LIS MANAGEMENT WORKSHOP

1. Is It Necessary to Replace Your Current LIS?
2. The Process for Selecting a New LIS-Traditional and Non-Traditional Approaches
3. Filling Functionality Gaps of Your Current LIS with Supplemental Applications
4. Contracting for an LIS-Protecting Your Interests

**Pathology Informatics 2011
October 4, 2011
1:00pm**

Dennis Winsten
Dennis Winsten & Associates, Inc.
Healthcare Systems Consultants
Tucson, Arizona

Hal Weiner
Weiner Consulting Services, LLC
Healthcare System Consultants
Florence, Oregon

Is It Necessary To Replace Your LIS
Criteria To Help You Decide

Pathology Informatics 2011
October 4, 2011
1:00pm

Dennis Winsten
Dennis Winsten & Associates, Inc.
Healthcare Systems Consultants
Tucson, Arizona

Hal Weiner
Weiner Consulting Services, LLC
Healthcare System Consultants
Florence, Oregon

OBJECTIVES of this PRESENTATION

- Guidelines to assess the viability of the existing LIS to meet your laboratory's current and future needs

- Provide suggestions and criteria to determine whether to:
  - Keep LIS
  - Augment LIS
  - Replace LIS

STATUS

- Over 2200 LIS installed in the U.S. are over 12 years old!
  - Many are still viable in regard to meeting needs
  - Many could require augmentation to meet needs
  - Many may need to be replaced
- How to decide WHICH?

Driving Forces

- PUSH
  - Issues with the existing LIS (TBD)

- PULL
  - New system appeal

….. A CASE STUDY…..

1989 Nissan Pathfinder 4x4

197,000 "gentle" miles - Make me an offer!

CASE STUDY – 1989 NISSAN PATHFINDER

- 1989 Nissan Pathfinder 4x4 has 197,000 actual miles on its odometer.
- Old technology, no airbags, no CD player, no 3rd row of seats, so-so gas mileage.
- Not worth much in the open market.
- Shall I replace it with a shiny new, technologically marvelous SUV?
- Considerations include a number of decision factors.
  - Can I get parts and service for it?
  - How frequently am I having breakdowns and what are the costs to repair?
  - Is it-in its present condition preventing me from its normal use – limited service to/from the airport, shorts trips in adverse weather.
  - Is it reliable enough for its intended uses?
  - What would be its actual cost of replacement?
  - Are there outstanding dealer incentives to buy a new one? Even so, what would be the impact on my cash flow and budget-the old one is paid for!
  - I'm somewhat resistant to change-how long would it take for me to get used to the new SUV's dashboard controls and shifter?
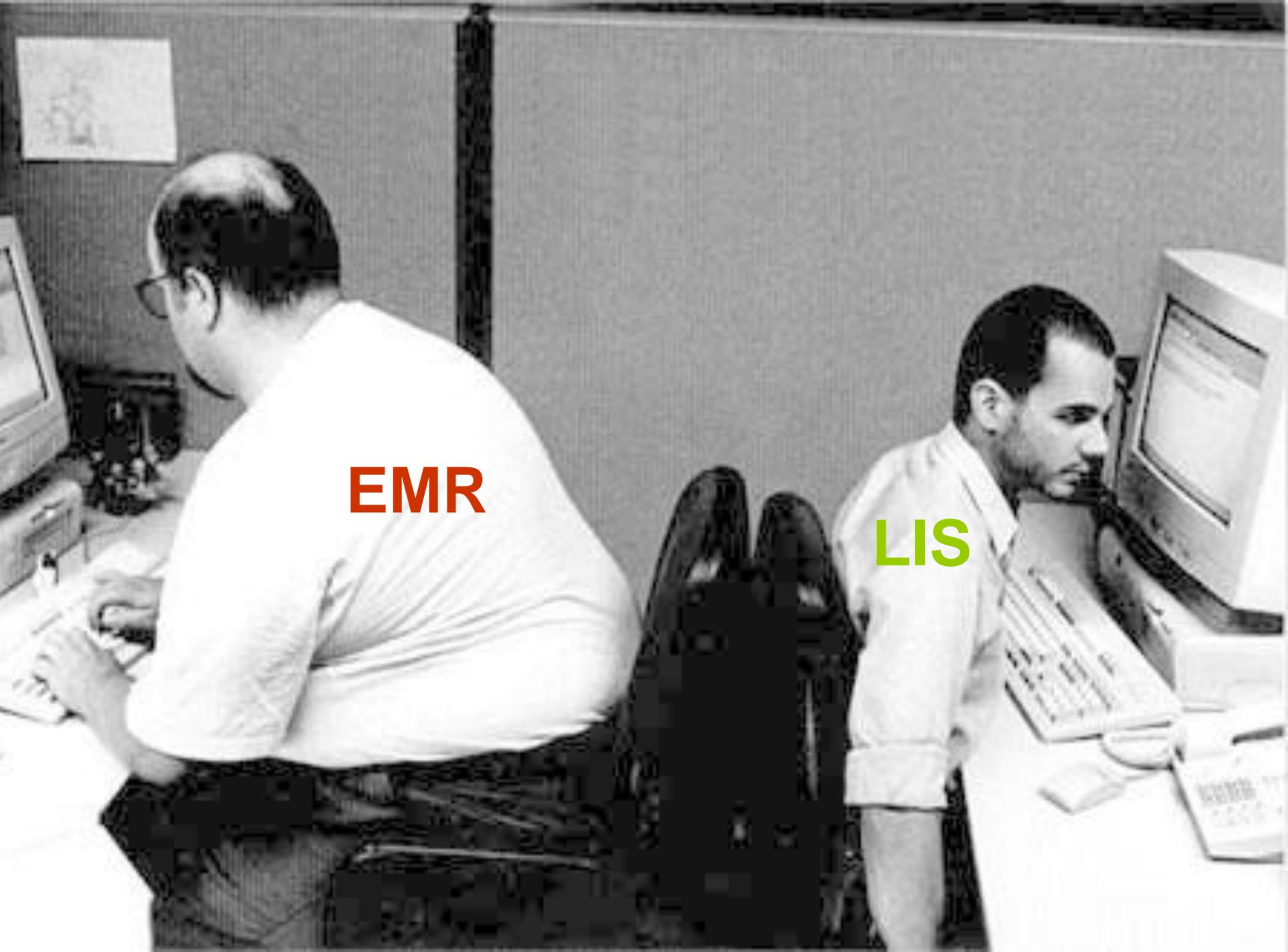
- Oh, what to do? What to do?

Driving Forces - Internal

- **IT Standards**

- **EMR**

- **GUI**

- **Database**

- **Architecture**

- **Hardware/OS**

- **Single Vendor**

- **Integration**

- **Budget**

Driving Forces - Internal

- **Quality**

- **Productivity**

- **Performance**

- **Reduce Errors**
- **QA**

- **Ease of use**
- **Automation**

- **Speed**
- **Stability**

Courtesy Weiner Consulting

Driving Forces - External

- **Market/Competition**

- **Regulatory**

- **Sunset/Support**

- **Outreach**
- **New products**

- **Rules**
- **Standards**
- **Data sharing**

- **Level**
- **Cost**

Decision Criteria

• What are the criteria by which to decide whether to:

❑ Keep it?

   or

❑ Dump it?

Process

PROJECT PLANS

Project Planning

ID		WBS	Task Name	Duration	Start	Finish	Predecessors	Resource Names
	❶							
1		1	Develop Team	2 wks	Tue 5/14/02	Mon 5/27/02		
2	⊞	2	Develop Project Goal	1 day	Mon 6/3/02	Mon 6/3/02		
3	↻	3	**Weekly Status Meeting**	**241 days**	**Wed 6/12/02**	**Wed 5/14/03**		
53		4	**Analysis of current system**	**14 days**	**Tue 6/4/02**	**Fri 6/21/02**		
54		4.1	Chart workflow of systems	2 wks	Tue 6/4/02	Mon 6/17/02	2	
55		4.2	Create strength list of system	2 wks	Tue 6/4/02	Mon 6/17/02	2	
56		4.3	Create weakness list of system	2 wks	Tue 6/4/02	Mon 6/17/02	2	
57	📝	4.4	Develop site statistics	1 day	Tue 6/18/02	Tue 6/18/02	56	
58		4.5	Chart changes to workflow	3 days	Wed 6/19/02	Fri 6/21/02	57	
59		5	**Document needs vs Benefits**	**10 days**	**Tue 6/18/02**	**Mon 7/1/02**		
60		5.1	Create basic needs	1 wk	Tue 6/18/02	Mon 6/24/02	56	
61		5.2	Create benefits	1 wk	Tue 6/18/02	Mon 6/24/02	56	
62		5.3	Match needs with benefits and work flow	1 wk	Tue 6/25/02	Mon 7/1/02	61	
63		6	Create a checklist & evaluation criteria	1 wk	Tue 7/2/02	Mon 7/8/02	59	
64		7	Submit checklist & evaluation for approval	1 wk	Tue 7/9/02	Mon 7/15/02	63	
65		8	Create Inventory of current system	1 day	Tue 7/9/02	Tue 7/9/02	63	
66		9	**Create Evaluation Information**	**5 days**	**Tue 7/2/02**	**Mon 7/8/02**		
67	📝	9.1	Create senerios	1 wk	Tue 7/2/02	Mon 7/8/02	59	
68	📝	9.2	Create script	1 wk	Tue 7/2/02	Mon 7/8/02	59	
69	📝	10	Evaluate potential vendors	2 days	Tue 7/9/02	Wed 7/10/02	68	

Process

ASSESS NEEDS
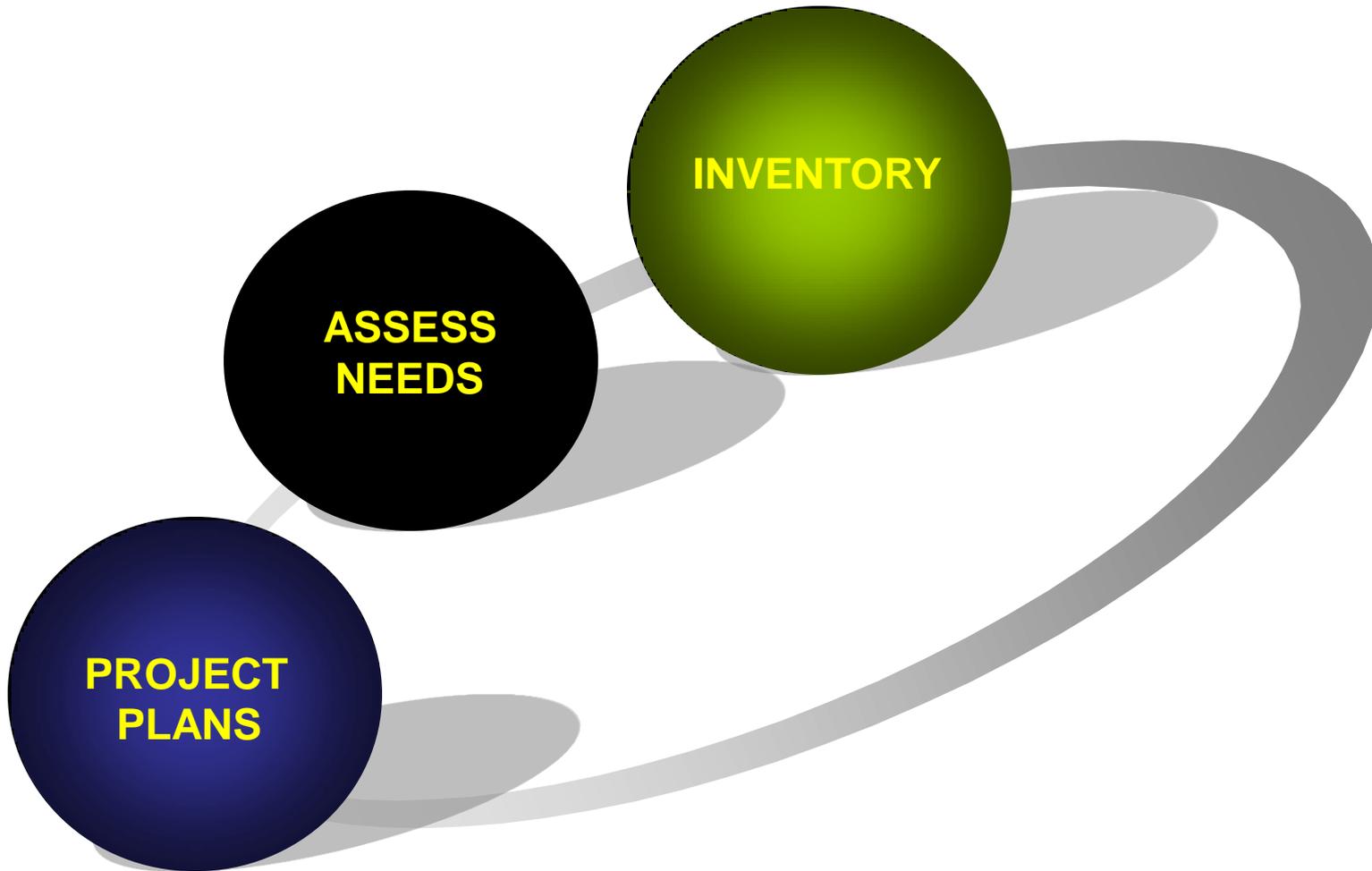
PROJECT PLANS

Courtesy Weiner Consulting
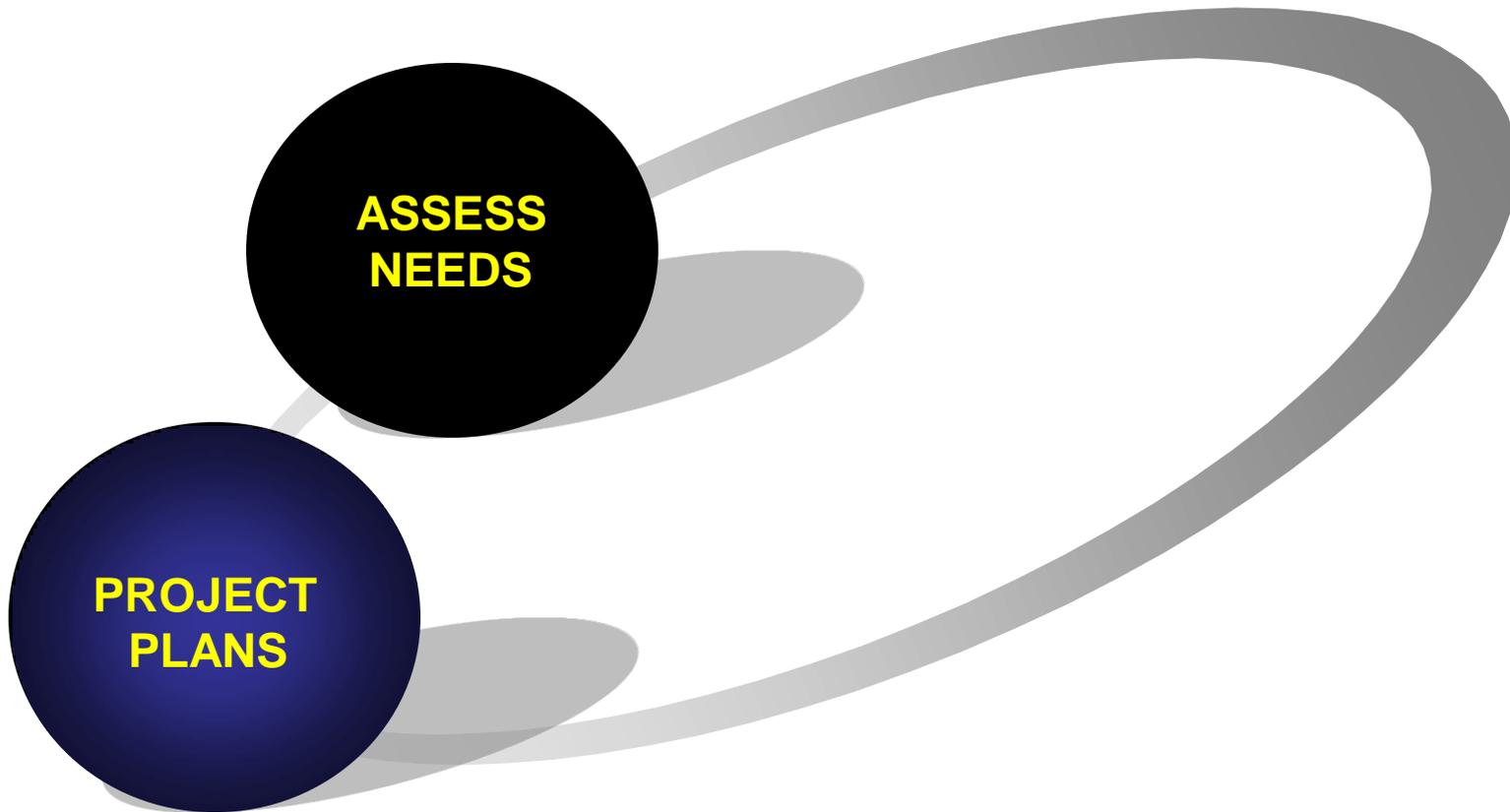
Needs and Wants

- Document the unmet needs and wants

- Assess benefits of needs and wants
  - Financial impact
  - Operational impact
  - Quality impact

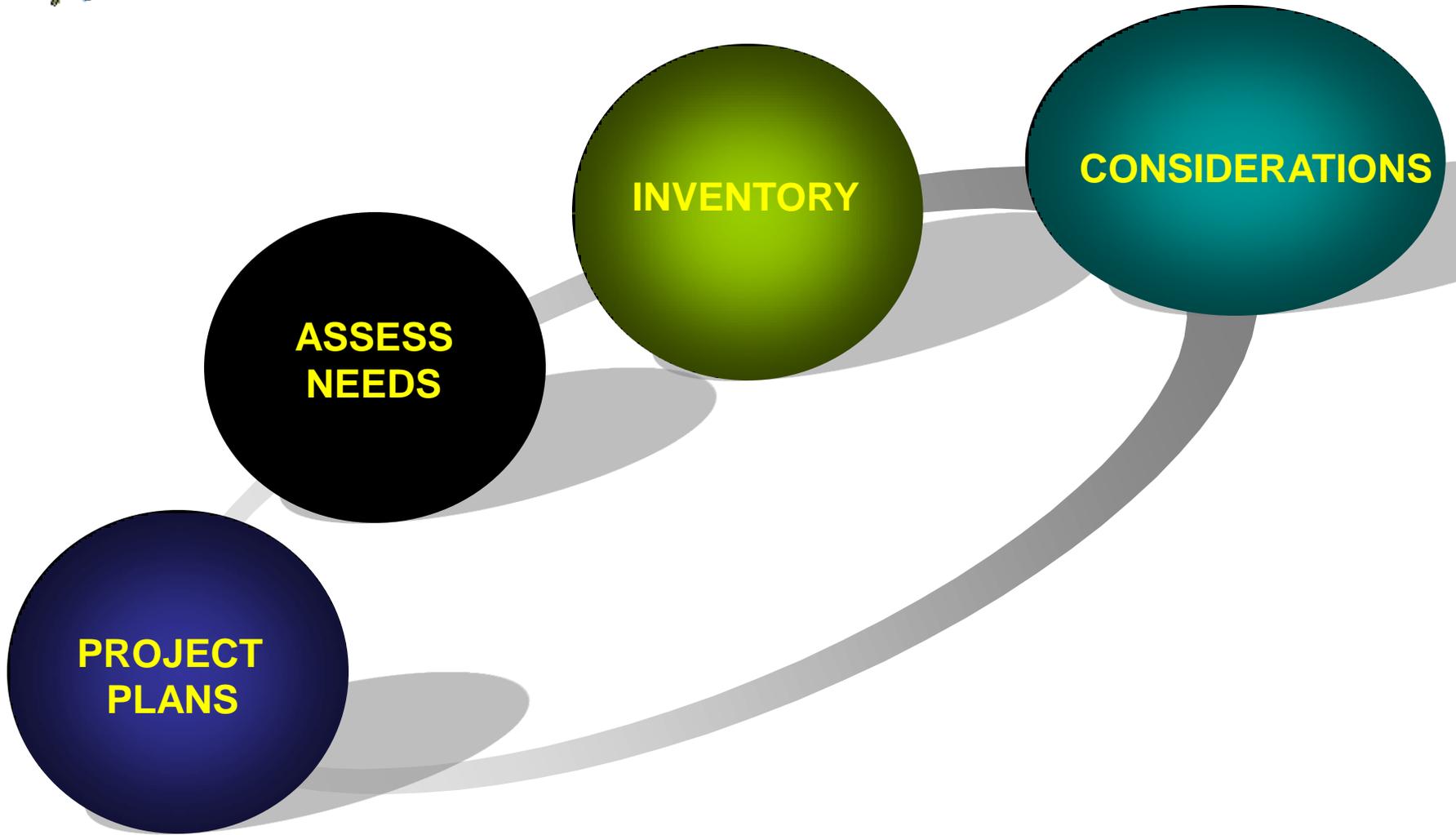# Process

Inventory What You Have

- Work with your current vendor
  - "Hidden" features
    - Rules
    - Data extraction
    - Report generation
    - Screen customization
  - Current version upgrade
- Talk with your User Group
- Evaluate work-arounds

Process

PROJECT PLANS

ASSESS NEEDS

INVENTORY

CONSIDERATIONS

Considerations-Technology

- Technology improvements particularly in hardware, software, databases and communications, have been rampant in recent years.

- What if your LIS does not utilize the latest in graphic user interfaces (GUI), the programming language is "old fashioned", the system is not "client-server" or "web-based", the database is not of a modern object or relational design?

  - Is this, itself, sufficient cause for replacement? It depends.

- It depends upon the actual operational and cost impacts of the older technology on the laboratory.

  - Is the quality or timeliness of reports affected?

  - Can the necessary management and statistical data be reasonably obtained?

  - Are service and quality compromised?

  - Are there other hospital-wide systems that are of a different architecture and does the institution wish to standardize on certain hardware and software, e.g. we are an IBM-only shop and will only utilize Oracle as our database.

Considerations-Technology

- Many institutions are striving to reduce the number of different, disparate systems and vendors in order to reduce internal support issues, costs and required in-house expertise.

- Even in a multi-vendor environment significant economies can be achieved by utilizing common operating systems, databases and communications systems.

- If the old LIS is incompatible in terms of other common technologies used as "standard" in the institution, the LIS may not "fit". Its incompatibilities may compromise the ease or the ability to create a comprehensive electronic health record and add to the overall information technology costs.

- In such circumstances, replacement is a reasonable option. However, system replacement should be based on technology deficiencies that have as their basis well-defined, discrete benefits above and beyond that which presently exists in use of the older LIS. If such benefits do exist, there may be basis for replacement.

Considerations-System Performance

- Adequate system performance with regard to interactive response times, report printing durations and interfaces to analytical instruments and other information systems is a critical component for successful system utilization.

- The overall ability for the system to process the laboratory's workloads in a timely manner consistent with service levels and turnaround times to the laboratory's end users can be a major deciding factor for replacement.

Considerations-System Performance

- Before "writing the system off" as a "dead-end" consider the possibilities to enhance system performance.
  - Are there newer, higher speed CPU's and/or disk drives that could be utilized by the system?
  - Can additional processors or disks be added? Are there performance analyzers that could pinpoint the areas of "bottlenecks" and indicate if additional hardware and/or re-configuration of the software or database would increase performance?
- If no alternatives exist and performance is continuing to degrade, replacement will probably be required.

Considerations-Service & Support

- Service and support of system operations is a key satisfier and is critical to the successful operations of any laboratory information system.

  - Are there numerous instances of system "downtime" that are adversely affecting laboratory services?

  - Is the vendor non-responsive to system problems and requests for enhancements and/or unique features? If service and support is being curtailed or being withdrawn, i.e. the system is being discontinued ("sunset") there is usually justification for action. Worse yet - is the vendor going out-of-business or into Chapter 11 or Chapter 7 bankruptcy?

- Alternatives to keep the system longer could include negotiation with the vendor for extension of the system support lifetime, acquisition of source code and documentation for continuing "in-house" or authorized, qualified 3rd party support.

- If none of these alternatives is feasible, then replacement is a viable option.

Considerations-Service & Support

- As special cases, "Home-Grown" (In-House developed) systems usually have undergone layer after layer of customization.

- Many times these systems operate on older technology but are "tailor-made" for the laboratory's operations. If the laboratory is <u>truly</u> unique (many are, in fact ,not), it may be difficult, if not impossible, to find a commercial LIS vendor who will provide all of the "specials" and unique features that have over time been built into the "home-grown" system

- If the system continues to meet business needs, is well documented and well supported by the laboratory's information systems staff and the computer hardware used is being continued- its lifetime could be extended indefinitely unless there are other external influencing factors.

Considerations-Ease of Use

- Ease-of-use can have a positive impact on user satisfaction and productivity. However, ease-of use, e.g. GUI, does not necessarily imply faster transactions and increased productivity or throughput. An argument can be presented that "character-based" user interfaces can often complete transactions faster than GUI-based transactions. Ease-of-use, in itself, is rarely, if ever, sufficient justification for LIS replacement.

- If, however, the existing user interface is so convoluted, complex, hard-to-learn and time-consuming to complete the necessary transactions as to affect user satisfaction and production capacity, consideration of a newer approach can be justified.

Considerations-Suitability for Purpose

- The ability of the existing LIS to accommodate the changing and growing needs of the laboratory "business" or "service" or "quality" objectives can be a significant reason for replacement. If the existing system truly lacks the growth capacity and functionality to meet the evolving needs of the laboratory-replacement is called for.

- Often, however, there is more to the existing system then users are aware. Most laboratories only use a percentage of the existing LIS functionality. There may be a number of "hidden" features in the applications or system software. These features may have been "forgotten" or never presented to the users. Your vendor could provide assistance in identify useful-but unused-features of the current system. It is also possible that the laboratory may be using a "superseded" version of the LIS and have not upgraded to the current latest, and possibly more functional version of the LIS software.

Considerations-Suitability for Purpose

- There may be "add-on" hardware from the primary or 3rd party vendors that will increase the processing and/or storage or communications capacity of the existing hardware. It is possible that some of the equipment components may actually be under-utilized and that some form of workload re-distribution or database re-structuring among system components may alleviate system performance issues.

- Laboratorians are "notorious" for their ability to develop "work-arounds" for certain system gaps or deficiencies. Consideration of possible, feasible work-arounds for perceived functional "gaps" should be evaluated before considering replacement.

- With an "in-house" systems staff, or authorized, qualified 3rd parties, it might be possible to develop "wrap-around" systems that supplement the functionality of the aging LIS lessening or obviating the need for the major system replacement.

Process
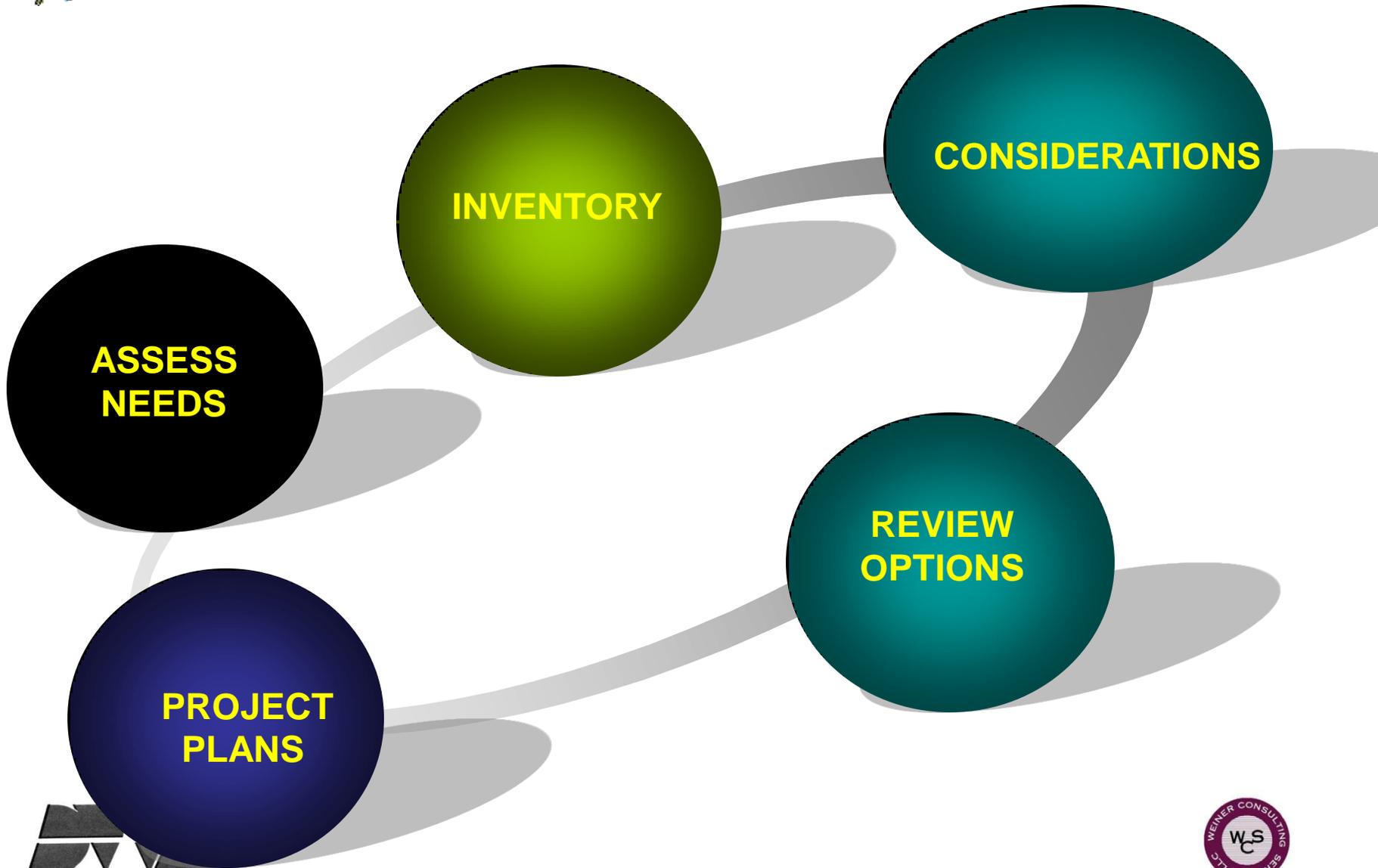
Supplemental Laboratory Application Modules -SLAM's

- Quality Assurance/Quality Control
- Lab Portals
- Business/Productivity
- Instrument/System Connectivity & Productivity
- Imaging Sub-Systems
- Robotic Sub-Systems
- Custom Add-On's/Wrap-Arounds
- Data extraction

Process

INVENTORY

CONSIDERATIONS

ASSESS NEEDS

REVIEW OPTIONS

PROJECT PLANS

DECISION TIME!
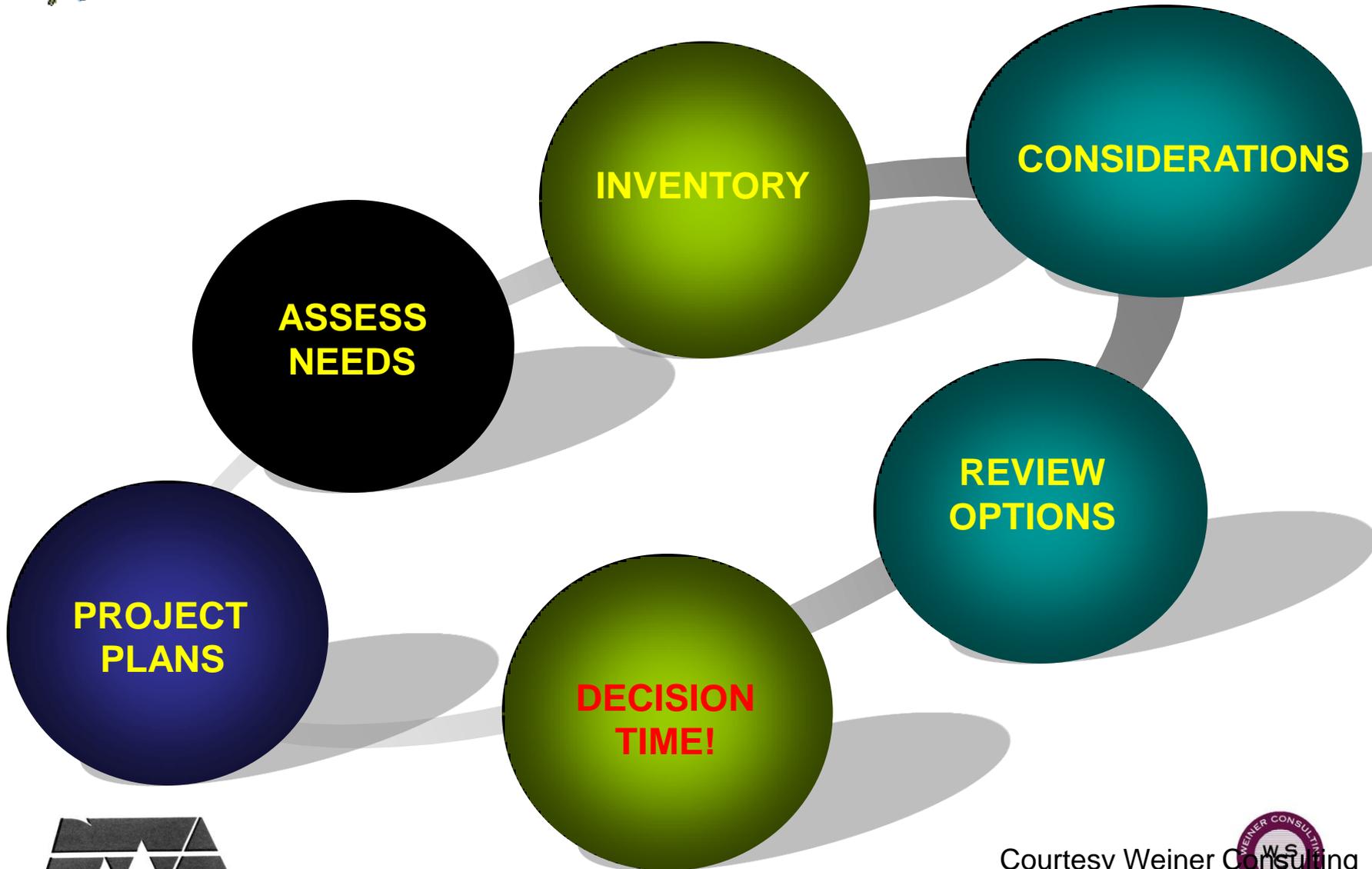
Justification – Keeping the LIS

- Still suits business needs
- Technology still "works"
- Performance consistent with service levels
- System is reliable-little unscheduled "downtime"
- Hardware supported with growth path
- Migration path for operating system/database
- Capacity adequate for growth
- Cost of replacement too high
- Replacement systems unproven or provide little real improvement
- Vendor support adequate and will continue
- In-House staff can support if necessary
- Existing adjunct "wrap-around" systems well integrated
- Supplemental "wrap-around" systems are available to fill "gaps"
- High risk of significant operational disruption during transition

Justification – Replacing the LIS

- Vendor going "out-of-business
- Vendor no longer supporting the system
- Performance inhibiting laboratory service standards
- Hardware no longer being supported
- System reliability is degrading-increased downtime
- New, lower cost, and higher reliability hardware may be obtained
- No migration path for hardware/software
- Technology outmoded
- No longer capable to support changing business needs
- Inadequate capacity for growth
- Cost of replacement within budget
- Well proven replacement systems exist
- Proven track record for smooth transitions implementations

So… What to Do?

- What about your old LIS?
- Each case is unique
- Consider the various factors and criteria.
- Many older LIS should be replaced but others may "live happily ever after" at least until next year!

So..What about the '89 Pathfinder?

- Based on these criteria - Let's apply what has been presented to the case of my '89 Pathfinder.

    - Can I get parts-Yes!

    - Are my maintenance costs-exorbitant-No!

    - Does it meet my "business" needs-Yes, based on how I am using it. I've added an after-market cup-holder and CD player to accommodate current automotive technologies.

    - What about the cost of replacement? Wow-not cheap by any means! There is the safety issue-which could be a factor, but given its very limited use and its size (relative to the competition in a collision), I've deemed that not a factor.

    - Performance is adequate for my needs (I can meet and exceed the speed limits).

- However…...

So..What about the '89 Pathfinder?

However….

- The "Cash for Clunkers" deal was too good to pass up
  - Blue Book value = $400
  - Cash for Clunkers value = $3,500.
- I do miss it, though
- Can you get such a "deal" on a new LIS?

So… What to Do?

- What about your old LIS?
- Each case is unique
- Consider the various factors and criteria.
- Many older LIS should be replaced but others may "live happily ever after" at least until next year!

Questions?

Adios, Old Friend