Service-oriented Architecture:
A Public Health Perspective

HSP Consortium 14th General Meeting
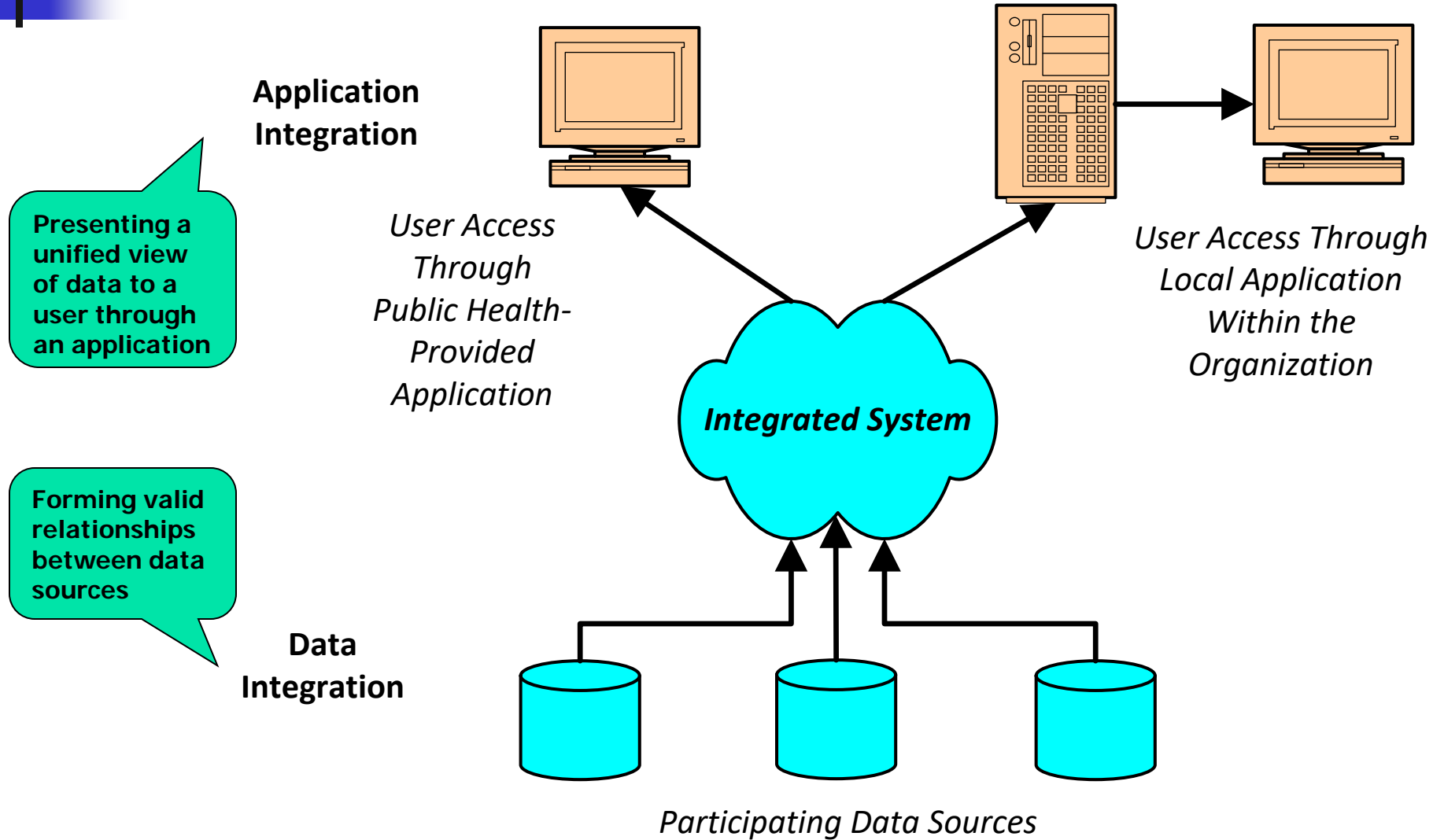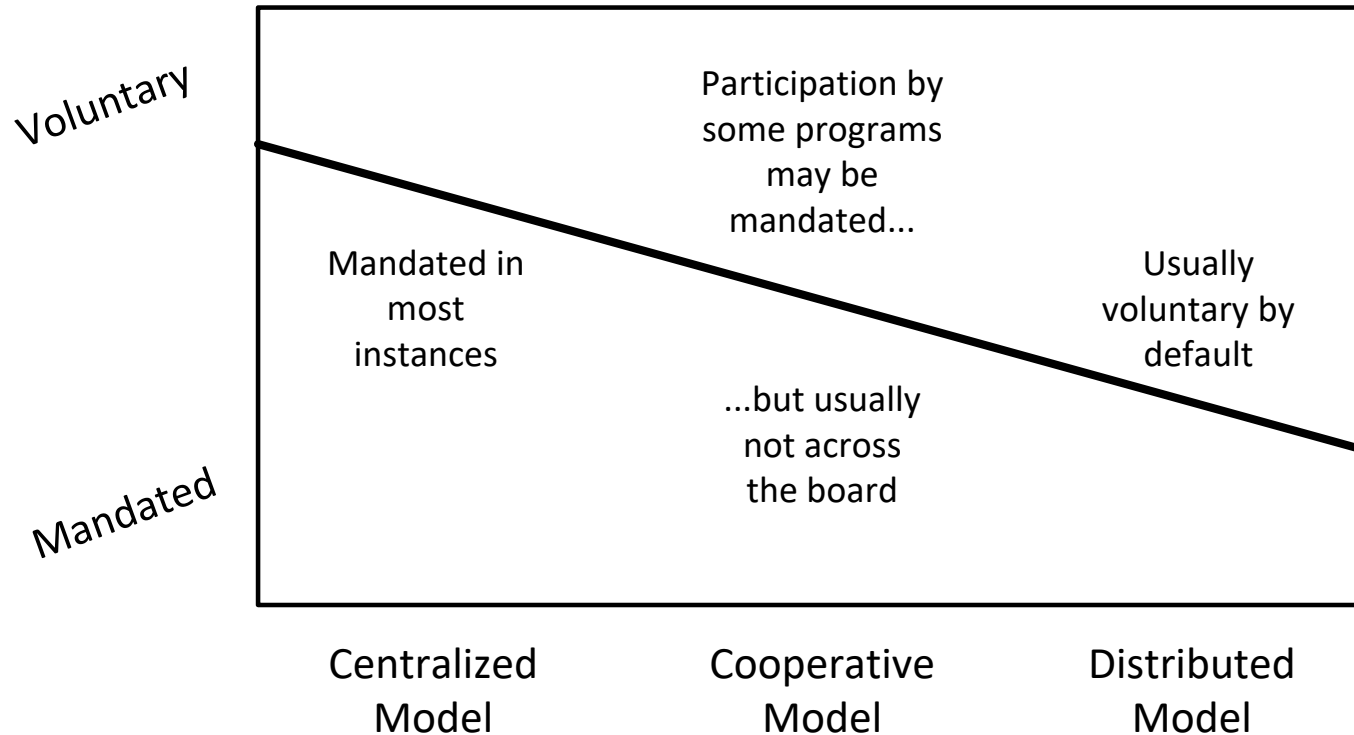
New Orleans, LA

March 27, 2017

Challenges for Public Health

- 2,500+ public health agencies in the US...
  - ... so they cannot/do not speak with one voice
- There is no Federal *public* health "law"
  - ... so the legal framework is state (or even county) specific
- Most public health is Federally-funded (CDC & others)...
  - ... so there are strong incentives to comply with their guidelines
- CDC primarily funds program by program...
  - ... so jurisdictions develop "stovepipe" systems
- Technical infrastructure is increasingly centralized...
  - ... so programs are less in control of what/how they deploy

HLN Consulting LLC

Data Integration vs Application Integration

Application Integration

Presenting a unified view of data to a user through an application

User Access Through Public Health-Provided Application

User Access Through Local Application Within the Organization

Integrated System

Forming valid relationships between data sources

Data Integration

Participating Data Sources

Agency-wide Integration

Voluntary

Participation by some programs may be mandated...

Mandated in most instances

Usually voluntary by default

...but usually not across the board

Mandated

Centralized Model

Cooperative Model
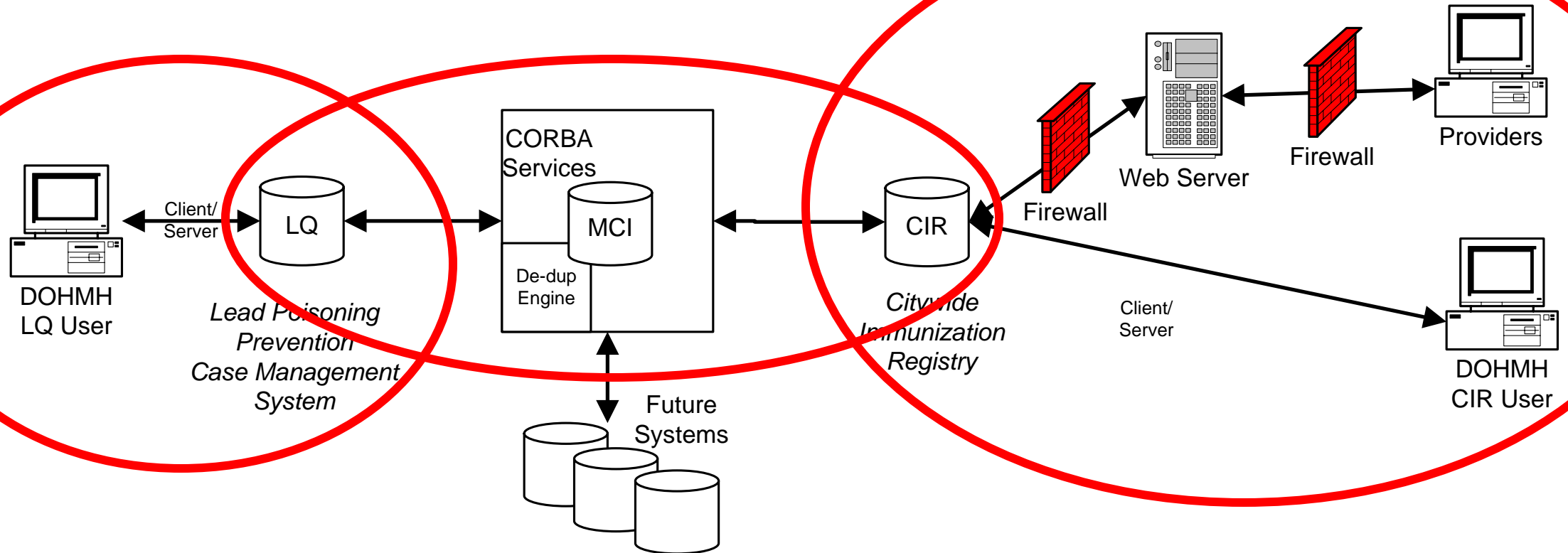
Distributed Model

- Three models:
  - Centralized
  - Cooperative
  - Distributed (*de facto* for most)
- Can be implemented agency-wide or on a sub-organizational level
- Success will vary by Organizational, Technical, and Process attributes

Noam H. Arzt with Susan Salkowitz, *Evolution of Public Health Information Systems: Enterprise-wide Approaches,* July 2007.
http://www.hln.com/assets/pdf/UT-White-Paper-Final.pdf

HLN Consulting LLC

Example: Data *and* Application Integration

DOHMH LQ User

Client/Server

LQ

Lead Poisoning Prevention Case Management System

CORBA Services

MCI

De-dup Engine

Future Systems

CIR

Citywide Immunization Registry

Client/Server

Firewall

Web Server

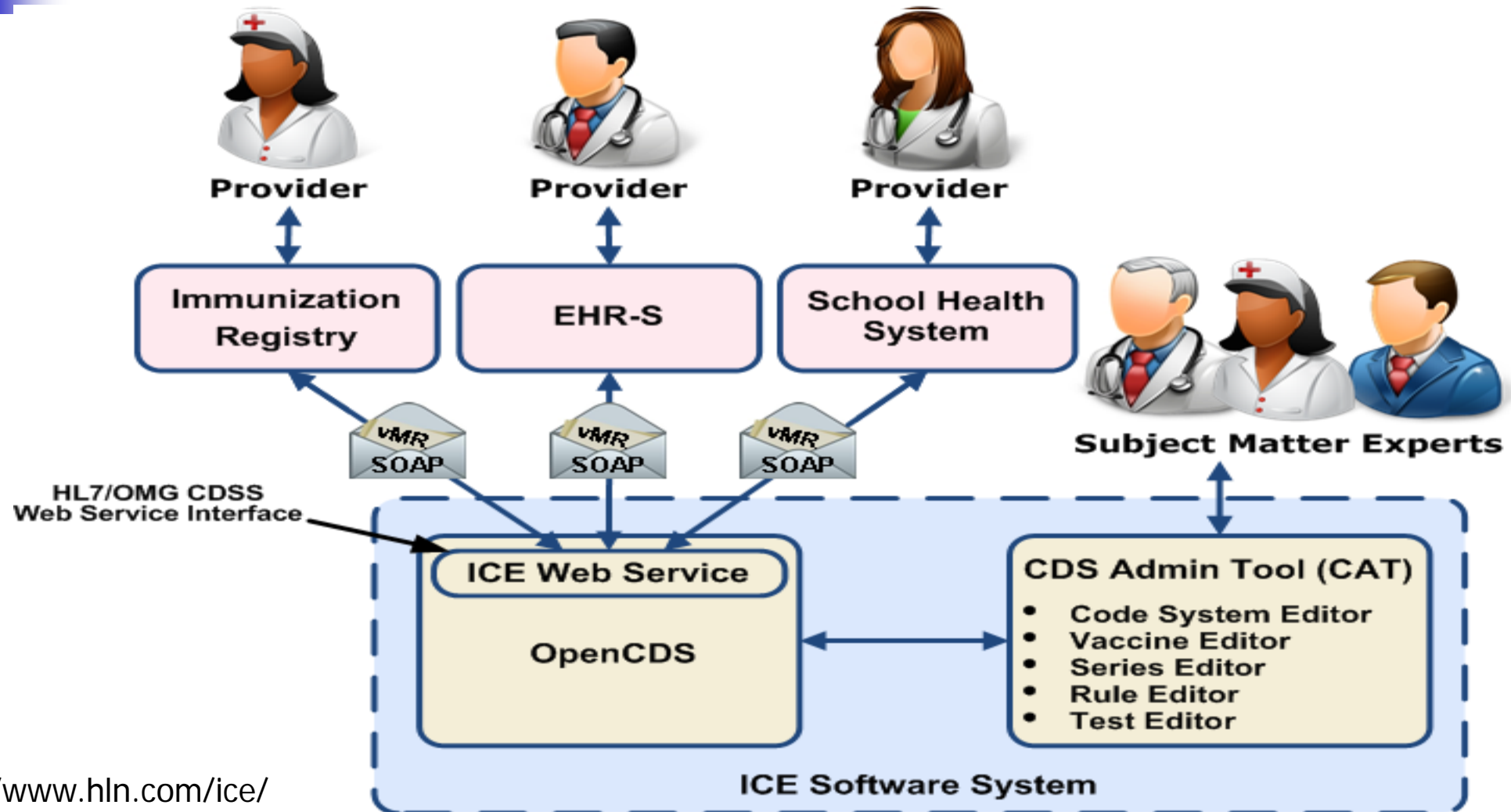Firewall

Providers

DOHMH CIR User

HLN Consulting LLC

Typical Advice to Public Health Agencies

- Embrace national standards

- Enable "special functions" in your systems to the broader healthcare ecosystem

- Organize a formal informatics program and invest in informatics training

Case Study: IZ Calculation Engine (ICE)

https://www.hln.com/ice/

Shift to Interoperability

- We can't even agree on what Interoperability means
- ... agree on scope
- ... d views
- ... ences
- ... measure inter...
- ... process
- ... mpelling b
- ... ver the rol
- ... vernment
- ... d to igno
- ... S) tend to
- ... einvent th

- Our timelines are too aggressive. Or are they too lax?
- Different paces for different participants
- The tension between being too broad versus too granular
- Standards change too often
- ... "... " has limited
- ... a
- ... 't get it. Or do they?
- ... nces are a bug to ... others

Conclusions:
- Being skeptical of the notion of "consensus"
- Leveraging the past with an eye to the future
- Recognizing that this is more about the *pace* of change than the *substance* of change
- In the meantime, focus on semantics
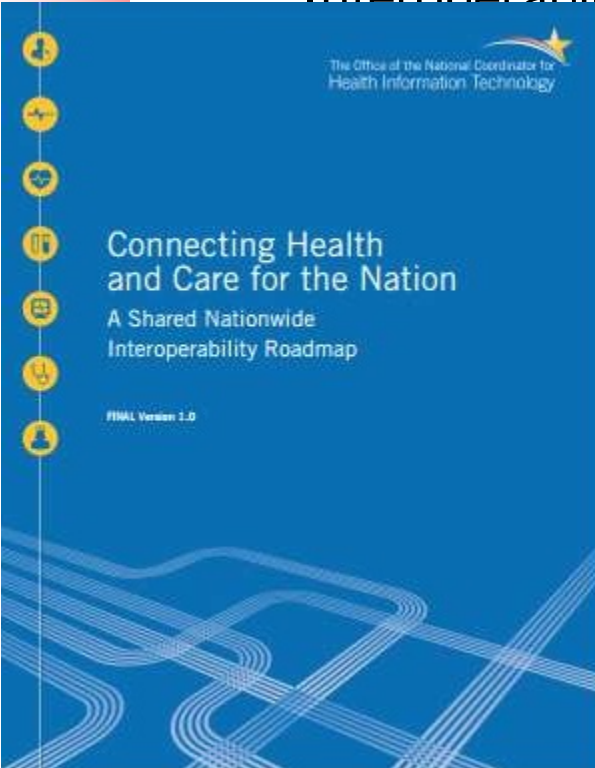
The Interoperability of Things, **Journal of Healthcare Information Management**, 29(4), Fall 2015.
https://www.hln.com/wp-content/uploads/2016/03/JHIM-InteroperabilityOfThings-Fall-2015.pdf

Interoperability Case Study: IIS

CMS EHR Incentive Programs

IIS Interoperability Model,
June 2008.
https://www.hln.com/assets
/pdf/IIS-Interop-Model.pdf

HLN Consulting LLC

Public Health Interoperability
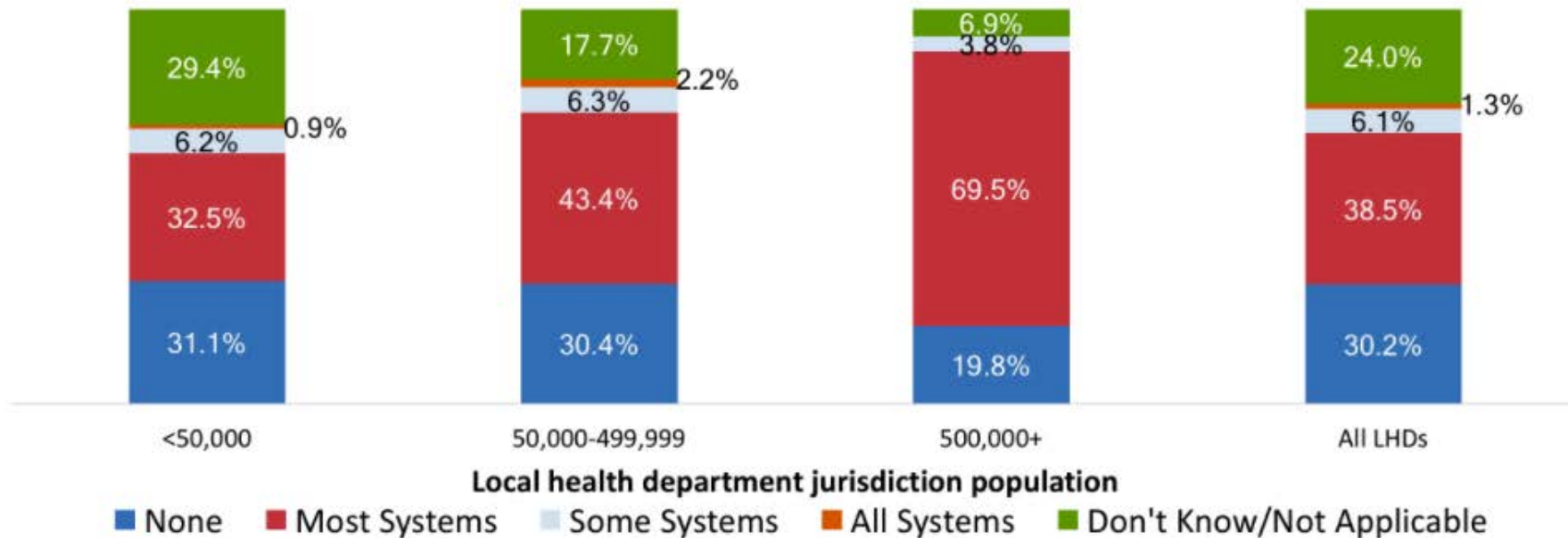
Take Away Messages

- Public health is an active player in the SOA space

- Lots of need for internal systems integration as well as external interoperability

- CMS EHR Incentive Programs have pushed many of these activities to the forefront but they were always there and often legally mandated

- Technical standards are about the only thing that can drive public health to uniformity

Contact Information

Noam H. Arzt

President, HLN Consulting, LLC

858-538-2220 (Voice)

858-538-2209 (FAX)

arzt@hln.com

http://www.hln.com/noam/

@noamarzt