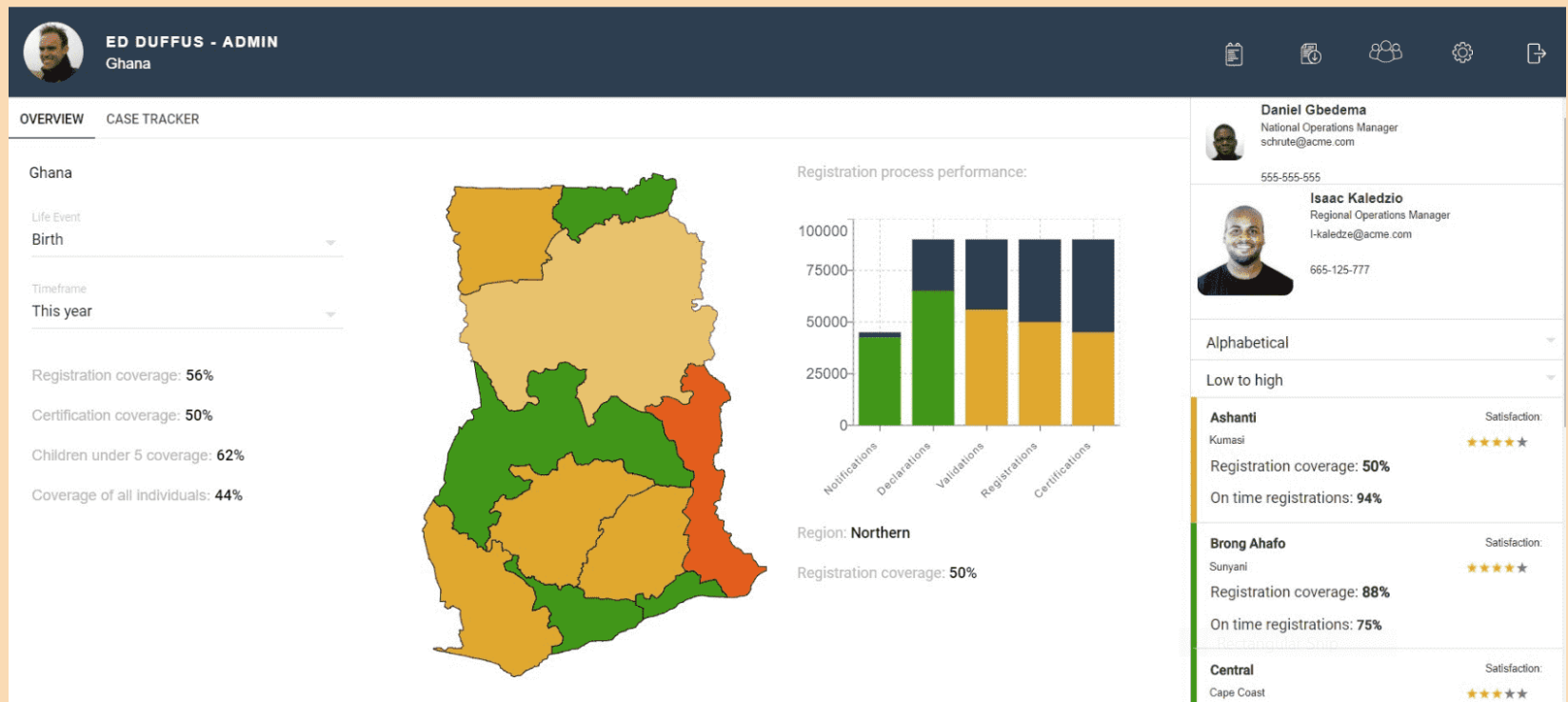
100% 20:28

MZ ZEIR Happy Kids Clinic + 127

Search name or ID Scan QR code

CHILD	AGE	ID	WEIGHT	DUE VACCINE
Zamtel Bonh Banda Zose	4m 1w	7243801	✓ 9.0 kg	✓ 14 weeks
Muntanga Mwachona Choolwe Beenzu	8w 5d	6864813 332/17	✓ 5.3 kg	Upcoming 10 weeks
Linda McKay Masuku Masuku Masuku	9m 2w	40822938 23/17	✓ 4.5 kg	✓ 10 weeks
Alex Liyamba Twaambo Hangopwe	9m 2w	6669402 0391/17	Record weight	✓ 6 weeks
Merit Hamwiinde Brenda Moono	3m 2w	6785398 56/17	Record weight	✓ 6 weeks
Mambo Mulenga Mary Zyambo	1y 1m	7099302 209/17	Record weight	Upcoming 10 weeks
Zeir Zambia Mother Zambia	2d	3163375 34/17	Record weight	Record at birth
Ben Afflict Jane Jacksons	3d	7450307 12345	Record weight	✓ Birth
Simcard Banda Mukat Kamwi	6w 4d	60010562010... 78/17	Record weight	Record at birth
Duplicate Phiri Justina Nambela	6w 5d	7386311	Record weight	Record 6 weeks

Vital Registration



Workforce Management

iHRIS
Open Source Human Resources Information Solutions

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mHero and the Principles for Digital Development: Development Done Right

By **Amanda Puckett BenDor** IntraHealth International and UNICEF launched the mHero platform in late 2014 in the midst of the Ebola ...

[Read More »](#)

iHRIS Software Improves Health Outcomes

Getting the right health worker in the right place at the right time is key to improving health outcomes. iHRIS is free and open source software for managing health workforce information. This information helps countries address health workforce shortages and solve other challenges across the health sector.

With iHRIS, your health workforce is in full view.

[iHRIS Community](#) | [iHRIS Downloads](#) | [iHRIS Demos](#)

iHRIS Blog

- JUL 11 **Feature requests!**
- JUL 10 **JIRA for iHRIS Bug and Feature Tracking**
- DEC 12 **Announcing the iHRIS Foundation**

USAID
FROM THE AMERICAN PEOPLE

CapacityPlus
Serving health workers, saving lives.

IntraHealth
INTERNATIONAL
Because Health Workers Save Lives.

Challenges

- Funding model
- Technologist vs Programmatic needs
- Siloed domains
- Process complexity
- Infrastructure

Structure

- Donors
 - Money and governance
- Platforms
 - Systems deployed at country level
- Products
 - Single use applications

History of Global Goods Software

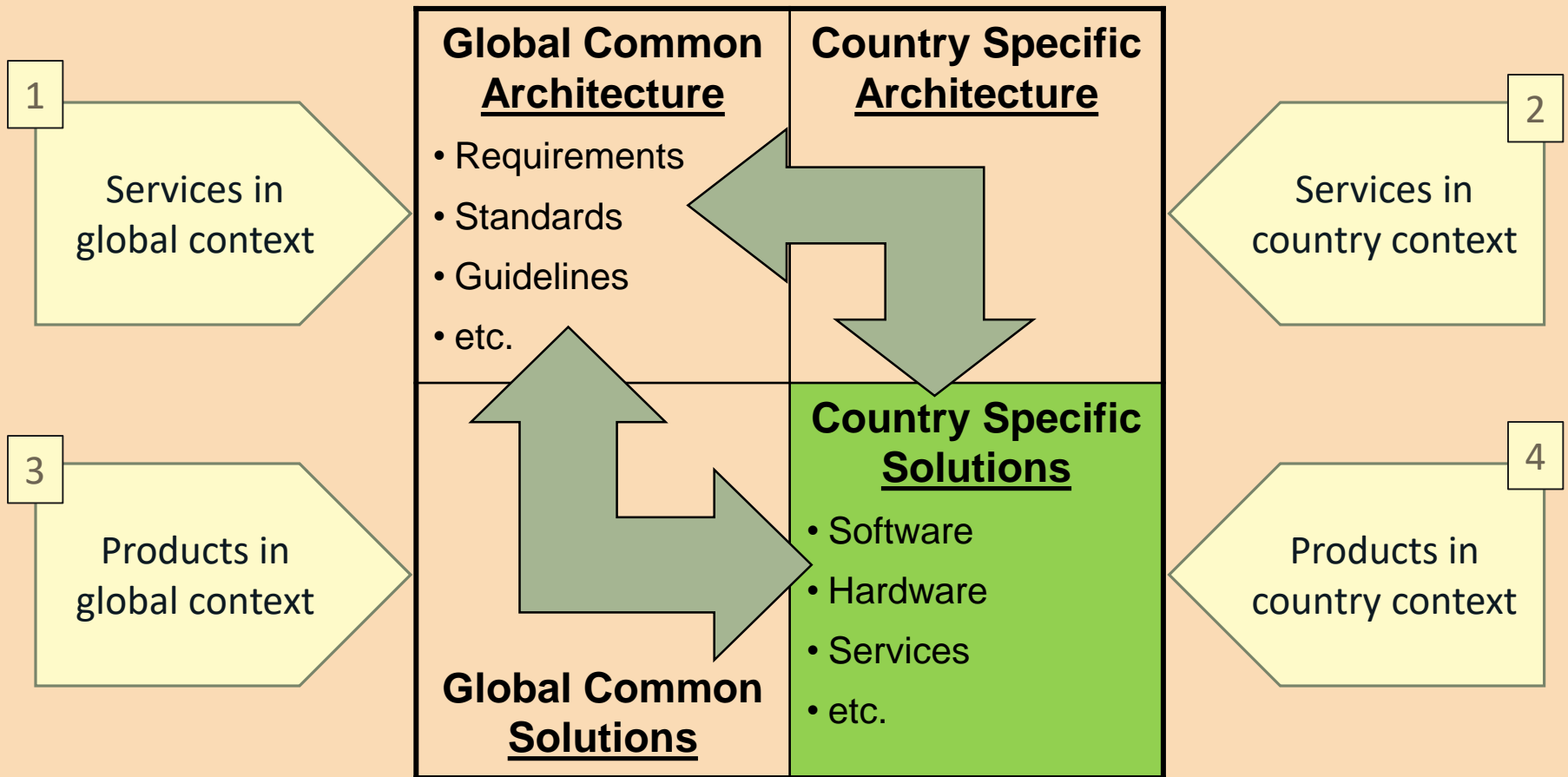


*Those who cannot remember the past
are condemned to repeat it – George Santayana*

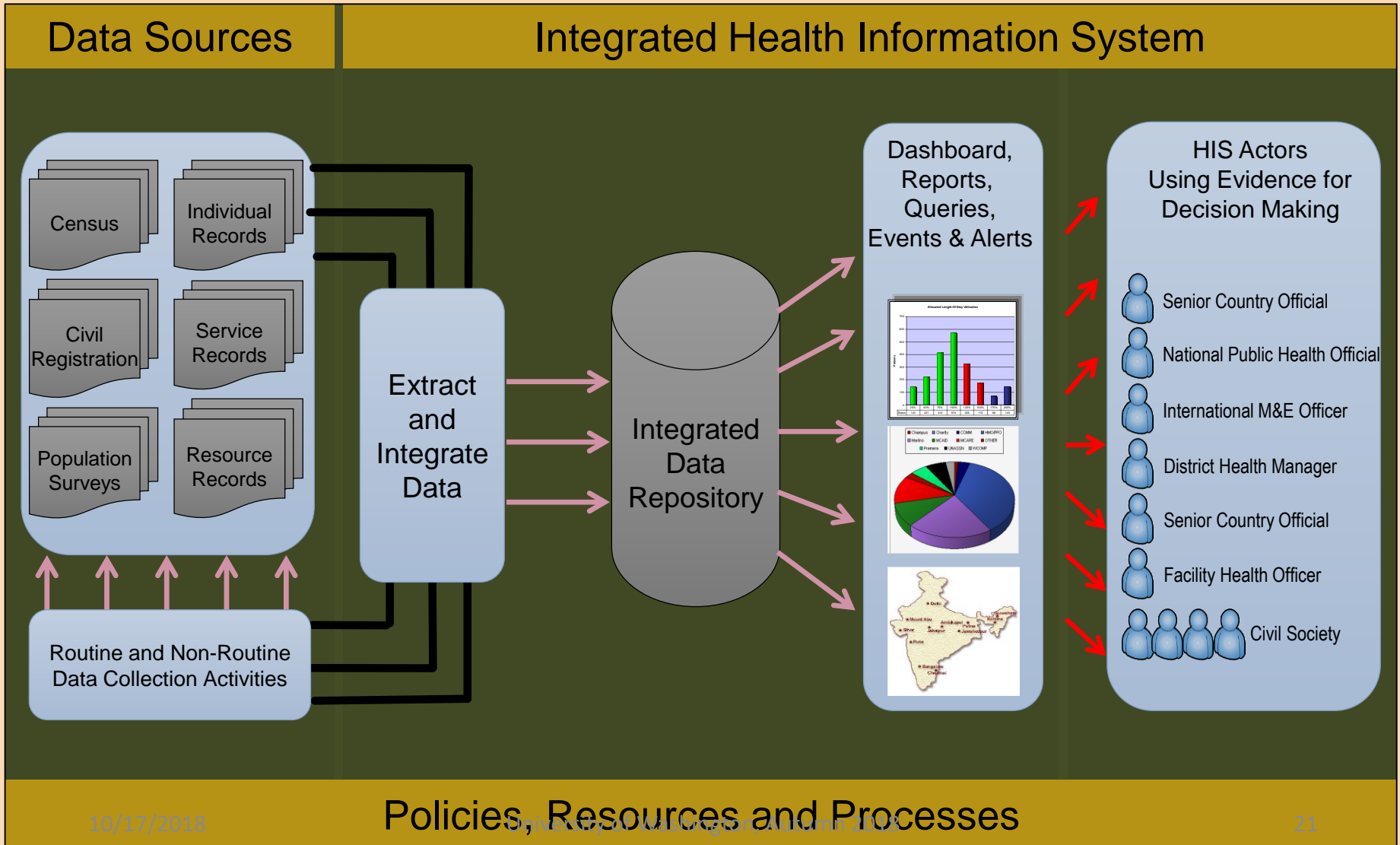
- Microsoft Era: Visual Basic and Microsoft Access
- Server:
- Hosted:

National Software Architecture

2x2 Architecture Grid (Lubinski)



Conceptual HIS Framework



Technical Challenges