

The Journey of Process Improvement



In a HealthCare Information Technology
Software Development Organization



Presenters



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Agenda

- Plan for Process Improvement
- Choose a Design Model
- Assess the Organizational Environment
- Construct the Process Improvement
- Plan for Maintenance

Plan For Process Improvement



What Did We Want to Do?

- Manage and improve our software processes
- Implement rapid technological advances
- Maintain our current products
- Operate in a global environment
- Sustain our organization through growth



Choose a Design Model



Why the CMMI® Model?

Capability Maturity Model Integrated (CMMI) provides:

- Guidance
- Best practices
- A common, integrated vision of improvement
- Flexibility
- Proven framework for improvement
- Industry adoption in software community
- Path for enterprise-wide improvements

Assess the Organizational Environment



Assess The Organizational Mission

MedPlus® is a leader in HealthCare Information Technology that is changing the way that information is:

- Collected
- Stored
- Accessed



Assess the Organizational Attributes

- Entrepreneurial
- Rapid market adoption
- Rapid internal growth
- All resources crucial and few full-time employees dedicated to process improvement
- Many contractual commitments
- Aggressive pipeline and develop schedule
- Small company

Characteristics of Small Companies

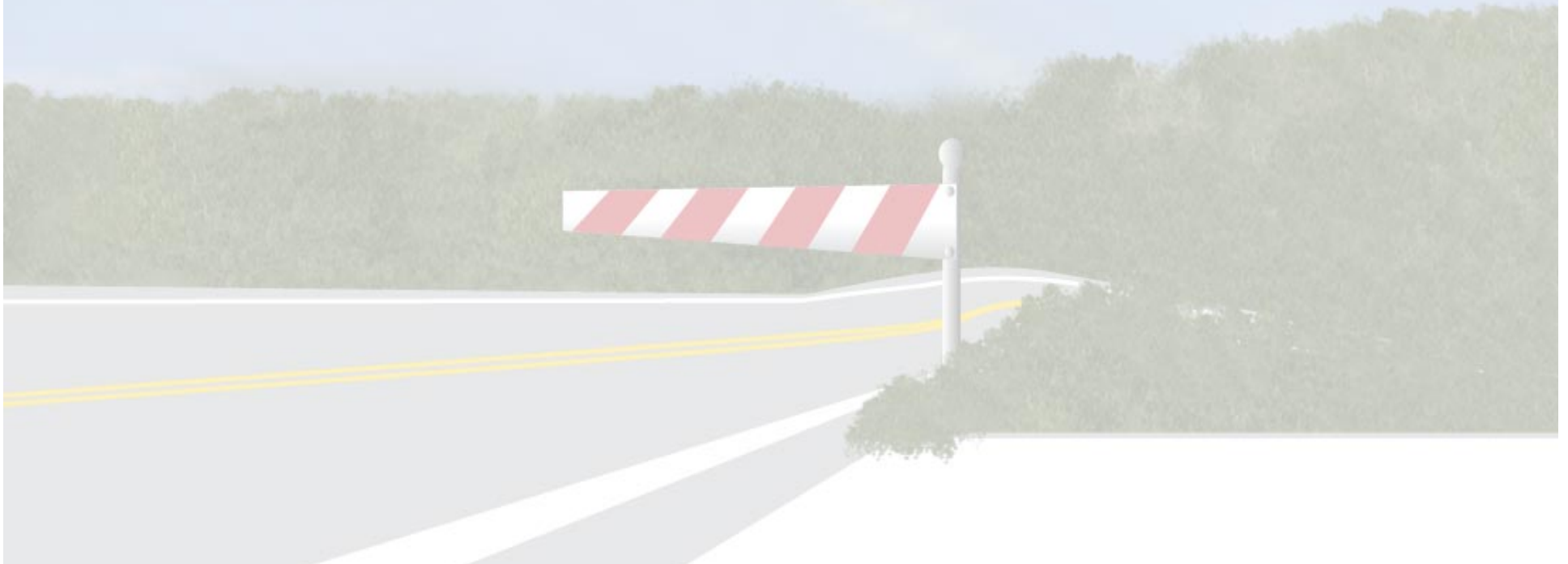
- Not scaled-down versions of large firms
- Flat structure encourages entrepreneurship and innovation
- Focus on a market niche—generally disregarded by large companies
- Not enough staff to develop functional specialties that enable them to perform complex tasks

Why Is Being Small Good?

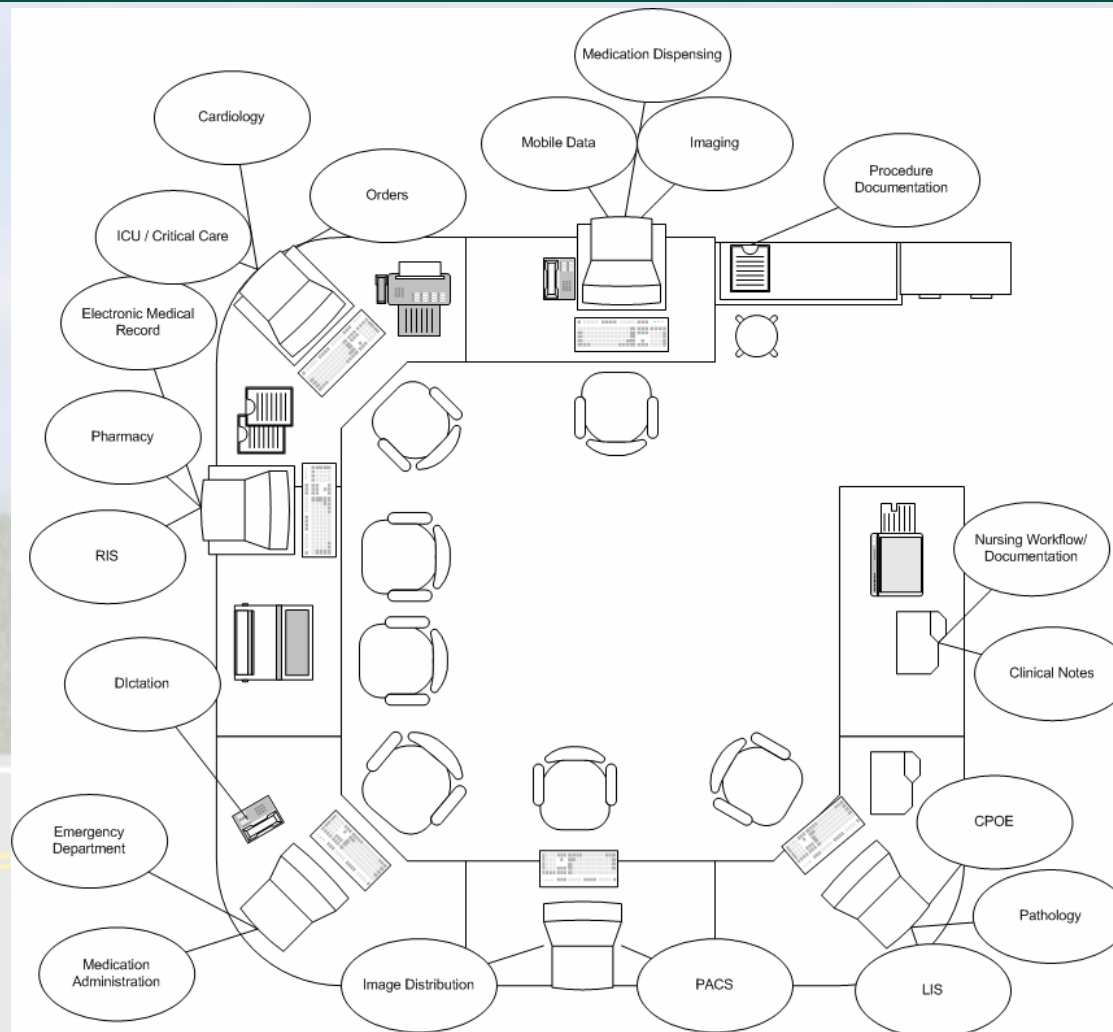
- Take advantage of things big companies can't do:
 - Individual attention to each project as it's being planned
 - Quick access to VPs if things aren't working
 - Quick implementation of fixes (like common status reports)

Assess The Market

HealthCare Information Technology (HIT) is a broad term that describes any computer-based electronic aid to healthcare delivery.



Assess the Market



Assess Industry Differences

- Industry Experience with CMMI
- Regulation
- Organizational structures
- Communication flow
- Criticality of systems

Assess the Organizational Strengths

- Strong senior management support
- Strong engineering practices
- A proven track record of product delivery
- Credibility with customers
- High-quality products

Assess the Organizational Improvement Opportunities

- Immature Project Management Office (PMO)
- Missing key organizational processes
- Inexperience with CMMI model and process improvement



Construct the Process Improvement



What Is Process Improvement?

- “...software process improvement is a cultural change exercise” (Bridges, 1995).
- Values
- Perceptions
- Normative behavior

Bridges, W. *Managing Transitions: Making the Most of Change*. Reading, MA: Addison-Wesley Publishing Company, 1995

Organizational Values

Embrace your organizational values and understand:

- Who the decision-makers are
- How information is communicated
- How decisions are communicated
- Who your organizational influencers are
- Who your leaders are

Process Improvement Perceptions

- It will hinder our ability to adapt to market demands
- We will lose our competitive edge
- This is just another thing I have to do along with my other work



Normative Behavior

In an entrepreneurial environment, the power is in the trenches.

- Engage relevant stakeholders
- Establish best practices that solve business problems
- Establish your credibility as a leader
- Develop CMMI knowledge throughout the organization
- Establish a common language

Life Cycle Model

MedPlus Software Development Life Cycle (SDLC)



Initiation Purpose:

- Define the Charter
- Define the Project Vision
- Understand the Critical Success Factors
- Define the Initial Scope of the Release

Inception Purpose:

- Understand What to Build
- Determine at Least One Possible Solution
- Understand the Cost, Schedule, and Risks
- Identify Key System Functionality

Elaboration Purpose:

- Build an Executable Architecture
- Mitigate High Business/Technical Risks

Construction Purpose:

- Build to the Vision
- Implement All System Functionality
- Initiate Quality Assurance
- Meet Acceptance Criteria
- Deliver User and Technical Documentation
- Determine How to Transition into Production

Transition Purpose:

- Move the Completed Product from MedPlus to Customers

Initiation Phase

Initiation Outputs:

- Project Charter
- Preliminary Release Definition

Inception Phase

Inception Outputs:

- Project Plan
- Coarse Grain Schedule
- Approved Release Definition
- Preliminary Architecture Design
- Use Case Table

Elaboration Phase

Elaboration Outputs:

- 80% Requirements Complete
- 20% Design and Code Complete
- Software Architecture Document

Construction Phase

Construction Outputs:

- 100% Requirements Complete
- 100% Design Complete
- 100% Code Complete
- 100% QA Tests Run
- 100% User Documentation Complete

Transition Phase

Transition Outputs:

- Deployed Product
- Publication of Content for Customers
- Final User Manuals and Training Materials
- Technical Documents for Support

Project Initiation Milestone:

- Has a proper vision been established for the project?
- Does the project scope have value?
- Does the project scope align to the Charter?
- Is there an executable inception plan?

Life Cycle Objective Milestone:

- Do the stakeholders concur on the scope definition and initial cost/schedule?
- Is there agreement that the right requirements have been captured, and are they understood?
- Are the cost/schedule estimates, priorities, risks, and processes appropriate?
- Have the initial risks been identified and do mitigation strategies for each exist?

Life Cycle Architecture Milestone:

- Do we know how we will build the solution?
- Has a sound architectural foundation been established and demonstrated?
- Have the key architectural decisions been made?
- Are the requirements stable?

Initial Operational Capability Milestone:

- Is the product stable and mature enough for deployment in the user community?
- Does the product meet the vision and all requirements?
- Does the product meet the quality goals and acceptance criteria?
- Are the initial users ready for the product?
- Are all technical and user documents ready for initial deployment?

Product Release Milestone:

- Are the stakeholders satisfied with the results of the project?
- Are the support staff members in place and trained?
- Are there any problems that need to be addressed?

Plan for Maintenance



Strategy for Maintenance

- Embed functions in the project team
- Perform process audits that assess how the processes are meeting the needs of the team
- Communicate results honestly
- Work toward the next level by establishing value and credibility
- Ongoing change is part of process improvement

Summary

View process improvement as a journey:

- Plan for Process Improvement— you don't know where your going without a roadmap.
- Choose A Design Model—we recommend CMMI.
- Assess the Organizational Environment—keep the processes you do well and find improvement areas that will address business issues.
- Construct the Process Improvement—work with your environment, not against it.
- Plan for Maintenance--- ongoing change is part of the process.

Questions?



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