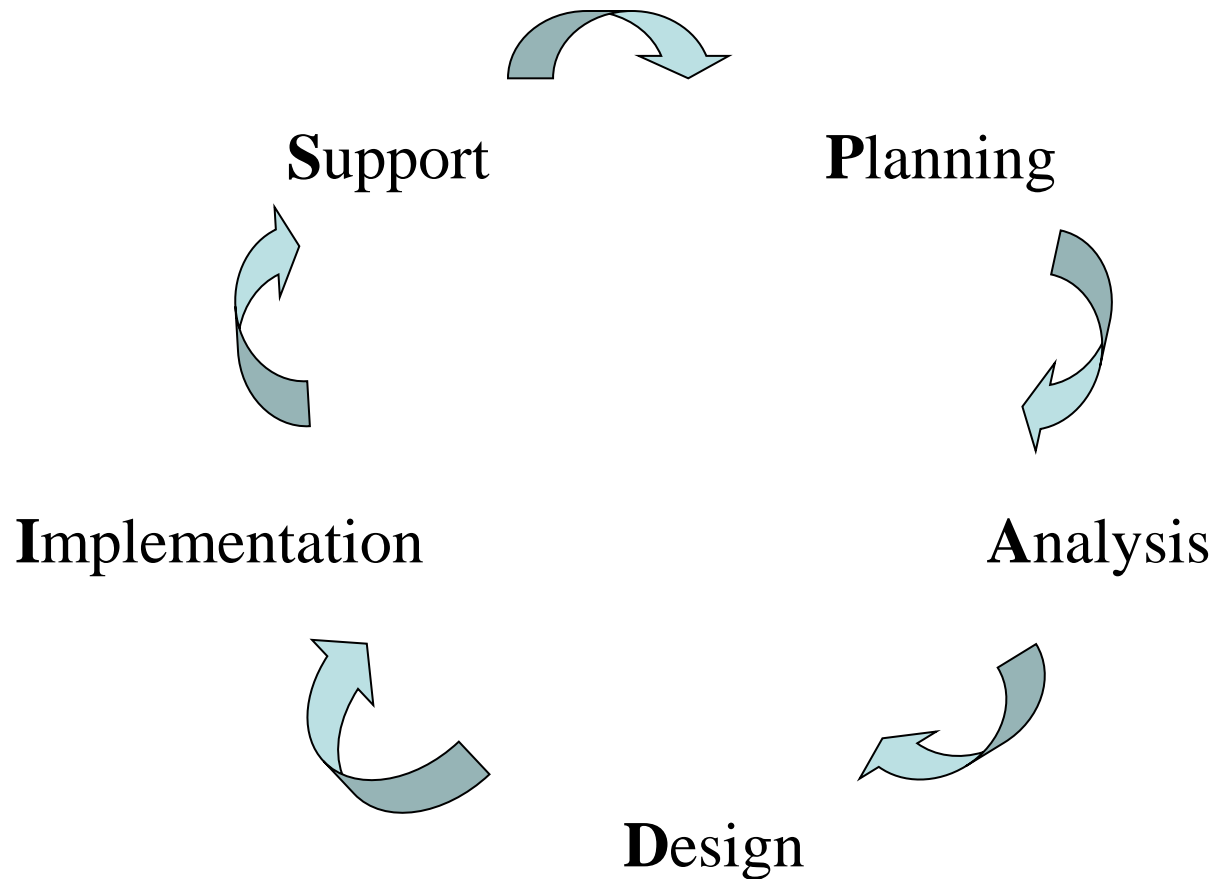


Information Systems Life Cycle Five Phases



Framework of Implementation Success Factors

- System Quality
- Information Quality
- Usage
- User Satisfaction
- Individual Impact
- Organizational Impact

Components of Success Factors

- Documentation Time
- System Response Time
- System Availability
- Ease of Learning
- Timesaving
- Completeness of data
- Accuracy of data
- Timeliness of data
- User satisfaction
- Changed clinical work patterns
- Communication
- Impact on patient care

Sociotechnical Approach

- A model which:
 - Emphasizes an understanding of the work practices of the end user
 - Fully incorporates end users in all aspects of the Information System Life Cycle
- A method to ensure that the components can be fully realized

Berg M. Patient care information systems and health care work: a sociotechnical approach. *Int J Med Inform.* 1999;55:87-101.

Berg M. Implementing information systems in health care organizations: myths and challenges. *Int J Med Inform.* 2001;64:143-156.

Lean Kaizen

- A key to following the Framework of Implementation Success Factors
- A tool to realizing most of the Components of Success Factors
- An activity to applying a Sociotechnical Approach to organizational information technology planning and analysis

Kaizen

- Japanese word for “continuous improvement”
- Typically organized in a 3 to 5 day workshop
- Lean Kaizen is a workshop using lean tools to improve a process

Lean

- Lean – Focus on eliminating waste
- The 7 categories of waste
 - Waiting
 - Rework
 - Motion
 - Underutilization
 - Overproduction
 - Over-processing
 - Inventory



Applied to Technology Interface

- The 7 wastes
 - Waiting (slow systems)
 - Rework (re-entering lost data)
 - Motion (moving from screen to screen)
 - Underutilization (partial implementation)
 - Overproduction (reports with no action)
 - Over-processing (redundant data entry)
 - Inventory (storage of unnecessary data)

Kaizen

- Continuous Improvement
- Workshop approach
- Front line staff over a 3 – 5 day period
- Emphasis on action

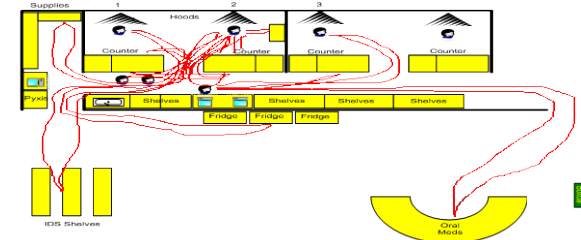
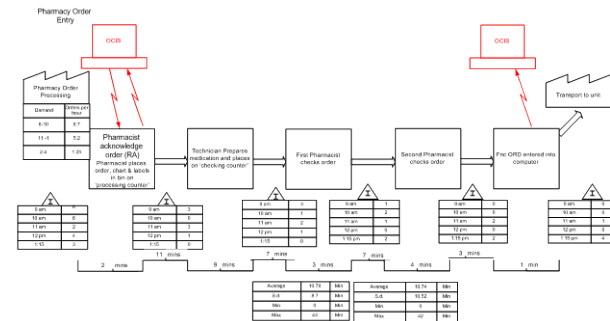
Keys to success

- Involve everyone who touches the process
- Keep the workgroup manageable
- Include “resource” people to be available to answer questions
- Empower the team to implement change



Tools

- VSM
 - Value Stream Map documents the high level steps and information flow in a process
- SOE
 - Sequence of events documents each step
 - Identifies non-value added steps (waste)
- Spaghetti Diagram
 - Documents flow to capture waste of motion



Technology Interface

- What value does the technology add?
- How does the introduction of technology change the way work gets done?

- What are the CTQ's? (Critical to Quality)
- What are the CCR's? (Critical Customer Requirements)

Chemotherapy Example

- Card swipe technology driving chemotherapy preparation time
- Patient arrival not always closely tied to actual chemotherapy appointment



Provider Order Entry Example

- Signaling of new orders much different in electronic format than paper system
- System should fit seamlessly with process for care delivery
 - Theory v. Practice:
 - Computer on wheels with wireless connectivity poses data loss issues when signal is lost

Concepts

- Visual management
 - Flags (new order notification)
 - Color coding
- Kanban
 - Signal to do work (signature required)
 - Queueing (Chemotherapy orders)
- Takt time
 - Pace at which the process must operate to meet demand

Summary

- Kaizen Approach
 - Offers the opportunity for immediate feedback from front-line users of the technology
 - Encourages prompt action
 - Utilizes a team approach
 - Contributes to a culture of continuous improvement
 - Can be useful at any phase of the Information Systems Lifecycle