

# Organizational and Political Aspects of Lab Information Management

Bruce A. Friedman, M.D.  
Active Emeritus Professor  
Department of Pathology  
University of Michigan Medical School  
[friedman@labinfotech.com](mailto:friedman@labinfotech.com)  
Blog: [www.labsoftnews.com](http://www.labsoftnews.com)  
Twitter: Labsoftnews



## GOAL OF THIS LECTURE

Understand the politics and organizational structure of hospitals in order to *optimize information management activities* within Pathology and Lab Medicine



# Hospital politics, organizational structures, & hospital executives

# Definition of hospital politics: competing for capital, human resources, power

- Politics: the competition for resources & power/influence
- Particularly relevant in this era of reform/cost-reduction
- Competition exists at multiple levels: labs, dept, C-suite
- Competition often decided on *perceived* added value/ROI
- Deck may be stacked; observe who benefits from decisions
- For pathology informatics, need to educate “customers”

# Why understanding of politics is necessary for pathologist-informatician

- Based on definition, obvious that politics is necessary “evil”
- Not underhanded or dishonest; need resources to function
- Think of politics not as scheming but educating customers
- In hospitals & pathology, customers = colleagues + patients
- Job harder in informatics; perceived as technical & esoteric
- Informatics projects involve change; hard for 2/3 of people

# A few comments about strategy and strategic planning

- Strategy is long-term planning; tactics relate to short-term
- Most people avoid long-term planning; future hard to discern
- Need for planning documents; if you don't *write*, always *right*
- Document itself less important than planning process itself
- Refresh documents frequently, fine-tune planning process
- Don't be afraid to go out on limb but need to justify ideas

# Don't try to “sell” only quality to execs; most assume already paying for it

- Challenge for path informatics; not revenue generating
- IT is a service but also expensive one; part of infrastructure
- May be inclined to cite quality rationale as basis for change
- Chairmen and C-suite willing to talk about quality issues
- Will rarely fund pure quality projects; quality as a “given”
- Best IT card to play: => better, cheaper, faster lab services

# Hospitals as complex and unique organizations; relevant for politics

- For hospitals politics, need to understand org structure
- Unique; CEOs often bean-counters; emphasis on P&L
- CEOs/CFOs manage revenue; emphasis on rules of payors
- Until recently, hospitals execs have emphasized M&A
- CEOs => little understanding of healthcare in “trenches”
- Physicians/nurses operate autonomously within budgets

# Common process for cost reductions in healthcare systems

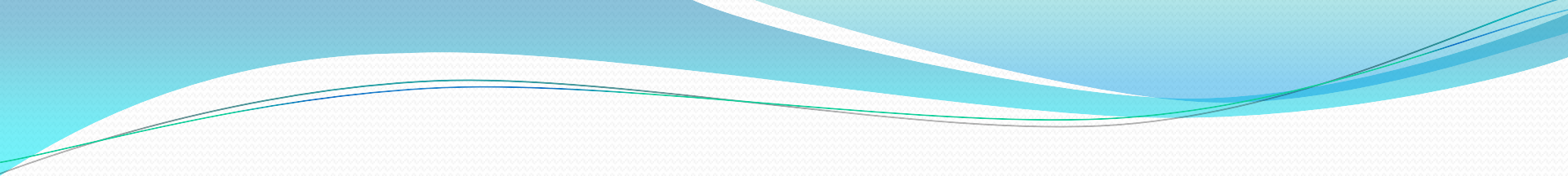
- Departments like Pathology managed by assigned budgets
- Will be struggling for decades with cost-saving measures
- CEOs don't have knowledge to mandate programmatic cuts
- Many expensive programs (e.g., organ transplant) “sacred cows”
- Cost reductions often achieved by across-board percentage cuts
- This leads to intra departments fights; sort out winners/losers

# Background regarding hospital CIOs: their DNA and their hospital agenda

- Some have technical background; some more managerial
- Technically adroit CIOs hammered by politics/complexity
- In large health systems, hundreds of systems to manage
- Smartest CIOs seek IT homogeneity; reduce complexity
- Explains enthusiasm for Epic with its “enterprise solution”
- Often antithetical to “best of breed” with local optimization

# The hospital C-suite as the source of capital for pathology IT projects

- Hospital executives control depts/units with purse strings
- C-suite negotiations freq. involve capital funding for projects
- Hospital executive favor IT projects under CIO control
- IT projects notorious: inadequate cost-estimates/scope creep
- Vendors will often low-ball cost in order to win contracts
- Much blame on hospital planning side; hindsight always 20:20



# Best-of-breed systems; comparison with “enterprise solutions”

# More details about best-of-breed; why optimal for laboratories

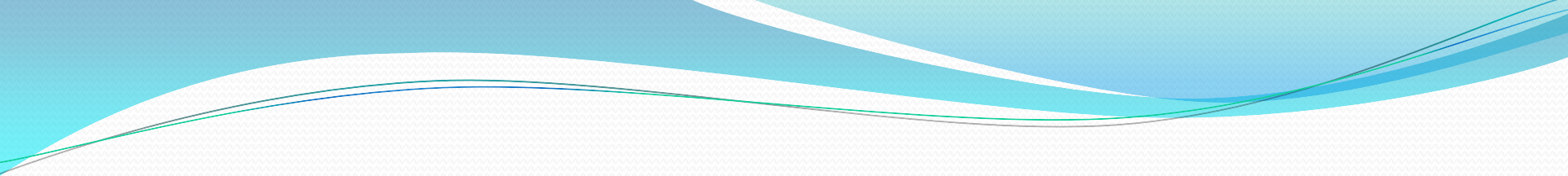
- Best-of-breed systems outperform other in the market
- In the LIS or RIS market, usually result of specialization
- Cerner was BOB in LIS market; then emphasized EMR
- Strategy prompted by fact that LIS market was mature
- Pathologists, radiologists tend to prefer BOB systems
- Their productivity depends on greater system functionality

# Why CIOs prefer enterprise solutions; integration comes shrink-wrapped

- System integration challenges often overwhelm CIOs
- Easier to depend on small set of vendors for integration
- Runs counter to desires of MDs for optimal functionality
- Diagnosticians/clinicians yearn for efficient workflow
- Pathologists/med techs usually tasked with choosing LISs
- EMRs chosen by executives who never use the system

# How do you know when an LIS is best-of-breed; all vendors claim BOB

- Initial method; ask around to various labs (with caution)
- Sure-fire method: functional “queries” by category to vendor
- Such a list of functional “queries” integral part of any RFQ
- Example of query for results reporting: *The system will....*
- Vendors required to response to all of these statements
- Development of such a list highly educational process



# Roots of lab computing; history of LISs starting in the 1970's

# Roots of lab computing; support for numerical labs with turn-key LISs

- Pathology informatics gained traction in the 70's and 80's
- Focus on LISs to help manage/interpret lab information
- Early LISs modules; numerical labs (e.g., chem, hematology)
- Surgical path modules later; mainly word processing app
- Microbiology & blood bank followed; more challenging
- Systems were turn-key from onset: hardware plus software

# LISs initially autonomous; subsequently, test results copied to the EMR

- Since the 70's, LIS's provided by varying list of vendors
- Extensive preparatory work required for turn-key systems
- Continuing challenge of interfaces to multiple analyzers
- Pre-EMRs, hardcopy reporting + networked access to LIS
- Initially, high degree of autonomy for LIS managers + dept
- EMRs now viewed as one-stop-shopping; lab data => EMR

# Why LISs usually work well & EMRs usually don't work well

- To start, EMRs usually more complex than LISs and RISs
- Also, LISs have 40 year history and EMRs have ~15 year hx
- In addition, pathologists/med techs pick their LISs
- C-suite executive pick EMRs; never required to use them
- Installation success rate for LIS these days close to 100%
- Prior to Epic, success rate for EMR installs was ~50%



# Growth and status of pathology informatics

# Pathology dept. org structure; position of pathology informatics

- In larger depts., creation of divisions of pathology informatics
- Ideally, parallel to CP & AP in org chart with similar influence
- In smaller departments, usually different org structure
- Informatics is expensive; may engender “budgetary” hostility
- IT projects involve change; multiple projects in queue
- Usually, no change without support of informatics personnel

# Number of informaticians has grown slowly; why lack of broader appeal?

- Informatics may be perceived as tangential to classic pathology
- Can require technical skills; also strategy & planning knowledge
- Technical aspects may appear daunting to aspirants in field
- Frequent interactions with hospital executives, particularly CIO
- Very broad reach; contrary to desire for ultra-specialization
- Until recently, limited formal journal publication opportunities

# Comparing pathology informatics with medical informatics

- PI branched off very early from medical informatics
- PI had very early focus on applied systems & real world
- LIS serves as mission-critical work tool in pathology
- Early and tight relationship to LIS vendors for development
- Early medical informaticians => trained computer scientists
- Medical informatics now has more applied EMR focus

# Pathology informatics: the state of the specialty

- We have small dedicated on-line journal: Jour. Path. Info.
- We have our own society: Assoc. for Path. Informatics (API)
- We have our own conference (PI-2011); roots 28 years ago
- Most significant technology driver today: digital pathology
- Challenge: insufficient presence in many teaching programs
- Challenge: create departmental divisions parallel to CP/AP



# Lessons learned as hospital IT director reporting to the CIO

# Understanding my relationship in the hospital executive hierarchy

- For about 5 years, served as a director of “ancillary” systems
- Scope of control: path, rad, pharm, rad onc, + others
- Represented the IT needs of these clinical support depts.
- Depended highly on their own perceptions of requirements
- Biggest challenges in position were HR & budgetary decisions
- Close observer of several, early EMR hospital project failures

# Key lessons learned in close association with a health system CIO

- Only minimal understanding of work-flow in dx depts.
- Frustration with “one of everything” turn-key systems
- As a result, looked with favor on perceived “enterprise sol’n”
- Varying attitudes toward “buy vs. build” software approach
- Constant increase in IT budget & personnel head count
- Frequent frustration with IT vendors & IT consultants

# Path informaticians; need to build relationship with C-suite & clinicians

- Attitudes of clinicians toward “info systems” complex
- Clinicians often frustrated with today’s hospital EMRs
- Pathologists need their LISs; EMRs often burden for MDs
- EMRs designed to satisfy too many functional requirements
- How to optimize clinician input for LIS/EMR selection
- How to help influence C-suite level re: path info. needs

# Seeking a career track in pathology informatics; what are the choices?

- Develop a career in both informatics + specialized lab area
- Hot current areas: molecular dx or surg path/digital path
- Strong engineering/CS background => technology-driven
- Strong political, organizational skills => applied positions
- We are entering a chaotic, cost-constrained healthcare era
- Hierarchical decisions; everything will involve negotiations



# Epic EMR: A Political, Organizational, and Business Case Study

# Epic EMR Success as a Case Study; Analyze Based on Previous Points

- Epic now has achieved near-monopoly @ high-end hospitals
- Little negotiation; hospitals pay premium price for system
- Known as a closed, proprietary system; mumps + cache
- Rolling out a series of departmental systems; LIS=Beaker
- Limited opportunity to modify software to hospital needs
- Key factor in success is low failure rate for hospital installs

# Unique elements of the Epic business model that contribute to success

- Closely held private company; not subject to Wall Street
- No advertising; sales based on referrals/word-of-mouth
- Vendor controls clients; homogeneity across installed base
- “Enterprise solution” for EMR/modules with little negotiation
- Organic growth; slowly rolling out specialized modules
- Encouraging hosting of smaller hospitals by larger clients

# Status of Beaker modules; reported by Epic for 2010; Lab Soft News (2/2/2011)

- Microbiology/public health micro: 100%/available but not installed
- Blood bank donor and transfusion: not available
- Surgical path/cyto: available but not installed/available but not installed
- Molecular pathology/cytogenetics: not available/not available
- Flow cytometry: available but not installed
- HLA (tissue typing)/stem cell lab: available but not installed/not available
- Microbiology data (culture and sensitivity): under development

# More details about Beaker; reported by Epic for 2010; Lab Soft News (2/2/2011)

- Total No. of sites operating LIS (No. of these sites outside the U.S.): 66 (0)
- % of high-volume sites installed/low-volume sites installed: 6%/94%
- No. of employees in entire company: 3,848
- No. of employees dedicated to LIS development, installation, support: 51
- No. of billed tests generated annually by labs with LIS: — (no response)
- Programming language(s): Visual Basic, Caché, .Net
- Operating system(s): Unix, Windows

# Summary statements about Beaker LIS: what are the negatives?

- Very few high-volume sites have been installed
- System in beta test mode; modules like mo-path lagging
- Small percentage of employees primarily devoted to LIS
- How explain this for company with 4K-5K employees?
- Not high priority; utilize client professionals as consultants
- Not intrinsically bad but diverts attention of lab personnel

# Summary statements about Beaker: what are the positives?

- Pursue an enterprise solution; gain good opinion of CIO
- Alignment with politically powerful healthcare IT vendor
- Less worry about interfaces; caution: see next slide
- Less worry about capital; caution: see next slide
- Potentially, can shape development of new LIS modules
- Is there any future for a “best of breed” LIS strategy?

# Cautionary note about Beaker: lagging functionality & unseen capital needs

- As noted, Beaker will not supply all necessary functionality
- Conclusion: retain components of legacy interfaced LIS
  - OR, Purchase new specialized modules with interfaces
- Conclusion: Beaker not free; new, unseen capital costs required
- Assessing the capital costs of any new EMR/LIS deployment
- Important to factor in decreased productivity of lab personnel

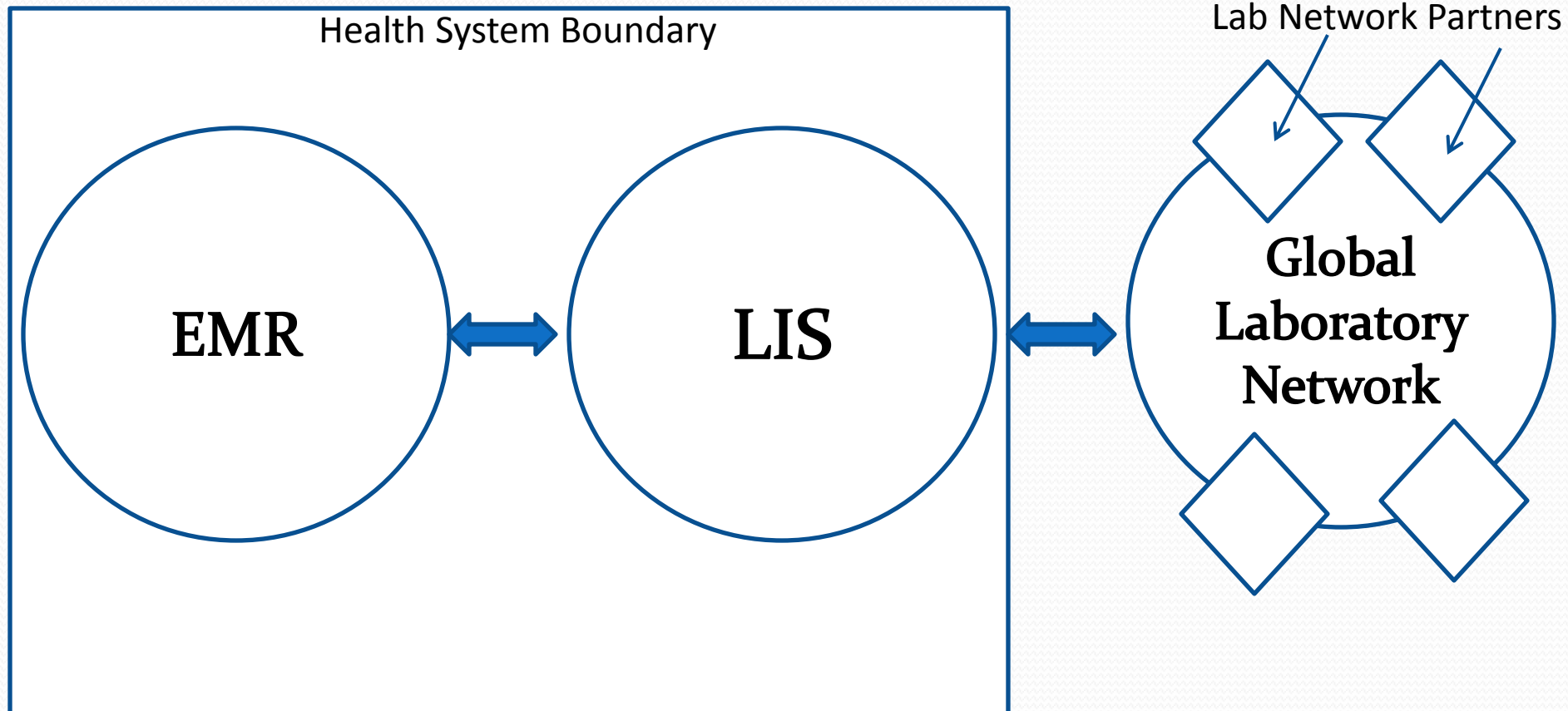
# The Epic overarching strategy vs. the pathology informatics long-term view

- My major quibble with Epic is its evident core philosophy
- EMR is the “sun” of the healthcare IT hierarchy/solar system
- The “ancillary” systems exist as feeder systems for the EMR
- I believe that diagnostic systems need to be autonomous
- Co-equal with the EMR; independent mission/architecture
- Future evolution of pathology/lab medicine IT-dependent



# The future LIS architecture; the future of pathology informatics

# Schematic representation of the LIS of the future



# Attributes of the LIS of the future: both inward and outward looking

- Large hospital systems tend to have inward-looking vision
- Labs/path: hx of looking outward; reference labs & slide share
- This collaboration will accelerate => local/regional networks
- Small hospital labs will lack expertise in mo-path & genetics
- Lab reports: mosaic of results/interps from multiple labs
- LIS of future will enable seamless global lab network + partners

# IT enables seamless integration with lab network partners

- New networked architecture; seamless integration w/ partners
- Moreover, extensive data processing & storage in cloud
- Not clear at this time exactly who will build these lab networks
- Candidates: U.S. government agency or for-profit ventures
- Little precedent for governments to develop successful systems
- Unfortunately, current emphasis is on large clinical networks



# Summary statements and lecture wrap-up

# Take-home summary statements and wrap-up

- Politics & strategic planning key aspects of path informatics (PI)
- PI still somewhat immature; often unappreciated in depts.
- Hospital C-suite currently tends to favor EMR & CIO projects
- Need to negotiate in dept. and C-suite for critical PI projects
- Negotiations often relate to capital allocation for such projects
- LIS exemplar of best-of-breed; compare with enterprise sol'n

# Take-home summary statements and wrap-up (cont.)

- Lab computing initially autonomous; now tied to the EMR
- Compare and contrast value of ancillary dx systems with EMR
- Hospital CIOs seek to reduce complexity; favor large IT vendors
- Environment favors IT vendors like Epic; now riding high
- Caution about deploying “ancillary” systems like Beaker LIS
- Future of lab computing tied to development of lab networks